DATA SHEETS FOR
ORDNANCE TYPE
MATERIEL

This copy is a reprint which includes current pages from Changes 1 through 4. Pen and ink changes to be made are listed in the front of the manual. Read the instructions concerning these pages before using the manual.

HEADQUARTERS, DEPARTMENT OF THE ARMY
SEPTEMBER 1962
**READ THESE INSTRUCTIONS CAREFULLY**

1. The following pen and ink changes are to be made in the manual.

<table>
<thead>
<tr>
<th>Pages</th>
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<th>Action</th>
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<tbody>
<tr>
<td>2-57</td>
<td>Federal Stock No.</td>
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<td>Change &quot;1005-572-6097&quot; to &quot;1005-561-2003&quot;.</td>
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<td>2-59</td>
<td>Equipment</td>
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<td>Following &quot;Basic Issue Items:&quot; delete &quot;ORD 7 SNL B-29&quot; and add &quot;TM 9-1005-206-14P/1&quot;.</td>
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<td>Delete &quot;SNL B-29&quot; and &quot;SB 9-112&quot; and add &quot;TM 9-1005-206-14P/1&quot;.</td>
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<td>Add &quot;CANNON, 37 MILLIMETER GUN, SUB-CALIBER: M16 (See page 3-14)&quot;.</td>
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<td>4-16</td>
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<td>Add &quot;4-16890-00&quot;.</td>
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<td>Add &quot;4-16897-04&quot;.</td>
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<td>Add &quot;4-16897-08&quot;.</td>
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<td>Change &quot;4-18322-05&quot; to &quot;4-18322-00&quot;.</td>
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<td>Add &quot;4-18318-06&quot; and &quot;4-18318-04&quot;.</td>
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<td>Add &quot;TM 9-3043&quot; and &quot;FM 6-81&quot;.</td>
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<td>Change &quot;TM 9-338-11&quot; to &quot;TM 9-338-1&quot;, and add &quot;SNL D-57, FM 5-69&quot;.</td>
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<td>7-7</td>
<td>Classification</td>
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<td>Delete &quot;(OTCM 37119)&quot; and add &quot;(for USMC use); Limited Standard (for Army use) (OTCM 38118)&quot;.</td>
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<td>7-8</td>
<td>References</td>
<td>......</td>
<td>Add &quot;TM 9-3061, FM 6-60&quot;.</td>
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<td>Add &quot;FM 6-59&quot;.</td>
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<td>Line item No.</td>
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<td>Add &quot;4-37190-20&quot; and &quot;4-37190-30&quot;.</td>
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<td>Delete &quot;SCALE, GRAPHICAL FIRING: site, M54&quot;.</td>
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<td>Delete &quot;TM 9-6159&quot;.</td>
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<td>Following &quot;Basic Issue Items:&quot; add &quot;See TM 9-2350-206-12&quot;.</td>
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<tr>
<td>12-15</td>
<td>Classification</td>
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<td>Following &quot;Wind Corrector, M1&quot; change &quot;Standard A&quot; to &quot;Standard B&quot;.</td>
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<td>12-17</td>
<td>References</td>
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<td>Delete &quot;TM 9-524&quot;.</td>
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<td>12-32</td>
<td>General</td>
<td>11</td>
<td>After &quot;firing scale&quot; add &quot;is graduated according to firing table 155-Q-3&quot;.</td>
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<tr>
<td>13-11</td>
<td>References</td>
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<td>Delete &quot;TM 9-3026&quot; and add &quot;TM 9-3026-1, TM 9-3026-3&quot; and &quot;series&quot; following TM 9-6081.</td>
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<td>13-28</td>
<td>References</td>
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<td>Delete &quot;TM 9-5026&quot; and add &quot;TM 9-5026-1, TM 9-5026-3&quot;, and add &quot;series&quot; following TM 9-6021.</td>
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<td>Following &quot;M284&quot; add &quot;and M366&quot;.</td>
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<td>Model</td>
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<td>Add &quot;T41&quot;.</td>
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<td>Add &quot;1240-783-3148&quot;.</td>
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<td>2</td>
<td>Between &quot;finder&quot; and &quot;operated&quot; add &quot;for the TANK, COMBAT, FULL TRACKED: 90-mm gun, M47. It is&quot;.</td>
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<tr>
<td>14-46</td>
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<td>Following &quot;Basic Issue Items:&quot; add &quot;See ORD 7 SNL G-262&quot;.</td>
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<td>Add &quot;Obsoletion pending&quot;.</td>
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<td>Following &quot;Basic Issue Items:&quot; add &quot;See TM 9-2350-210-12&quot;.</td>
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<td>15-1</td>
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<td>Add &quot;POWER CONTROL: M3A1(M3E1) (For characteristics and data, see item in section 18).&quot;</td>
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<tr>
<td>19-3</td>
<td>STORAGE AND</td>
<td>6 and 14</td>
<td>In line with &quot;Volume ——&quot; add &quot;149 cu ft&quot;.</td>
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<td>SHIPMENT DATA</td>
<td>8 and 16</td>
<td>In line with &quot;Ship tons ——&quot; add &quot;3.73&quot;.</td>
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<td>19-34</td>
<td>General</td>
<td>2</td>
<td>Delete &quot;, AN/MSA-7A, AN/MSA-17, and AN/MSA-17A,&quot;.</td>
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<td>19-36</td>
<td>Model</td>
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<td>Change &quot;TS-847&quot; to &quot;TS-847/MSW-1&quot; and &quot;TS-847A&quot; to &quot;TS-847A/MSW-1&quot;.</td>
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<td>STORAGE AND</td>
<td>8 and 16</td>
<td>In line with &quot;Ship tons ——&quot; change &quot;0.47&quot; to &quot;0.05&quot;.</td>
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<td>19-124</td>
<td>Model</td>
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<td>Delete &quot;and&quot; following &quot;high explosive&quot;, and change &quot;antipersonnel&quot; to &quot;antipersonnel&quot;.</td>
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<td>Delete &quot;TM 9-5076-10&quot; and add &quot;TM 9-5076-12, TM 9-5076-35&quot;.</td>
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<td>19-200</td>
<td>General</td>
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<td>Change &quot;*<strong>¾-ton, 4 x 4, M37 cargo truck&quot; to &quot;TRUCK, CARGO: ¾-ton, 4 x 4, M37</strong>&quot;.</td>
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<td>Add footnote &quot;For characteristics and data, see item in section 21&quot;.</td>
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<td>19-207</td>
<td>Title</td>
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<td>Change to &quot;SEMIMTRAILER, TANK: ALCOHOL, M388&quot;.</td>
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<td>Change &quot;3734&quot; to &quot;37334&quot;.</td>
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<td>Delete &quot;HEATING AND TIEDOWN UNIT, 762-MM ROCKET, TRUNK MOUNTED: M46&quot;.</td>
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<td>19-223</td>
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<td>Change to &quot;HANDLING UNIT, ROCKET, TRAILER MOUNTED: 762-MM, M405 AND M405A1&quot;.</td>
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<td>Change &quot;XM1&quot; to &quot;M1&quot;.</td>
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<td>Delete &quot;LAUNCHER, 318-MM ROCKET: XM32&quot;.</td>
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<td>Change &quot;37479&quot; to &quot;37861&quot;.</td>
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<td>Following &quot;M14&quot; add &quot;(XM449)&quot;.</td>
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<td>Add &quot;Standard A (OTCM 37861)&quot;.</td>
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<td>Add &quot;TM 9-1340-204-20P, TM 9-1340-204-35P&quot;.</td>
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<td>Change &quot;CARRIER, LIGHT WEAPONS: ***, M274&quot; to &quot;TRUCK, PLATFORM, UTILITY: ½-ton, 4 x 4, M274&quot;.</td>
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<td>Add &quot;4-44250-46&quot;.</td>
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<td>Change &quot;Standard B (OTCM 36841)&quot; to &quot;Limited standard (AMCTC 127)&quot;.</td>
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<td>Between &quot;M215&quot; and &quot;w/e&quot; add &quot;, w/wn,&quot;.</td>
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<td>Add &quot;M215, w/o wn&quot;.</td>
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<td>Add &quot;4-60880-24&quot;.</td>
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<td>Add &quot;2820-834-4509&quot;.</td>
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<td>Between &quot;M51&quot; and &quot;w/e&quot; add &quot;w/o wn,&quot;.</td>
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<td>Add &quot;M49, w/wn&quot; and &quot;M49C, wn&quot;.</td>
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<td>Add &quot;4-61327-00&quot; and &quot;4-61329-00&quot;.</td>
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<td>Add &quot;2320-835-8341&quot; and &quot;2320-141-8237&quot;.</td>
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<td>21-107</td>
<td>General</td>
<td>3</td>
<td>Change &quot;RIFLE, 105 MILLIMETER: M27 or M27A1&quot; to &quot;RIFLE, 106 MILLIMETER: M40A1&quot;.</td>
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<td>21-116</td>
<td>Model</td>
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<td>Change &quot;M220 w/o winch&quot; to &quot;M220, w/open cab&quot;.</td>
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<td>Change &quot;M220C&quot; to &quot;M220, w/closed cab&quot;.</td>
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<td>3</td>
<td>Add &quot;M220C&quot;.</td>
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<td>Line item No.</td>
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<td>Delete &quot;+4-61834-35&quot;.</td>
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<td>Line item No.</td>
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<td>Add &quot;4-61880-00&quot;.</td>
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<td>References</td>
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<td>Add &quot;TM 9-2320-211-20P&quot;.</td>
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<tr>
<td>23-8</td>
<td>Footnote</td>
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<td>Change &quot;section 4&quot; to &quot;section 6&quot;.</td>
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<td>23-10</td>
<td>Classification</td>
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<td>Change &quot;Standard A (OTCM 36841)&quot; to &quot;Standard B (OTCM 37877)&quot;.</td>
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<td>23-11</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Item:&quot; add &quot;See TM 9-2350-210-12&quot;.</td>
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<td>Add &quot;TM 9-2300-223-20P, FM 6-98&quot;.</td>
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<td>24-1</td>
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<td>Delete &quot;TRACTOR, FULL TRACKED, HIGH SPEED: 18-ton, M4, M4A1, M4A1C, M4A2, and M4C&quot;.</td>
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<tr>
<td>25-4</td>
<td>References</td>
<td></td>
<td>Add &quot;TM 9-2590-206-15, TM 9-2590-206-25P&quot;.</td>
</tr>
<tr>
<td>26-1</td>
<td></td>
<td>2</td>
<td>Change to &quot;STOP WATCH: navigation, ground speed, type A-8&quot;.</td>
</tr>
<tr>
<td></td>
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<td>4</td>
<td>Change to &quot;STOP WATCH: timer, automatic M1, astronomic observation&quot;.</td>
</tr>
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<td>7</td>
<td>Following &quot;WRIST, WATCH:&quot; add &quot;grade II&quot;.</td>
</tr>
<tr>
<td>26-3</td>
<td>Title</td>
<td></td>
<td>Change to &quot;STOP WATCH: NAVIGATION, GROUND SPEED, TYPE A-8&quot;.</td>
</tr>
<tr>
<td>26-5</td>
<td>Title</td>
<td></td>
<td>Change to &quot;STOP WATCH: TIMER, AUTOMATIC, M1, ASTRONOMIC OBSERVATION&quot;.</td>
</tr>
<tr>
<td>26-6</td>
<td>References</td>
<td></td>
<td>Following &quot;SNL F-187,&quot; add &quot;(ORD 9 only)&quot; and &quot;SNL F-36 (ORD 8 only)&quot;.</td>
</tr>
<tr>
<td>26-8</td>
<td>Title</td>
<td></td>
<td>Following &quot;WATCH, WRIST&quot; add &quot;: GRADE II&quot;.</td>
</tr>
<tr>
<td>27-1</td>
<td></td>
<td>12</td>
<td>Following &quot;PERISCOPE&quot; delete &quot;M14&quot;. Add &quot;PERISCOPE, TANK: M46 (See page 27-23).</td>
</tr>
</tbody>
</table>
2. The following pen and ink changes are to be made in the manual.

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| 1-1  | Scope   |      | Change subparagraph g to “any errors or omissions will be forwarded on DA Form 2028 direct to Commanding Officer, Letterkenny Army Depot, ATTN: SSMLE-NPW Chambersburg, Pa. 17201”.
| 2-2  |        |      | Change to “Machinegun, Caliber .50: M85”.
| 2-13 | General |      | Change to “Machinegun, 7.62-Millimeter: M73”.
| 2-38 |        |      | Following “M60”, add “and M60A1”.
| 2-78 | References |      | Delete “M85C” wherever it appears on the page.
| 4-25 | PERFORMANCE |      | Change “1005-733-2036” to “1005-677-9150”.
| 4-41 | References |      | Following Basic Issue Items: Delete “ORD 7 SNL B-9” and add “See TM 9-1005-206-14P/2”.
| 5-3  | General |      | Delete “SNL B-9, TM 9-285, SB 9-117” and add “TM 9-1005-206-14P/2”.
| 5-5  | General |      | Change “GUN, SELF-PROPELLED, FULL-TRACKED” to “GUN, FIELD ARTILLERY, SELF-PROPELLED”.
| 5-5  | References |      | Delete “SNL D-49” and add “TM 9-1000-217-35P”.
| 5-10 | PERFORMANCE |      | Change “HE, CHEM SMOKE BE (Chg 7):____1,850 fps SMOKE, BE (colored) (Chg 7):____1,802 fps ILLUM (Chg 5 only):____1,160 fps to “HE, CHEM SMOKE, BE, WP, and COLORED (Chg 7):____1,850 fps ILLUM (Chg 7):____1,775 fps”.
| 5-11 | References |      | Delete “SNL D-50, SNL D-63” and add “TM 9-1025-203-35P”.
| 6-12 | PERFORMANCE |      | Change “HE, CHEM (Chg 7):____16,355 yd SMOKE BE (HC) (Chg 7) (limited by 25 sec fuze):____9,700 yd SMOKE BE (colored) (Chg 7) (limited by 25 sec fuze):____9,700 yd ILLUM (Chg 5 only) (limited by 25 sec fuze):____7,100 yd (limited by 25 sec fuze):____9,000 yd) to “HE, CHEM, SMOKE BE WP (Chg 7):____18,606 meters SMOKE, BE, COLORED (Chg 7):____15,535 meters ILLUM (Chg 7):____11,600 meters”.
| 14-17 | EQUIPMENT |      | Delete ‘First ½ min........2nd * * * Prolonged fire........40 rd per hr’ and add “Rapid burst........1 rd per minute”.
| 5-11 | Reference |      | Add “FM 6-81”.
| 5-11 | Title |      | Change to “Cannon, 155-Millimeter Howitzer: M126 (T255+E3); Mount, Howitzer: M127 (XM127)”.
| 5-11 | Model |      | Change under “Cannon” to “M126 (T255+E3)” under “Mount” to “M127 (XM127)”.

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*References*

General

Model

References

Federal stock No.

PERFORMANCE

INSTRUCTIONAL MATERIAL

References

Title

EQUIPMENT

References

References

References

References

References

References

References

References
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</table>
| 5-11 | General | 1 | Change to “Cannon, 155-Millimeter Howitzer: M126 (T255E3); Mount, Howitzer: 155-mm, M127 (XM127)”.
| 6-2 | PERFORMANCE | 2 | Change “Range.............18.510 yd” to “Range (max).............16,800 meters”.
| | | 3 | Change “Rate of fire.............” to “Rate of fire:
Maximum.............1 rd per min
Normal.............1 rd per 2 min”.
| 6-3 | EQUIPMENT | Add “TABLE, FIRING: FT 8-J-3” and “TABLE, FIRING: FT 8-0-3”.
| References | Delete “SNL D-49” and add “FM 6-93 and TM 9-1000-217-35P”.
| 6-7 | PERFORMANCE | 2 | Change “Range (max).............18.510 yd” to “Range (max).............16,800 meters”.
| EQUIPMENT | Delete “TABLE, FIRING: FT 8-J-1”, add “TABLE, FIRING: FT 8-J-3” and “TABLE, FIRING: FT 8-0-3”.
| References | Following “Basic Issue Items.” Delete “ORD 7 SNL D-29” and add “TM 9-3004”.
| 9-2 | ORD A1156 | Change “AN-M8, W/MOUNT M1” to “MOUNT M1”.
| 9-2, 9-3, | References | Delete “TM 9-1290, TM 9-2018”.
| 9-4 | | | |
| 9-3, 9-4 | References | Add “TM 9-1095-201-15”.
| 9-5 | References | Delete “SNL B-8 and add “TM 9-1003-206-14P/2”.
| 12-1 | | | |
| | | | |
| | Add “COMPUTER, GUN DIRECTION: M18, W/E.............12-6.1”.
| | 10 | After “DRIVE, BALLISTICS: M10 (T24E3)”, add “M10A4 and M10B1”.
| 14-1 | | | |
| | | Add “MOUNT, TANK PERISCOPE: M105 (T185).............14-26.1”.
| | Add “PERISCOPE, TANK: M37.............14-44.1”.
| 14-2 | Add “SIGHTUNIT: M38.............14-66.1”.
| | 20 | Change “(........FIRE CONTROL, ANTIAIRCRAFT:........)” to “(........FIRE CONTROL SYSTEM, ANTIAIRCRAFT:........)”.
| | 43 | Change “TELESCOPE: M118C (T176E3) and M118 (T176E3)” to “TELESCOPE, ELBOW: M118 (T176E3) and M118C (T176E3)”.
| 14-45 | General | Add as the last sentence “The range finder is used with TANK, COMBAT, FULL TRACKED: 90-mm gun, M47”.
| 14-102 | Title | Change to “TELESCOPE, ELBOW: M118 (T176E3) and M118C (T176E3)”.
| 15-2, 15-3 | References | Delete “TM 9-1731D”.
| 18-1 | | Delete “MOUNT, PERISCOPE: M105 (T185)”.
| 18-2 | | Following “M13A1”, add “M13A2 (M13A2E1), and M13B1”.
| | 20 | Change to “REMOTE CONTROL SYSTEM, ANTIAIRCRAFT GUN: M2A1”.
| | 30 | Change to “REMOTE CONTROL SYSTEM, ANTIAIRCRAFT GUN: M2A1”.
| 18-47, | | Following “Basic Issue Items;” add “See ORD 7 SNL G-238”.

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<tr>
<td>18-58, 18-59, 18-60</td>
<td>References</td>
<td>-----</td>
<td>Add &quot;TM 9-575&quot;.</td>
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<td>18-68</td>
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<td>Delete &quot;TM 9-1430-250-20P/1 and TM 9-1430-250-35P/1/1, TM 9-1430-250-35P/1/2, TM 9-1430-250-35P/1/3/1&quot;.</td>
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<td>19-83</td>
<td>EQUIPMENT</td>
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<td>References</td>
<td>Delete &quot;TM 9-1430-250-20P/2 and TM 9-1430-250-35P/2&quot; and add &quot;TM 9-1430-250-12P/2/1, TM 9-1430-250-12P/2/2, TM 9-1430-250-35P/2/1, TM 9-1430-250-35P/2/2&quot;.</td>
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<td>19-86</td>
<td>EQUIPMENT</td>
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<td>19-86</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1430-250-10&quot; and add &quot;TM 9-1430-250-12P/3/1&quot;.</td>
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<td>19-87</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Items:&quot; add &quot;See TM 9-1450-250-12P/4/1&quot;.</td>
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<td>19-88</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Items:&quot; add &quot;See TM 9-1450-250-12P/4/1&quot;.</td>
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<td>19-89</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Items:&quot; add &quot;See TM 9-1450-250-12P/4/1&quot;.</td>
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<td>19-90</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1450-250-12P/4/1&quot;.</td>
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<td>19-91</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1450-250-12P/4/1&quot;.</td>
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<td>19-92</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1450-250-12P/4/1&quot;.</td>
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<td>19-93</td>
<td>EQUIPMENT</td>
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<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1440-250-10P/3/1&quot;.</td>
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<td>19-94</td>
<td>EQUIPMENT</td>
<td>------</td>
<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1440-250-10P/3/1&quot;.</td>
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<td>References</td>
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<td>Delete &quot;TM 9-1440-250-20P/1 and TM 9-1440-250-35P/1&quot; and add &quot;SNL Y75-2, TM 9-1440-250-12P/1/1, TM 9-1440-250-12P/1/2, TM 9-1440-250-35P/1/1, TM 9-1440-250-35P/1/2&quot;.</td>
</tr>
<tr>
<td>19-95</td>
<td>EQUIPMENT</td>
<td>------</td>
<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1430-250-10, appendix II&quot; and add &quot;TM 9-1430-250-12P/4/1&quot;.</td>
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</table>
| 19-96 | EQUIPMENT | References | Following “Basic Issue Items:” delete “ORD 7 SNL Y4-6” and add “TM 9-1430-250-12P/21/1”.

Add “TM 9-1430-250-12P/21/1, TM 9-1430-250-12P/21/2, TM 9-1430-250-35P/21/1, TM 9-1430-250-35P/21/2”.

19-100 | EQUIPMENT | References | Following “Basic Issue Items:” delete “TM 9-1140-250-12” and add “TM 9-1450-250-12P/2”.


19-101 | EQUIPMENT | References | Following “Basic Issue Items:” delete “TM 9-1430-250-12” and add “TM 9-1450-250-12P/4/1”.


19-102 | EQUIPMENT | References | Following “Basic Issue Items:” delete “TM 9-1440-250-10” and add “TM 9-1440-250-12P/1/1”.

Delete “TM 9-1440-250-20P/1 and TM 9-1440-250-35P/1” and add “TM 9-1440-250-12P/1/1, TM 9-1440-250-12P/1/2, TM 9-1440-250-35P/1/1, TM 9-1440-250-35P/1/2”.

19-105 | References | Add “SNL Y77-1, S812, TM 9-1410-250-12P/1/1, TM 9-1410-250-12P/1/2, TM 9-1410-250-35P/1/1, TM 9-1410-250-35P/1/2, TM 9-1410-250-35P/2”.

19-106 | EQUIPMENT | References | Following “Basic Issue Items:” delete “TM 9-1440-250-10” and add “TM 9-1440-250-12P/2/1”.


19-108 | EQUIPMENT | References | Following “Basic Issue Items:” add “See TM 9-1440-250-12P/1/1”.

Delete “TM 9-1440-250-20P/1 and TM 9-1440-250-35P/1” and add “TM 9-1440-250-12P/1/1, TM 9-1440-250-12P/1/2, TM 9-1440-250-35P/1/1, TM 9-1440-250-35P/1/2”.

19-109 | EQUIPMENT | References | Following “Basic Issue Items:” delete “TM 9-1440-250-12” and add “TM 9-1440-250-12P/6/1”.

Add “SNL Y86, TM 9-1440-250-12P/6/1, TM 9-1440-250-12P/6/2, TM 9-1440-250-35P/6/1, TM 9-1440-250-35P/6/2”.

19-110 | EQUIPMENT | References | Following “Basic Issue Items:” delete “TM 9-1450-250-12” and add “TM 9-1450-250-12P/2/1”.

Delete “TM 9-1450-250-20P/2 and TM 9-1450-250-35P/2” and add “SNL Y87-1, TM 9-1450-250-12P/2/1, TM 9-1450-250-12P/2/2, TM 9-1450-250-35P/2/1, TM 9-1450-250-35P/2/2”.

19-111 | EQUIPMENT | References | Following “Basic Issue Items:” add “See TM 9-1440-250-12P/1/1”.

Delete “TM 9-1440-250-20P/2 and TM 9-1440-250-35P/2” and add “SNL Y75-3, TM 9-1440-250-12P/1/1, TM 9-1440-250-12P/1/2, TM 9-1440-250-35P/1/1, TM 9-1440-250-35P/1/2”.

19-112 | EQUIPMENT | References | Following “Basic Issue Items:” delete “TM 9-1440-250-10” and add “TM 9-1440-250-12P/4/1”.


xii
Following "Basic Issue Items:" add "See TM 9-1410-250-12P/2/2".

Delete "TM 9-1410-250-20P/2" and add "SNL Y31, TM 9-1410-250-12P/2/1, TM 9-1410-250-35P/2/2".

Delete "TM 9-1405-253-20P/1 and TM 9-4935-253-35P/1" and add "SNL Y165, TM 9-4935-253-12P/1/1, TM 9-4935-253-12P/1/1, TM 9-4935-253-33P/1/1, TM 9-4935-253-33P/1/2".

Following "Basic Issue Items:" add "See TM 9-4935-253-12P/1/1".

Delete "TM 9-4935-253-20P/1 and TM 9-4935-253-35P/1/1, TM 9-4935-253-33P/1/1, TM 9-4935-253-33P/1/2".

Following "Basic Issue Items:" add "See TM 9-4935-253-12P/1/1".

Add "TM 9-4935-253-12P/1/1, TM 9-4935-253-12P/2/1, TM 9-4935-253-35P/2/2".

Delete "ORD 7 SNL Y20" and add "TM 9-1410-250-12P/3/3".

Add "TM 9-1440-250-12P/5/1, TM 9-1440-250-35P/5/1, TM 9-1440-250-35P/5/2/2".

Delete "TM 9-1430-250-12P/5/1 and TM 9-1430-250-35P/5/1 and TM 9-1430-250-35P/5/2/2" and add "TM 9-1430-250-12P/2/1, TM 9-1430-250-35P/2/2".

Following "Basic Issue Items:" Delete "TM 9-1450-250-12P/2/1 and TM 9-1450-250-35P/2/2" and add "SNL Y87-1, TM 9-1450-250-12P/2/1, TM 9-1450-250-12P/2/2, TM 9-1450-250-33P/2/2, TM 9-1450-250-35P/2/2/2".

Delete "TM 9-1450-250-12P/2/1 and TM 9-1450-250-35P/2/2 and add "TM 9-1450-250-12P/2/1, TM 9-1450-250-35P/2/2".

Following "Basic Issue Items:" Delete "TM 9-1450-250-12P/2/2/1, TM 9-1450-250-12P/2/2/2 and add "SNL Y87-5, TM 9-1450-250-12P/2/1, TM 9-1450-250-12P/2/2, TM 9-1450-250-33P/2/1 and TM 9-1450-250-35P/2/2/2".

Add "TM 9-1450-250-12P/1, TM 9-1450-250-35P/1, TM 9-1450-250-35P/1/1 and TM 9-1450-250-35P/1/2/2".

Delete "TM 9-1450-250-12P/2/1 and TM 9-1450-250-35P/2/2 and add "TM 9-1450-250-12P/2/1, TM 9-1450-250-35P/2/1, TM 9-1450-250-35P/2/2/2".

Following "Basic Issue Items:" Delete "TM 9-1450-250-12P/2/1 and TM 9-1450-250-35P/2/2 and add "TM 9-1450-250-12P/2/1, TM 9-1450-250-35P/2/1, TM 9-1450-250-35P/2/2/2".

Delete "TM 9-1440-250-12P/1/1, TM 9-1440-250-12P/1/2, TM 9-1440-250-35P/1/1, TM 9-1440-250-35P/1/2/1 and TM 9-1440-250-35P/1/2/2".

Delete "TM 9-1450-250-12P/2/1 and TM 9-1450-250-35P/2/2 and add "TM 9-1450-250-12P/2/1, TM 9-1450-250-35P/2/1 and TM 9-1450-250-35P/2/2/2".

Delete "SNL Y02S and add "TM 9-1440-250-12P/1/1, TM 9-1440-250-12P/1/2, TM 9-1440-250-33P/1/1, TM 9-1440-250-33P/1/2/1 and TM 9-1440-250-35P/1/2/1".


Add "TM 9-1055-203-25P".

Delete "TM 9-1340-202-12, Appendix III and add "TM 9-1340-202-12P".

Delete "TM 9-1340-202-12, Appendix III and add "TM 9-1340-202-12P".

Add "1670-606-8410".

Delete "TM 9-1340-204-12, Appendix III and add "TM 9-1340-204-12P".
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| 20-1      | References | Change “M4381” to “M43B1”.
| 20-3      | References | Change “TM 9-8016” to “TM 9-8015-2” and add “TM 9-2320-208-20P”.
| 21-26 | References | Add “TM 9-2320-209-35P”.
| 21-49 | Line item 3 | Change “4-60050-25” to “4-60080-25”.
| 21-68 | References | Change “TM 9-2320-206-12” to “TM 9-2320-206-20P”.
| 21-83 | Model | Following “segregator kit”, add “w/o winch”.
| 21-95 | Model | Following “M275, w/e”, add “(soft top)”.
| 21-95 | Federal stock No. | Add “M275, w/wn, w/e”, add “(soft top)”.
| 21-95 | Federal stock No. | Add “M275, w/e (hard top)”.
| 21-95 | Federal stock No. | Add “M275, w/wn, w/e (hard top)”.
| 21-95 | Federal stock No. | Add “TM 9-2320-287-5735”.
| 21-100 | References | Add “TM 9-2320-206-20P”.
| 21-101 | Classification | Change “M26A” to “M26A1”.
| 21-124 | References | After “For characteristics and data, * * *”, change “21-17” to “21-33”.
| 22-8 | References | Add “TM 9-2300-223-20P”.
| 22-11 | Federal stock No. | Add “2330-690-8384”.
| 22-13 | Federal stock No. | Add “2330-705-8946”.
| 22-28 | Model | Change “M172” to “M172”.
| 22-28 | Model | Change “M172” to “M172A1”.
| Differences among models | 1 | Delete “early type”.
| Differences among models | 2 | Delete “and air brakes” and “late type”.
| Differences among models | 3 | Delete “air-over-hydraulic brake”.
| CHARACTERISTICS | 49 | After “Type --------”, change “air-over-hydraulic” to “air”.
| 22-36 | CHARACTERISTICS | Delete “Electrical system—Continued”.
| 22-38 | References | Add “TM 9-2330-208-24P”.
| 22-42 | References | Add “TM 9-2300-223-20P”.
| 22-43 | Federal stock No. | Add “2330-797-7405”.
| 22-43 | Federal stock No. | Add “2330-797-7405”.
| 23-1 | References | Add “TANK, COMBAT, FULL TRACKED: 90-mm GUN, M48A3 (M48A1E2) --------23-31”.
| 23-3 | CHARACTERISTICS | Change “AOSI-895-5” to “AOSI-895-5”.
| 23-6 | CHARACTERISTICS | Change “AO1-402-5” to “AO1-403-5”.

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**Engine**
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</thead>
<tbody>
<tr>
<td>23-17</td>
<td>References</td>
<td>----</td>
<td>Add &quot;FM 6-92&quot;.</td>
</tr>
<tr>
<td>23-21</td>
<td>EQUIPMENT Sighting and Fire Control:</td>
<td>1</td>
<td>Change &quot;MOUNT, PERISCOPE: M05&quot; to &quot;MOUNT, PERISCOPE: M105&quot;.</td>
</tr>
<tr>
<td>23-27</td>
<td>EQUIPMENT Sighting and Fire Control:</td>
<td>3</td>
<td>Change &quot;DRIVE, BALLISTICS: M45&quot; to &quot;DRIVE, BALLISTICS: M5&quot;.</td>
</tr>
<tr>
<td>27-1</td>
<td>-------</td>
<td>----</td>
<td>Add &quot;BINOCULAR: INFRARED, M18------27-10.1&quot;.</td>
</tr>
<tr>
<td>27-2</td>
<td>CLASSIFICATION</td>
<td>----</td>
<td>Add &quot;Standard B (OTCM 37927)&quot;.</td>
</tr>
</tbody>
</table>
3. The following pen and ink changes are to be made in the manual.

<table>
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<tr>
<th>Pages</th>
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<tbody>
<tr>
<td>2-1</td>
<td></td>
<td>1-5</td>
<td>Delete &quot;ARMAMENT SUBSYSTEM, HELICOPTER,***(see page 2-81)&quot;.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Change &quot;XM2&quot; to &quot;M2 (XM2)&quot;.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>Change &quot;8421961&quot; to &quot;7791961&quot;, and &quot;(see page 2-83)&quot; to &quot;(see page 2-81)&quot;.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-11</td>
<td>Delete &quot;ARMAMENT SUBSYSTEM, HELICOPTER, *** (see page 2-84)&quot;, and add &quot;ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: QUAD, M8 (M6E3) (MACHINEGUN, 7.62-MILLIMETER: M60CA1; MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM (7792569)) (see page 2-83)&quot;.</td>
</tr>
</tbody>
</table>
Add "ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: DOOR MOUNTED, LIGHTWEIGHT, XM23 (MACHINEGUN, 7.62-MILLIMETER: XM60D; MOUNT ASSEMBLY, LEFT SIDE (49937) AND MOUNT ASSEMBLY, RIGHT SIDE (49936)) (see page 2-92)".

Add "ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: DOOR MOUNTED, LIGHTWEIGHT, XM24 (MACHINEGUN, 7.62-MILLIMETER: XM60D; MOUNT ASSEMBLY, LEFT SIDE (50959) AND MOUNT ASSEMBLY, RIGHT SIDE (50660)) (see page 2-93)".

Add "GUN, AUTOMATIC, 7.62-MILLIMETER: GAU-2B/A (see page 2-94)".

Add "POD, AIRCRAFT GUN, 7.62-MILLIMETER: SUU-11A/A (see page 2-95)".

Following "(TS2)" add "and M24A1".

Add "RIFLE, 5.56-MM: M16 AND XM16E1 (see page 2-96)".


Delete "SNL A-38", and add "TM 9-1005-213-35P".

Add "TO 34Y 36-2-11".

9 In line with "Horsepower _____", add "1/4".

11 In line with "Cycle _____", add "60".

12 In line with "Phase _____", add "single".

In line with "Length _____", add "45 1/2 in.".

In line with "Width _____", add "36 3/4 in.".

In line with "Height _____", add "17 3/4 in.".

6 In line with "Volume _____", add "16 cu ft".

7 In line with "Gross weight _____", add "200 lb".

8 In line with "Ship tons _____", add "0.10".


Delete "SNL A-28", and add "TM 9-1005-213-35P".

Delete "SNL A-38", and add "TM 9-1005-213-35P".


Delete "TM 9-1005-224-34P", and add "TM 9-1005-224-35P".


Delete "TM 9-230".


Delete "TM 9-1005-224-34P", and add "TM 9-1005-224-35P".
<table>
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<tr>
<td>2-70</td>
<td>References</td>
<td></td>
<td>Delete “TM 9-270”</td>
</tr>
<tr>
<td>2-71</td>
<td>EQUIPMENT</td>
<td></td>
<td>Following “Basic Issue Items”; delete “See ORD 7 SNL B-50”,</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td></td>
<td>Delete “SB 9-195” and “SNL B-50”, and add “TM 9-1005-206-14F/4”</td>
</tr>
<tr>
<td>2-72</td>
<td>EQUIPMENT</td>
<td></td>
<td>Following “Basic Issue Items”; delete “SNL A-4”, and add “TM 9-1005-208-12F”</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td></td>
<td>Delete “SNL A-4” and “TM 9-2111-1”, and add “TM 9-1005-208-35”</td>
</tr>
<tr>
<td>2-74</td>
<td>References</td>
<td></td>
<td>Delete “TM 9-2023-1”</td>
</tr>
<tr>
<td>2-78</td>
<td>References</td>
<td></td>
<td>Change “Stevens, Model M520-30” to “Stevens, Model M520A” wherever it appears on the page.</td>
</tr>
<tr>
<td>2-79</td>
<td>Federal stock No</td>
<td></td>
<td>Change “1005-731-2038” to “1005-677-9150”</td>
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<tr>
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<td>EQUIPMENT</td>
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<td>Following “Basic Issue Items”; delete “SNL B-9”, and add “TM 9-1005-206-14F/2”</td>
</tr>
<tr>
<td>2-80</td>
<td>EQUIPMENT</td>
<td></td>
<td>Following “Basic Issue Items”; delete “See ORD 7 SNL A-58”, and add “TM 9-1005-222-12F”</td>
</tr>
<tr>
<td>2-81</td>
<td>EQUIPMENT</td>
<td></td>
<td>XM1 HELICOPTER ARMAMENT SUBSYSTEM was obsoleted and XM1E1 was converted to M2 ARMAMENT SUBSYSTEM by MWO 9-1005-240-30/2. Reason for equipment change to pages.</td>
</tr>
<tr>
<td>2-82</td>
<td></td>
<td></td>
<td>Equipment change to pages, see above.</td>
</tr>
<tr>
<td>2-83</td>
<td></td>
<td></td>
<td>Change “1005-690-9220” to “1005-677-9231”</td>
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<td>2-84</td>
<td></td>
<td></td>
<td>Following “Basic Issue Items; add “See TM 9-1005-206-14F/3”</td>
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<td>3-1</td>
<td></td>
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<td>Add “TM 9-1005-206-14F/3”</td>
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<tr>
<td>3-2</td>
<td></td>
<td></td>
<td>Mark page “deleted”. (Note. Retain page 2-1.) Cannon is obsolete.</td>
</tr>
<tr>
<td>4-1</td>
<td></td>
<td></td>
<td>Delete “GUN, ANTI-AIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51, w/e (CANNON: 75-mm automatic gun, M38 (T83E6 or T83E7); RECOIL MECHANISM: T47E2 or M29 (T47E3); MOUNT, GUN: 75-mm, AA, M84 (T69)----------4-16”</td>
</tr>
<tr>
<td>4-2</td>
<td></td>
<td></td>
<td>Delete “GUN, ANTI-AIRCRAFT ARTILLERY, TOWED: 90-mm, M117, w/e (CANNON, 90-MILLIMETER GUN: M1A2 or M1A3; RECOIL MECHANISM: M1-series; MOUNT, GUN: 90-mm M1A3)----------4-18”</td>
</tr>
<tr>
<td>4-3</td>
<td></td>
<td></td>
<td>Delete “GUN, ANTI-AIRCRAFT ARTILLERY, TOWED: 90-mm, M118, w/e (CANNON, 90-MILLIMETER GUN: M2A or M2A2, RECOIL MECHANISM: M17-series; FUZE, SETTER-RAMMER, M29; MOUNT, GUN: 90-mm M2A1)----------4-20”</td>
</tr>
<tr>
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<tr>
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</tr>
<tr>
<td>4-1</td>
<td>Characteristics</td>
<td>36</td>
<td>Change &quot;MORTAR, 107-MILLIMETER: M30 (T104), w/e (CANNON, 107-MILLIMETER MORTAR: M30 (T104); MOUNT, MORTAR: 107-mm, M24 (T61), M24A1, or (ORD No. 8731728) (formerly 4.2-inch))&quot; to &quot;MORTAR, 4.2-INCH: (CANNON M30 on MOUNT M24 or M24A1) w/e&quot;.</td>
</tr>
<tr>
<td>39</td>
<td>Action</td>
<td>4-16</td>
<td>Change &quot;RIFLE, 75-MILLIMETER: M20 or T21E12; MOUNT, TRIPOD, WEAPON: M1917A2 or M74, w/e&quot; to &quot;RIFLE, RECOILLESS, 75-MILLIMETER: M20, w/e&quot;.</td>
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<tr>
<td>40</td>
<td>Action</td>
<td>4-37</td>
<td>Change &quot;RIFLE, 90-MILLIMETER: M67, w/e&quot; to &quot;RIFLE, RECOILLESS, 90-MILLIMETER: M67, w/e&quot;.</td>
</tr>
<tr>
<td>41</td>
<td>Action</td>
<td>4-38</td>
<td>Change &quot;RIFLE, 105-MILLIMETER: M27 or M27A1; MOUNT, RIFLE: 105-mm, M75 or M75A1, w/e&quot; to &quot;RIFLE, RECOILLESS, 105-MILLIMETER: M27 or M27A1; MOUNT, RIFLE: 105-mm, M75 or M75A1, w/e&quot;.</td>
</tr>
<tr>
<td>4-40</td>
<td>Title</td>
<td>5-1</td>
<td>Add &quot;MOUNT, GUN: SUBCALIBER, CAL .50, M19 (see page 4-46)&quot;.</td>
</tr>
<tr>
<td>4-16</td>
<td>Action</td>
<td>5-10</td>
<td>Add &quot;HOWITZER, LIGHT, TOWED: 105-MM, M102 (CANNON, 105-MM HOWITZER: M137, RECOIL MECHANISM, 105-MM HOWITZER: M37; CARRIAGE, 105-MM, HOWITZER: M31) (see page 4-47)&quot;.</td>
</tr>
<tr>
<td>4-37</td>
<td>Title</td>
<td>5-10</td>
<td>Mark each page &quot;deleted&quot;. (Note. Retain pages 4-15 and 4-22.)</td>
</tr>
<tr>
<td>4-38</td>
<td>Title</td>
<td>5-10</td>
<td>Mark each page &quot;deleted&quot;. (Note. Retain pages 4-15 and 4-22.)</td>
</tr>
<tr>
<td>5-1</td>
<td>Action</td>
<td>6-1</td>
<td>Add &quot;HOWITZER, MEDIUM, TOWED: AUXILIARY PROPELLED, 155-MM, M122A1, w/e (CANNON, 155-MILLIMETER HOWITZER: M1 or M1A1; RECOIL MECHANISM: M6-SERIES; CARRIAGE, 155-MILLIMETER HOWITZER: M32) (see page 5-10.1)&quot;.</td>
</tr>
<tr>
<td>13</td>
<td>Action</td>
<td>6-1</td>
<td>Delete &quot;GUN, FIELD ARTILLERY, TOWED: 155-mm, M59, w/e (CANNON, 155-MILLIMETER GUN: M11 or M1A1; RECOIL MECHANISM: M3-series; CARRIAGE, 155-MILLIMETER GUN: M1)&quot; 5-7&quot;.</td>
</tr>
<tr>
<td>5-10</td>
<td>CHARACTERISTICS</td>
<td>6-4</td>
<td>In line with &quot;Length&quot;, change &quot;113 ft, 1/4 in.&quot; to &quot;113 1/4 in.&quot;.</td>
</tr>
<tr>
<td>6-1</td>
<td>Action</td>
<td>6-5</td>
<td>Delete &quot;GUN, HEAVY, MOTORIZED; 280-mm, M65, w/e (CANNON, 280-MILLIMETER GUN: M66 (T131); RECOIL MECHANISM: M32 (T80E3) and T81 or M32 (T80E3) AND M32 (T81E4); CARRIAGE 280-MILLIMETER GUN; M30 (T72) 6-4&quot;.</td>
</tr>
<tr>
<td>6-4</td>
<td>Action</td>
<td>8-1</td>
<td>Mark each page &quot;deleted&quot;. (Note. Retain page 6-6.) Gun is obsolete.</td>
</tr>
<tr>
<td>6-5</td>
<td>Action</td>
<td>8-1</td>
<td>Add &quot;ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN—2.75-INCH ROCKET LAUNCHER: XM16 (MACHINEGUN, 7.62-MILLIMETER M60CA1; MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM (7792569); LAUNCHER ROCKET: XM157 or XM158; MOUNT, ROCKET LAUNCHER, 2.75-INCH, HELICOPTER ARMAMENT SUBSYSTEM (11700100) (see page 8-3)&quot;.</td>
</tr>
<tr>
<td>12-1</td>
<td>Action</td>
<td>12-1</td>
<td>Delete &quot;COMPUTER, GUN DIRECTION: M15 or M15C&quot;.</td>
</tr>
<tr>
<td>25</td>
<td>Action</td>
<td>12-1</td>
<td>Delete &quot;SCALE, GRAPHICAL FIRING: M44 and M44A1...12-21&quot;.</td>
</tr>
<tr>
<td>29</td>
<td>Action</td>
<td>12-1</td>
<td>Delete &quot;SCALE, GRAPHICAL FIRING: M50...12-26&quot;.</td>
</tr>
<tr>
<td>31</td>
<td>Action</td>
<td>12-1</td>
<td>Delete &quot;SCALE, GRAPHICAL FIRING: M57...12-28&quot;.</td>
</tr>
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<td>------------------------------------------------------------------------</td>
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<tr>
<td>12-1</td>
<td>-</td>
<td>34</td>
<td>Delete “SCALE, GRAPHICAL FIRING: M66...12-31”.</td>
</tr>
</tbody>
</table>
| 12-6A | EQUIPMENT |      | Following “Basic Issue Items:” change “TM 9-1220-211-10/1” to “TM 9-1220-211-10/2”.
<p>|       |           |      | Change “TM 9-1220-211-10/1” to “TM 9-1220-211-10”. Delete “TM 9-1220-211-10/2”, and add “TM 9-1220-211-ESC, TM 9-1220-211-34/7”. |
| 12-17 | EQUIPMENT |      | Following “Basic Issue Items:” delete “TM 9-1220-216-12P”, and add “TM 9-1220-222-12P”. |
|       | References|      | Delete “TM 9-1220-216-12P”, and add “TM 9-1220-222-12P”.               |
|       | References|      | Delete “TM 9-1220-216-12P”, and add “TM 9-1220-222-12P”.               |
|       | References|      | Delete “TM 9-1220-216-12P”, and add “TM 9-1220-222-12P”.               |
| 12-23 | EQUIPMENT |      | Following “Basic Issue Items:” delete “SM 9-5-1200”, and add “TM 9-1220-222-12P”. |
|       | References|      | Delete “TM 9-1220-216-12P”, and add “TM 9-1220-222-12P”.               |
|       | References|      | Delete “TM 9-1220-216-12P”, and add “TM 9-1220-222-12P”.               |
| 12-26 | -         |      | Mark page “deleted”. (Note. Retain page 12-32.) M65 scale was obsoleted by AMCTC item 2472. |
| 12-28 | EQUIPMENT |      | Following “Basic Issue Items:” add “TM 9-1220-222-12P”.               |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-30 | EQUIPMENT |      | Following “Basic Issue Items:” delete “SM 9-5-1200”, and add “TM 9-1220-222-12P”. |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-31 | -         |      | Mark page “deleted”. (Note. Retain page 12-32.) M65 scale was obsoleted by AMCTC item 37413. |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-33 | EQUIPMENT |      | Following “Basic Issue Items:” delete “SM 9-5-1200”, and add “TM 9-1220-222-12P”. |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-34 | EQUIPMENT |      | Following “Basic Issue Items:” add “TM 9-1220-222-12P”.               |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-35 | EQUIPMENT |      | Following “Basic Issue Items:” add “TM 9-1220-222-12P”.               |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-38 | EQUIPMENT |      | Following “Basic Issue Items:” add “TM 9-1220-222-12P”.               |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-39 | EQUIPMENT |      | Following “Basic Issue Items:” add “TM 9-1220-222-12P”.               |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-40 | EQUIPMENT |      | Following “Basic Issue Items:” add “TM 9-1220-222-12P”.               |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-41 | EQUIPMENT |      | Following “Basic Issue Items:” add “TM 9-1220-222-12P”.               |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |
| 12-42 | EQUIPMENT |      | Following “Basic Issue Items:” add “TM 9-1220-222-12P”.               |
|       | References|      | Add “TM 9-1220-222-12P”.                                           |</p>
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<tr>
<td>12-43</td>
<td>References</td>
<td>------</td>
<td>Delete &quot;SNL F-351, TM 9-1220-217-12P&quot;, and add &quot;TM 9-1220-222-12P&quot;.</td>
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<tr>
<td>12-46</td>
<td>EQUIPMENT</td>
<td>------</td>
<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1220-217-12P&quot;, and add &quot;TM 9-1220-222-12P&quot;.</td>
</tr>
<tr>
<td>12-47</td>
<td>EQUIPMENT</td>
<td>------</td>
<td>Following &quot;Basic Issue Items:&quot; delete &quot;SM 9-5-1200&quot;, and add &quot;TM 9-1220-222-12P&quot;.</td>
</tr>
<tr>
<td>12-48</td>
<td>EQUIPMENT</td>
<td>------</td>
<td>Delete &quot;SM 9-5-1200&quot;, and add &quot;TM 9-1220-222-12P&quot;.</td>
</tr>
<tr>
<td>12-52</td>
<td>EQUIPMENT</td>
<td>------</td>
<td>Following &quot;Basic Issue Items:&quot; delete &quot;TM 9-1220-216-12P&quot;, and add &quot;TM 9-1220-222-12P&quot;.</td>
</tr>
<tr>
<td>12-53</td>
<td>EQUIPMENT</td>
<td>------</td>
<td>Delete &quot;SM 9-5-1200&quot;, and add &quot;TM 9-1220-222-12P&quot;.</td>
</tr>
<tr>
<td>13-1</td>
<td>References</td>
<td>------</td>
<td>Delete &quot;FIRE CONTROL SYSTEM FIELD ARTILLERY: M35 or M35C...13-29&quot;.</td>
</tr>
<tr>
<td>14-59</td>
<td>General</td>
<td>------</td>
<td>Delete &quot;M48A2C&quot;, and add &quot;M48A1&quot;.</td>
</tr>
<tr>
<td>18-1</td>
<td>General</td>
<td>------</td>
<td>After &quot;M2&quot; add &quot;(T3)&quot;.</td>
</tr>
<tr>
<td>18-2</td>
<td>General</td>
<td>------</td>
<td>Add &quot;POWER CONTROL: M3A1 (M3E1) (see page 19-77)&quot;.</td>
</tr>
<tr>
<td>19-1</td>
<td>Reference</td>
<td>------</td>
<td>Add &quot;ANTITANK GUIDED MISSILE SYSTEM: ENTAC (see page 19-145.1)&quot;.</td>
</tr>
<tr>
<td>19-2</td>
<td>Reference</td>
<td>------</td>
<td>Delete &quot;ANTITANK GUIDED MISSILE SYSTEM—SS-10...19-123&quot;.</td>
</tr>
<tr>
<td>19-3</td>
<td>Reference</td>
<td>------</td>
<td>Delete &quot;ARTILLERY GUIDED MISSILE SYSTEM—CORPORAL...19-146&quot;.</td>
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<tr>
<td>19-4</td>
<td>Reference</td>
<td>------</td>
<td>Delete &quot;ARTILLERY GUIDED MISSILE SYSTEM—LACROSSE...19-183&quot;.</td>
</tr>
<tr>
<td>19-5</td>
<td>Reference</td>
<td>------</td>
<td>Delete &quot;ARTILLERY GUIDED MISSILE SYSTEM—REDSTONE...19-192&quot;.</td>
</tr>
<tr>
<td>19-10</td>
<td>Reference</td>
<td>------</td>
<td>Mark each page &quot;deleted&quot;. (Note: Retain page 19-134.) SS-10 Missile System was obsoleted by AMCTC item 2672.</td>
</tr>
<tr>
<td>19-13</td>
<td>Reference</td>
<td>------</td>
<td>Mark each page &quot;deleted&quot;. Corporal Missile System was obsoleted by AMCTC item 2178.</td>
</tr>
<tr>
<td>19-16</td>
<td>Reference</td>
<td>------</td>
<td>Mark each page &quot;deleted&quot;. Lacrosse Missile System was obsoleted by AMCTC item 876.</td>
</tr>
<tr>
<td>19-17</td>
<td>Reference</td>
<td>------</td>
<td>Mark each page &quot;deleted&quot;. Redstone Missile System was obsoleted by AMCTC item 2179.</td>
</tr>
<tr>
<td>21-1</td>
<td>Reference</td>
<td>------</td>
<td>Change to &quot;CARRIER, COMMAND POST: light tracked, M577 and M577A1&quot;.</td>
</tr>
<tr>
<td>21-11</td>
<td>Classification</td>
<td>------</td>
<td>Add &quot;TRUCK, PLATFORM, UTILITY: ½-ton, 4 x 4, M274, w/e (see page 21-9)&quot;.</td>
</tr>
<tr>
<td>21-19</td>
<td>Classification</td>
<td>------</td>
<td>Add &quot;CHASSIS, TRUCK: 2½-ton, 6 x 6, M67 w/ and w/o winch (see page 21-24.1)&quot;.</td>
</tr>
<tr>
<td>21-21</td>
<td>Classification</td>
<td>------</td>
<td>Change &quot;Standard B (OTCM 37119)&quot; to &quot;Standard C (AMCTC item 950)&quot;.</td>
</tr>
<tr>
<td>21-23</td>
<td>Classification</td>
<td>------</td>
<td>Change &quot;Standard A (OTCM 37119)&quot; to &quot;Standard B (AMCTC item 1638)&quot;.</td>
</tr>
<tr>
<td>1 and 2</td>
<td>Classification</td>
<td>------</td>
<td>Change &quot;M46 w/wn—Standard B, (OTCM 36841) and M46C w/o wn—Standard A (OTCM 36876)&quot; to &quot;Standard B (AMCTC item 1638)&quot;.</td>
</tr>
</tbody>
</table>
4. Retain the transmittal sheet(s) in front of the manual for future reference.
DATA SHEETS FOR ORDNANCE TYPE MATERIEL

<table>
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<th>DESCRIPTION</th>
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<td>OPTICAL SIGHTING AND RANGING EQUIPMENT (CLASS 1240)</td>
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<td>15.</td>
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APPENDIX I

REFERENCES A-1
SECTION 1
INTRODUCTION

1. Purpose

This manual is a reference handbook published as an aid in planning, training, familiarization, and identification of Ordnance type materiel. It is not to be used as authorization for requisitioning, stockage, or issue of this materiel.

2. Scope

a. For each item of materiel, there is an illustration and description together with characteristics and related data. Included in the related data are Federal stock number, kind of item (major or secondary) and type classification with Ordnance Technical Committee Meeting (OTCM) or U. S. Army Materiel Command Technical Committee Meeting (AMCTCM) reference.

b. Actual weights, dimensions, etc., for storage and shipment data, may vary somewhat from the average or representative values shown. For official purposes, the corresponding values published in the specific SM 9-5-series should be used.

c. Information concerning supply, operation, and maintenance of the items will be found in the publications referenced for those items. A complete listing of these publications is maintained in DA Pam 310-series indexes (app. 1).

d. Within the manual, items of materiel except large rocket and guided missile systems are grouped by classes, one section being devoted to each class. Within each class, the arrangement is alphabetical. In the case of large rocket and guided missile systems, all classes for the systems are grouped in one section. Within each system the components are listed alphabetical.

e. Space has been left for data not available at the time of publication. As these data become available, they will be added by changes.

f. The appendix contains a list of current references, including forms and other available publications applicable to this publication.

g. Any errors or omissions will be forwarded on DA Form 2028 direct to the Commanding Officer, Raritan Arsenal, ATTN: SSMRA-PRA, Metuchen, N. J.
SECTION 2
GUNS, THROUGH 30-MM
(CLASS 1005)

(Includes bayonets, bayonet-knives, carbines, ammunition chests, water chests, coupler and disconnectors, automatic guns, trench knives, grenade launchers, link-derliners, link-delinking machines, repositioning machines, machineguns, tripod mounts, commander's cupola mounts, automatic pistols, revolvers, rifles, repositioners, shotguns, and submachineguns.)
MACHINE, repositioning, caliber .50, M16 (also known as REPOSITIONER) 

MACHINEGUN, CALIBER .30: Browning, M1917A1 

MACHINEGUN, CALIBER .30: Browning, M1919A4 flexible, M1919A5E1, and M1919A6 

MACHINEGUN, CALIBER .30: tank, M37 (T158) and M37C 

MACHINEGUN, CALIBER .30: AN-M3, aircraft, basic 

MACHINEGUN, CALIBER .50: Browning, AN-M2, aircraft, basic 

MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, fixed 

MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible 

MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, turret type 

MACHINEGUN, CALIBER .50: tank, M85 (T175E2) (fixed) and M85C (flexible) 

MACHINEGUN, 7.62-MM: M60 (T161E2) 

MACHINEGUN, 7.62-MM: tank, M78 (T167E2) (fixed) and M78C (flexible) 

MOUNT, commander's cupola, M13 

MOUNT, GUN: pedestal, twin caliber .50, M65 machinegun 

MOUNT, GUN: trailer, multiple caliber .50 machinegun, M55 

MOUNT, TRIPOD, MACHINEGUN: caliber .30, M2 

MOUNT, TRIPOD, MACHINEGUN: caliber .30, M1917A1 

MOUNT, TRIPOD, MACHINEGUN: caliber .30, M3 

MOUNT, TRIPOD, MACHINEGUN: 7.62-mm, M122 

PISTOL, CALIBER .22, AUTOMATIC: Colt, super model, Woodsman, 4½-inch barrel 

PISTOL, CALIBER .22, AUTOMATIC: Colt, Woodsman, match target 

PISTOL, CALIBER .22, AUTOMATIC: high standard, model B 

PISTOL, CALIBER .22, AUTOMATIC: marksman training grade, model 9271 supersonic tournament high standard 

PISTOL, CALIBER .22, AUTOMATIC: Ruger, Mark II (target model) (6½-inch barrel) 

PISTOL, CALIBER .32, AUTOMATIC: Colt  

PISTOL, CALIBER .38, AUTOMATIC: Colt 

PISTOL, CALIBER .38, AUTOMATIC: Colt, detective special, 2-inch barrel 

PISTOL, CALIBER .38: Colt, police positive special, 4-inch barrel 

PISTOL, CALIBER .38: Colt, special officer's model, short action, national match grade 

PISTOL, CALIBER .38: Colt, special, official police, 2- and 4-inch barrel 

PISTOL, CALIBER .38: Smith and Wesson, military and police (short action), 2- and 4-inch barrel 

PISTOL, CALIBER .38: Smith and Wesson, special, K-38 (Masterpiece) 

PISTOL, CALIBER .38: Smith and Wesson, special, military and police 2- and 4-inch barrel 

PISTOL, CALIBER .38: Smith and Wesson, special, military and police (short action), 2- and 4-inch barrel 

PISTOL, CALIBER .45: M3 and M3A1 

RIFLE, CALIBER .22: survival, M4 (T38) (HORNET cartridge) 

RIFLE, CALIBER .22: M12 (Winchester models 52 standard, M2 heavy barrel, 52B, and 52C; Remington Model 40X-S1) 

RIFLE, CALIBER .22: M13 (Winchester Model 76, target; Remington Model 513T, Matchmaster) 

RIFLE, CALIBER .30: U.S., M1903A4 (Sniper's) 

RIFLE, CALIBER .30: Winchester Model 70 (special match grade) 

RIFLE, CALIBER .30: AUTOMATIC: Browning, M1918A2 

RIFLE, CALIBER .30: AUTOMATIC: U.S., M1 national match M1, M1C (Sniper's), and M1D (Sniper's) 

RIFLE, CALIBER .30, SPOTTING: M8C 

RIFLE, 7.62-MM, AUTOMATIC: M14; BIPOD, RIFLE: M2 

RIFLE-SHOTGUN, survival, caliber .22/.410-gage, M6 (T39) 

SHOTGUN, 12-GAGE, RIOT TYPE: Stevens Models M290-30 and M290A, 20-inch barrel 

SHOTGUN, 12-GAGE, RIOT TYPE: Winchester, 20-inch barrel, M12 (M1912) 

SUBMACHINEGUN, CALIBER .45: M3 and M3A1
BAYONET: M1917

General

BAYONET: M1917 is issued to troops armed with riot-type shotguns having a bayonet attachment. The bayonet M1917 is attached to the bayonet attachment and is used for guard duty. SCABBARD, BAYONET: M1917, is used with this bayonet.

Differences among models

Data plate location

Data are stamped on the rear face of the blade guard.

Classification: Limited standard (OTCM 37119).

CHARACTERISTICS

Weight: 1 lb. 2 oz
Length overall: 1 ft. 5 in.
Length of blade: 8 ½ in.
Width of blade: 0.932 in.

EQUIPMENT

Basic issue items:

* For characteristics and data, see item in section 9.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 36 bayonets per wood box (VCI pack).

Length: 3 ft.
Width: 2 ft. 5 ½ in.
Height: 1 ft. 1 ½ in.
Volume: 5.0 cu ft
Gross weight: 140 lb
Ship tons: 0.10

Outside Continental United States

Shipped 36 bayonets per wood box (VCI pack).

Length: 2 ft. 5 ½ in.
Width: 2 ft. 8 in.
Height: 1 ft. 11 ½ in.
Volume: 3.9 cu ft
Gross weight: 140 lb
Ship tons: 0.10

References: FM 23-25, TM 9-2205, TM 9-1005-205-14/P2

2-3
BAYONET-KNIFE: M4

General

BAYONET-KNIFE: M4 is issued to all troops armed with the carbine. It is attached to the muzzle end of the carbine or it can be used as a hand weapon. SCABBARD, BAYONET-KNIFE: M8A1, is used with this bayonet-knife.

Differences among models

Data plate location

Classifications Standard B (OTCM 36841).

CHARACTERISTICS

Weight ........................................... 9 oz
Length overall .................................. 11 3/8 in.
Length of blade .................................. 6 1/8 in.
Width of blade .................................. 3/4 in.

EQUIPMENT

Basic Issue Items:

* For characteristics and data, see item in Section 4.

INSTRUCTIONAL MATERIAL

For graphic training aids and devices, see DA Pam 310-6.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 100 bayonet-knives per shipping container.

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft. 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 6 1/8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 1 1/8 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.85 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>122 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 100 bayonet-knives per shipping container.

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft. 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 6 1/8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 1 1/8 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.85 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>122 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.11</td>
</tr>
</tbody>
</table>

BAYONET-KNIFE: M5 AND M5A1

General

BAYONET-KNIFE: M5 or M5A1 is for use with RIFLE, CALIBER .30; U.S. M1, M1G (Sniper's), and M1D (Sniper's) as a bayonet in close combat, guarding of prisoners, riot duty, etc. A secondary function of the item is for use as a general utility knife. The blade has a cutting edge for the full length of bottom edge and for 3/4 inch to rear of its point along upper edge. The handle is knurled to allow a firm grip and fits comfortably in the hand. There is no blood groove. SCABBARD, BAYONET-KNIFE: M5A1,* is used with this bayonet-knife.

Data plate location

Data are stamped on guard of bayonet-knife.

Classification: M5..................Limited standard (OTCM 87113)
M5A1..................Standard B (OTCM 87841)

* For characteristics and data, see item in section 9.

Model | Line item No. | Federal stock No. |
-------|---------------|-------------------|
M5     | 4-01086-30    | 1065-726-6556    |
M5A1   | 4-01086-30    | 1046-826-6556    |

Characteristics

- Weight .............................................. 11 1/2 oz
- Length overall .................................... 11 1/4 in.
- Length of blade .................................... 6 5/8 in.
- Width of blade .................................... 1/8 in.

Equipment

Basic issue items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Width Continental United States

Shipped 100 bayonet-knives per wood box (VCI pack).

Length .............................................. 3 ft, 1 1/2 in.
Width .................................................. 1 ft, 2 3/4 in.
Height ................................................. 1 ft, 4 in.
Volume ................................................. 1.8 cu ft
Gross weight ........................................ 134 lb
Ship tons ............................................ 0.12

Outside Continental United States

Shipped 50 bayonet-knives per wood box (VCI pack).

Length .............................................. 1 ft, 7 7/8 in.
Width .................................................. 1 ft, 2 3/4 in.
Height ................................................. 1 ft, 4 in.
Volume ................................................. 2.6 cu ft
Gross weight ........................................ 70 lb
Ship tons ............................................ 0.06

**BAYONET-KNIFE: M6 (T12)**

General

BAYONET-KNIFE: M6 is a combination utility knife and bayonet. It is used with the RIFLE, 7.62-MILLIMETER; M14 as a bayonet for close combat, guard duty, riot duty, etc. The blade has a cutting edge for the full length on the bottom and for 3 1/2 inches to the rear of the point on the top edge. The blade has no blood groove. The handle has knurled surfaces for a firm grip. SCABBARD, BAYONET-KNIFE: M8Al. is used with this bayonet-knife.

**DIFFERENCES AMONG MODELS**

Data plate location

Classification: Standard A (TM 9-777)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Weight</th>
<th>Length overall</th>
<th>Blade:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12 oz</td>
<td>11 1/2 in.</td>
<td>4 3/4 in.</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 9

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

Shipped 100 bayonet-knives per wood box (VCI pack):

- Length: 3 ft, 1 1/2 in.
- Width: 1 ft, 2 1/2 in.
- Height: 1 ft, 4 in.
- Volume: 4.8 cu ft
- Gross weight: 135 lb
- Ship tons: 0.12

Outside Continental United States

Shipped 50 bayonet-knives per wood box (VCI pack):

- Length: 1 ft, 7 1/2 in.
- Width: 1 ft, 2 1/2 in.
- Height: 1 ft, 4 in.
- Volume: 2.6 cu ft
- Gross weight: 70 lb
- Ship tons: 0.06

CARBINE, CALIBER .30: M1

A gas-operated, self-loading, magazine-fed semiautomatic, lightweight, offensive or defensive shoulder weapon. Carbines originally were furnished with an L-type rear sight. A modification provides for a rear sight adjustable for both elevation and windage. The front band has been modified to provide for attaching the BAYONET-KNIFE: M4.

Data plate location: Data are stamped on lid of receiver behind rear sight.

Classification: Standard C (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (w/15-round magazine (unloaded))</td>
<td>5 lb, 8 oz</td>
</tr>
<tr>
<td>Weight (w/15-round magazine (loaded) and sling)</td>
<td>6 lb, 2 oz</td>
</tr>
<tr>
<td>Weight of 15-round magazine (unloaded)</td>
<td>3 lb</td>
</tr>
<tr>
<td>Weight of 15-round magazine (loaded)</td>
<td>3 lb</td>
</tr>
<tr>
<td>Length overall w/bayonet attached</td>
<td>3 ft, 1 1/4 in.</td>
</tr>
</tbody>
</table>

OPERATION

Feed: Magazine

Capacity of feeding device: 15 rd

AMMUNITION

Types: Ball, tracer, and dummy

PERFORMANCE

Muzzle velocity (ball) 1,970 fps

Maximum range (ball 130° elevation) 2,200 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-29.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 CARBINE, DUMMY: M134.

TRAINER, RIFLE, SIGHTING: Device, M15.

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 14 carbines per wood box (VCI pack),

<table>
<thead>
<tr>
<th>Measurement</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 1 1/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 8 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>11 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>5.8 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>11 lb</td>
</tr>
<tr>
<td>Ship time</td>
<td>0.13</td>
</tr>
</tbody>
</table>

CARBINE, CALIBER .30: M2

General

CARBINE, CALIBER .30: M2 is a gas-operated, magazine-fed, lightweight, offensive or defensive shoulder weapon. It is capable of firing ammunition either in single shots or automatically. When firing single shots, it is a semiautomatic weapon. Automatic fire is achieved by means of a selector, located on the top left side of the receiver, which is manually controlled by the operator. Its rear sight is adjustable for both elevation and windage. The front band permits the attaching of BAYONET-KNIFE: M9.

Major Item

Model: M2 w/ w and spare parts
Line item No.: 4-02039-06
Federal stock No.: 1015-670-7471

Classification: Standard C (OTCM E7119)

Characteristics

Weight:
- 15-round magazine (unloaded)............. 3 lb, 8 oz
- 30-round magazine (loaded) and sling....... 6 lb, 8 oz
- 30-round magazine (unloaded)............. 3 lb, 8 oz
- 30-round magazine (loaded)............. 6 lb, 8 oz
- 50-round magazine (unloaded)............. 6 lb, 8 oz
- 50-round magazine (loaded)............. 9 lb, 19 oz
- 80-round magazine (unloaded)............. 11 lb, 10 oz
- 80-round magazine (loaded)............. 17 lb, 4 oz

Length:
Overall.................................. 2 ft, 11½ in
Overall w/bayonet attached............. 3 ft, 21½ in

AMMUNITION

Types: ball, tracer, and dummy

PERFORMANCE

Muzzle velocity (ball) ...................... 1,675 fps
Maximum range (ball) (20° elevation).................. 2,100 yd
Rate of fire (full automatic)............. 750-775 rds per min

Characteristics

Weight:
- 15-round magazine (unloaded)............. 3 oz
- 15-round magazine (loaded)............. 9 oz
- 30-round magazine (unloaded)............. 3 lb, 1½ oz
- 30-round magazine (loaded)............. 1 lb, 1 oz

Length:
Overall.................................. 2 ft, 11½ in
Overall w/bayonet attached............. 3 ft, 21½ in

Operation.................................. Gas
Feed....................................... Magazine
Capacity of feeding device:
- Old type.................................... 15 rd
- New type.................................... 30 rd
Cooling...................................... Air

EQUIPMENT

Basic Issue Items: See ORD 7 SNL D-0

INSTRUCTIONAL MATERIAL
CARTRIDGE, CALIBER .30 CARBINE, DUMMY: M9
TRAINER, RIFLE, SIGHTING: device, M15
For graphic training aids and devices, see DA Pam 810-5

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 10 carbines per wood box (VCI pack):
- Length.................................. 2 ft, 1½ in
- Width.................................... 1 ft, 3½ in
- Height................................... 1 ft, 11½ in
- Volume.................................... 1.2 cu ft
- Gross weight.................................. 113 lb
- Skin tons.................................... 0.19

References: SNL D-0, FM 25-7, TM 9-1374, TM 9-5054

2-8
CHEST, AMMUNITION, CALIBER .50, M2

Secondary Item

General
CHEST ammunition, caliber .50 M2 contains a detachable main handle for handling and loading belt ammunition. A strap is provided for use in securing the chest. The chest is made of steel and equipped with a hinged cover. When in use, the chest is attached to a mount and secured by means of slots on the side of the chest. The chest is mounted on the early models of the M1919, M1919b, M2, M2a1, M2a2, and later models of the M1919, M1919b, M2, M2a1, M2a2.

Data plate location
Data are located on side of chest.

Classifications:

CHARACTERISTICS

Weight

Length

Width

Height

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 3 chests per shipping container.

Length 7 ft. 2 in.

Width 1 ft. 10 in.

Height 1 ft. 2 in.

Volume 5.3 cu ft

Gross weight 130 lb

Outside Continental United States

Shipped 3 chests per shipping container.

Length 7 ft. 5 in.

Width 1 ft. 10 in.

Height 1 ft. 2 in.

Volume 5.3 cu ft

Gross weight 130 lb

CHEST, WATER, CALIBER .50, M3 (COMPLETE W/HOSE ASSEMBLY)

General
CHEST, water, caliber .50, M3 consists of a hand-operated, chain-driven rotor pump mounted in a steel chest with the necessary hose and connections. The pump is operated while firing, causing circulation of water in the water jacket, thereby keeping the gun barrel cool.

Differences among models
Data plate location
Classification: Limited standard.

CHARACTERISTICS

Weight:
Complete w/o water ........................................... 74 lb, 8 oz
Complete w/water ................................................ 139 lb, 8 oz
Two hose assemblies ........................................ 13 lb, 8 oz

Length .......................................................... 1 ft, 3 1/4 in.
Width ........................................................... 1 ft, 2 1/4 in.
Height .......................................................... 1 ft, 2 1/4 in.
Capacity ......................................................... 8 gal
Displacement ................................................. 3,665 cu in.


EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped chests per

Length ..........................................................
Width ...........................................................
Height ..........................................................
Volume .........................................................
Gross weight ................................................
Ship tons ....................................................

Outside Continental United States

Shipped chests per

Length ..........................................................
Width ..........................................................
Height ..........................................................
Volume .........................................................
Gross weight ................................................
Ship tons ....................................................

COUPLER AND DISCONNECTOR, LINK BELT, CALIBER .50, M20

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20</td>
<td></td>
<td>1065-714-6566</td>
</tr>
</tbody>
</table>

**General**

COUPLER AND DISCONNECTOR, link belt, caliber .50, M20 is a lightweight steel tool of simple construction requiring no adjustment in the performance of both coupling and disconnecting of caliber .50 machinegun cartridge belts. The tool has an outside tube with finger grips and an inside tube plunger and retracting spring. It functions like a hypodermic syringe and couples belts by pulling the end link loops onto the inserted cartridge, or disconnects a belt by holding the link loops while the round is simultaneously extracted to separate the belt at that point.

**Characteristics**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (approx.)</td>
<td>10 1/4 in.</td>
</tr>
<tr>
<td>Width (across finger grips)</td>
<td>3 1/2 in.</td>
</tr>
</tbody>
</table>

**Equipment**

**Instructional Material**

**Storage and Shipment Data**

*Within Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>coupler and disconnectors per wood box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

*Outside Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>coupler and disconnectors per wood box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**References:** SNL A-38, TM 9-2021.
CUPOLA, TANK COMMANDER'S: CALIBER .50 MACHINEGUN, M1

General

CUPOLA, TANK COMMANDER'S: caliber .50 machinegun, M1 is a turret-type rotatable dome installed on TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A1, M48A2, and M48A3, and TANK, COMBAT, FULL TRACKED: flamethrower, M67A1, to provide the commander with reasonable armor protection, close-in defensive firepower, and target observation by permanently installed direct vision prism blocks or a periscope sight. It provides support for MACHINEGUN, CALIBER .50; Browning, M2, turret type, and means for its loading, charging, firing, and positioning in azimuth and elevation.

Differences among models

Data plate location

Classification

CHARACTERISTICS

Height:
Without sight ........................................ 1 ft, 2½ in.
From cupola datum line ................................ 1 ft, 11½ in.
*Using adapter ring kit w/o sight ................. 1 ft, 4½ in.
Width or diameter ................................... 3 ft, 2½ in.
Width or diameter, using adapter ring kit ......... 3 ft, 6 in.
Length (w/o machinegun) ............................. 4 ft, 11¾ in.
Weight ................................................. 1,400 lb
Weight, using adapter ring kit .................... 1,670 lb

Operation ........................................... Manual, w/electrical firing switch for machinegun
Power required ....................................... 2x, 2½ (for firing only)

PERFORMANCE

Asimuth .................................................. 360°
Maximum elevation .................................... 60°
Maximum depression .................................. 0°

EQUIPMENT

Sighting and Fire Control:
Sight, periscope, M18 (for M48A1, M48A2 tank and M67A1 flame thrower tank).
Mount, periscope, M104A4 (T96E3) (for M48A1, M48A2 tank and M67A1 flame thrower tank).

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped cupola per
Length ...................................................
Width ....................................................
Height ..................................................
Volume ...............................................
Gross weight ........................................
Ship tons ............................................

Outside Continental United States

Shipped cupola per
Length ...................................................
Width ....................................................
Height ..................................................
Volume ...............................................
Gross weight ........................................
Ship tons ............................................


* For characteristics and data, see items in section 14.
CUPOLA, TANK COMMANDER'S: CALIBER .50 MACHINEGUN, M19 (T9)

General

CUPOLA, TANK COMMANDER'S, caliber .50 machinegun, M19 (T9), is installed on TANK, COMBAT, FULL TRACKED: 105-mm gun, M60. It is a self-contained unit mounting MACHINEGUN, CALIBER .50: M85 with required controls to sight, lay, and fire the machinegun in azimuth and elevation. The cupola has eight vision blocks and an electrical offering for operating the lights and commander's communication system. The weapon is traversed, elevated, and depressed entirely by mechanical controls. It can be fired either electrically or manually. The cupola provides protection for the commander from direct fire or overhead bursts and enables the machinegun to be operated under cover.

Differences among models

Data plate location

Classification: Standard A (OCTM 87282).

CHARACTERISTICS

Weight (w/machinegun and ammunition) 1,930 lb
Weight w/o machinegun 2,058 lb
Length: w/o machinegun 5 ft, 11% in.
Height w/o periscope guard (from turret mounting surface) 1 ft, 6% in.
Azimuth 60°
Elevation (machinegun) 40°
Depression (machinegun) -15°
Operation manual
Power requirements 24-volt, dc

Maximum swing radius:
Including machinegun 6 ft, 4% in.
Excluding machinegun 2 ft, 9% in.
Height w/periscope guard (from turret mounting surface) 1 ft, 8% in.

EQUIPMENT

Sighting and Fire Control:
Sight, Periscope, M28C
Mount, Periscope, M164A1

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped mounts per
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped mounts per
Length
Width
Height
Volume
Gross weight
Ship tons

References: TM 9-1000-218-85, TM 9-1000-213-35P.

* For characteristics and data, see item in section 14.
GUN, CALIBER .22, SUBCALIBER: M3

**General**
GUN, CALIBER .22, SUBCALIBER: M3 (formerly known as RIFLE or TRAINER) is a link-belt fed, recoil-operated, automatic, water-cooled machinegun. This rifle is designed for the purpose of firing the caliber .22 cartridge in MACHINEGUN, CALIBER .80: Browning, M1917Al, for training purposes. The conversion is accomplished merely by changing the main group assemblies. The operation of the machinegun when converted to the subcaliber rifle is identical to the operation of the M1917Al machinegun in every respect.

**Differences among models**

**Data plate location**

**Classification:** Standard B (OTM 86841).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3 w/e</td>
<td>A-07925-10</td>
<td>1063-676-7382</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

- Muzzle velocity (average) ........................................ 1,020 fps
- Maximum range (30' elevation) ................................ 1,500 yd
- Rate of fire ........................................... 450-600 rd per min

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

- Within Continental United States

- Weight: W 100 lb, W water 82 lb, W w/o water 18 lb
- Length overall ........................................... 3 ft, 2 in.
- Type of mechanism ............................................. short recoil, floating chamber
- Feed ............................................................. disintegrating metallic link belt
- Cooling ............................................................. water

**AMMUNITION**

- Type ........................................... ball (long rifle, 40-grain bullet)

**References:** SNL A-48, Sec. 7; TM 9-2205.
GUN, CALIBER .22, SUBCALIBER: M4

General

GUN, CALIBER .22. SUBCALIBER: M4 (formerly known as RIFLE or TRAINER) is a link-belt fed, recoil-operated, automatic, air-cooled machinegun designed for the purpose of firing the caliber .22 cartridge in MOTORGUN, CALIBER .30: Browning M1919A4 flexible, for training purposes. The complete unit consists of a group of components so designed that the M1919A4 machinegun may be converted to fire the caliber .22 cartridges merely by changing the main group assemblies. The operation of the machinegun when converted to the subcaliber rifle is identical to the operation of the M1919A4 machinegun in every respect.

Characteristics

<table>
<thead>
<tr>
<th>Major items</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>M4, w/o</td>
<td>4-3792-20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1060-679-7270</td>
</tr>
</tbody>
</table>

Characteristics:

- **Weight**: 32 lb
- **Weight of conversion parts**: 7 lb
- **Length overall**: 3 ft 6 1/8 in.
- **Length of barrel**: 22 3/8 in.
- **Type of mechanism**: short recoil, floating chamber
- **Feed**: metallic link belt
- **Cooling**: air

Ammunition:

- **Type**: ball (long rifle, 40-grain bullet)

Performance:

- **Muzzle velocity (average)**: 1,130 fps
- **Maximum range (35° elevation)**: 1,600 yd
- **Rate of fire**: 400-660 rd per min

Equipment:


Storage and Shipment Data

Within Continental United States

- Shipped 25 rifles per wood box.
  - Length: 3 ft 3 1/2 in.
  - Width: 1 ft 1 in.
  - Height: 1 ft 9 in.
  - Gross weight: 33 lb
  - Ship tons: 1.5

Outside Continental United States

- Shipped rifles per
  - Length: 3 ft 3 1/2 in.
  - Width: 1 ft 1 in.
  - Height: 1 ft
  - Volume: 1.4 cu ft
  - Gross weight: 33 lb
  - Ship tons: 1.5

References: SNL A-48, Sec. 7: TM 9-2292.
GUN, 20-MILLIMETER, AUTOMATIC: M3

General

GUN, 20-MILLIMETER, AUTOMATIC: M3 is an air-cooled, combination blowback and gas-operated, link-belt fed gun designed to fire percussion primed ammunition. The metallic link belt is used to feed the ammunition into the weapon. By repositioning some of the component parts or changing of feed mechanisms, ammunition may be fed into the gun from either right or left as desired. These weapons are mounted fixed in the wing or fuselage of the aircraft or in flexible mounts in the turret.

Differences among models

Data plate location

Classification: Standard (for U.S. Navy use only) (OTCM 37429).

CHARACTERISTICS

Weight:
- Gun, including cradle ........................................... 99.5 lb
- Tube ........................................................................ 26.2 lb

Length:
- Overall ................................................................. 6 ft, 6 1/2 in.
- Tube ........................................................................ 4 ft, 4 1/2 in.

Rifling:
- Number of grooves .................................................. 9
- Twist, uniform right-hand slope ................................. 7 in.

Operation .............................................................. combination blowback and gas-operated
Feed ........................................................................ disintegrating metallic link belt
Cooling ...................................................................... air

AMMUNITION

Types AP-T, HEI, HE-T, incendiary, TP, and dummy
Links M7, M8 (M7E1), M9 (M8E1), M4 (end), M5 (end), and 20-mm cartridge link filler

PERFORMANCE

Muzzle velocity:
- AP-T ........................................................................ 2,730 fps
- HEI .......................................................................... 2,730 fps

Maximum range:
- AP-T ........................................................................ 5,900 yd
- HEI .......................................................................... 5,750 yd

Rate of fire .............................................................. 650-800 rd per min

EQUIPMENT

Sighting and Fire Control:
- Sights are considered to be plane equipment and furnished by the Air Force

STORAGE AND SHIPMENT DATA

Outside and Within Continental United States
- Volume .................................................................... 3.4 cu ft
- Gross weight ........................................................... 170 lb
- Shp tons .................................................................. 0.13

INSTRUCTIONAL MATERIAL

INSTRUCTIONAL MATERIAL


Storage and Shipment Data

Outside and Within Continental United States
- Volume .................................................................... 5.4 cu ft
- Gross weight ........................................................... 170 lb
- Shp tons .................................................................. 0.13

References:

2-16
GUN, 20-MILLIMETER, AUTOMATIC: M24A1

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M24A1</td>
<td></td>
<td>8805-728-8297</td>
</tr>
</tbody>
</table>

**General**

GUN, 20-MILLIMETER, AUTOMATIC: M24A1 is an air-cooled, combination blowback and gas-operated, link-belt fed gun designed to fire electric primed fixed ammunition. The metallic link belt is used to feed the ammunition into the weapon. By repositioning some of the component parts or changing of feed mechanisms, ammunition may be fed into the gun from either right or left as desired. The weapon is mounted fixed in the wing of the aircraft or in a flexible mount in the barrel.

**Differences among models**

Data plate location

Classification: Standard (for U.S. Air Force use only) (OTCM 3729)

**WEIGHT**

- Gun, including cradle: 200 lb
- Cradle assembly: 9 lb
- Tube: 26.2 lb

**LENGTH**

- Overall: 6 ft, 7 1/4 in.
- Tube: 6 ft, 4 3/4 in.
- Length of tube: 4 ft, 1 1/4 in.
- Barrel: 4 ft, 11 in.
- Number of grooves: 9
- Twist, uniform right-hand slope: 1/2 deg
- Operation: combination blowback and gas operated
- Feed: noninterlocking metallic link belt
- Cooling: air

**AMMUNITION**

- Types: AP-T, API, AP, HEI, incendiary, TP and dummy
- Links: M10 (M81E1) and 20-mm cartridge link filler

**PERFORMANCE**

- Muzzle velocity:
  - AP-T: 2,730 fps
  - HEI: 2,730 fps
- Maximum range:
  - AP-T: 3,100 yd
  - HEI: 3,700 yd
- Rate of fire: 750-800 rd per min

**EQUIPMENT**

Sighting and Fire Control:

- Sights are considered to be plane equipment and furnished by the Air Force.

**INSTRUCTIONAL MATERIAL**

CARTRIDGE, 20-MILLIMETER DUMMY: M19A1

**STORAGE AND SHIPMENT DATA**

Within and Outside Continental United States

- Weight: 170 lb
- Length: 7 ft, 1 3/4 in.
- Width: 11 1/2 in.
- Height: 3 1/2 in.
- Volume: 3.4 cu ft
- Gross weight: 170 lb
- Net weight: 11 1/2 lb

**References:**

TO 11W1-12-2-82 TO 11W1-12-2-83 TO 11W1-12-2-84
GUN, 20-MILLIMETER, AUTOMATIC: M39A2

**General**

GUN, 20-MILLIMETER, AUTOMATIC: M39A2 is a gas-operated, revolver-type automatic gun which fires electric primed ammunition from a metallic linked belt. Ammunition may be fed into the gun from either the right or left side. The weapon is distinguished by a 5-chamber drum which revolves about an axis, parallel to the gun bore. The gun fires the 20-mm cartridge at the index drum position of the 6 o'clock chamber. It is used by the Air Force for fixed type mountings in aircraft.

**Data plate location**

Classification: Limited Standard (for U.S. Air Force use only) (OTC No. 86841). (TM 9-500)

**Characteristics**

- **Weight:** Gun: 179 lb, Tube: 29.6 lb
- **Length:** Overall: 6 ft, 4 in., Tube: 4 ft, 5 1/2 in.
- **Rifling:** Length: 63.6 in., Number of grooves: 9, Twist, gain right-hand: one turn in 20 in.
- **Operation:** Gas operated
- **Feed:** Disintegrating metallic link belt
- **Cooling:** Air

**Ammunition**

- **Types:** Ball, API, HEI, TP, and dummy
- **Links:** T61E2 and T61E3

**Performance**

- **Muzzle velocity:**
  - API: 3,300 fps
  - HEI: 3,300 fps
- **Maximum range:**
  - API: 5,750 yd
  - HEI: 5,750 yd
- **Rate of fire:**

**Equipment**

Sighting and Fire Control:

Sights are considered to be plane equipment and are furnished by the Air Force.

Basic Issue Items:

**Instructional Material**

CARTRIDGE, 20-MILLIMETER DUMMY: M51E5, M51E8, or M51.

**Storage and Shipment Data**

Within Continental United States

- Shipped 1 gun per wood box.
  - Length: 4 ft, 9 1/2 in.
  - Width: 1 ft, 3 1/2 in.
  - Height: 1 ft, 3 1/2 in.
  - Volume: 6.1 cu ft
  - Gross weight: 240 lb
  - Ship tons: 0.16

Outside Continental United States

- Shipped 1 gun per wood box.
  - Length: 14 ft, 9 1/2 in.
  - Width: 1 ft, 3 1/2 in.
  - Height: 1 ft, 3 1/2 in.
  - Volume: 6.1 cu ft
  - Gross weight: 240 lb
  - Ship tons: 0.16

References: TO 11W1-12-3-14, TO 11W1-12-3-22
GUN, 20-MILLIMETER, AUTOMATIC: M61 (T171E3)

GUN, 20-MILLIMETER, AUTOMATIC: M61 (T171E3) is a 6-barrel, rotating type weapon, designed on the Gatling principle to fire electric primed ammunition at a very high rate. It is operated externally by a nonintegral electric or hydraulic power drive, and linked ammunition is fed into the gun by a sprocket type feeder. The weapon is used by the Air Force as a fixed- and turret-type weapon mounted in aircraft.

**Differences among models**

Classification: Standard (for U.S. Air Force use only) (OTCM 37324).

**Characteristics**

**WEIGHT**

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight of gun w/M3A1 feeder and</th>
</tr>
</thead>
<tbody>
<tr>
<td>M61</td>
<td>w/M7 drive: 304 lb</td>
</tr>
<tr>
<td></td>
<td>w/M12 drive: 300 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight of gun w/M1A1 feeder and</th>
</tr>
</thead>
<tbody>
<tr>
<td>M61</td>
<td>w/M7 drive: 303 lb</td>
</tr>
<tr>
<td></td>
<td>w/M12 drive: 304 lb</td>
</tr>
</tbody>
</table>

**LENGTH**

<table>
<thead>
<tr>
<th>Model</th>
<th>Length overall, w/M1A1 or M3A1 feeder and</th>
</tr>
</thead>
<tbody>
<tr>
<td>M61</td>
<td>w/M7 drive: 6 ft, 8 in.</td>
</tr>
<tr>
<td></td>
<td>w/M12 drive: 8 ft, 4 in.</td>
</tr>
</tbody>
</table>

**WEIGHT OF BARREL**

| Model | Weight of barrel: 18 lb |

**LENGTH OF BARREL**

| Model | Length of barrel: 5 ft |

**Rotation of barrels**

- Counterclockwise viewed from breech and
- Slinging:
  - Length:...
  - Number of grooves:...
  - Twist, gain right-hand:...
  - ONE turn in 20 in.

**Operation**

- Electric (M7 drive) or hydraulic (M12 drive)

**Cooling**

- Air

**Ammunition**

| Type | Ball, AP, HEI, TP, and dummy |

**Links**

- M14 (for M2A1 feeder)
- M17 (T99) (for M3A1 feeder)

**Performance**

**Muzzle velocity**

- API: 3,430 fps
- HEI: 3,430 fps

**Maximum Range**

- API:...
- HEI:...

**Rate of fire**

- w/M7 drive:...
- w/M12 drive:...

**Equipment**

**Sighting and Fire Control**

- Sights are considered to be plane equipment and are furnished by the Air Force.

**Basic Issue Items**

**Instructional Material**

**Cartridge, 20-millimeter dummy: M51 (T238), M51E8, and M51E8**

**Storage and Shipment Data**

- Within and Outside Continental United States

- Shipped: 1 gun per wooden box.
  - Length:...
  - Width:...
  - Height:...
  - Volume:...
  - Gross weight:...
  - Shipment:...

**References:**

- TO 11W1-12-4-26
- TO 11W1-12-4-22
- TO 11W1-28-3-2
- TO 11W1-28-3-4
- TO 11W1-7-6-2
- TO 11W1-9-9-4
LAUNCHER, GRENADE: M7A2, AND M7A3

LAUNCHER, GRENADE: M7A2 or M7A3 is used for launching grenades and ground signals from RIFLE, CALIBER .30: U.S. HI, HIC (Sniper's), or MID (Sniper's). Each launcher is composed of a sleeve (tube) having a series of annular rings around its periphery, attached to a bracket. A spring holds the grenade or ground signal on the sleeve. With the grenade in place on the launcher, the rings are used in conjunction with the angle of elevation to determine range. The greater the number of rings exposed, the shorter the range. As the angle of elevation is increased, the range is increased.

Caution: Never under any circumstances fire service ammunition when a grenade or ground signal is in place on the launcher.

Differences among models

The main difference between the launcher M7A1 and M7A2 is the M7A2 is 1 1/2 inches longer. The increased sleeve length provides higher velocity with better trajectory. Extra range rings are included in the sleeve.

Data plate location

The model number of the launcher is stamped on the bracket.

Classification: Standard B (all models) (OTUM 10441).

CHARACTERISTICS

Weight: 12 oz
Length overall:
M7A2: 7 3/4 in.
M7A3: 9 in.
Outside diameter of tube: 4 1/8 in.

AMMUNITION

Types:
Elsa grenades:
For launcher M7A2: AT projectiles (M11-series and M28), colored smoke (M12-series), colored streamer smoke (M12-series), WP smoke (M2A1 or M3A1).
For launcher M7A3: AT projectiles (M11-series and M28), colored smoke (M12-series), colored streamer smoke (M12-series), WP smoke (M2A1 or M3A1), HEAT (M31).

Hand grenades:
Used with ADAPTER, grenade projection:
M1: fragmentation (M2), practice (M31).

M1A1 or M1A2: Fragmentation (M2 or M31), practice (M31 and M32), WP smoke (M31).

Chemical: M1A1: offensive incendiary (TP), incendiary (CS-DIM and CN (tear)), WP smoke, and HC smoke.

Ground signals: colored smoke (M6, M6A, and M6A1), star cluster (M7A, M7A2, M60, M61, and M66), smoke parachute (M17, M19, M60, and M66),


PERFORMANCE

Maximum range with CARTRIDGE, GRENADE: rifle, cal. .30.

Rifle grenades:
AT, practice (M1A4) 45° elevation: 100 meters
HEAT (M31) 45° elevation: 120 meters
Smokes, WP (M13A1) 45° elevation: 340 meters
Hand grenade:
Fragmentation (30° elevation using ADAPTER, GRENADE PROJECTION: M2A3) 180 meters
Chemical (40° elevation, using ADAPTER, GRENADE PROJECTION: M2A3) 145 meters
Ground signals: 140 to 215 meters

EQUIPMENT

Sighting and Fire Control:
The following item is considered equipment and is issued as such:
SIGHT, RIFLE GRENADE LAUNCHER: M15, w/w

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 100 launchers per wood box (VCI pack): Length: 1 ft, 9 1/2 in.
Width: 1 ft, 6 in.
Height: 1 ft, 6 in.
Volume: 4.3 cu ft
Gross weight: 122 lb
Ship tons: 0.11

Outside Continental United States
Shipped 50 launchers per wood box (VCI pack): Length: 1 ft, 9 1/2 in.
Width: 1 ft, 6 in.
Height: 1 ft, 10 in.
Volumes: 2.3 cu ft
Gross weight: 62 lb
Ship tons: 0.06

LAUNCHER, GRENADE: M76 (T140)

General

LAUNCHER, GRENADE: M76 (T140) is a cylindrical shaped sleeve with a hinged latching mechanism connected to a collar on the rear of the sleeve. Range setting calibration marks are provided on the sleeve for varying the position of the grenade. The launcher is used with RIFLE, 7.62-MM, AUTOMATIC: M14 for launching fragmentation or antitank grenades.

CAUTION: Never under any circumstances fire service ammunition when a grenade is in place on the launcher.

Characteristics

- Weight: 7 oz
- Length overall: 8¼ in.
- Outside diameter of tube: ¾ in.

Ammunition

- Type: AT, fragmentation
- Cartridge: CARTRIDGE, GRENADE: rifle, 7.62-mm, NATO, M64

Performance

- Maximum range

Equipment

- SIGHT, RIFLE GRENADE LAUNCHER: M15, w/e.
- Basic issue items: See TM 9-1006-234-14P

Instructional Material

Storage and Shipment Data

- Within and Outside Continental United States
- Shipped 327 launchers per wood box (VCI pack).
- Length: 2 ft, 6½ in.
- Width: 1 ft, 9⅛ in.
- Height: 11⅜ in.
- Volume: 4.28 cu in.
- Gross weight: 198 lb.
- Ship tons: 0.7

References: FM 23-30, TM 9-1006-233-12, TM 9-1006-234-14P
LINKER-DELINKER, 20-MILLIMETER, HAND: M24 (T52) AND M24AI

General
LINKER-DELINKER, 20-MILLIMETER, HAND: M24 (T52) and M24AI is a hand-operated device which is used for linking or detaching belted M20-series Shrapnel ammunition linked with LINK, CARTRIDGE, METALLIC BELT 20-MILLIMETER M17.

M24 1005-715-9071
M24AI

Classifications:
M24 Limited Standard (AMCTC item 2565)
M24AI Standard A (for U.S. Air Force use only)

CHARACTERISTICS
Weight: 1 lb. 7 oz.

Load rate:

PERFORMANCE
Loading rate:

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped linker-delinker per

Outside Continental United States

Shipped linker-delinker per

References: TO 34Y36-2-11.
LINKER-DELINKER, 20-MILLIMETER, HAND: M25

EQUIPMENT

Secondary Items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M25</td>
<td>0550-775 0533</td>
<td></td>
</tr>
</tbody>
</table>

General

LINKER-DELINKER, 20-MILLIMETER, HAND: M25 is a hand-operated device which is used for linking or delinking belted M-series 20-mm ammunition linked with LINK CARTRIDGE, METALLIC BELT 20-MILLIMETER & 1 for GUN, 20-MILLIMETER AUTOMATIC: M61.

Differences among models

Data plate location

Classification: Standard (for U.S. Army use only) (OTCM 37565).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 lb</td>
<td>12 in.</td>
<td>2 1/4 in.</td>
<td>1 1/2 in.</td>
<td>1 lb.</td>
</tr>
</tbody>
</table>

PERFORMANCE

Loading rate

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 16 linker-delinkers per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft. 4 in.</td>
<td>1 ft. 1 in.</td>
<td>1 ft. 1 1/4 in.</td>
<td>7.8 cu ft</td>
<td>54 lb</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 16 linker-delinkers per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft. 6 in.</td>
<td>1 ft. 1 in.</td>
<td>1 ft. 1 1/4 in.</td>
<td>7.8 cu ft</td>
<td>54 lb</td>
<td>0.05</td>
</tr>
</tbody>
</table>

References

2-23
LINKER-DELINKER, 20-MILLIMETER, POWERED: M23 (T51)

General
LINKER-DELINKER, 20-MILLIMETER, POWERED: M23 (T51) is an electrically operated device which is used for linking or delinking M5-series 20-mm ammunition with either LINK, CARTRIDGE, METALLIC BELT, 20-MILLIMETER: M14 (T56/F) or LINK, CARTRIDGE, METALLIC BELT, 20-MILLIMETER: M17 (T57).

Differences among models

Data plate location

Classification: Standard (for U.S. Air Force use only) (OTCM 37452).

CHARACTERISTICS

Linker-delinker:
- Weight: 125 lb
- Length:
  - Without ammunition feed trays: 18 in.
  - With ammunition feed trays: 90 in.
- Width: 25 in.
- Height: 11 in.

Motor:
- Horsepower: 10 hp
- Volt: 220-24
MACHINE, LINK-DELINKING, CALIBER .50, M7

Performance

Average load handle necessary to load links: 13 lb.
Loading rate:
- One man: approx. 1,680 rd per hr
- Two men: approx. 2,000 rd per hr

Equipment

Basic Issue Items:

Storage and Shipment Data

Within Continental United States

Shipped 6 machines per wood shipping container.
- Length: 2 ft 4 in.
- Width: 1 ft 5 3/4 in.
- Height: 1 ft 5 3/4 in.
- Volume: 4.9 cu ft
- Gross weight: 114 lb
- Ship tons: 0.12

Outside Continental United States

Shipped 6 machines per wood shipping container.
- Length: 2 ft 4 in.
- Width: 1 ft 5 3/4 in.
- Height: 1 ft 5 3/4 in.
- Volume: 4.9 cu ft
- Gross weight: 123 lb
- Ship tons: 0.12

MACHINE, LINK-LOADING, HAND, CALIBER .30, M3
W/ATTACHMENT, DELINKING, CALIBER .30, M8

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Machine M3:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>10 lb, 11 oz</td>
</tr>
<tr>
<td>Length</td>
<td>19 1/4 in</td>
</tr>
<tr>
<td>Width</td>
<td>8 1/2 in</td>
</tr>
<tr>
<td>Height (handle folded down)</td>
<td>20 1/2 in</td>
</tr>
<tr>
<td>Capacity</td>
<td>200 rl</td>
</tr>
<tr>
<td>Attachment M8:</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>14 1/2 in</td>
</tr>
<tr>
<td>Width</td>
<td>13 3/4 in</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

- Average load on handle necessary to load links: 21 lb
- Loading rate:
  - One man: approx. 1,400 rl per hr
  - Two men: approx. 2,000 rl per hr
- Attachment M8:
  - Normal operation speed: approx. 250 rl per 25 lb

**EQUIPMENT**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped 10 machines w/attachments per shipping container.

**Outside Continental United States**

- Shipped 10 machines w/attachments per shipping container.

**References:**
MACHINE, LINKING, POWERED, CALIBER .50, M5
WITH ATTACHMENT, DELINKING, CALIBER .50, M7

General

MACHINE: Machine, powered, caliber .50, M5 is an electrically or manually operated machine which is used to insert caliber .50 ammunition into metallic links at a speed much greater than that attained by hand operated tools. Provision has been made so that in the event of power failure a handcrank can be attached and linking continued at a reduced speed. A delinking attachment M7 is provided consisting of several units which may be quickly and easily attached to the powered linking machine to delink cartridges from caliber .50 metallic link belts.

Differences among models

Data plate location

Identification plate is located on the frame assembly.

Classification: Standard A (OTCM 56841).

CHARACTERISTICS

Machine M5:

Weight: 312 lb
Length: 4 ft, 5 in.
Height: 3 ft, 6 in.

Motor:

Horsepower: 4 hp
Voltage: 110
Phase: Single

Attachment M7:

Weight: 27 lb

PERFORMANCE

Machine M5:
Normal operating speed: 60-72 rd per min

Attachment M7:
Normal operating speed: 135-150 rd per min

EQUIPMENT

STORAGE AND SHIPMENT DATA

Machine M5:
Within Continental United States
Shipped: machines per wood box.
Length
Weight
Height
Volume
Gross weight
Ship tons

Outside Continental United States
Shipped: machines per
Length
Weight
Height
Volume
Gross weight
Ship tons

Attachment M7:
Within Continental United States
Shipped: machine per wood box.
Length
Weight
Height
Volume
Gross weight
Ship tons

Outside Continental United States
Shipped: machines per
Length
Weight
Height
Volume
Gross weight
Ship tons

References: TM 9-218.
**MACHINE, REPOSITIONING, CALIBER .50, M15**

MACHINE, repositioning, caliber .50, M15 is a small lightweight, portable, hand-operated machine used to reposition cartridges which may become misaligned or loose in caliber .50 link belts.

### Differences among models

Identification plate is located on the right-hand frame assembly and instruction plate on the slinger ring gear guard.

### Classification

Standard A (OTCM 36841)

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>60 lb</td>
</tr>
<tr>
<td>Length</td>
<td>1 ft. 8 1/2 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 4 1/6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 18 1/6 in.</td>
</tr>
</tbody>
</table>

### PERFORMANCE

Normal operating speed: 400 to 500 rd per min

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States:

Shipped 1 machine per wood box.

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

Outside Continental United States:

Shipped 1 machine per wood box.

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

MACHINEGUN, CALIBER .30: BROWNING, M1917A1

GENERAL

MACHINEGUN, CALIBER .30: Browning, M1917A1 is an automatic, recoil-operated, link-belt fed, water-cooled machinegun. The metallic link belt is used to feed the ammunition into the left side of the gun. The gun is mounted on MOUNT, TRIPOD, MACHINEGUN; caliber .30, M1917A1, M2, or MOUNT, TRIPOD WEAPON: M14 for ground use. This gun is known as the cal. .30 heavy machinegun.

Differences among models

Data plate location

Classification: Standard C (OTCM 87119).

CHARACTERISTICS

Weight:
- Gun and pintle (w/o water) .......... 32 lb, 10 oz
- Gun and pintle (w/water) .......... 41 lb
- Recocking partl .......................... 7 lb, 5 oz
- Barrel .................................. 3 lb
- Length overall .......................... 3 ft, 2½ in.
- Length of barrel ........................ 2 ft
- Sight graduation ........................ 2,600 yd
- Water jacket (capacity) ............... 8 pt

Rifling:
- Length .................................. 1 ft, 9½ in. (71 cal.)
- Number of grooves ...................... 4
- Twist, right-hand ...................... one turn in 10 in. (33.3 cal.)
- Depth of grooves ...................... .0040 in.
- Type of mechanism ...................... short recoil
- Feed .................. disintegrating metallic link belt
- Capacity of feeding device ............ 100 to 250 rd
- Sight radius ............................ 1 ft, 2 in.
- Sear release ............................ 7 lb (min), 12 lb (max)
- Trigger pull ............................ 7 lb
- Cooling ................................ water

AMMUNITION

Types ............ ball, AP, API, blank, incendiary, tracer, and dummy

Links ................ M1

PERFORMANCE

Muzzle velocity (averages):
- AP, M2 ................................... 2,770 fps
- Ball, M2 ................................ 2,800 fps

Maximum range (30° elevation):
- AP, M2 .................................. 2,100 yd
- Ball, M2 .................................. 2,500 yd
- Rate of fire .............................. 450-600 rd per min

EQUIPMENT

Sighting and Fire Control:
- Clinometer, machinegun, M1917A1 (issued and supplied by special requisition only.)
- Table, firing, 0.30-A-1
- Table, firing, 0.30-A-1
- Basic Issue Items: See ORD 7 SNL A-5.

INSTRUCTIONAL MATERIAL

Attachment, firing blank ammunition, cal. .30, M3A1:
- CARTRIDGE, CALIBER .30, DUMMY: M49
- GUN, CALIBER .30, SUBCALIBER: M3.

For Graphic Training Aids and Devices, see DA Pam 210-5.

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Skipped 1 gun per wood box.
- Length ................................ 3 ft, 7 in.
- Width ................................... 7½ in.
- Height ................................... 3½ in.
- Volume ................................ 1.64 cu ft
- Gross weight ............................ 58 lb
- Ship 408


*For characteristics and data for item, see section 18.
MACHINEGUN, CALIBER .30: BROWNING, M1919A4 FLEXIBLE, M1919A4El, AND M1919A6

DIFFERENCES AMONG MODELS

The machinegun M1919A4El is equipped with a charging bar for easier loading in cramped positions such as tank turrets. The machinegun M1919A6 has a shoulder stock attached to the back plate buffer tube, a bipod attached to the front end of the barrel jacket, a carrying handle, flash hider attached to the barrel, and the barrel is lighter.

DATA PLATE LOCATION

Data stamped on the right-hand side plate of the receiver assembly.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Classification</th>
<th>Weight of gun:</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1919A4</td>
<td></td>
<td>Standard B (OTCM 3684)</td>
<td>M1919A4 and M1919A4El 31 lb</td>
</tr>
<tr>
<td>M1919A4El</td>
<td></td>
<td>Standard C (OTCM 3728)</td>
<td>M1919A4El, and M1919A6 32 lb, 8 oz</td>
</tr>
<tr>
<td>M1919A6</td>
<td></td>
<td>Standard D (OTCM 5600)</td>
<td>M1919A4 and M1919A4El 32 lb, 8 oz</td>
</tr>
</tbody>
</table>

M1919A4 and M1919A4El are known as the caliber .30 heavy barrel machineguns. Machinegun M1919A6 is a substitute for the M1919A4.

SIGHTING AND FIRE CONTROL:

Table, firing, .30-A-4

EQUIPMENT

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1919A4</td>
<td>4-17082-00</td>
<td>Weight of recoiling parts:</td>
</tr>
<tr>
<td>M1919A4El</td>
<td></td>
<td>M1919A4 and M1919A4El 11 lb, 11 oz</td>
</tr>
<tr>
<td>M1919A6</td>
<td></td>
<td>M1919A6 7 lb, 8 oz</td>
</tr>
<tr>
<td>Length overall:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1919A4</td>
<td>5 ft, 4 in.</td>
<td>M1919A4 and M1919A4El 5 ft, 6 in.</td>
</tr>
<tr>
<td>M1919A6</td>
<td>5 ft, 6 in.</td>
<td>M1919A6 5 ft, 6 in.</td>
</tr>
<tr>
<td>Length of barrel:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1919A4</td>
<td>2 ft</td>
<td>M1919A4 and M1919A4El 2 ft</td>
</tr>
<tr>
<td>M1919A6</td>
<td>2 ft, 3 in.</td>
<td>M1919A6 2 ft, 3 in.</td>
</tr>
<tr>
<td>BREECH:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1919A4</td>
<td>2 ft, 9 in.</td>
<td>M1919A4 and M1919A4El 2 ft, 9 in.</td>
</tr>
<tr>
<td>M1919A6</td>
<td>2 ft, 9 in.</td>
<td>M1919A6 2 ft, 9 in.</td>
</tr>
<tr>
<td>TRIPPOD:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AMMUNITION

Types: Ball, Tracer, Dummy (M1919A4El only), and Incendiary.

PERFORMANCE

Muzzle velocity: Ball, M2 2,770 fpm

Max. range:

Breech, M3 3,160 yd

Rate of fire:

M1919A4 and M1919A4El 400-560 rds per min

M1919A6 600-660 rds per min

EQUIPMENT

SIGNING AND FIRE CONTROL:

M1919A4 and M1919A4El Table, Braces, 5-20 A-4

Table, Braces, 5-20 J-2
### INSTRUCTIONAL MATERIAL

- **M1919A6**:
  - Table, firing, 0.30-J-1
  - Basic issue items: See ORD 7 SNL A-G

- Adapter, barrel jacket (1098-233-3546) (for M1919A6)
- ATTACHMENT, FIRING, BLANK: ammunition, cal. .30, M6 (for M1919A4 and M1919A4E1)
- ATTACHMENT, FIRING, BLANK: ammunition, cal. .30, M9 (M1919A6)

For graphic training aids and devices, see DA Pam 310-5.

**GUN, CALIBER .22, SUBCALIBER: M4**

### STORAGE AND SHIPMENT DATA

**Within and Outside Continental United States**

Shipped 1 machinegun per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Item</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1919A4</td>
<td>3 ft, 10 in.</td>
<td></td>
<td>7 in.</td>
<td>1.8 cu ft</td>
<td>55 lb</td>
</tr>
<tr>
<td>M1919A4E1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>54 lb</td>
</tr>
<tr>
<td>M1919A6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>68 lb, 8 oz</td>
</tr>
</tbody>
</table>

Ship tons: 0.04

MACHINEGUN, CALIBER .30: TANK, M37 (T153) AND M37C, FIXED

**General**

MACHINEGUN, CALIBER .30: tank, M37 (T153) and M37C, fixed, is an automatic, recoil-operated, link-belt fed, air-cooled machinegun. The M37 is designed for both fixed and flexible use. It is coaxially mounted with larger caliber weapons on various combination gun mounts for use on tanks. However, for emergency use, this weapon may be mounted on the MOUNT, TRIPOD, MACHINEGUN: M2 or M1917AI, or MOUNT, TRIPOD, WEAPON: M74. The M37C is designed for fixed use only. It is used for installation in the ARMAMENT, SUBSYSTEM, HELICOPTER, .30 CALIBER MACHINEGUN: XM1 or XM1E1.*

Each weapon has a backplate which is equipped with a pistol grip. They are known as caliber .30 heavy barrel machineguns.

**Characteristics**

<table>
<thead>
<tr>
<th>Major Item</th>
<th>M37</th>
<th>M37C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line item No.</td>
<td>1005-716-2946</td>
<td>1005-626-1856</td>
</tr>
<tr>
<td>Federal stock No.</td>
<td>3004657</td>
<td>3004659</td>
</tr>
</tbody>
</table>

**Characteristics**

- **Caliber .30 Machinegun M37**
  - **Weight:**
    - Gun: 35 lb
    - Barrel: 7.28 lb
  - **Length:**
    - Overall: 3 ft 11% in.
    - Barrel: 21.38 in.
  - **Rifling:**
    - Length: 24 in.
    - Number of grooves: 24
  - **Tight, right-hand:**
    - One turn in 10 in.
  - **Space required to open cover:**
    - Approx. 1 ft 6% in.
  - **Space to rear required for removing barrel (approx):**
    - 2 ft 6 in.
  - **Feed:**
    - Disintegrating metallic link belt
  - **Operation:**
    - Recoil
  - **Cooling:**
    - Air

- **Caliber .30 Machinegun M37C**
  - **Weight:**
    - Gun: 31.7 lb
    - Barrel: 9.8 lb
  - **Length:**
    - Overall: 41 in.
    - Barrel: 24 in.
  - **Rifling:**
    - Length: 21.38 in.
    - Number of grooves: 24
  - **Tight, right-hand:**
    - One turn in 10 in.
  - **Space required to open cover:**
    - Approx. 1 ft 6% in.
  - **Space to rear required for removing barrel (approx):**
    - 2 ft 6 in.
  - **Feed:**
    - Disintegrating metallic link belt
  - **Operation:**
    - Recoil
  - **Cooling:**
    - Air

**Data plate location**

The name and serial number of each gun is stamped on the right-side plate of the receiver and forward of the retracting bar guides.

**Classification**

- M37: Standard B (OTCM 39906)
- M37C: Standard B (OTCM 39999)

* For characteristics and data, see item on page 2-46 and 2-47.
** For characteristics and data, see item in section 8.

2-32
AMMUNITION

Types: Ball, AP, API, blank, tracer, and dummy
Links: M1

PERFORMANCE

Muzzle velocity (average):
- AP, M2: 2,770 fps
- Ball, M2: 2,800 fps

Maximum range (30-deg elevation):
- AP, M2: 3,160 yd
- Ball, M2: 3,500 yd

Rate of fire: 400-500 rd per min

EQUIPMENT

Sighting and Fire Control

Basic Issue Items: M37, See TM 9-2350-206-12

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 DUMMY: M40

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 gun per shipping container

Length: 3 ft, 15/16 in.
Width: 7 3/4 in.
Height: 1.7 cu ft
Gross weight: 55 lb
Ship tons: 0.04

M37C:

Within and Outside Continental United States

Shipped gun per

Length: 3 ft, 15/16 in.
Width: 7 3/4 in.
Height: 1.7 cu ft
Gross weight:
Ship tons:

References:
MACHINEGUN, CALIBER .50: AN-M3, AIRCRAFT, BASIC

Differences among models

Several variations of the machinegun AN-M3 are in use. A retracting slide (not furnished with gun) is used for charging when used as an antiaircraft weapon. In some aircraft installations, the trunnion adapter is removed and a recoil adapter installed. This gun is similar in appearance to the caliber .50 basic aircraft Browning machinegun M2. However, the rate of fire is much faster and many component parts, although similar, are not interchangeable. Some component parts of the gun AN-M2 have been replaced by different component parts in the gun AN-M3, such as, the barrel assembly, which is larger than the barrel assembly in the gun AN-M2, and the feed mechanism which is slower than the feed mechanism in the gun AN-M2. A spade grip-type backplate is not available for this gun. When this aircraft gun is used in gun mount M63, it is fixed with a side plate trigger which is part of the mount. Direction of fire is checked by tracer bullets due to the absence of sights.

General

MACHINEGUN, CALIBER .60: AN-M3, AIRCRAFT, BASIC is a high-speed, recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed into the gun from either the right or left side as desired. The metallic link belt is used in all cases. This gun is primarily used in aircraft, however, it can be used for antiaircraft purposes when mounted in MOUNT, GUN: antiaircraft caliber .60 machinegun, M63. The gun is without sights or trigger. It is fired with a solenoid. A spade grip-type backplate is not available for this gun. When this aircraft gun is used in gun mount M63, it is fixed with a side plate trigger which is part of the mount. Direction of fire is checked by tracer bullets due to the absence of sights.

DATA PLATE LOCATION

Classification: Standard A (OTCM 16561)

CHARACTERISTICS

Weight:
Gun w/recoil adapter assy 64 lb. 4 oz
Recoil adapter assy 8 lb. 4 oz
Barrel 11 lb

Length:
Overall 4 ft. 9½ in
Barrel 3 ft
MACHINEGUN, CALIBER .50: BROWNING, AN-M2, AIRCRAFT, BASIC

**General**

MACHINEGUN, CALIBER .50: Browning, AN-M2, aircraft, basic is an automatic, recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed into the gun from either the right or left side as desired. The metal link belt is used to feed the ammunition into the weapon. This gun, as issued, is primarily used for fixed positions in aircraft. By the addition of a retracting slide group assembly for flexible positions or an operating slide group assembly for fixed positions, this weapon may be fired from gun mounts. When mounted on MOUNT, GUN: antiaircraft, caliber .50 machinegun, M68, a side plate trigger assembly is used; on MOUNT, GUN: pedestal, twin caliber .50 machinegun, M68 or MOUNT, TRIPOD, MACHINEGUN: M4, a spade grip backplate conversion group assembly is used. When mounted on the gun mount M68, the direction of fire is checked by tracer bullets due to the absence of sights. On the pedestal gun mount M68, a sight is part of the mount. The rate of fire of this machinegun can be varied to a limited extent by adjusting the position of the oil buffer group assembly in the oil buffer body group.

**Differences among models**

Classification: Standard A (OTCM 86541).

**CHARACTERISTICS**

**Weights:**
- Gun (w/basic backplate) .......................... 61 lb
- Gun (w/flexible backplate) ......................... 62 lb, 8 oz
- Barrel ............................................. 9 lb, 8 oz
- Retracting slide group assy ........................ 3 lb
- Operating slide group assy ........................ 1 lb, 8 oz

**Lengths:**
- Gun with retracting slide group assy ............. 4 ft, 8 1/2 in.
- Gun with operating slide group assy .......... 4 ft, 9 in.
- Barrel ............................................. 8 ft

**Rifling:**
- Length ............................................. 8
- Number of lands and grooves ........................ 8
- Twist, right-hand ..................................... one turn in 15 in.

**Operation:** short recoil

**Feed:** disintegrating metallic link belt

**Cooling:** air

**DATA PLATE LOCATION**

**AMMUNITION**

Types: ball, AP, API, AP-T, incendiary, tracer, headlight, tracer, blank, and dummy.

Links: M2, M4 (T48), T8122, and T8153

**PERFORMANCE**

- **Muzzle velocity (average):**
  - Ball, M2 ........................................ 2,840 fps
  - Incendiary, M23 (T48) ...................... 8,450 fps

- **Maximum range:**
  - Ball, M2 (35° elevation) ................... 7,275 yd
  - Incendiary, M23 (T48) (30° elevation) .... 5,500 yd

- **Rate of fire:** 750-850 rd per min

**EQUIPMENT**

Sighting and Fire Control:
- Table, firing, 0.50-H-1.

Sights are considered to be plane equipment and furnished by the Air Force.

Basic issue items: See ORD 7 SNL A-88.

**INSTRUCTIONAL MATERIAL**

**CARTRIDGE, CALIBER .50, DUMMY: M2 (C58579).**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

Shipped 1 gun per wood box.
- Length ............................................. 5 ft, 3/4 in.
- Width ............................................. 7 in.
- Height ............................................ 9 3/4 in.
- Volume ........................................... 25 cu ft.
- Gross weight ..................................... 100 lb
- Ship tons ........................................ 0.86

Outside Continental United States

Shipped 1 gun per wood box.
- Length ............................................. 5 ft, 3/4 in.
- Width ............................................. 7 in.
- Height ............................................ 9 3/4 in.
- Volume ........................................... 33 cu ft.
- Gross weight ..................................... 100 lb
- Ship tons ........................................ 0.86

MACHINEGUN, CALIBER .50: BROWNING, M2, HEAVY BARREL, FIXED

**Model**

<table>
<thead>
<tr>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>1005-726-5637</td>
</tr>
</tbody>
</table>

**General**

MACHINEGUN, CALIBER, .50: Browning, M2, heavy barrel, fixed is an automatic, recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed from either the right or left side. The metallic link belt is used to feed the ammunition into the weapon. This gun differs from MACHINEGUN, CALIBER, .50: Browning, M1, heavy barrel, flexible machinegun M2 in that it does not have a bolt latch, backplate with spade grips and trigger, or a barrel carrier assembly. Heavy barrel guns do not recoil with as much force as other types of caliber .50 machineguns, therefore several parts of the oil buffer assembly are eliminated and recoil oil is not used. It is charged by means of a retracting slide and fired by means of a side plate trigger. This gun is used in MOUNT, GUN: combination M4 on vehicles.

**Differences among models**

Data plate location

Classification: Standard A (OTCM 86841).

**CHARACTERISTICS**

**Weight:**
- Gun: 82 lb
- Barrel: 28 lb

**Length:**
- Overall: 5 ft 5 in.
- Barrel: 3 ft 9 in.

**Rifling:**
- Length: 8 in.
- Number of lands and grooves: 8
- Twist, right-hand: one turn in 15 in.

**Operation:**
- short recoil

**Feed:**
- disintegrating metallic link belt

**Capacity of feeding device:**
- as desired

**Cooling:**
- air

**AMMUNITION**

| Type                  | Ball, AP, AP, API-T, incendiary, tracer, headlight
|-----------------------|--------------------------------------------------|
| Links                 | M2, M9 (T43), and T81E3

**PERFORMANCE**

Muzzle velocity (average):
- API, M8: 3,050 fps
- Ball, M2: 2,930 fps

Maximum range:
- API, M8 (30° elevation): (approx) 6,470 yd
- Ball, M2 (35° elevation): (approx) 7,460 yd

Rate of fire: 450-555 rd per min

**EQUIPMENT**

Sighting and Fire Control:
- Table, firing, 0.50-AA-T-1
- Table, firing, 0.50-H-1


**INSTRUCTIONAL MATERIAL**

CARTRIDGE, CALIBER .50 DUMMY: M2.

**STORAGE AND SHIPMENT DATA**

Within and Outside Continental United States

Shipped 1 gun per wood box.

- Length: 5 ft 11½ in.
- Width: 7½ in.
- Height: 10⅞ in.
- Volume: 3.3 cu ft
- Gross weight: 117 lb
- Ship tons: 0.08

MACHINEGUN, CALIBER .50: BROWNING, M2, HEAVY BARREL, FLEXIBLE

General

MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible is an automatic, recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed from either the right or left side. The metallic link belt is used to feed the ammunition into the weapon. This gun is equipped with a backplate having spade grips, trigger, and bolt latch release. A bolt latch in the receiver will hold the bolt in the open position after each round is fired unless the bolt latch release on the backplate is in the locked position making the bolt latch inoperative. This gun may be mounted in MOUNT GUN: anti-aircraft, caliber .50 machinegun, M68; MOUNT, GUN: pedestal, twin caliber .50 machinegun, M65; MOUNT, TRIPOD, MACHINE-GUN; M3 and on most vehicles and tanks as an antiaircraft weapon. The gun is equipped with leaf-type sights and a barrel carrier assembly. A retracting slide assembly is furnished with each gun. Heavy barrel guns do not recoil with as much force as other types of caliber .50 machineguns; therefore, several parts of the oil buffer assembly are eliminated and recoil oil is not used.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2, w/o</td>
<td>4-17112-00</td>
<td>1002-322-971E</td>
</tr>
</tbody>
</table>

Weights:

- Gun: 82 lb
- Barrel: 28 lb

Length:

- Overall: 5 ft, 5 in.
- Barrel: 3 ft, 9 in.

Rifling:

- Length: 8
- Number of lands and grooves: one turn in 15 in.

Operation: short recoil

Feed: disintegrating metallic link belt

Capacity of feeding device: air

COOLING

AMMUNITION

Types: ball, AP, API, API-T, incendiary, tracer, headlight tracer, blank, and dummy.

Links: M2, M6 (T43), and T31E3

PERFORMANCE

Muzzle velocity (average):
- API, M8: 3,050 fps
- Ball, M2: 2,930 fps

Maximum range:
- API, M8 (80° elevation): 6,470 yd (approx)
- Ball, M2 (35° elevation): 7,460 yd (approx)

Rate of fire: 450-555 rd per min

EQUIPMENT

Sighting and Fire Control:
- Table, firing, 0.50AA-T-1
- Table, firing, 0.50-R-1

Basic issue items: See ORD 7 SNL A-39.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .50 DUMMY: M2.

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 gun per wood box.

- Length: 6 ft, 9½ in.
- Width: 9 in.
- Height: 10½ in.
- Volume: 3.7 cu ft
- Gross weight: 128 lb
- Ship tons: 0.09

MACHINEGUN, CALIBER .50: BROWNING, M2, HEAVY BARREL, TURRET TYPE

11 September 1962

TM 9-500

MACHINEGUN, CALIBER .50: BROWNING, M2, HEAVY BARREL, TURRET TYPE

CHARACTERISTICS

References:

INSTRUCTIONAL MATERIAL
CARTRIDGE, CALIBER .50 DUMMY: M2.

AMMUNITION
Types
- ball, AP, API, API-T, incendiary, tracer, headlight tracer, blank, and dummy,
- M2, M9 (T43, and T31E3)

PERFORMANCE
Muzzle velocity (average):
- API, M8 (15° elevation)...
- Ball, M2...
- (approx) 3,050 fps...
- (approx) 2,980 fps

Maximum range:
- API, M8 (30° elevation)...
- Ball, M2 (90° elevation)...
- (approx) 1,473 yd...
- (approx) 1,459 yd

Rate of fire:
- 450-555 rd per min

EQUIPMENT
Sighting and Fire Control:
- Table, firing, 0.50-H-1
- Table, firing, 0.50-AA-T-1
- Basic Issue Items: See ORD 7 A-49

INSTRUCTIONAL MATERIAL
CARTRIDGE, CALIBER .50 DUMMY: M2.

STORAGE AND SHIPMENT DATA
Within and Outside Continental United States
Shipped 1 gun per wood box (VCI pack).
- Length...
- Width...
- Height...
- Volume...
- Gross weight...
- Ship tons...

References: SNL A-59, TM 9-2021, TM 9-2205, FM 23-65,
TM 9-1005-213-10/1.

2-37
MACHINEGUN, CALIBER .50: TANK, M85 (T175E2) (FIXED) AND M85C (FLEXIBLE)

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M85</td>
<td></td>
<td>1005-590-2790</td>
</tr>
<tr>
<td>M85C</td>
<td></td>
<td>1005-791-3379</td>
</tr>
</tbody>
</table>

**General**

MACHINEGUN, CALIBER .50: TANK, M85 (T175E2) (fixed) and M85C (flexible) are automatic, recoiled operated, air-cooled, fixed head space weapons having a dual rate of fire. The gun was designed specifically for combat vehicle installation and is particularly suitable for installations presently using MACHINEGUN, CALIBER .50: M2. The simplicity of design allows experienced personnel to field strip the gun in less than 15 seconds and change barrel in less than 5 seconds. Change over from right-hand to left-hand feed is readily accomplished by removal and replacement of a limited number of components.

**Differences among models**

The M85C differs from the M85 in that it has provisions for mounting sights and spade grips with integral trigger extensions, for manual firing.

**Data plate location**

Classification: M85 . . . Standard A (OTCM (37088))

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight:</th>
<th>Gun (complete)</th>
<th>65 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recoiling parts</td>
<td>23.2 lb</td>
</tr>
<tr>
<td></td>
<td>Barrel</td>
<td>16.23 lb</td>
</tr>
</tbody>
</table>

Length:

<table>
<thead>
<tr>
<th>Overall (w/flash suppressor)</th>
<th>4 ft, 6 1/2 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrel</td>
<td>3 ft</td>
</tr>
</tbody>
</table>

Riffling:

<table>
<thead>
<tr>
<th>Length</th>
<th>32.695 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of grooves</td>
<td>8</td>
</tr>
<tr>
<td>Twist, right-hand</td>
<td>one turn in 15 in.</td>
</tr>
</tbody>
</table>

Operation: recoiled

Feed: disintegrating metallic link belt

Cooling: air

**AMMUNITION**

| Types | ball, AP, API, API-T, incendiary, tracer, blank, and dummy |
| Link  | M15, A2 |

**PERFORMANCE**

Muzzle velocity (average):

| API, M8 | 2,950 fps |
| Ball, M2 | 2,840 fps |

Maximum range:

| API, M8 | (approx) 6,975 yd |
| Ball, M2 | (approx) 7,275 yd |

Rate of fire:

| Fast  | 1,050 rd per min |
| Slow  | 500 to 400 rd per min |

**EQUIPMENT**

Sighting and Fire Control:

Basic Issue Items: See TM 9-2350-216-10.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 machinegun per shipping container

<table>
<thead>
<tr>
<th>M85</th>
<th>M85C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 9 in.</td>
</tr>
<tr>
<td>Width</td>
<td>8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 2 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>3.1 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>87 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.08</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped 1 machinegun per shipping container

<table>
<thead>
<tr>
<th>M85</th>
<th>M85C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 9 in.</td>
</tr>
<tr>
<td>Width</td>
<td>8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 2 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>3.1 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>87 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.08</td>
</tr>
</tbody>
</table>

References: TM 9-1005-231-34, TM 9-1005-231-35P
MACHINEGUN, 7.62 MILLIMETER: M60 (T161E3)

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M60</td>
<td>4-17125-00</td>
<td>1005-585-7710</td>
</tr>
</tbody>
</table>

General

MACHINEGUN, 7.62 MILLIMETER: M60 (T161E3) is a lightweight general purpose machinegun using NATO ammunition. It can be fired from the shoulder, hip, sitting, or prone position. In the prone or sitting position, the bipod or MOUNT, GUN: 7.62 millimeter machinegun, M125 may be used.

The front sight is in a fixed position and is permanently mounted. The rear sight is mounted on a spring-type dovetail base. In elevation, movement can be controlled with either a vernier adjusting knob or a quickset-type release. A vernier-type windage adjusting knob is on the left side of the sight.

Differences among models

Data plate location

The name of the machinegun, model, and manufacturer are stamped on top of the receiver in front of the rear sight. The serial number is stamped on the left side of the receiver below the rear sight.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Weight:
- Gun: 23.16 lb
- Barrel (complete): 8.38 lb

Length:
- Overall: 3 ft, 7½ in.
- Barrel (w/socket): 1 ft, 10½ in.

Rifling:
- Length: approx 20 in.
- Number of lands: 4
- Twist, right-hand: one turn in 12 in.

Operation:
- Gas operated
- Feed: link belt

Cooling:
- Air

Sight graduations:
- 1,200 yd

Trigger pull:
- 11.5 lb (max); 6 lb (min)

AMMUNITION

Types (NATO): AP, ball, dummy, tracer

Link M13

PERFORMANCE

Muzzle velocity: 2,800 fps

Maximum range: 3,200 meters

Rate of fire: (approx) 550 rpm

EQUIPMENT

Sighting and Fire Control:


Basic Issue Items: See TM 9-1005-224-12.

INSTRUCTIONAL MATERIAL

CARTRIDGE, 7.62 MILLIMETER DUMMY: NATO, M63

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 machinegun, w/e, per shipping container (VCI pack).
- Length: 2 ft, 9½ in.
- Width: 1 ft, 1 in.
- Height: 10 in.
- Volume: 2.6 cu ft
- Gross weight: 50 lb
- Ship tons: 0.07

Outside Continental United States

Shipped 1 machinegun, w/e, per shipping container (VCI pack).
- Length: 2 ft, 10½ in.
- Width: 1 ft, 1¾ in.
- Height: 10½ in.
- Volume: 3.4 cu ft
- Gross weight: 53 lb
- Ship tons: 0.09

MACHINEGUN, 7.62-MILLIMETER: M73

Major Item

Model | Line item No. | Federal stock No.
--- | --- | ---
M73 | | 1000-075-0760

General

MACHINEGUN, 7.62-MILLIMETER: M73 is a lightweight, air-cooled weapon used primarily as a coaxial gun on tanks. It is disintegrating metallic link belt fed for either right or left side. It has a short receiver, is recoil operated with a gas assist to boost recoil, has a fixed head space, is fired from the open bolt position, and has a quick change barrel.

Differences among models

Data plate location

Classification: M73 Standard A (OTCM 37069)

CHARACTERISTICS

Weight of gun (complete):

- **M73**: 29.31 lb
- **Barrel**: 5.25 lb

Length:

- M73 (including flash suppressor): 38.00 in.
- **Barrel**: 22.00 in.

Rifling:

- Length: 20 in.
- Number of grooves: 4
- Twist, right-hand: one turn in 12 in.

Operation: recoil with gas assist

Feed: disintegrating metallic link belt

Cooling: air

Trigger pull: 15 lb

AMMUNITION

Types: AP, ball, tracer, dummy

Link: M12

PERFORMANCE

- Muzzle velocity: approx. 2,800 fps
- Maximum range: 4,500 yd
- Rate of fire: 500 rd per min

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

*Within Continental United States*

Shipped 1 machinegun per shipping container.

- Length: 3 ft. 1½ in.
- Width: 10½ in.
- Height: 8½ in.
- Volume: 1.91 cu ft
- Gross weight: 41 lb
- Ship tons: 0.05

*Outside Continental United States*

Shipped 1 machinegun per shipping container.

- Length: 3 ft. 1½ in.
- Width: 10½ in.
- Height: 8½ in.
- Volume: 2.90 cu ft
- Gross weight: 41 lb
- Ship tons: 0.05
MOUNT, COMMANDER'S CUPOLA, M13

General

MOUNT, commander's cupola, M13 is installed on CARRIER, PERSONNEL, FULL-TRACKED: armored, M59 (serial No. F2402 and up) and MORTAR, SELF-PROPELLED, FULL-TRACKED: 4.2-Inch, M84 to provide the commander with reasonable armor protection, close-in defensive fire power, and target observation by permanently installed direct vision blocks or a periscope. It provides support for MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, turret type, and means for its loading, charging, and positioning in azimuth and elevation.

Characteristics

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (w/o machinegun)</td>
</tr>
<tr>
<td>Length (w/o machine gun)</td>
</tr>
<tr>
<td>Width or diameter</td>
</tr>
<tr>
<td>Height (silhouette above vehicle)</td>
</tr>
<tr>
<td>Azimuth</td>
</tr>
<tr>
<td>Elevation</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Operation</td>
</tr>
</tbody>
</table>

Equipment

Sighting and Fire Control:

- Sight, periscope, M28 (furnished separately).
- Mount, periscope, M101A1 (furnished separately).

Basic issue items: See TM 9-2300-208-12.

* For characteristics and data, see item in section 14.
### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>mount per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>mount per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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</tr>
<tr>
<td>Width</td>
<td></td>
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<tr>
<td>Height</td>
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<tr>
<td>Volume</td>
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</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-3065-227-35; TM 9-1006-227-85P.
MOUNT, GUN: AA CALIBER .50 MACHINEGUN, M63

General

AA CALIBER .50 machinegun, M63 is a four-legged, low silhouette, medium weight, portable mount, used for antiaircraft fire. The mount can be easily disassembled into four compact assemblies: the leg assembly, the base assembly, the elevator assembly, and the cradle and yoke assembly which includes the trigger control mechanism. When disassembled, it is easily transportable. This mount is used primarily with MACHINEGUN, CALIBER .50: Ballistic, M2, flexible. For emergency use, MACHINEGUN, CALIBER .50: AN-M2 and AN-M3 aircraft, basic, and cal. .50 Browning machineguns can also be mounted in this mount. The mount is rigid, as there are no recoil or shock-absorbing mechanisms, and no adjustments with the exception of a slight adjustment in the trigger control mechanism to provide proper contact with the side plate trigger mounted on the gun. There are no sights on the mount and direction of fire is checked by tracer bullets. A side plate trigger is used to fire the gun. The trigger is part of the mount and is left with the mount when the gun is removed.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Weight:

| Item                        | Weight
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(W/amunition box adapter)</td>
<td>144 lb</td>
</tr>
<tr>
<td>Four legs</td>
<td>24 lb</td>
</tr>
<tr>
<td>Base assembly</td>
<td>64 lb</td>
</tr>
<tr>
<td>Elevator assembly</td>
<td>44 lb</td>
</tr>
<tr>
<td>Cradle assembly</td>
<td>44 lb</td>
</tr>
<tr>
<td>Amunition box adapter</td>
<td>10 lb</td>
</tr>
</tbody>
</table>

Height overall ................................................. 42 in.
Length of leg ................................................. 24 in.
Diameter of base (w/leg assembled) .................................. 62 in.
Maximum elevation ........................................... 86°
Maximum depression ........................................... 29°
Traverse ......................................................... 360°

EQUIPMENT

Basic Issue Items: See ORD 7 SNL A-30

INSTRUCTIONAL MATERIAL

For Graphic Training Aids and Devices, see DA Pam 810-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount per wood box.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 1/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 11 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 8 3/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>8.6 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>288 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.22</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 mount

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

MOUNT, GUN: PEDESTAL, TWIN CALIBER .50, M65 MACHINEGUN

General
MOUNT, GUN: pedestal, twin caliber .50 machinegun M65 is a pedestal-type antiaircraft mount which mounts two MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible without change in backplate, or two MACHINEGUN, CALIBER .50: Browning, AN-M2, aircraft, basic, with spade grip backplate conversion group assembly and retracting slide group assembly. It is mounted principally on decks of boats; however, it may be used in many other installations having fixed foundations, such as docks, bridges, roofs, etc. The left side gun must be assembled for left-hand feed and left-hand charging; the right side gun must be assembled for right-hand feed and right-hand charging.

Differences among models

Data plate location
Classification: Standard B (OTCM 86641).

CHARACTERISTICS
Weight .................................... 825 lb
Maximum elevation .................................. 80°
Maximum depression ................................ -10°
Traverse ................................ 360°

EQUIPMENT

Basic Issue Items: See ORD 7-8 SNL A-55, Sec 33.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 5 mount per wood box.

Outside Continental United States

Ship tons ................................ 1.99

Length ........................................ 6 ft, 7 in.
Width ........................................ 3 ft, 6% in.
Height ......................................... 3 ft, 6% in.
Volume ........................................ 79.7 cu ft
Gross weight ................................ 1,300 lb

References: SNL A-55, Sec 33, TM p-430, TM 9-2205.

2-44
MOUNT, GUN: TRAILER, MULTIPLE CALIBER .50 MACHINEGUN, M55

General
MOUNT, GUN: trailer, multiple caliber .50 machinegun, M55, is composed of MOUNT, GUN: caliber .50 machinegun, M45C and TRAILER, 1-ton, 2-wheel, machinegun mount, M20. The mount M45C is a power-driven, semi armored gun mount with self-contained power units. A power charger produces electrical current to be stored in two 6-volt storage batteries. The electrical system operates from the storage batteries. This mount is constructed to accommodate four (two on each side) MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, turret type. The early models have four (two on each side) ammunition chests M2. On later models, these models have been modified to replace the chests with ammunition box trays (FSN 1005-659-0078). Power is directed by a pair of control handles placed directly in front of the operator's seat on the mount. This mount is normally mounted on the mount trailer M20.

The trailer M20 is a two-wheeled vehicle designed to transport mount M45C either by manpower or by a 1/4-ton 4x4 truck. In an emergency, it can be coupled to any vehicle equipped with a pintle tow hook. The maximum towing speed over smooth surfaced roads is 10 miles per hour while over terrain, the speed must not exceed 5 miles per hour. When the trailer is to be transported any great distance, it is loaded onto a suitable trailer. Three lift jacks with special mount assemblies, two at the rear and one at the drawbar, permit quick removal of the wheels, and lowering of the body to the ground to afford the trailer a solid foundation for firing.

Differences among models

Data plate location
Classification: Standard A (OTCM 34841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model M55, w/o</td>
<td>4-35516-00</td>
<td>1005-675-6750</td>
</tr>
</tbody>
</table>

Mount M45C:
- Weight of mount (fully equipped) (approx) 2,150 lb
- Overall width 4 ft 7 in.
- Overall height 6 ft 3 in.
- Azimuth speed 0° to 60° per sec
- Elevation speed 0° to 60° per sec
- Power charger speed 2,600 to 2,900 rpm
- Traverse 360°
- Elevation 90°
- Depression 10°

Mount trailer M20:
- Weight (approx) 800 lb
- Width of tread (c to c) 5 ft
- Ground clearance under body 7 in.
- Height of drawbar lunette for max clearance 1 ft 10½ in.

Tires:
- Size 22 x 7.5 x 11.60 in. (6 ply)
- Type aircraft, smooth contour tread
- Inflation pressure 60 lb

EQUIPMENT
Sighting and Fire Control:
- Mount, sight (FSN 1290-767-6767).
- Sight, reflex, M18.

Basic Issue Items: See ORD 7 SNL A-61.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped 1 mount per wood box.

<table>
<thead>
<tr>
<th>Item</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft 11¾ in.</td>
<td>6 ft 3¼ in.</td>
<td>6 ft 3¼ in.</td>
<td>419 cu ft</td>
<td>3,420 lb</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Grandview Continental United States

Shipped mount per

<table>
<thead>
<tr>
<th>Item</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- For characteristics and data, see item in section 14.

2-45
MOUNT, TRIPOD, MACHINEGUN: CALIBER .30, M2

General
MOUNT, TRIPOD, MACHINEGUN: caliber .30, M2, is a lightweight portable, folding mount used for ground fire. It consists of three tubular steel legs joined in a tripod head, the two rear legs being joined and additionally supported by a traversing bar forming a simple A-truss and serving as a rear support for the elevating mechanism which in turn supports the mounted gun. The tripod head acts as a front support for the mounted gun and is in turn supported by the short front leg. MACHINEGUN, CALIBER .30: Browning M1919A4 flexible, is used primarily with this mount for ground fire; however, it can mount MACHINEGUN, CALIBER .30: Browning, M1917A1, M1919A4E1, M1919A6 or M37. This mount is stowed on various vehicles and tanks for possible ground use when conditions warrant.

Differences among models

Data plate location
Classification: Standard B (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2, w/o</td>
<td>4-26536-00</td>
<td>1005-322-9718</td>
</tr>
</tbody>
</table>

Weight: 14 lb
Length:
- Extended: 32.5 in.
- Folded for transportation: 37 in.
- Spread of rear legs: 30 in.
- W/o releasing elevating mechanism: 160°
- Free: 360° (4,000 mil)

Elevating range:
- Free: 21° to 46°
- Mechanical: 19° to 25°
- Least increment: 1 mil

Elevating handwheel graduated: 1 mil

EQUIPMENT

Basic Issue Items: See ORD 7 SNL A-6.

INSTRUCTIONAL MATERIAL

For Graphic Training Aids and Devices, see DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 4 mounts per wood box.
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

Outside Continental United States

Shipped 4 mounts per
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

MOUNT, TRIPOD, MACHINEGUN: CALIBER .30, M1917A1

General
MOUNT, TRIPOD, MACHINEGUN: caliber .30, M1917A1, is a lightweight portable folding mount. This mount has as a central member a socket with three projecting lugs. Attached to these lugs are three legs which may be clamped independently in various positions. The cradle assembly seats in the socket and houses the elevating and traversing mechanism. Mount M1917A1 is intended primarily for machinegun, caliber .30: M1917A1, but can mount machinegun caliber .30: M1919A4, M1919A4E1, M1919A6, or M37.

Data plate location
Classification: Standard B (OTCM 38841).
Differences among models

CHARACTERISTICS

- Weight: 58.2 lb
- Length:
  - Extended: 3 ft, 6 in.
  - Folded for transportation: 3 ft
- Spread of front legs extended: 3 ft, 3 in.
- Traversing range:
  - Mechanical: 50 mil
  - Free: 6,400 mil (360°)
- Traversing dial graduated: every 20 mil for 6,400 mil
- Elevation: 65°
- Depression: 22.5°

- Elevating limits, mechanical range: 50 mil
- Elevating arc graduated: every 25 mil for 900 mil
- Depression in cradle slots: (max) 500 mil (28°)
- Depression within graduation on:
  - Elevating arc: (max) 400 mil (22.5°)

EQUIPMENT
Basic Issue Items: See ORD 7 SNL A-5.

INSTRUCTIONAL MATERIAL
For Graphic Training Aids and Devices, see DA Pam 810-5.

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 1 mount per wood box.
- Length: 4 ft, 1½ in.
- Width: 1 ft, 1½ in.
- Height: 1 ft, 1½ in.
- Volume: 3.8 cu ft
- Gross weight: 98 lb
- Ship tons: 0.09

Outside Continental United States
Shipped 1 mount per
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

**MOUNT, TRIPOD, MACHINEGUN: CALIBER .50, M3**

**General**

MOUNT, TRIPOD, MACHINEGUN: caliber .50, M3, is a lightweight portable folding mount. It consists of three telescoping tubular legs joined in a tripod head, the two rear legs being joined and additionally supported by a traversing bar. The traversing bar forms a single A-truss and serves as a rear support for the elevating mechanism which in turn supports the mounted gun. The tripod head furnishes a front support for the mounted gun, it being in turn supported by the short front leg. MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible, is used with this mount. By the addition of a spade grip backplate conversion group assembly, MACHINEGUN, CALIBER .50: Browning, M2/M2, aircraft, basic, can be used with this mount in an emergency. This mount is stowed on various vehicles and tanks for possible ground use when conditions warrant.

**Differences among models**

**Data plate location**

**Classifications:** Standard A (OTCM 36341).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2, w/e</td>
<td>4-26641-90</td>
<td>1009-222-8716</td>
</tr>
</tbody>
</table>

**Traversing range:**

- Without releasing elevating mechanism: 45°
- Free: 90°
- Traversing bar graduated: 800 mil
- Maximum elevation: 5.5°
- Maximum depression: 14°
- Least increment of elevation: 1 mil

**EQUIPMENT**

**Basic Issue Items:** See ORD 7 SNL A-39.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 mount per wood box.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft, 3/4 in.</td>
<td>10 7/8 in.</td>
<td>4 3/4 in.</td>
<td>5.7 cu ft.</td>
<td>50 lb</td>
<td>9.07</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped 1 mount per wood box.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MOUNT, TRIPOD, MACHINEGUN: 7.62-MM, M122

MOUNT, TRIPOD, MACHINEGUN: 7.62-mm, M122, is a lightweight, portable, folding mount, used for ground fire. It is composed of three main groups: the tripod, the elevating and traversing mechanism, and the pintle. The elevating and traversing mechanism has a quick-disconnect adapter which fastens to a plate beneath the receiver of the weapon. When released, the weapon may be traversed a full 360° and manually elevated or depressed. The pintle has a platform with a quick-disconnect latch which uncouples the weapon from the mount by pressing forward on the release latch.

MACHINEGUN, 7.62 MILLIMETER: M60, is used with this mount.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount per shipping container

Length ........................................ 2 ft, 7½ in.
Width ........................................... 7¾ in.
Height .......................................... 6 in.
Volume ......................................... 0.86 cu ft
Gross weight ................................... 25 lb
Ship tons .. 0.021

Outside Continental United States

Shipped 4 mounts per shipping container

Length ........................................ 2 ft, 10½ in.
Width ........................................ 7¾ in.
Height ........................................ 6 in.
Volume ........................................ 4.48 cu ft
Gross weight ................................ 129 lb
Ship tons .................................... 0.11

**PISTOL, CALIBER .22, AUTOMATIC: COLT, SUPER MODEL**

**WOODSMAN, 4½-INCH BARREL**

**Major Items**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above)</td>
<td>1000-680-3220</td>
<td></td>
</tr>
</tbody>
</table>

**General**

PISTOL, CALIBER .22, AUTOMATIC: Colt, super model Woodsman, 4½-inch barrel, is a recoil-operated, air-cooled, magazine-fed, automatic loading hand weapon. The barrel is cylindrical. The front sight is adjustable for elevation and the rear sight is adjustable for windage. This weapon is identical to the standard model in appearance with the exception that it has a shorter barrel.

**Differences among models**

Data plate location

Data are located on the left and right sides of the pistol.

**Classification:** No type classification.

**CHARACTERISTICS**

- **Weight**: 1 lb, 11 oz
- **Length overall**: 8½ in.
- **Length of barrel**: 4½ in.
- **Riding**:
  - **Length**:
  - **Number of grooves**:
  - **Twist**: blade (adjustable)
- **Operation**: short recoil
- **Feed**: magazine
- **Capacity of feeding device**: 10 rd
- **Type of front sight**: blade (adjustable)
- **Type of rear sight**: adjustable (windage)
- **Cooling**: air
- **Trigger pull**: 2.5 lb

**AMMUNITION**

- **Type**: ball

**PERFORMANCE**

- **Muzzle velocity (long rifle, lead bullet)** (units of different mfr may vary): 970 fps
- **Maximum range (long rifle cal) (30° elevation)**: 1,500 yd

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 25 pistols per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4½ in.</td>
<td>11½ in.</td>
<td>.84 in.</td>
<td>.17 cu ft</td>
<td>76 lb</td>
<td>.04</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped 25 pistols per (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4½ in.</td>
<td>11½ in.</td>
<td>.84 in.</td>
<td>.17 cu ft</td>
<td>76 lb</td>
<td>.04</td>
</tr>
</tbody>
</table>

**References:** FM 23-35.
PISTOL, CALIBER .22, AUTOMATIC: COLT, WOODSMAN, MATCH TARGET

Major items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above)</td>
<td></td>
<td>1005-181-8045</td>
</tr>
</tbody>
</table>

General

PISTOL, CALIBER .22, AUTOMATIC: Colt. Woodsman target, is a recoil-operated, air-cooled, magazine-fed, semiautomatic hand weapon. Both of these weapons are identical in operation and functioning. These weapons are used for training purposes.

Differences among models

Data plate location:
Data are located on right and left sides of the pistol.

Classification: No type classification.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length overall</th>
<th>Length of barrel</th>
<th>Rilling</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 lb, 4 oz</td>
<td>11 in.</td>
<td>6 1/2 in.</td>
<td></td>
</tr>
</tbody>
</table>

Operation:
Recoil

Feed:
Magazine

Capacity of feeding device:
10 rd

Type of front sight:
Blade (fixed)

Type of rear sight:
Adjustable (windage and elevation)

Cooling:
Air

Trigger pull:

AMMUNITION

Type: Ball

PERFORMANCE

Muzzle velocity (long rifle, lead bullet) (cartridges of different manufacture may vary) 970 fps

Maximum range (long rifle cartridge) (80° elevation) 1,500 yd

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 26 pistols per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft. 7 1/4 in.</td>
<td>1 ft. 1 3/4 in.</td>
<td>8 1/4 in.</td>
<td>2.1 cu ft</td>
<td>100 lb</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 26 pistols per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft. 7 1/4 in.</td>
<td>1 ft. 1 3/4 in.</td>
<td>8 1/4 in.</td>
<td>2.1 cu ft</td>
<td>100 lb</td>
<td>0.05</td>
</tr>
</tbody>
</table>


2-51
PISTOL, CALIBER .22, AUTOMATIC: HIGH STANDARD, MODEL B

General
PISTOL, CALIBER .22, AUTOMATIC: High Standard Model B is a recoil-operated, air-cooled, magazine-fed, automatic loading hand weapon. Both front and rear sights are fixed and the pistol is hammerless.

Differences among models

Data plate location
Data are located on the left and right sides of the pistol.

Classification: No type classification.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>1 lb. 15 oz</td>
</tr>
<tr>
<td>Length overall</td>
<td>8 3/4 in.</td>
</tr>
<tr>
<td>Length of barrel</td>
<td>4 3/4 in.</td>
</tr>
<tr>
<td>Rilling</td>
<td></td>
</tr>
<tr>
<td>Number of grooves</td>
<td></td>
</tr>
<tr>
<td>Twist, left-hand</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>recoil</td>
</tr>
<tr>
<td>Feed</td>
<td>magazine</td>
</tr>
<tr>
<td>Capacity of feeding device</td>
<td>10 rd</td>
</tr>
<tr>
<td>Type of front sight</td>
<td>fixed</td>
</tr>
<tr>
<td>Type of rear sight</td>
<td>fixed</td>
</tr>
<tr>
<td>Cooling</td>
<td>air</td>
</tr>
<tr>
<td>Trigger pull</td>
<td></td>
</tr>
</tbody>
</table>

AMMUNITION

Type .............................................. ball

PERFORMANCE

Muscle velocity (long rifle, lead bullet) ........ 970 fps
Maximum range (long rifle ctg) (30° elevation) ........ 1,500 yd

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 25 pistols per wood box (VCI pack).
Length ............................................ 2 ft, 7 3/4 in.
Width .............................................. 11 3/4 in.
Height ............................................ 8 3/4 in.
Volume ........................................... 1.9 cu ft
Gross weight .................................... 77 lb
Ship tons ....................................... 0.05

Outside Continental United States
Shipped 25 pistols per wood box (VCI pack).
Length ............................................
Width ..............................................
Height ............................................
Volume ...........................................
Gross weight ....................................
Ship tons ........................................

References: SNL B-32, FM 23-35.
PISTOL, CALIBER .22, AUTOMATIC: HIGH STANDARD, SUPERMATIC (5½-INCH BARREL)

General

PISTOL, CALIBER .22, AUTOMATIC: high standard, supermatic is a 10-shot magazine-loaded hand weapon chambered for the caliber .22 long rifle cartridge only. The rear sight has a precision click adjustment for windage and elevation. The front sight is of the adjustable ramp type. The barrel has ports near its muzzle to stabilize it against muzzle jump. Weights of 2 to 5 ounces may be added to a dovetailed slot in the barrel to give balance to the pistol. A positive lock safety is provided which locks the sear in the safe position. A slide lock automatically holds the slide open after firing the last round in the magazine. Takedown of the barrel and the slide assembly is easily accomplished by depressing a barrel plunger cam. The trigger is of the serrated type for nonslip action and the grips are diamond checkered solid plastic.

Differences among models

Data plate location

Data are located on the left and right sides of the pistol.

Classification: Standard A (OTCM 31119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above)</td>
<td>4-29150-10</td>
<td>1005-317-2474</td>
</tr>
</tbody>
</table>

Type of front sight: adjustable ramp
Type of rear sight: micrometer click sight
Cooling: water
Trigger pull: 2½ to 8 lb

AMMUNITION

Type: ball

PERFORMANCE

Muzzle velocity (long rifle, lead bullet) 970 fps (cartridges of different manufacture may vary).
Maximum range (long rifle, ctg) (60° elevation) 1,500 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-40.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 pistols per wood box (VCI box).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped 25 pistols per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

PISTOL, CALIBER .22, AUTOMATIC: RUGER, MARK I
(TARGET MODEL) (6 7/8-INCH BARREL)

General
PISTOL, CALIBER .22, AUTOMATIC: Ruger, Mark I, is a 9-shot magazine-loaded hand weapon, chambered for the caliber .22 long rifle cartridge only. The "micro" rear sight is attached to the receiver and does not move with the recoil action of the weapon. The sight has precision click adjustment for windage and elevation. The front sight is a partridge style with a 1/4-inch wide blade. The bolt assembly which slides inside the receiver has serrated lugs used in initially cocking the weapon. A positive lock safety lever is provided which locks the sear in the safe position. It also can be used to lock the bolt in the rear position for chamber inspection. The trigger is of the serrated type for nonslip action. The grips are butaprene hard black gloss rubber with diamond checkering.

Differences among models

Data plate location
Data are located on the right and left sides of the pistol.

Classification: Standard A (OTC# 37119).

CHARACTERISTICS

Weight ............................................. 2 lb, 10 oz
Length overall .................................. 10 7/8 in.
Length of barrel ................................ 6 7/8 in.

Rifling:

<table>
<thead>
<tr>
<th>Number of grooves</th>
<th>Twist, right-hand</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>one turn in 14 in.</td>
<td>6 7/8 in.</td>
</tr>
</tbody>
</table>

Operation: recoil
Feed: magazine
Capacity of feeding device: 9 rds
Type of front sight: partridge style

Type of rear sight: micrometer click
Cooling: 2 1/4 - 3 1/4 lb

AMMUNITION

Type: ball

PERFORMANCE

Muzzle velocity (long rifle (40 grain)) (cartridges of different manufacture may vary): 970 fps
Maximum range (long rifle ctg) (30° elevation): 1,500 yd

EQUIPMENT

Basic Issue Items: See ORD 1 SNL B-49.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped pistols per
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped pistols per
Length
Width
Height
Volume
Gross weight
Ship tons

STORAGE AND SHIPMENT DATA

PISTOL, CALIBER .32, AUTOMATIC: COLT

General

PISTOL, CALIBER .32, AUTOMATIC: Colt is a light defensive hand weapon generally used for ranges of less than 100 yards. It is air-cooled, magazine-fed, recoil-operated, and automatic loading. During recoil the empty cartridge case is ejected; the pistol is then ready to be fired again by actuating the trigger. This pistol is similar in appearance to PISTOL, CALIBER .380, AUTOMATIC: Colt.

Differences among models

Data plate location:

Data are located on the right and left sides of the pistol.

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

Weight (including magazine) .............................................. 1 lb, 8 oz
Length overall ......................................................... 6¾ in.
Length of barrel ......................................................... 3¾ in.

Rifling:

Length ......................................................... 3¾ in.
Number of grooves .................................................
Twist, hand .........................................................
Operation ......................................................... short recoil
Feed ..................................................... magazine
Capacity of feeding device ........................................... 8 rd
Cooling .............................................................. air

AMMUNITION

Type .......................................................... ball (71 or 74 grain bullet)

PERFORMANCE

Muzzle velocity ................................................... 980 fps
Maximum range .....................................................

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-36.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 pistols per wood box (VCI pack).

Length ......................................................... 2 ft, 4¾ in.
Width ......................................................... 9½ in.
Height ......................................................... 8½ in.
Volume ......................................................... 1.4 cu ft
Gross weight .................................................. 63 lb
Ship tons ...................................................... 0.04

Outside Continental United States

Shipped 25 pistols per wood box (VCI pack).

Length ......................................................... 2 ft, 4¾ in.
Width ......................................................... 9½ in.
Height ......................................................... 8½ in.
Volume ......................................................... 1.4 cu ft
Gross weight .................................................. 63 lb
Ship tons ...................................................... 0.04

PISTOL, CALIBER .380, AUTOMATIC: COLT

Differences among models

Data plate location
- Data are located on the left and right sides of the pistol.

Classification: Standard A (OTCM 7119).

CHARACTERISTICS
- Weight (including magazine): 1 lb, 8 oz
- Length overall: 6 3/4 in.
- Length of barrel: 3 1/2 in.
- Weight (including magazine): 1 lb, 8 oz
- Length overall: 6 3/4 in.
- Length of barrel: 3 1/2 in.

Rifling:
- Length
- Number of grooves
- Twist, hand

Operation:
- Recoil
- Magazine

Capacity of feeding device: 7 rd

Cooling:
- Air

AMMUNITION
- Type: ball (95-grain bullet) (9-mm short)

PERFORMANCE
- Muzzle velocity: 970 fps
- Maximum range (30° elevation): 1,089 yd

EQUIPMENT
- Basic Issue Items: See ORD 7 SNL B-85.

STORAGE AND SHIPMENT DATA

Within Continental United States
- Shipped 25 pistols per wood box (VCI pack).
- Length: 2 ft, 4 1/4 in.
- Width: 9 1/8 in.
- Height: 8 1/2 in.
- Volume: 1.4 cu ft
- Gross weight: 48 lb
- Ship tons: 0.04

Outside Continental United States
- Shipped 25 pistols per wood box (VCI pack).
- Length: 2 ft, 4 1/4 in.
- Width: 9 1/8 in.
- Height: 8 1/2 in.
- Volume: 1.4 cu ft
- Gross weight: 48 lb
- Ship tons: 0.04


General

PISTOL, CALIBER .45, AUTOMATIC: M1911A1, is a light defensive hand weapon generally used for ranges of less than 100 yards. It is an air-cooled, magazine-fed, recoil-operated, and automatic loading. The gas pressure generated, when the cartridge is fired, forces the recoiling parts to the rear. During recoil, the empty cartridge case is ejected, the recoil spring compressed and the hammer cocked. When the recoil movement has been completed, the compressed recoil spring expands forcing the recoiling parts forward into battery chambering a round of ammunition, thereby placing the pistol in the "ready to fire" position. This pistol has an inertia type firing pin. National match weapons are specially selected for inherent accuracy during manufacture and conform to specific National Match Standards. They are used for all competitive matches held within the Army areas in the zones of interior and overseas.

Differences among models

The M1911A1 national match pistol with 1961 improvements is similar to the standard M1911A1 except that the national match has a lightweight long trigger with adjustable stops, higher front and rear sights, checked steel and selected parts. One version has adjustable rear sight.

Data plate location

Classification: M1911A1—Standard A (OTCM 86961).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1911A1, w/o</td>
<td>4-29289-10</td>
<td>1010-919-1331</td>
</tr>
<tr>
<td>M1911A1, w/shoulder</td>
<td>4-29290-81</td>
<td>1005-795-2067</td>
</tr>
<tr>
<td>M1911A1, national match</td>
<td>4-29288-20</td>
<td>1001-814-8124</td>
</tr>
<tr>
<td>M1911A1, national match, w/adj</td>
<td>4-29286-20</td>
<td>1001-788-3026</td>
</tr>
<tr>
<td>M1911A1, national match, w/adj, rear sight</td>
<td>4-29281-20</td>
<td>1001-788-3026</td>
</tr>
</tbody>
</table>

Mining:

Length: 4.118 in.
Number of grooves: 6
Twist, left-hand: one turn in 16 in.
Operation: short recoil
Feed: magazine
Capacity of feeding device: 7 rd
Cooling: air
Trigger pull:
New or repaired: 6 to 6½ lb
In hands of troops: 6 to 6½ lb

AMMUNITION

Types: ball, tracer, blank, and dummy

PERFORMANCE

Muzzle velocity (ball, 231- or 234-grain bullet): 880 fps
Maximum range (ball) (30° elevation): 1,640 yd

EQUIPMENT

Basic Issue Items: M1911A1 See TM 9-1005-211-12P/2.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .45 DUMMY: M1921.

For Graphic Training Aids and Devices, see DA Pam 810-5.

STORAGE AND SHIPMENT DATA

North and Outside Continental United States

Shipped 25 pistols per wood box (VCI pack).
Length: 2 ft, 9½ in.
Width: 11½ in.
Height: 10 in.
Volume: 1.3 cu ft
Gross weight: 9½ lb
Ship tons: 0.08


2-57
REPOSITIONER, 20-MILLIMETER, M17

General

REPOSITIONER, 20-mm, M17, is a small, lightweight, hand-operated machine used to accurately reposition rounds in disintegrating belts composed of M1, M7, M9, or M10 links.

Differences among models

Data plate location

The identification plate is located on the front of the base assembly. It includes the name, model number, serial number of the repositioner, and the name and address of the manufacturer. An instruction plate is mounted on the infeed top guide assembly.

Classification: Standard (for U.S. Air Force use only) (OTCM 86841).

CHARACTERISTICS

Net weight ........................................ 8 lb
Length ........................................ 2 ft. 4 in.
Width ........................................ 1 ft. 6 in.
Height ........................................ 1 ft. 7 in.
Links used ...................................... M5, M7, M8, and M10

PERFORMANCE

Normal operating speed ........................................ 200 rd per min

EQUIPMENT

Basic issue items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped repositioners per
Length ........................................ 2 ft. 4 in.
Width ........................................ 1 ft. 6 in.
Height ........................................ 1 ft. 7 in.
Volume ...........................................
Gross weight ....................................... 115 lb
Ship tons ........................................

Outside Continental United States

Shipped repositioners per
Length ........................................
Width ........................................
Height ........................................
Volume ........................................
Gross weight ..................................
Ship tons ....................................

References: SNL A-73, Sec. 2; TM 9-9204-1.
REVOLVER, CALIBER .38: COLT, DETECTIVE SPECIAL, 2-INCH BARREL

PERFORMANCE
Muzzle velocity (ball, 158-grain bullet) .......................... 170 fps
Maximum range (ball) (80° elevation) (approx) 950 yd
Maximum effective range ............................................. 50 yd

EQUIPMENT
Basic Issue Items: See ORD 7 SNL B-29.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 26 revolvers per wood box (VCI pack).
Length ................................................. 2 ft, 7½ in.
Width .................................................. 10 in.
Height ............................................... 11 in.
Volume ............................................... 2.0 cu ft
Gross weight ......................................... 97 lb
Ship tons .............................................. 0.65

Outside Continental United States
Shipped 26 revolvers per wood box (VCI pack).
Length ................................................. 2 ft, 7½ in.
Width .................................................. 10 in.
Height ............................................... 11 in.
Volume ............................................... 2.0 cu ft
Gross weight ......................................... 97 lb
Ship tons .............................................. 0.65

References: SNL B-29, TM 0-2206, FM 28-85, SB 9-112.

2-59
REVOLVER, CALIBER .38: COLT, POLICE POSITIVE SPECIAL, 4-INCH BARREL

General

REVOLVER, CALIBER .38: Colt, police positive special, 4-inch barrel, is a light defensive hand weapon generally used for ranges of less than 100 yards. It has a solid frame, fixed sights, and a swing-out type cylinder which holds six cartridges.

AMMUNITION

Type: ball

PERFORMANCE

Muzzle velocity (ball, 158-grain bullet) 870 fps
Maximum range (ball) (89° elevation) 1,085 yd

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 revolvers per wood box (VCI pack).

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped 25 revolvers per wood box (VCI pack).

Length
Width
Height
Volume
Gross weight
Ship tons

TM 9-500

REVOLVER, CALIBER .38: COLT, SPECIAL OFFICER'S MODEL, SHORT ACTION, NATIONAL MATCH GRADE

![Image of a revolver](image)

### Major Item

<table>
<thead>
<tr>
<th>Item</th>
<th>Line Item No.</th>
<th>Federal Stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>as above w/e</td>
<td>4-28735-00</td>
</tr>
</tbody>
</table>

### General

REVOLVER, CALIBER .38: Colt, special officer's model; short action, national match grade, is used for target practice. It has a rear sight which is adjustable for elevation and windage, a front sight of a ramp type, a heavy barrel, and a wide spur hammer.

### Differences among models

Data plate location

Classification: No type classification.

### CHARACTERISTICS

- **Weight**: 30 oz
- **Length overall**: 11½ in.
- **Length of barrel**: 6 in.

### Rifling:

- **Number of grooves**:
- **Twist, -hand**
- **Number of chambers**: 6
- **Type of front sight**: ramp fixed blade
- **Type of rear sight**: adjustable

### AMMUNITION

- **Types**: .38 Special (midrange, regular and high speed loads, including .38-44).

### PERFORMANCE

- **Muzzle velocity**
- **Maximum range**

### EQUIPMENT

### INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

Within Continental United States

- **Shipped revolves per**

Outside Continental United States

- **Shipped revolves per**

### References

Not printed.
REVOLVER, CALIBER .38: COLT, SPECIAL, OFFICIAL POLICE, 2- AND 4-INCH BARREL

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above) 2-inch barrel, w/hip holster.</td>
<td>4-85871-10</td>
<td>1005-214-0923</td>
</tr>
<tr>
<td>(as above) 2-inch barrel, w/shoulder holster.</td>
<td>4-85871-11</td>
<td>1005-699-1679</td>
</tr>
<tr>
<td>(as above) 4-inch barrel, w/hip holster.</td>
<td>4-85840-10</td>
<td>1005-214-0832</td>
</tr>
<tr>
<td>(as above) 4-inch barrel, w/shoulder holster.</td>
<td>4-85840-11</td>
<td>1005-699-1690</td>
</tr>
</tbody>
</table>

General

REVOLVER, CALIBER .38: Colt, special, official police, 2- and 4-inch barrel, is light defensive hand weapon generally used for ranges of less than 100 yards. They function either single or double action and have a swing-out type cylinder which holds six cartridges.

Differences among models

The only difference between the two models is in the length of the barrel.

Data plate location

Data are stamped on the left side of the barrel.

Classification: Standard A (OTCM 88841).

CHARACTERISTICS

Weight:

| (2-in. barrel) | 1 lb, 5 oz |
| (4-in. barrel) | 1 lb, 6 oz |

Length overall:

| (2-in. barrel) | 6 1/8 in. |
| (4-in. barrel) | 8 3/8 in. |

Blasting:

| Length | |
| Number of grooves | |
| Twist | |
| Number of chambers | 6 |
| Type of front sight | blade (fixed) |
| Type of rear sight | groove (fixed) |
| Cooling | air |

AMMUNITION

Type: ball

PERFORMANCE

Muzzle velocity (4-inch barrel) (ball, 105-grain bullet)........ 870 fps
Maximum range (ball) (30° elevation)............... (approx) 1,086 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-29

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 revolvers (2-in. barrel) per wood box (VCI pack).

| Length | 2 ft, 7 1/4 in. |
| Width | 10 in. |
| Height | 11 in. |
| Volume | 2.9 cu ft |
| Gross weight | 63 lb |
| Ship tons | 0.05 |

Shipped 25 revolvers (4-in. barrel) per wood box (VCI pack).

| Length | 2 ft, 7 1/4 in. |
| Width | 11 in. |
| Height | 11 in. |
| Volume | 2.4 cu ft |
| Gross weight | 66 lb |
| Ship tons | 0.06 |

Outside Continental United States

Shipped 25 revolvers (2-in. barrel) per wood box (VCI pack).

| Length | 2 ft, 7 1/4 in. |
| Width | 10 in. |
| Height | 11 in. |
| Volume | 2.9 cu ft |
| Gross weight | 63 lb |
| Ship tons | 0.05 |

Shipped 25 revolvers (4-in. barrel) per wood box (VCI pack).

| Length | 2 ft, 7 1/4 in. |
| Width | 11 in. |
| Height | 11 in. |
| Volume | 2.4 cu ft |
| Gross weight | 66 lb |
| Ship tons | 0.06 |

**REVOLVER, CALIBER .38: SMITH AND WESSON, MILITARY AND POLICE (SHORT ACTION), 2- AND 4-INCH BARREL**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above) 2-inch barrel, w/hip holster.</td>
<td>4-35831-30</td>
<td>1005-840-7306</td>
</tr>
<tr>
<td>(as above) 4-inch barrel, w/hip holster, w/e.</td>
<td>4-35840-30</td>
<td>1005-840-7307</td>
</tr>
<tr>
<td>(as above) 4-inch barrel, w/shoulder holster, w/e.</td>
<td>4-35840-31</td>
<td>1005-699-1681</td>
</tr>
</tbody>
</table>

**General**

REVOLVER, CALIBER .38: Smith and Wesson, military and police (short action), 2- or 4-inch barrel, is a light defensive hand weapon generally used for ranges of less than 100 yards. It functions either single or double action and has a swing-out type cylinder which holds six cartridges. The short action model was redesigned for the purpose of reducing the length of hammer travel, thereby speeding up lock time and making it easier and faster to cock the gun in single action firing. This was accomplished by relocating the hammer stud and redesigning the hammer, sideplate, frame, and other components with the exception of the location of the trigger.

**Differences among models**

The only difference between these models is in the length of the barrel.

**Data plate location**

Data are stamped on the right side of the barrel and frame.

**Classification:** Standard A (OTCM 38441).

**CHARACTERISTICS**

- Weight: 1 lb, 14½ oz
- Length overall: 9¾ in.
- Height overall: 5 in.
- Width overall: 1½ in.
- Length of barrel: 4 in.
- Number of chambers: 6

**Rifling:**
- Length
- Number of grooves: 5
- Twist, right-hand: fixed
- Type of front sight: adjustable
- Type of rear sight: adjustable
- Trigger pull:
  - Single action: 3-5 lb
  - Double action: (max) 14 lb

**AMMUNITION**

- Types: ball

**PERFORMANCE**

- Muzzle velocity (ball, 158 grain bullet): 760 fps
- Maximum range (ball) (30° elevation): (approx) 1.085 yd

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL B-29.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

- Shipped 25 revolvers per wood box (VCI pack):
  - Length: 2 ft, 7¼ in.
  - Width: 11¼ in.
  - Height: 11 in.
  - Volume: 2.4 cu ft
  - Gross weight: 74.6 lb
  - Ship tons: 0.06

Outside Continental United States

- Shipped 25 revolvers per wood box (VCI pack):
  - Length: 2 ft, 7¼ in.
  - Width: 11¼ in.
  - Height: 11 in.
  - Volume: 2.4 cu ft
  - Gross weight: 74.6 lb
  - Ship tons: 0.06

**References:** SNL B-29, TM 9-2205, FM 23-35, SB 9-112.
REVOLVER, CALIBER .38: SMITH AND WESSON, SPECIAL, K-38 (MASTERPIECE)

**General**

REVOLVER, CALIBER .38: Smith and Wesson, special, K-38 (Masterpiece), is a 6-shot breech-loading hand weapon. It has a solid frame, a swingout cylinder with six chambers and a manual ejector. The cylinder, mounted on a yoke assembled to the front of the frame, swings out when released by the thumbpiece. The cylinder is unloaded by pressure on the ejector rod which passes down the central axis of the cylinder. Spring loading returns the ejector rod to its original position. This revolver is a selective-double-action type or single action type. There is a built-in safety which prevents firing except by pull on the trigger. The front sight is 3/8- or 3/16-inch wide plain partridge style. The rear sight has micrometer click adjustments for windage and elevation. The grips are walnut wood with diamond checkering. The hammer spur and trigger are knurled.

**Differences among models**

Data plate location

Data are stamped on the right and left side of the barrel and on the right side of the frame.

**Classification:** No type classification.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight (loaded)</th>
<th>2 lb. 8½ oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length overall</td>
<td>31½ in.</td>
</tr>
<tr>
<td>Length of barrel</td>
<td>6 in.</td>
</tr>
<tr>
<td>Rifling:</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>6 in.</td>
</tr>
<tr>
<td>Twist, right-hand</td>
<td>one turn in 18½ in.</td>
</tr>
<tr>
<td>Number of grooves</td>
<td>5</td>
</tr>
<tr>
<td>Type of front sight</td>
<td>plain partridge</td>
</tr>
</tbody>
</table>

**Type of rear sight**: micrometer click

**Cooling**: ........................... 

**Trigger pull**: 

- Single action: 2½ to 3½ lb
- Double action: 12 to 14 lb

**AMMUNITION**

Type: ball

**PERFORMANCE**

- Muzzle velocity (ball, mid-range, 146-grain bullet) ............................ fps
- Maximum range (ball, mid-range, 146-grain bullet) ............................ yd

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL B-29.

**STORAGE AND SHIPMENT DATA**

**Withiin Continental United States**

- Shipped 25 revolvers per wood box (VCI pack).
- Length: ...........................................
- Width: .........................................
- Height: ........................................
- Volume: ......................................
- Gross weight: .................................
- Ship tons: ....................................

**Outside Continental United States**

- Shipped 25 revolvers per wood box (VCI pack).
- Length: ...........................................
- Width: .........................................
- Height: ........................................
- Volume: ......................................
- Gross weight: .................................
- Ship tons: ....................................

**References**: SNL B-29, TM 9-1006-226-14, SB 9-112.
REVOLVER, CALIBER .38: SMITH AND WESSON, SPECIAL, MILITARY AND POLICE, 2- AND 4- INCH BARREL

Model | Line Item No. | Federal stock No. | Description |
--- | --- | --- | --- |
Revolver (as above), 2-inch barrel, w/hip holster. | 4-16831-20 | 1066-840-7203 | REVOLVER, CALIBER .38: Smith and Wesson, special, military and police, 2- and 4-inch barrel, are light defensive hand weapons generally used for ranges of less than 100 yards. They function either single or double action and have a swing-out type cylinder which holds six cartridges. This revolver can be identified by the ".38 S&W Special CTG." on the barrel. |
Revolver (as above), 4-inch barrel, w/hip holster. | 4-16840-20 | 1066-214-0934 | | |
Revolver (as above), 4-inch barrel, w/shoulder holster. | 4-16840-01 | 0606-699-1685 | |

Differences among models
The only difference between these models is in the length of the barrel.

Data plate location
Data are stamped on the right, left sides and top of the barrel and frame.

Classification: Standard A (OTCM 3841).

CHARACTERISTICS

Weight: (2-in. barrel) 1 lb, 8 oz (4-in. barrel) 1 lb, 12 oz
Length overall: (2-in. barrel) 7 3/4 in. (4-in. barrel) 9 3/4 in.
Number of chambers 6
Type of front sight blade (fixed)
Type of rear sight groove (fixed)

AMMUNITION
Type ball

PERFORMANCE (4-in. barrel)
Muzzle velocity (ball, 158-grain bullet) 760 fps
Minimum range (ball) (90° elevation) (approx) 1,085 yd

EQUIPMENT
Basic Issue Items: See ORD 7 SNL B-29.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 25 revolvers, 2-inch barrel per wood box (VCI pack).
Length 2 ft, 7 3/4 in.
Width 10 3/4 in.
Height 10 3/4 in.
Volume 2.1 cu ft
Gross weight 70 lb
Ship tons 0.05

Shipped 25 revolvers, 4-inch barrel per wood box (VCI pack).
Length 2 ft, 7 3/4 in.
Width 11 3/4 in.
Height 11 in.
Volume 2.4 cu ft
Gross weight 74.5 lb
Ship tons 0.06

Outside Continental United States
Shipped 25 revolvers, 2-inch barrel per wood box (VCI pack).
Length 2 ft, 7 3/4 in.
Width 10 3/4 in.
Height 10 3/4 in.
Volume 2.1 cu ft
Gross weight 70 lb
Ship tons 0.05

Shipped 25 revolvers, 4-inch barrel per wood box (VCI pack).
Length 2 ft, 7 3/4 in.
Width 11 3/4 in.
Height 11 in.
Volume 2.4 cu ft
Gross weight 74.5 lb
Ship tons 0.06

References: SNL B-29, TM 9-2205, FM 23-35.
# REVOLVER, CALIBER .38: SMITH AND WESSON, SPECIAL, MILITARY AND POLICE (SHORT ACTION), 2- AND 4-INCH BARREL

## CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above), 2-inch barrel. w/shoulder holster.</td>
<td>4-85840-177</td>
<td>1605-999-1684</td>
</tr>
<tr>
<td>(as above), 4-inch barrel. w/hip holster.</td>
<td>4-85840-40</td>
<td>1005-540-7604</td>
</tr>
<tr>
<td>(as above), 4-inch barrel. w/shoulder holster.</td>
<td>4-85840-41</td>
<td>1005-540-1686</td>
</tr>
</tbody>
</table>

### General

REVOLVER, CALIBER .38: Smith and Wesson, special, military and police (short action), 2- and 4-inch barrel, are lightweight defensive hand weapons generally used for ranges of less than 100 yards. They function either single or double action and have a swing-out type cylinder which holds six cartridges. The short action model was redesigned for the purpose of reducing the length of hammer travel, thereby speeding up lock time and making it easier and faster to cock the gun in single action firing. This was accomplished by relocating the hammer stud and redesigning the hammer, sideplate, frame, and other components with the exception of the location of the trigger. These weapons differ from the caliber .38 short action Smith and Wesson 4-inch barrel revolver in that they are chambered for the special caliber .38 cartridge.

### Data plate location

Data are stamped on the right side of the barrel and frame.

### Classification:

Standard A (OTCM 38544).

## AMMUNITION

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight: 3-5 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single action</td>
<td>(max) 14 lb</td>
</tr>
</tbody>
</table>

## PERFORMANCE (4-in. barrel)

- **Muzzle velocity** (ball, 150-grain bullet) | 760 fps
- **Maximum range** (ball, 100' elevation) | (approx) 1,085 yd

## EQUIPMENT

**Basic Issue Items:** See ORD 7 SNL B-26.

## STORAGE AND SHIPMENT DATA

### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped 26 revolvers, 4-inch barrel, per wood box (VCI pack).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped 26 revolvers, 4-inch barrel, per wood box (VCI pack).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

## References

- SNL B-26, TM 9-2205, FM 22-85.
RIFLE, CALIBER .22: SURVIVAL, M4 (T38) (HORNET CARTRIDGE)

General
RIFLE, CALIBER .22: survival, M4, is for use by Air Force personnel for the procurement of food when such personnel are forced down in uninhabited or hostile territory. It is basically a bolt action, repeating weapon firing the cal. .22 Hornet cartridge. It is equipped with a stamped metal receiver casing and has a collapsible wire stock. The barrel is removable from the weapon for packing purposes. The rifle is equipped with a receiver-mounted peep rear sight and a blade type front sight.

Differences among models

Data plate location
Data are located on the barrel, receiver, and frame.

Classification: Standard B.

CHARACTERISTICS

Model
M4

Line Item No.
1803-576-0010

Federal stock No.

Weight
4 lb

Length overall
2 ft, 8½ in.

Feed
Magazine

Length of barrel
18½ in.

Capacity of feeding device
10 rd

Type of action
Bolt-action, repeating, nonautomatic

AMMUNITION

Type
Ball (45-grain soft point bullet)

PERFORMANCE

Muzzle velocity
2,090 fps

Maximum effective range
50 yd

EQUIPMENT

Basic issue items: See ORD 7-8 SNL B-43.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 20 rifles per wood box (VCI pack)

Length
1 ft, 9½ in.

Width
1 ft, 6½ in.

Height
1 ft, 2½ in.

Volume
3.2 cu ft

Gross weight
125 lb

Ship tons
0.08

Outside Continental United States

Shipped rifles per wood box (VCI pack)

Length
1 ft, 9½ in.

Width
1 ft, 6½ in.

Height
1 ft, 2½ in.

Volume
3.2 cu ft

Gross weight
125 lb

Ship tons
0.08

References: SNL B-43, TB ORD 389.
RIFLE, CALIBER .22: M12 (WINCHESTER MODELS 52 STANDARD, 52 HEAVY BARREL, 52B AND 52C; REMINGTON MODEL 40X-S1)

**Major Item**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>52 Standard, w/e</td>
<td>4-33996-39</td>
<td>1000-3317-2472</td>
</tr>
<tr>
<td>52 Heavy barrel, w/e</td>
<td>4-33996-40</td>
<td>1000-3317-2472</td>
</tr>
<tr>
<td>52B</td>
<td>4-33996-50</td>
<td>1000-736-7845</td>
</tr>
<tr>
<td>52C</td>
<td>4-33996-52</td>
<td>1000-820-6785</td>
</tr>
<tr>
<td>40X-S1, w/e</td>
<td>4-33996-20</td>
<td>1000-694-4128</td>
</tr>
</tbody>
</table>

**General**

RIFLE, CALIBER .22: M12 designates commercial rifles classified for match competition and includes the Winchester Models 52 Standard, 52 Heavy Barrel, 52B and 52C, and Remington Model 40X-S1. The rear sight is a micrometer type adjustable for both windage and elevation. The hooded front sight is furnished with several types of removable inserts ranging from a post to a cross-hair. Provisions for mounting a telescope are provided.

**Characteristics**

- **Weight:**
  - Winchester, 52 Standard: 10 lb
  - Winchester, 52 Heavy Barrel: 12 lb
  - Winchester, 52B
  - Winchester, 52C
  - Remington

- **Length overall:**
  - Winchester (all models): 3 ft, 9 1/2 in.
  - Remington

- **Length of barrel:**
  - Winchester, 52 Standard: 2 ft, 4 in.
  - Winchester, 52 Heavy Barrel: 2 ft, 2 1/4 in.
  - Winchester, 52B
  - Winchester, 52C
  - Remington

- **Rifling:**
  - Length:
    - Winchester, 52 Standard
    - Winchester, 52 Heavy Barrel
    - Winchester, 52B
    - Winchester, 52C
    - Remington

- **Number of lands and grooves:** 6

- **Twist:** Right-hand, one turn in 16 in.

- **Operation:** Manual

- **Feed:**
  - Winchester: Optional (magazine or single shot using single shot adapter)
  - Remington: Single shot (hand-loaded)

- **Capacity of feeding device:**
  - Winchester: 5 rd
  - Remington: 1 rd

- **Type of front sight:** Hooded, interchangeable inserts

- **Type of rear sight:** Micrometer

**Ammunition**

- **Types:**
  - Winchester, 52 Standard: Ball, long rifle or short (40- or 29-grain bullet)
  - Winchester, 52 Heavy Barrel: Ball, long rifle (40-grain bullet)
  - Winchester, 52B
  - Winchester, 52C

**Performance**

- **Muzzle velocity (ball, long rifle (40-grain bullet):** 1,100 fps

**Equipment**

**INSTRUCTIONAL MATERIAL**

- **Storage and Shipment Data**
  - Within Continental United States:
    - Shipped 10 rifles per wood shipping container.
    - Length: 4 ft, 4 in.
    - Width: 1 ft, 9 1/2 in.
    - Height: 1 ft, 4 1/8 in.
    - Volume: 10.5 cu ft
    - Gross weight: 210 lb
    - Ship tons: 0.26
  - Outside Continental United States:
    - Shipped 10 rifles per wood shipping container.
    - Length: 4 ft, 4 in.
    - Width: 1 ft, 9 1/2 in.
    - Height: 1 ft, 4 1/8 in.
    - Volume: 10.5 cu ft
    - Gross weight: 210 lb
    - Ship tons: 0.26

**References:**

- TM 9-1005-206-14P/4, TM 9-1005-226-14
RIFLE, CALIBER .22: M13 (WINCHESTER MODEL 75, TARGET; REMINGTON MODEL 513T, MATCHMASTER)

Shown:
RIFLE CALIBER .22: M13
(UPPER—REMTNGTON, MODEL 513T, MATCHMASTER)
(LOWER—WINCHESTER, MODEL 75, TARGET)

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>75, w/e</td>
<td>4-33994-40</td>
<td>1003-317-2411</td>
</tr>
<tr>
<td>513T, w/e</td>
<td>4-33994-20</td>
<td>1065-840-2758</td>
</tr>
</tbody>
</table>

General

RIFLE, CALIBER .22: M13 designates commercial rifles classified for training purposes and includes the Winchester target rifle model 75 and the Remington matchmaster rifle model 513T. They are magazine-fed, manually-operated, bolt action, shoulder weapons. The rear sight is a micrometer type adjustable for both windage and elevation and the front sight is the fixed blade type.

Differences among models

The Winchester model 75 has a magazine containing 5 rounds of ammunition and a short fixed blade-type front sight.

The Remington model 513T has a magazine containing 6 rounds of ammunition and a long fixed blade-type front sight.

Data plate location

Data are located on top of the receiver.

Classification: Standard A (OTCM 36541).

CHARACTERISTICS

Weight (w/o equipment):

- Winchester: 7 lb. 8 oz
- Remington: 8 lb. 3 oz

Length overall: 3 ft. 9 in.

Length of barrel:

- Winchester: 2 ft. 4 1/4 in.
- Remington: 2 ft. 3 in.

Operation: manual

Feed: magazine

Capacity of feeding device:

- Winchester: 5 Rd
- Remington: 6 Rd

Type of front sight: fixed blade

Type of rear sight: adjustable

Cooling: air

Rifling:

- Length:
  - Winchester: 2 ft. 3 1/2 in.
  - Remington: 2 ft. 2 1/2 in.

Number of lands and grooves: 6

Twist, right-hand: one turn in 16 in.

AMMUNITION

Type: full (long rifle, 40-grain bullet)

PERFORMANCE

Muzzle velocity: 1,100 fps

Maximum range (long rifle ctg) (30° elevation): 1,500 yd

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 rifles per wood shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>4 ft. 4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft. 1/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 4 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>10.3 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>210 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.26</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 10 rifles per wood shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>4 ft. 4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft. 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 4 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>10.3 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>210 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.26</td>
</tr>
</tbody>
</table>

RIFLE, CALIBER .30: U.S., M1903A4 (SNIPER'S)

General
RIFLE, CALIBER .30: U.S., M1903A4 is a magazine-fed, manually-operated, bolt action, shoulder weapon used for sniping. TELESCOPE: M73B1 or M94 is mounted to the top of the receiver. In addition, the bolt handle has a clearance cut on the outside to prevent interference with the telescope when the handle is raised to unlock the bolt. Ammunition must be loaded into the magazine singly because the telescope covers the top of the receiver. The telescope is a delicate instrument; therefore, care must be used in handling the rifle when it is mounted. This rifle is being replaced by RIFLE, CALIBER .30, AUTOMATIC: U.S., M1C.

Differences among models

Data plate location

Classification: Standard B (OTCM 3841).

CHARACTERISTICS

Weight:
(w/mount base) 8 lb, 11 oz
(w/telescope) 9 lb, 3 oz

Length:
Overall 3 ft, 7/12 in.
Barrel 24 in.

Operation manual

Feed receiver magazine

Capacity of feeding device 5 rds

Cooling air

AMMUNITION

Types: ball, tracer, AP, API, and dummy

PERFORMANCE

Muzzle velocity (ball) 2,800 fps
Maximum range (ball) (30° elevation) 3,500 yd

EQUIPMENT

Sighting and Fire Control
Telescope: M73B1 or M94
Basic Issue Items: See ORD 7 SNL B-3.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 DUMMY: M40 (20/ctn) TRAINER
RIFLE SIGHTING: device, M15

STORAGE AND SHIPMENT DATA

Domestic and Oversea Pack
Shipped 10 rifles per wood box (VCI pack).

Length 3 ft, 17/8 in.
Width 1 ft, 15/8 in.
Height 1 ft, 15/8 in.
Volume 5.3 cu ft
Gross weight 164 lb
Ship tons 0.13


* For characteristics and data, see item in section 14.
RIFLE, CALIBER .30: WINCHESTER, MODEL 70 (SPECIAL MATCH GRADE)

General

RIFLE, CALIBER .30: Winchester, Model 70, is a bolt-action, 6-shot, magazine-loaded repeating rifle. The rear sight has click sight adjustments for windage and elevation. The front sight is a hooded detachable sight with nine interchangeable inserts. Provisions for mounting a telescope are provided. The stock is of walnut wood with a checkered steel butt plate.

Differences among models

Data plate location

Classification: Standard B (OTCM 35841).

CHARACTERISTICS

Weight ...................................................... 9 1/2 lb
Length overall ....................................... 3 ft. 8 1/2 in.
Length of barrel ...................................... 2 ft.
Rifling:
   Number of grooves ................................... 4
   Twist, right-hand ................................... one turn in 10 in.
Operation ................................................. manual
Feed ......................................................... magazine
Capacity of feeding device ............................. 5 rd
Type of front sight .................................... hooded, interchangeable inserts
Type of rear sight ...................................... micrometer click
Cooling ..................................................... water
Trigger pull .............................................. 4 to 6 1/2 lb

AMMUNITION

Type ....................................................... ball (160-grain bullet)

PERFORMANCE

Muzzle velocity ........................................
Maximum range ........................................

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-50.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Skipped rifles per
Length .................................................
Width ....................................................
Height ...................................................
Volume ..................................................
Gross weight .......................................... Ship tons ...........................................

Outside Continental United States

Skipped rifles per
Length .................................................
Width ....................................................
Height ...................................................
Volume ..................................................
Gross weight .......................................... Ship tons ...........................................

RIFLE, CALIBER .30, AUTOMATIC: BROWNING, M1918A2

General

RIFLE, CALIBER .30, AUTOMATIC: Browning, M1918A2, is a gas-operated, magazine-fed, automatic, light infantry weapon. A selector located on the receiver regulates the rate of automatic fire so that the rifle can be fired either at high speed or at a retarded speed. Provision for firing single shots is not made. The rifle can be fired either from the shoulder, hip, or ground. When fired from the ground, a bipod attached to the muzzle end of the barrel is used. The butt plate has a hinged shoulder rest to provide additional support when firing.

Differences among models

Data plate location

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model M1918A2, w/a</td>
<td>4-36075-00</td>
<td>1008-674-1809</td>
</tr>
</tbody>
</table>

Weight:
- (W/ sling) .......................... 20 lb
- (W/o equipment) ..................... 16 lb, 6 oz
- Magazine ................................ 2 lb, 7 oz (empty)
- Bipod .................................. 1 lb, 7 oz (fielded)
- Length overall ........................ 8 ft, 11½ in.
- Length of barrel ...................... 21 in.
- Rifling:
  - Length ................................ 27.41 in. (72.1 cm)
  - Number of grooves ................... 4
  - Twist, right-hand ................... one turn in 10 in. (25.4 cm)
  - Depth of grooves .................... 0.0060 in.
- Capacity of feeding device ......... 20 rd
- Magazine ................................ magazine
- Cooling ................................... air
- Sight radius ........................... 2 ft, 7½ in.
- Trigger pull ........................... 10 lb max; 6 lb min

AMMUNITION

Types ......... ball, tracer, AP, incendiary, API, blank, and dummy

PERFORMANCE

Muzzle velocity (ball) .................................. 2,800 fps
Maximum range (ball) (30° elevation) .................. 3,500 yd
Rate of fire:
- Fast automatic .................................. 500-640 rds per min
- Slow automatic .................................. 300-460 rds per min

EQUIPMENT

Basic issue items: See ORD 7 SNL A-4.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 DUMMY: M40.

For Graphic Training Aids and Devices, see DA Pam 310-6.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 5 rifles, w/ sling and cover per wood box.
- Length ................................ 4 ft, 1½ in.
- Width ................................ 4½ in.
- Height ................................ 8½ in.
- Volume ................................ 4.6 cu ft
- Gross weight ........................... 165 lb
- Ship tons ................................ 0.11

Outside Continental United States

Shippedrifles
- Length ................................ 4 ft, 1½ in.
- Width ................................ 4½ in.
- Height ................................ 8½ in.
- Volume ................................ 4.6 cu ft
- Gross weight ........................... 165 lb
- Ship tons ................................ 0.11

RIFLE, CALIBER .30, AUTOMATIC: U.S., M1, NATIONAL MATCH, M1C (SNIPER'S), AND M1D (SNIPER'S)

General
RIFLE, CALIBER .30, AUTOMATIC: U.S., M1, M1C, and M1D, is gas-operated, semiautomatic, clip-fed, offensive shoulder weapon. Eight cartridges, loaded into a clip, are inserted into the receiver and a new cartridge automatically feeds into the chamber after each round is fired. When the last round in the clip has been fired, the clip is automatically ejected from the receiver and the bolt remains in its rearmost position ready for the insertion of another loaded clip. The trigger must be actuated to fire each round.

The M1 rifle, when specially selected for inherent accuracy during manufacture and when conforming to specific National Match Standards, is stamped NM on the barrel and is used for all competitive matches held within the Army areas in the zone of interior and overseas.

Differences among models
The rifles M1C and M1D differ from the M1 in that they have a telescope mount attached to the receiver. They also have a removable flash hider assembled to the front end of the barrel and a cheek pad laced to the stock.

The M1D differs from the rifle M1C in the design of the telescope mount. On the rifle M1C, the telescope is held in a removable mount that has a dovetailed slide that mates with a bracket on the receiver. On the rifle M1D, the telescope is held in a removable mount, which is attached by a screw and plunger, on the barrel.

Rifles of early manufacture of the same model may differ somewhat due to change in design of some of the component parts.

Data plate location
Classification: M1 and M1D .............. Standard A (OTCM 97902), M1C .............. Standard A (OTCM 96841), M1 National Match .............. No type classification.

Weights

<table>
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<tr>
<th></th>
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<tbody>
<tr>
<td>M1</td>
<td>4-36090-00</td>
<td>1006-674-1G5</td>
</tr>
<tr>
<td>M1C</td>
<td>4-36160-10</td>
<td>1006-674-14S1</td>
</tr>
<tr>
<td>M1D, w/e</td>
<td>4-36180-20</td>
<td>1006-726-6478</td>
</tr>
<tr>
<td>M1, National Match, w/e</td>
<td>4-36091-10</td>
<td>1006-726-6478</td>
</tr>
</tbody>
</table>

CHARACTERISTICS

M1 ................................................. 8.5 lb
M1C or M1D:
Without accessories, but including permanently mounted bracket ... 9.75 lb
With telescopes, flash hider, gun sling, and cheek pad ............ 11.75 lb

Length of rifle only ........................................ 3 ft, 7½ in.
Length of rifle with flash holder (M1C and M1D) ............. 3 ft, 10¼ in.
Length of barrel .................................................. 24 in.

Rifling:
Length ................................................ 21.20 in. (70.8 cal.)
Number of grooves .............................................. 4
Twist, right-hand ............................................. one turn in 10 in.
Depth of grooves .................................................. 0.0040 in.
Operation ......................................................... gas
Feed .......................................................... clip
Capacity of feeding device ...................................... 8 rd
Cooling ......................................................... air

AMMUNITION

Types .......... ball, tracer, AF, blank, incendiary API, dummy, and grenade cartridge (see grenade launcher M7-series).

PERFORMANCE

Muzzle velocity (ball) .............................................. 2,800 fps
Maximum range (ball) ............................................ 3,450 yd
Rate of fire ......................................................... automatic

EQUIPMENT

Sighting and Fire Control:
Telescopes: M84 (M1C and M1D)

Basic issue items: See TM 9-1006-222-12P/2 (M1, M1C, and M1D), TM 9-1006-222-12P/1 (M1, National Match).

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 DUMMY: M49.
TRAINER, RIFLE, SIGHTING: device, M16.

For Graphic Training Aids and Devices, see DA Pam 265-5.

* For characteristics and data for item, see section 14.

2-73
STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 10 rifles per wood box (VCI pack).

Length:
- M1: 4 ft, 1 in.
- M1C and M1D: 3 ft, 11\(\frac{3}{4}\) in.

Width:
- M1: 1 ft, 6\(\frac{1}{2}\) in.
- M1C and M1D: 1 ft, 1\(\frac{1}{2}\) in.

Height:
- M1: 1 ft, 1 in.
- M1C and M1D: 1 ft, 1\(\frac{1}{2}\) in.

Volume:
- M1: 6.3 cu ft
- M1C and M1D: 5.3 cu ft

Gross weight:
- M1: 160 lb
- M1C and M1D: 182 lb

Ship tons:
- M1: 0.17
- M1C and M1D: 0.18

GUN, SPOTTING, CALIBER .50: M8C

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8C</td>
<td></td>
<td>1005-511-9042</td>
</tr>
</tbody>
</table>

General

GUN, SPOTTING, CALIBER .50: M8C is used on RIFLE, 106-MILIMETER: M40A1 or M40A1C to assist the gunner in determining range. It is a magazine-fed, percussion-fired, gas-operated, semiautomatic weapon that utilizes special caliber .50 ammunition, which incorporates a tracer element and provides a smoke puff on impact. Either a 10-round or 20-round magazine may be used with this weapon.

Characteristics

Weight:
- Without magazine: 24.41 lb
- With 10-round magazine (loaded): 25.66 lb
- With 20-round magazine (loaded): 31.27 lb
- 10-round magazine (unloaded): 1.25 lb
- 20-round magazine (unloaded): 2.13 lb
- 10-round magazine (loaded): 8.61 lb
- 20-round magazine (loaded): 6.85 lb

Length:
- Overall: 8 ft, 8 ½ in.
- Barrel: 2 ft, 8 in.

Twist:
- Length of grooves: 8
- Number of grooves: one turn in 12 in.
- Depth of grooves: 0.010 in.

Operation: Gas
Feed: Magazine
Capacity of feeding device: 10 or 20 rd
Cooling: Air

Ammunition

Types: Practice, spotter-tracer

Performance

Muzzle velocity: 1,760 fps
Estimated accuracy life: 5,000 rd

Equipment

Sighting and Fire Control:
Basic Issue Items: See TM 9-1006-206-12.

Storage and Shipment Data

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped 4 rifles per shipping container.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped 4 rifles per shipping container.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: TM 9-1000-206-12, TM 9-1006-217-34, TM 9-1006-217-85F.
RIFLE, 7.62-MILLIMETER, AUTOMATIC: M14; BIPOD, RIFLE: M2

CHARACTERISTICS

Rifle:
- Weight: 9.1 lb (w/empty magazine less sling), 11 lb (fully loaded w/sling attached)
- Length:
  - Overall (w/flash suppressor): 3 ft, 6¾ in.
  - Barrel: 1 ft, 10 in.
- Riffling:
  - Length: 19.91 in.
  - Number of grooves: 4
  - Twist, right-hand: 1 turn in 12 in.
- Operation: Gas
- Feed:
- Type of feeding device: Magazine
- Capacity of feeding device: 20 rd
- Cooling: Air
- Type of mechanism: Rotating bolt
- Trigger pull: 7.6 lb max; 5.5 lb min

Bipod:
- Weight: 1 lb
- Spread of legs:
  - With legs telescoped: 10¾ in.
  - With legs fully extended: 13¾ in.
- Height:
  - With legs telescoped: 9 in.
  - With legs fully extended: 13¾ in.

AMMUNITION

Types (NATO):
- AP, blank, ball, tracer, and dummy

PERFORMANCE

- Muzzle velocity: 2,750 fps
- Maximum range: 3,200 meters
- Maximum effective range: 500 yd
- Rate of fire:
  - Semiautomatic: 40 to 60 rd per min
  - Automatic: 120 to 150 rd per min
  - Sustained: 8 to 10 rd per min

EQUIPMENT

Basic Issue Items:
- See TM 9-1005-223-12.

INSTRUCTIONAL MATERIAL

ATTACHMENT, FIRING, BLANK: Ammunition, 7.62-mm, M12.
CARTRIDGE, 7.62 MILLIMETER DUMMY: NATO, M63.
DEVICE, AIMING: M2.
TRAINER, RIFLE, SIGHTING: Device, M15.

STORAGE AND SHIPMENT DATA

Within Continental United States
- Shipped 10 rifles per wood shipping container.
  - Length: 4 ft, 5¾ in.
  - Width: 1 ft, 10 in.
  - Height: 1 ft, 10 in.
  - Volume: 8.22 cu ft
  - Gross weight: 176 lb
  - Ship tons: .205

Outside Continental United States
- Shipped 10 rifles per wood shipping container.
  - Length: 4 ft, 9¾ in.
  - Width: 1 ft, 10¾ in.
  - Height: 1 ft, 10 in.
  - Volume: 8.00 cu ft
  - Gross weight: 135 lb
  - Ship tons: .45

References:
RIFLE-SHOTGUN, SURVIVAL, CALIBER .22/.410-GAGE, M6 (T39)

Model | Line item No. | Federal stock No. |
-------|---------------|------------------|
M6, w/e | 1006-576-0073 | |

**General**

The RIFLE-SHOTGUN, survival, caliber .22/.410-gage, M6, is for use by Air Force personnel for procurement of food when such personnel are forced down in uninhabited or hostile territory. It is a single shot weapon of the "over and under" type. The top barrel is chambered for the cal. .22 Hornet cartridge; the lower barrel will accept the .410 shotgun shell or the .410 rifled slug. A spring actuated extractor is provided. The weapon is equipped with a sheet metal stock having provision for storing ammunition. A bar type trigger is used; no applied safety is provided. The rear sight is a "flip over" type containing a peep for the rifle barrel and an open sight for the shotgun barrel. The front sight is a blade type sight adjusted at manufacture. This sight is secured to the top barrel and constructed to provide clearance around the bottom barrel. This floating feature allows either barrel to elongate independently of the other when expansion occurs due to heat produced by firing. An eyelet is provided in the front sight for attaching one end of a sling.

**Differences among models**

**Data plate location**

Data are located on the left-hand side of the rifle-shotgun.

**Classification:** Standard A (OTCM 35841).

**CHARACTERISTICS**

Weight: 3% lb
Length of barrel: 14 in.
Firing position: 2 ft, 3% in.
Folding for packing: 1 ft, 2 in.
Firing mechanism: percussion
Type of action: hammer, single shot

**AMMUNITION**

- Cal. .22 Hornet cartridge:
  - Type: ball (45-grain soft point bullet)
- .410-gage shotgun cartridge:
  - Type: Cartridge (3-in., No. 7½ chilled shot) (M35, all aluminum, 3-in., No. 6 chilled shot)

**PERFORMANCE**

- Muzzle velocity (cal. .22 Hornet cal): 2,690 fps
- Average velocity over 25-yard range:
  - .410-gage, 3-in., No. 7½ chilled shot: 950 fps
- Maximum effective range:
  - .410-gage, 3-inch shotgun shell, No. 6 chilled shot: 25 yd
  - Cal. .22 Hornet cartridge (ball): 50 yd

**EQUIPMENT**

**Basic Issue Items:** See ORD 7 SNL B-45.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 20 rifle-shotguns per wood box (VCI pack):
- Length: 3 ft, ½ in.
- Width: 1 ft, 7 in.
- Height: 1 ft, 6 in.
- Volume: 7.2 cu ft
- Gross weight: 200 lb
- Ship tons: 0.18

**Outside Continental United States**

Shipped 20 rifle-shotguns per wood box (VCI pack):
- Length: 3 ft, ½ in.
- Width: 1 ft, 7 in.
- Height: 1 ft, 6 in.
- Volume: 7.2 cu ft
- Gross weight: 200 lb
- Ship tons: 0.18

**References:** SNL B-45, TB ORD 409.
SHOTGUN, 12-GAGE, RIOT TYPE: STEVENS, MODELS M520-30 AND M620A, 20-INCH BARREL

General

SHOTGUN, 12-GAGE, RIOT TYPE: Stevens, M520-30 or M620A, 20-inch barrel, is a manually-operated, slide action, repeating, hammerless, shoulder weapon. It is equipped with a type-S bayonet attachment, hand guard, sling, and sling swivels.

Differences among models

The shotgun M520-30 has the upper part of the rear of the receiver forming a corner; the safety is located in the receiver tang; and the stock is fastened by a screw, running vertically through the receiver tang and the stock.

The shotgun M620A has the safety located in the trigger guard; it has a receiver extension instead of a receiver tang; and the stock is fastened to the receiver extension by a bolt running horizontally through the stock.

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M520-30</td>
<td>1005-617-9120</td>
<td></td>
</tr>
<tr>
<td>M620A</td>
<td>1005-617-9140</td>
<td></td>
</tr>
</tbody>
</table>

Weight (w/attachments) 8 lb
Length overall 3 ft, 4 in.
Length of barrel 20 in.
Operation manual
Feed tubular magazine
Capacity of feeding device 5 rd
Cooling air
Gage of bore 12
Diameter of bore 0.729 in.
Boring of barrel cylinder

AMMUNITION

Types 12-gage shotgun cartridge—all brass No. 00 buck M19; paper—No. 00 buckshot, No. 9 chilled shot.

PERFORMANCE

Average velocity over 40-yd range:
No. 00 buckshot 1,060 fps
Maximum effective range:
No. 00 buckshot 60-75 yd

EQUIPMENT

Basic issue items: See ORO 7 SNL B-9.

INSTRUCTIONAL MATERIAL

For Graphic Training Aids and Devices, see DA Pam 310-3.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 shotguns per wood box (VCI pack).

Length 3 ft, 8 in.
Width 1 ft, 4 in.
Height 1 ft
Volume 4.9 cu ft
Gross weight 166 lb
Ship tons 0.12

Outside Continental United States

Shipped 10 shotguns per wood box (VCI pack).

Length 3 ft, 8 in.
Width 1 ft, 4 in.
Height 1 ft
Volume 4.9 cu ft
Gross weight 155 lb
Ship tons 0.12

SHOTGUN, 12-GAGE, RIOT TYPE: WINCHESTER, 20-INCH BARREL, M12 (M1912)

General
SHOTGUN, 12-GAGE, RIOT TYPE: Winchester, 20-inch barrel, M12, is a manually-operated, slide action, repeating, hammerless, shoulder weapon having a solid frame. It is equipped with a type-W bayonet attachment, hand guard, sling, and sling swivels. This shotgun is used for guard duty.

Differences among models

Data plate location
Classification: Standard A (OTCM 3841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td></td>
<td>1005-731-2036</td>
</tr>
</tbody>
</table>

Weight (w/attachments) ........................................7 lb, 8 oz
Length overall ..................................................3 ft, 4 in.
Length of barrel ...............................................20 in.
Operation ............................................................manual
Feed .................................................................tubular magazine
Capacity of feeding device ......................................6 rd
Gage of bore ......................................................12
Diameter of bore ................................................0.729 in.
Cooling ..............................................................air
Boring of barrel ..................................................cylinder

AMMUNITION

Types ..............................................................12-gage shotgun cartridges-all brass No. 00 buck M18; paper No. 00 buckshot, No. 9 chilled shot.

PERFORMANCE
Average velocity over 40-yd range:
No. 00 buckshot ...............................................1,060 fps
Maximum effective range:
No. 00 buckshot ...............................................60-75 yd

EQUIPMENT
Basic Issue Items: See ORD 7 SNL B-9.

INSTRUCTIONAL MATERIAL
For Graphic Training Aids and Devices, see DA Pam 310-6.

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 10 shotguns per wood box (VCI pack).
Length ......................................................3 ft, 8 in.
Width ..........................................................1 ft, 4 in.
Height ..........................................................1 ft
Volume ..........................................................4.0 cu ft
Gross weight ................................................150 lb
Ship tons ......................................................0.12

Outside Continental United States
Shipped 10 shotguns per wood box (VCI pack).
Length ......................................................3 ft, 8 in.
Width ..........................................................1 ft, 4 in.
Height ..........................................................1 ft
Volume ..........................................................4.0 cu ft
Gross weight ................................................150 lb
Ship tons ......................................................0.12

SUBMACHINEGUN, CALIBER .45: M3 AND M3A1

General

SUBMACHINEGUN, CALIBER .45: M3 and M3A1, is air-cooled, blowback-operated, magazine-fed, automatic weapon. They have a sliding metal stock which may be extended for shoulder firing. With the stock in its forward position, the gun may be fired from the hip. This gun is not considered safe when a loaded magazine is in place and the bolt is forward in the receiver unless the cover attached to the receiver is closed, thereby engaging the safety lock with its recess in the bolt. If the gun is dropped on the butt or if severely jarred, with the cover open, the bolt may move rearward far enough so that on its forward movement it may remove a round from the magazine and chamber and fire it.

Differences among models

The M3 submachinegun is cocked by a lever attached to the housing assembly and on the M3A1 the bolt is pulled to the rear with a finger to cock the gun.

Data plate location

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Weight (w/o equipment):
- M3: 8 lb, 1 oz
- M3A1: 8 lb

Length overall (stock extended): 2 ft, 6½ in.
Length overall (stock forward): 1 ft, 10½ in.
Length of barrel: 8 in.
Operation: blowback
Feed: magazine
Capacity of feeding device: 30 rd
Cooling: air

AMMUNITION

Types: ball, tracer, and dummy

PERFORMANCE

Muzzle velocity (ball, 234-grain bullet): 920 fps
Maximum range (ball) (30° elevation): 1,760 yd
Rate of fire: 350-450 rd per min

EQUIPMENT

Basic Issue Items: See ORD 7 SNL A-58.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .45 DUMMY: M1921.
For Graphic Training Aids and Devices, see DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 guns w/sling and oiler per wood box.

Length: 1 ft, 7½ in.
Width: 1 ft, 3¼ in.
Height: 1 ft, 6 in.
Volume: 3.0 cu ft
Gross weight: 128 lb
Ship tons: 0.08

Outside Continental United States

Shipped guns

Length
Width
Height
Volume
Gross weight
Ship tons

ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: TWIN, M2 (XM2) (MACHINEGUN, 7.62-MILLIMETER: M60C; MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM (7791961))

General

ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: twin, M2 (XM2) is designed for installation on OH-13 (series) or OH-23 (series) helicopters. The subsystem mounts two MACHINEGUNS, 7.62-MILLIMETER: M60C, one on each side of the helicopter, in individual mount assemblies which fasten to the front and rear cross tubes of the helicopter skids. The machineguns are interchangeable. Machineguns are pneumatically charged from a compressed gas charging system on each mount assembly. Weapon elevation and firing are electrically controlled from the cockpit. Ammunition for each machinegun is loaded in a single ammunition box secured to the mount assembly and is fed through an ammunition chute assembly to the machinegun.

Differences among models

When the subsystem M2 is installed on OH-13E and OH-13G helicopters, four bracket assemblies are installed on the helicopter skid cross tubes. Four pin and cable assemblies fasten the mount assemblies to the bracket assemblies. When the subsystem M2 is

Characteristics and data will be added at a later date.
Differences among models—Continued

installed on the OH-13H helicopter, mounting plate kits take the
place of the bracket assemblies; pin and cable assemblies fasten
the mount assemblies to the mounting plate kits. When the sub­
system M2 is installed on the OH-23 (series) helicopter, the
mount assemblies fasten directly to the helicopter skid cross bars
and no bracket assemblies, mounting plate kits, or pin and cable
assemblies are required.

Data plate location

One data plate is attached to right front of each mount assembly.

Classification: Standard A (AMCTC Item 01637)

CHARACTERISTICS

Armament subsystem:
- Weight (w/machineguns, w/o ammunition) ... 130.55 lb
- Weight (w/machineguns, w/ammonition) ... 201.2 lb
- Depression 0 deg
- Depression rate 9 deg/second
- Elevation 9 deg
- Elevation rate 6 deg/second
- Length 62 1/4 in.
- Charger supply pressure 3000 psi max
- Charger line pressure 300 to 400 psi

Machinegun:
- Length 43.5 in.
- Weight (two guns) 42.0 lb

AMMUNITION

7.62-mm capacity 1100 rds total
Types ball, AP, tracer, dummy

PERFORMANCE

Rate of fire (both guns) (approx) 1,100 rds per min

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 armament subsystem per shipping container.
- Length 6.0 ft
- Width 2 ft, 1 in.
- Height 1 ft, 10 in.
- Volume 21.8 cu ft
- Gross weight 269.5 lb
- Ship tons 0.5

Outside Continental United States
Shipped 1 armament subsystem per shipping container.
- Length 6.0 ft
- Width 2 ft, 1 in.
- Height 1 ft, 10 in.
- Volume 21.8 cu ft
- Gross weight 269.5 lb
- Ship tons 0.5

References: TM 9-1005-247-12, TM 9-1005-247-34, TM 9-1005-247­
35P, TM 9-1005-247-ESC, TM 55-1520-204-10, TM 55-
1520-206-10.
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: QUAD, M6 (XM6E3) (MACHINEGUN, 7.62-MILLIMETER: M60CA1; MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM (7792569))

General
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: quad, M6 (XM6E3) consists of four MACHINEGUNS, 7.62-MILLIMETER: M60CA1 and MOUNT, MACHINEGUN, 7.62-MM, helicopter armament subsystem mounted on a UH-1B helicopter. The mount is composed of left-hand and right-hand mount assemblies which hold two machineguns each, 12 ammunition box assemblies and necessary ammunition chutes to connect with the machineguns, a control box panel and a sighting station used by the copilot to control and direct machinegun fire electrically. Machinegun charging and mount assembly movements in elevation and azimuth are powered hydraulically from the helicopter. The left-hand and right-hand mount assemblies provide a field of fire ranging from plus 9° to minus 66° in elevation, and from 12° inboard to 70° outboard in azimuth, with the mount assemblies being directed by electrical signals from the sighting station, independent of the helicopter attitude. When the subsystem is energized but the sighting station is not in use, the mount assemblies return to zero elevation and zero azimuth, or "stow" position. When in "stow" position, the machineguns may be fired by pilot or copilot from a switch on either cyclic stick as the helicopter is maneuvered to aim the machineguns.

Difference among models

Data plate location:
Data plates are attached to the back of each mount assembly, to the sighting station just under the sunshade, and to the body of the control box panel.

Classification: Standard A (AMCTC item 949)

Model

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6</td>
<td>A9923</td>
<td>1004-086-8332</td>
</tr>
</tbody>
</table>

AGO 8716A
242-876 0 - 67 - B
CHARACTERISTICS

Armament subsystem:
- Weight (both mount assemblies w/ or w/o guns or ammunition) 133.2 lb
- Weight (both mount assemblies w/ guns and ammunition) 68.9 lb
- Cylinder assembly (charger) hydraulic supply pressure 1,500 psi

Machinegun:
- Weight (4 machineguns) 83 lb
- Gun length (including flash suppressor) 43.5 in.

AMMUNITION
- 7.62-mm capacity 6,000 rds total
- Types ball, AP, tracer, dummy

PERFORMANCE
- Rate of fire (4 guns) approx 2,200 rds per min

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
DRIVE, ELECTRIC: M7 (T48)

*For characteristics and data, see item on page 2-19.*
DRIVE, HYDRAULIC: M12

(Illustration will be added at a later date)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td></td>
<td>1005-661-1991</td>
</tr>
</tbody>
</table>

**General**

DRIVE, HYDRAULIC: M12 is used in the operation of the GUN, 20 MILLIMETER, AUTOMATIC: M61*. The drive is a ball motor which is connected to a hydraulic power system. The drive provides its own braking torque to stop the weapon when the power is cut.

**Differences among models**

- **Data plate location**: Data plate location is on the side of the drive.
- **Classification**: Standard (For U. S. Air Force use only) (OTCM 37224)

**Characteristics**

- **Performance**

<table>
<thead>
<tr>
<th>STORAGE AND SHIPMENT DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Continental United States</strong></td>
</tr>
<tr>
<td>Shipped 6 drives per shipping container.</td>
</tr>
<tr>
<td>Length: 28 1/4 in.</td>
</tr>
<tr>
<td>Width: 19 in.</td>
</tr>
<tr>
<td>Height: 11 1/2 in.</td>
</tr>
<tr>
<td>Volume: 4.0 cu ft</td>
</tr>
<tr>
<td>Gross weight: 180 lb</td>
</tr>
<tr>
<td>Ship tons: 0.1</td>
</tr>
</tbody>
</table>

| **Outside Continental United States** |
| Shipped 6 drives per shipping container. |
| Length: 28 1/4 in. |
| Width: 19 in. |
| Height: 11 1/2 in. |
| Volume: 4.0 cu ft |
| Gross weight: 180 lb |
| Ship tons: 0.1 |

**References:**

* For characteristics and data, see item on page 2-19.
FEEDER, AUTOMATIC GUN: M2 AND M2A1

Differences among models:

Model Line item No. Federal stock No.
M2 .......................... 1006-701-6796
M2A1 .......................... 1006-473-6162

General

FEEDER, AUTOMATIC GUN: M2 and M2A1 is used with the GUN, 20 MILLIMETER, AUTOMATIC: M61*. The feeder is driven by the rotor gear and pulls linked rounds from the ammunition box, strips the links from the rounds and ejects empty rounds. It feeds and guides the rounds into the extractor lip of the bolts which chamber the rounds.

Data plate location

Data plate location is on the top of the feeder.

Classification:

M2 . . Limited standard
M2A1 . . Standard

For USAF use only (OTCM 37725)

CHARACTERISTICS

PERFORMANCE

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 feeder per shipping container.

Length ........................................ 18½ in.
Width ........................................ 10 in.
Height ........................................ 9½ in.
Volume ........................................ 96 cu ft
Gross weight ................................ 22 lb
Ship tons ...................................... 0.02

Outside Continental United States

Shipped 6 feeders per shipping container.

Length ........................................ 33½ in.
Width ........................................ 19½ in.
Height ........................................ 19¼ in.
Volume ........................................ 73 cu ft
Gross weight ................................ 4 lb
Ship tons ...................................... 0.18

References:

* For characteristics and data, see item on page 2-19.
Feeder, Automatic Gun: M3 and M3A1

General
FEEDER, AUTOMATIC GUN: M3 and M3A1 is used with the GUN, 20 MILLIMETER, AUTOMATIC: M61. The feeder is driven by the rotor gear and pulls linked rounds from the ammunition box, strips the links from the rounds, and ejects empty rounds. It feeds and guides the rounds into the extractor lip of the bolts which chamber the round.

Differences among models
Data plate location
Data plate location is on the top of the feeder.

Classification:
M3 Limited standard
M3A1 Standard

Characteristics
Performance

Equipment

Storage and Shipment Data

Within Continental United States
Shipped 1 feeder per shipping container.
Length ........................................ 18\(\frac{3}{4}\) in.
Width ........................................ 10 in.
Height ........................................ 9\(\frac{3}{4}\) in.
Volume ........................................ 96 cu ft
Gross weight ................................ 20.5 lb
Ship tons .................................... 0.02

Outside Continental United States
Shipped 6 feeders per shipping container.
Length ........................................ 23\(\frac{3}{4}\) in.
Width ........................................ 19\(\frac{1}{2}\) in.
Height ........................................ 19\(\frac{3}{4}\) in.
Volume ........................................ 7.3 cu ft
Gross weight ................................ 185 lb
Ship tons .................................... 0.13

References:

* For characteristics and data, see item on page 2-19.

Illustration will be added at a later date.
**LINKER-DELINKER, 7.62 MILLIMETER, HAND: M21**

(Illustration will be added at a later date)

<table>
<thead>
<tr>
<th>Secondary Item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M21</td>
<td></td>
<td>1005-605-2199</td>
</tr>
</tbody>
</table>

**General**

LINKER-DELINKER, 7.62-MM, HAND: M21, is used to link or delink 7.62-mm ammunition and M13 links. It is manually operated by means of a handle bar. The links are placed in the forward portion of the stripper bar—the ammunition is partially inserted into the rear of the links—the handle bar is then pulled forward and down to complete the linking operation. To delink, the entire belt is positioned on the rearward portion of the stripper bar—the handle bar is then pulled forward and down, forcing the rounds of ammunition forward through and out of the links, thus completing the delinking operation.

**Differences among models**

- **Data plate location**: Data plate location is on top, front of the feeder.

**Classification**: Standard A (OTCM 37924)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>20 lb</td>
</tr>
<tr>
<td>Length</td>
<td>167/8 in.</td>
</tr>
<tr>
<td>Width</td>
<td>9/8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>27/8 in.</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**Loading rate**

**EQUIPMENT**

Basic Issue Items: See TM 9-1005-224-34P

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped 1 linker-delinker per shipping container.
- Length: 177/8 in.
- Width: 113/8 in.
- Height: 61/4 in.
- Volume: 0.26 cu ft
- Gross weight: 25 lb
- Ship tons: 0.004

**Outside Continental United States**

- Shipped 6 linker-delinker per shipping container.
- Length: 361/8 in.
- Width: 185/8 in.
- Height: 113/8 in.
- Volume: 4.5 cu ft
- Gross weight: 183 lb
- Ship tons: 0.1

**References**
LINKER-DELINKER, CALIBER .50, HAND: M22

Illustration will be added at a later date

General
LINKER-DELINKER, CALIBER .50, HAND: M22, is used to link or delink caliber .50 ammunition and M16 or M16A1 links. It is manually operated by means of a handle bar. The links are placed in the forward portion of the stripper bar, the ammunition is partially inserted into the rear of the links, the handle bar is then pulled forward and down, thus completing the linking operation.

To delink, the entire belt is positioned on the rearward portion of the stripper bar, the handle bar is then pulled forward and down, forcing the rounds of ammunition forward through and out of the links, thus completing the delinking operation.

Differences among models

Data plate location
Data plate location is on the top, front of the linker-delinker.

Classification: Standard A (OTCM 31924)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>8.25 lb</td>
</tr>
<tr>
<td>Length</td>
<td>15 1/2 In.</td>
</tr>
<tr>
<td>Width</td>
<td>13 1/4 In.</td>
</tr>
<tr>
<td>Height</td>
<td>8 3/4 In.</td>
</tr>
<tr>
<td>Capacity</td>
<td>10 rds</td>
</tr>
</tbody>
</table>

PERFORMANCE

Loading rate

EQUIPMENT

Basic Issue Items: See TM 9-1005-231-30P

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 linker-delinker per shipping container.

Length                      .20 1/2 In.
Width                       .16 In.
Height                      .4 1/4 In.
Volume                      .92 cu ft
Gross weight                .85 3/4 lb
Ship tons                   .0.2

Outside Continental United States

Shipped 4 linker-delinker per shipping container.

Length                      .23 1/4 In.
Width                       .20 1/4 In.
Height                      .17 3/4 In.
Volume                      .4.9 cu ft
Gross weight                .186 lb
Ship tons                   .0.1

References:
PISTOL, CALIBER .22, AUTOMATIC: MARKSMAN TRAINING
GRADE, MODEL 9271 SUPERMATIC TOURNAMENT
HIGH STANDARD

Illustration will be added at a later date.

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>As above</td>
<td>4-29166-05</td>
<td>1005-690-3220</td>
</tr>
</tbody>
</table>

**General**

PISTOL, CALIBER .22 AUTOMATIC: marksmen training grade. Model 9271 supermatic tournament high standard, is a 10-shot, magazine-fed, recoil-operated, air-cooled, automatic loading hand weapon chambered for the caliber .22 long rifle cartridge only. The rear sight has a positive self-locking click adjustment for both windage and elevation. A positive lock safety is provided which locks the rear in the safe position. A slide lock automatically holds the slide open, after firing the last round in the magazine. Take-down of the barrel and the slide assembly is easily accomplished by depressing a barrel plunger cam.

**Characteristics**

- **Weight**: 2 lb, 12 oz
- **Length overall**: 12 in.
- **Length of barrel**: 6½ in.
- **Rifling**: 16 in.
- **Number of grooves**: 6
- **Operation**: blowback
- **Feed**: magazine
- **Capacity of feeding device**: 10 rd
- **Type of front sight**: adjustable ramp
- **Type of rear sight**: micrometer click sight
- **Cooling**: air
- **Trigger pull**: 2½-3 lb

**Ammunition**

| Type | ball |

**Performance**

- **Muscle velocity (long rifle, lead bullet) (cartridges of different manufacturers may vary)**: 970 fps
- **Maximum range (long rifle cartridge)**: 1,500 yd

**Equipment**

**Basic issue items**:

**Instructional Material**

**Storage and shipment data**

- **Within Continental United States**
  - Shipped 25 pistols per shipping container.
  - Length: 13½ in.
  - Width: 33⅓ in.
  - Height: 10 in.
  - Gross weight: 94 lb
  - Ship tons: 0.06

- **Outside Continental United States**
  - Shipped 25 pistols per shipping container.
  - Length: 13⅓ in.
  - Width: 33⅓ in.
  - Height: 10 in.
  - Gross weight: 94 lb
  - Ship tons: 0.06

**References**
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER
MACHINEGUN: DOOR MOUNTED, LIGHTWEIGHT, XM23
(MACHINEGUN, 7.62-MILLIMETER: XM60D;
MOUNT ASSEMBLY, LEFT SIDE (49937) AND
MOUNT ASSEMBLY, RIGHT SIDE (49936))

Differences among models

Data plate location

Data for the XM23 subsystem mount assemblies are stamped in
the base assembly of each mount assembly.

Classification

CHARACTERISTICS

Armament subsystem:

Weight (both mounts, w/ammo boxes, chuting,
and bags, w/o machineguns or ammunition) ------- 82.6 lb
Weight (both mounts, w/ammo boxes, chuting,
and bags, w/two machineguns, w/600 rds of
ammo per box) --------------------------------- 208.8 lb
Elevation:
Forward ------------------------------------------ 61 mils
Aft ---------------------- 111 mils
Side ------------------------------------------ 89 mils
Depression:
Forward ------------------------------------------ 1,457 mils
Aft ---------------------- 1,385 mils
Side ------------------------------------------ 1,457 mils
Traverse:
Forward ------------------------------------------ 1,546 mils
Aft ---------------------- 1,546 mils

Machinegun, 7.62-millimeter: XM60D:

Length, overall -------------------------------- 44% in.
Weight ------------------------------------------ 24.7 lb

AMMUNITION

7.62-mm -------------------------------- capacity 600 rds total
Types -------------------------------- ball, AP, tracer, dummy

PERFORMANCE

Rate of fire, (each gun) (approx) 550 rds per min

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

References: TM 9-1005-262-15, TM 9-1005-262-ESC, TM 55-1550-
219-19.

* Characteristics and data will be added at a later date.
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER
MACHINEGUN: DOOR MOUNTED, LIGHTWEIGHT, XM24
(MACHINEGUN, 7.62-MILLIMETER: XM60D;
MOUNT ASSEMBLY, LEFT SIDE (50599) AND
MOUNT ASSEMBLY, RIGHT SIDE (50600))

General
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER
MACHINEGUN: door mounted, lightweight, XM24, is composed of
two MACHINEGUNS, 7.62-MILLIMETER: XM60D mounted on
a MOUNT ASSEMBLY, LEFT SIDE and MOUNT ASSEMBLY,
RIGHT SIDE, on the CH-47A helicopter. The mount assemblies
are installed horizontally across the right cabin doorway and
across the escape hatch on the left side of the helicopter. Each
mount assembly attaches to vertical members of the helicopter
airframe. Boxed, linked ammunition is carried in an ammunition

Major item
Model Line item No. Federal stock No.
XM24 A90122 1905-763 1404

can assembly which attaches to the left side of each machinegun.
The spent cartridges are caught in an ejection control box
atached to the right side of each machinegun. When not in use,
each machinegun is swung to a traversing limit and is secured
by an elastic shock cord assembly.

Differences among models

Data plate location:
Data for the XM24 subsystem mount assemblies are stamped on
the triangular metal portion of the mount which supports the
pintle post.

Classification

* Characteristics and data will be added at a later date.
CHARACTERISTICS

Armament subsystem:
Weight (both mounts, w/ammo boxes and bags, w/o machineguns or ammunition) 35.6 lb
Weight (both mounts, w/ammo boxes, bags, machineguns, and two boxes of ammo per machinegun) 111.4 lb

Mount assembly, left side:
Elevation:
Forward 53 mils
Aft 116 mils
Depression 1,191 mils
Traverse:
Forward 1,280 mils
Aft 1,066 mils

Mount assembly, right side:
Elevation:
Forward 53 mils
Aft 116 mils
Depression 1,286 mils

Traverse:
Forward 1,333 mils
Aft 1,102 mils

Machinegun:
Length, overall 44% in.
Weight 24.7 lb

AMMUNITION
.50-caliber capacity 200 rds per gun
Types: ball, AP, tracer, dummy

PERFORMANCE
Rate of fire, (each gun) (approx) 550 rds per min

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

**GUN, AUTOMATIC, 7.62-MILLIMETER: GAU-2B/A**

General

GUN, AUTOMATIC, 7.62-MILLIMETER: GAU-2B/A is a lightweight, air-cooled, six-barrel weapon used on a fixed-wing and rotary-wing aircraft to deliver area suppressive fire. The gun will deliver fire at rates from 2,000 to 6,000 shots per minute. The different rates of fire are produced by use of differing gear ratios in the electric drive motor which powers the gun. Both the electric drive motor and the recoil adapter assemblies which support the gun are parts of the armament pod or armament subsystem which holds and feeds the gun. The gun operates on the Gatling gun principle, with ammunition fed into the right side of the gun, and spent or misfired cartridges are discharged from the bottom of the gun.

Differences among models

Data plate location:

Data are attached to right rear of the gun housing assembly.

Classification

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAU-2B/A</td>
<td></td>
<td>1005-912-3987</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, complete</td>
<td>22 in.</td>
</tr>
<tr>
<td>Weight, each</td>
<td>1 lb, 10 oz</td>
</tr>
<tr>
<td>Riffing twist</td>
<td>Right hand</td>
</tr>
<tr>
<td>Cooling</td>
<td>Air</td>
</tr>
</tbody>
</table>

AMMUNITION

7.62-mm capacity determined by pod or subsystem using the gun

Types: ball, AP, tracer, dummy

PERFORMANCE

Rate of fire:

<table>
<thead>
<tr>
<th>Drive ratio in electric drive motor</th>
<th>2,000 spm, 14-V DC to motor</th>
<th>4,000 spm, 24-V DC to motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.8 to 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1 to 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic Issue Items: See TM 9-1005-265-15P

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA


---

Barrel:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td>22 in.</td>
</tr>
<tr>
<td>Weight, each</td>
<td>1 lb, 10 oz</td>
</tr>
<tr>
<td>Riffing twist</td>
<td>Right hand</td>
</tr>
<tr>
<td>Cooling</td>
<td>Air</td>
</tr>
</tbody>
</table>
POD, AIRCRAFT GUN, 7.62-MILLIMETER: SUU-11A/A

General

POD, AIRCRAFT GUN, 7.62-MILLIMETER: SUU-11A/A is a lightweight cylindrical structure capable of containing a GUN, AUTOMATIC, 7.62-MILLIMETER: GAU-2B/A, with ammunition storage space, a system for delivering the ammunition to the gun, and a storage battery with necessary cabling to the electric drive motor which powers the gun. The electric drive motor and the recoil adapter assemblies which support the gun in the pod are considered parts of the pod. The pod also contains a rounds counter to aid personnel in loading ammunition in the pod. The pod is designed to mount on aircraft with facilities to secure items with 14-inch double lug spacing, or single lug suspension, and may be used at air speeds up to Mach 1.2.

Differences among models

Data plate location:
Data are located on forward face of drum cover assembly.

Classification
CHARACTERISTICS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Diameter</td>
<td>38 in.</td>
</tr>
</tbody>
</table>

Weight:

- Loaded (w/gun GAU-2B/A, w/ammunition) (approx) 325 lb
- Empty (w/gun GAU-2B/A, w/o ammunition) (approx) 245 lb

AMMUNITION

- 7.62-mm capacity 1,000 rds
- Types: ball, AP, tracer, dummy

PERFORMANCE

- Maximum burst length: full complement
- Bore sight adjustment (firing barrel of gun GAU-2B/A)
  - Elevation: +1 deg 30 ft to -1 deg 30 ft
  - Azimuth: +1 deg 30 ft to -1 deg 30 ft
- Operating temperature range: -65° to +165° F.

EQUIPMENT

Basic Issue Items: See TM 9-1005-266-15P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

References: TM 9-1005-266-15, TM 9-1005-266-19P.

For characteristics and data, see item on page 2-94.
RIFLE, 5.56-MILLIMETER: M16 AND XM16E1

General

RIFLE, 5.56-MILLIMETER: M16 and XM16E1, is a lightweight, air-cooled, gas-operated, magazine-fed, shoulder or hip weapon and is designed for either full-automatic or semiautomatic fire. Each rifle accommodates a 20-round magazine.

The barrel is air-cooled and is provided with a flash suppressor, that may serve as a grenade launcher and a front support for the BAYONET-KNIFE: *M7. The barrel is surrounded by a heat resisting fiber glass material, which serves as a hand guard and forearm. The hand guard has a heat resisting inner shield. The front and rear sights are adjustable.

The butt stock is made of a durable synthetic material of high impact strength.

Differences among models:

The M16 has the same component parts as the XM16E1 except the XM16E1 has a forward assist assembly with associated parts.

Data plate location

Classification

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M16 (USAF)</td>
<td>1005-856-6883</td>
<td></td>
</tr>
<tr>
<td>XM16E1 (Army)</td>
<td>1005-073-9421</td>
<td></td>
</tr>
</tbody>
</table>

Characteristics

Weight:

M16:
- (w/loaded magazine and sling) 7.4 lb
- (w/o magazine and sling) 6.3 lb
XM16E1:
- (w/loaded magazine and sling) 7.6 lb
- (w/o magazine and sling) 6.5 lb
Sling, M1
- (w/loaded magazine and sling) 0.4 lb
- (w/o magazine and sling) 0.2 lb
Empty aluminum magazine 0.9 lb
Telescope 0.2 lb
Bipod, M3 0.6 lb
Bipod case 0.2 lb
Bayonet-knife, M7 0.6 lb
Scabbard, M8A1 0.3 lb
Length:
- Rifle: 39 in.
  - With flash suppressor 44.55 in.
  - With bayonet-knife 44.25 in.
  - Barrel 20 in.
  - Barrel with flash suppressor 21 in.

* Characteristics and data will be added in section 2 at a later date.

AMMUNITION

Caliber: .223 in. (5.56-mm)
Type: ball and tracer

Performance

Muzzle velocity (approx) 3,250 fps
Muzzle energy 1,300 ft-lb
Chamber-pressure 52,000 psi
Cyclic rate of fire 260/500 rds per min
Maximum rate of fire:
- Semi-automatic 45/65 rds per min
- Automatic 150/200 rds per min
Sustained rate of fire 12/15 rds per min
Maximum range 2,653 meters
Maximum effective range 460 meters

Equipment


Instructional Material

Storage and shipment data

Within Continental United States

Shipped 2 rifles w/sling per cardboard box w/equipment.

Length 40 in.
Width 9 in.
Height 6½ in.
Volume 1.14 cu ft
Gross weight 24 lb
Ship tons 0.028
<table>
<thead>
<tr>
<th><strong>Outside Continental United States</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 2 rifles per shipping container.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Size</strong></th>
<th><strong>Volume</strong></th>
<th><strong>Gross weight</strong></th>
<th><strong>Ship tons</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length: 40 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width: 9 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height: 6 1/2 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume: 1.14 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight: 24 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons: 0.028</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SECTION 3

**GUNS, OVER 30-MM UP TO 75-MM**

(CLASS 1010)

(Includes subcaliber cannons, mortars and mortar cannons, and rifles.)

<table>
<thead>
<tr>
<th>Weapon Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANNON, 37-MILLIMETER GUN, SUBCALIBER: M12 (interior type)</td>
<td>3-2</td>
</tr>
<tr>
<td>CANNON, 37-MILLIMETER GUN, SUBCALIBER: M13 (T27E1)</td>
<td>3-3</td>
</tr>
<tr>
<td>CANNON, 37-MILLIMETER GUN, SUBCALIBER: M1916; RECOIL MECHANISM: M1916; MOUNT, GUN: 37-mm M5, M10, or M13A1</td>
<td>3-4</td>
</tr>
<tr>
<td>CANNON, 40-MILLIMETER DUAL AUTOMATIC GUN: M2 or M2A1; MOUNT, GUN: 40-mm, twin, M4 and M4E1</td>
<td>3-6</td>
</tr>
<tr>
<td>LAUNCHER, GRENADE: 40-mm, M79</td>
<td>3-8</td>
</tr>
<tr>
<td>MORTAR, INFANTRY: 60-mm, M2, w/e (CANNON, 60 MILLIMETER MORTAR: M2; MOUNT, MORTAR: 60-mm, M5)</td>
<td>3-9</td>
</tr>
<tr>
<td>MORTAR, INFANTRY: 60-mm, M19, w/e (CANNON, 60 MILLIMETER MORTAR: M19; MOUNT, MORTAR: 60-mm, M5)</td>
<td>3-10</td>
</tr>
<tr>
<td>MORTAR, MORTAR: 60-mm, M5</td>
<td>3-11</td>
</tr>
<tr>
<td>RIFLE, 57-MILLIMETER: M18, M18A1, or T15E16; MOUNT, GUN: M1917A2 OR MOUNT, TRIPOD, WEAPON: M74</td>
<td>3-12</td>
</tr>
</tbody>
</table>
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M12 (INTERIOR TYPE)

General
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M12 (interior type), consisting of a tube, deflector, extractor, and lock assembly, is a single-shot, hand-loaded weapon. It is used for training in laying and firing the HOWITZER. PACK: 75-mm, M16 w/e (CANNON, 75 MILLIMETER PACK HOWITZER; M16; RECOIL MECHANISM: M1-SERIES; CARRIAGE: HOWITZER PACK), 75-mm, M5 and the CANNON, 75-MILLIMETER HOWITZER: M3; MOUNT, HOWITZER: 15-mm, M7. The use of smaller bore ammunition prevents wear on the regular piece during practice and is less costly. The tube has an enlarged portion near the chamber and which acts as a rear adapter to center the cannon in the chamber of the pack howitzer, and a combination front adapter and gas deflector which is screwed on at the muzzle end of the tube. The tube is fixed longitudinally in the pack howitzer by a welded lock assembly which fits in a transverse vertical keyway at the rear of the tube and fastens to the lower left side of the breech ring by means of a setscrew passing through a clamp. A sliding cylindrical sleeve, which encases the rear end of the tube, completes the subcaliber cannon. The rear end of this sleeve is partly cut away and is counterbored for the rim of a 37-mm cartridge, thus forming an extractor for the cartridge case. Percussion is obtained by operation of the firing mechanism of the howitzer which actuates its firing pin, causing it to strike the primer of the 37-mm cartridge.

Differences among models

Data plate location
Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td>4-1727-01</td>
<td>1010-672-4844</td>
</tr>
</tbody>
</table>

AMMUNITION

<table>
<thead>
<tr>
<th>Type</th>
<th>Muzzle velocity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge M63 Mod 1</td>
<td>1,100 fps</td>
</tr>
</tbody>
</table>

PERFORMANCE

<table>
<thead>
<tr>
<th>Range (maximum):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge M63 Mod 1</td>
</tr>
</tbody>
</table>

EQUIPMENT

Sighting and fire control:
TABLE, FIRING: FT 37-BJ-1 (abbr).
TABLE, FIRING: FT 37-DA-2 (abbr).
In addition to above equipment, use sighting equipment issued with primary weapon listed in GENERAL paragraph.

Basic Issue Item: See ORD 7 SNL C-33, section 15.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SNL C-33, Section 15: TM 9-819, TM 9-819.
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M13

AMMUNITION

| Type | TP |

PERFORMANCE

Muzzle velocity:
- Cartridge M63 Mod 1 ..................................... 1,100 fps
- Range (max.):
  - Cartridge M63 Mod 1 .................................... 4,980 yd

EQUIPMENT

Sighting and fire control:
- TABLE, FIRING; FT 87-BA-2 (abr)
- TABLE, FIRING; FT 87-BJ-1 (abr)

In addition to above equipment, use sighting equipment issued with primary weapon listed in GENERAL paragraph.

In addition to above equipment, use sighting equipment issued with primary weapon listed in GENERAL paragraph.

Basic Issue Items: See ORD 7 SNL C-33, section 16.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: SNL C-33, section 16; TM 9-325; TM 9-326.
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M1916; RECOIL MECHANISM: M1916; MOUNT, GUN: 37-MM, M5, M10, OR M13A1

The subcaliber cannon rests on the recoil mechanism and, in turn, they are secured to the mount which is adapted to the particular weapon.

Differences among models

In general, the mounts M5, M10, or M13A1 are designed to fit the configuration of the cannon of the major weapon to which they are attached. Similar collars and cradle trunnion brackets are used to secure the cannon and recoil mechanism; however, mounts M10 and M13A1 are constructed of channels while mount M5 is made from welded angles and shaped, slotted brackets.

Data plate location

Classification: Standard A (OTCM 37198).

CHARACTERISTICS

Cannon:
- Weight of cannon and recoil mechanism: 36 lb, 4 oz
- Length of bore: 2 ft, 0\(\frac{1}{4}\) in.
- Length of cannon: 2 ft, 7\(\frac{3}{4}\) in.
- Type of breechblock: eccentric screw
- Type of firing mechanism: trigger
- Type of recoil mechanism: hydropneumatic

Recoil mechanism:
- Length of recoil (max. allowable): 7 to 10 in.
- Capacity: 2\(\frac{1}{16}\) pt
- Weight:
  - M5: 31 lb, 12 oz
  - M10: 31 lb, 12 oz
  - M13A1: 31 lb, 12 oz

Mount:
- Elevation: same as piece to which it is attached
- Traverse: same as piece to which it is attached

Operation of firing linkage: manual

AMMUNITION

Type: TP

PERFORMANCE

Muzzle velocity:
- Cartridge M63, Mod 1: 1,100 fps

Range (maximum):
- Cartridge M63, Mod 1: 4,980 yd

Rate of fire (maximum): 15 rd per min
EQUIPMENT

Sighting and fire control.

TABLE, FIRING: FT 37-BI-1 (abr)
TABLE, FIRING: FT 37-BA-2 (abr)

In addition to above equipment, use sighting equipment issued with primary weapon listed in "GENERAL" paragraph.

Basic Issue Items: See ORD 7 SNL C-33, section 13, 3, 7.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Volume

Gross weight

Ship tons

References: SNL C-33, TM 9-319, TM 9-3004, TM 9-331A.
CANNON, 40-MILLIMETER DUAL AUTOMATIC GUN: M2A1;
MOUNT, GUN: 40-MM, TWIN M4E1

Weight of tube .............................................. 296 lb
Length ..................................................... 12 ft
Length of tube ........................................... 7 ft 4-8/16 in.
Rifling:
Length .................................................. 6 ft 3-5/16 in.
Number of grooves ...................................... 16
Twist, right-hand ........................................ nonuniform, increasing from one
turn in 45 calibers at the breach
to one turn in 30 calibers at the muzzle.

Type of breechblock .................................... vertical sliding
Type of firing mechanism ............................... percussion
Estimated accuracy life of tube ......................... 12,000 rds

Mount:
Weight (complete w/cannon) ......................... 6,300 lb
Type of recoil mechanism .......................... recuperator spring and oil
Number of recoil cylinders ................................ 2
Length of recoil:
Minimum ...................................................... 7.4 in.
Maximum ....................................................... 8.3 in.
Capacity of recoil mechanism .......................... 2.64 qt
Elevation:
Maximum (power) ........................................ 98 deg
Maximum (manual) .......................................... 87 deg
Depression:
Power ......................................................... 8 deg
Manual ....................................................... 5 deg
Thrust ...................................................... 560 deg
Operation of firing linkage .............................. manual or electric

AMMUNITION
Types .................................................. AP-T and HE-T (fixed)

PERFORMANCE
Muzzle velocity:
AP-T ...................................................... 2,870 fps
HE-T ...................................................... 2,870 fps
Range (max):
Vertical .................................................. 5,100 yds
Horizontal ............................................... 5,200 yds
AP-T ...................................................... 9,476 yds
Rate of fire .............................................. 240, rds per min

EQUIPMENT
Sighting and fire control *:
LOCAL CONTROL SYSTEM, ANTI AIRCRAFT GUN: M16A1E1
SIGHT, COMPUTING: M38 (T554)
SIGHT, REFLEX: M24C
Basic Issue Items: See ORD 7 SNL G-248 and TM 9-7218.

INSTRUCTIONAL MATERIAL
Subcaliber equipment:
MOUNT, GUN: caliber .50, M19.

STORAGE AND SHIPMENT DATA
Within Continental United States
Number per box .................................................
Length .....................................................
Width .....................................................
Height ....................................................
Volume ....................................................
Gross weight .............................................
Ship tons ................................................

* For characteristics and data, see item in sections 12, 14, and 18.

3-6
<table>
<thead>
<tr>
<th>Outside Continental United States</th>
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</thead>
<tbody>
<tr>
<td><strong>Number per box</strong></td>
</tr>
<tr>
<td><strong>Length</strong></td>
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<td><strong>Width</strong></td>
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<table>
<thead>
<tr>
<th><strong>Height</strong></th>
<th><strong>Volume</strong></th>
<th><strong>Gross weight</strong></th>
<th><strong>Ship tons</strong></th>
</tr>
</thead>
</table>

LAUNCHER, GRENADE: 40-MM, M79

Launcher, grenade: 40-mm, M79, is a single-shot, break-open shoulder fire weapon. Its appearance is that of a short hammerless single-barrel shotgun except that the barrel has a larger diameter. It is breech loading and chambered for a 40-mm metallic cartridge case with internal primer. The barrel is made of aluminum. The front sight is a conventional military type with guard wings like those of the carbine or rifle M1. The rear sight is a large folding leaf, far up the barrel since high elevations are required, and is adjustable for elevation and windage. A rubber recoil pad is located on the rear end of the stock.

Differences among models

Data plate location

The model and serial numbers are stamped on the bottom surface of the receiver, forward of the trigger guard.

Classification: Standard A (OTCM 37826).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight:</th>
<th>6.45 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loaded</td>
<td></td>
</tr>
<tr>
<td>Unloaded</td>
<td>5.95 lb</td>
</tr>
</tbody>
</table>

Length overall: 2 ft, 4 3/8 in.
Length of barrel: 1 ft, 2 in.
Rifling: 11-13/16 in.

Number of lands: 6
Twist: 1 turn in 48 in.

Type of fire: Single shot
Type of operation: Manually trigger operated
Feed: Manually breech loaded

AMMUNITION

Type: Fixed-HE and practice

PERFORMANCE

Muzzle velocity: 250 fps
Maximum range: 410 yd (375 meters)
Rate of fire: Single shot

EQUIPMENT

Sighting and Fire Control
Basic Issue Items: See TM 9-1010-205-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped

Length: 72 ft
Width: 72 in
Height: 72 in
Volume: 410 yd³
Gross weight: 73 lb
Ship tons: 0.103

MORTAR, INFANTRY: 60-MM, M2 W/E
(CANNON, 60 MILLIMETER MORTAR: M2; MOUNT, MORTAR: 60-MM, M5)

CHARACTERISTICS:

Differences among models

Data plate location

Classification: Limited standard (OTCM 87119).

CHARACTERISTICS:

Cannon:

- Weight: 12.8 lb
- Length: 2 ft, 4½ in.

Mount:

- See MOUNT, MORTAR: 60-mm, M5

AMMUNITION

Types: HE; ILLUM; SMOKE, WP; and TP

PERFORMANCE

Muzzle velocity:

- CARTRIDGE, 60-MILLIMETER: (full charge—ignition cartridge plus 4 propellant increments):
  - HE (M49A2) and TP (M50A2) 518 fps
  - SMOKE, WP (M302) 489 fps
  - ILLUM (M38A3) 484 fps
  - PROJECTILE, 60-MILLIMETER: training, M69 (ignition cartridge only) 162.5 fps

Range (maximum) (45° elevation):

- CARTRIDGE, 60 MILLIMETER:
  - HE (M49A2) and TP (M50A2) 1,990 yd
  - SMOKE, WP (M302) 1,610 yd
  - ILLUM (M38A3) 1,100 yd
- PROJECTILE, 60 MILLIMETER: training, M69 (ignition cartridge only) 885 yd

Rate of fire:

- Sustained: 18 rd per min
- Rapid: 35 rd per min

EQUIPMENT

Sighting and fire control:

- AIMING POST: M10
- SIGHT: M4
- TABLE, FIRING: FT 60-A-5

AMMUNITION

- TABLE, FIRING: FT 60-C-3
- TABLE, FIRING: FT 60-F-4
- TABLE, FIRING: FT 60-G-2


INSTRUCTIONAL MATERIAL

TABLE, FIRING: FT 60-L-1

PROJECTILE, 60-MILLIMETER: training, M69

TRAIN EE, MORTAR: subcaliber, pneumatic, M2 or M2A1

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 4 mortars per wood box.

- Length: 2 ft, 9 in.
- Width: 1 ft, 2¾ in.
- Height: 1 ft, 2¾ in.
- Volume: 3.9 cu ft
- Gross weight: 90 lb
- Ship tons: 0.10

Outside Continental United States

Shipped

- Length: 2 ft, 9 in.
- Width: 1 ft, 2¾ in.
- Height: 1 ft, 2¾ in.
- Volume: 3.9 cu ft
- Gross weight: 90 lb
- Ship tons: 0.10


* For characteristics and data, see item in sections 14 and 18.
MORTAR, INFANTRY: 60-MM, M19, W/E  
(CANNON, 60 MILLIMETER MORTAR: M19; MOUNT, MORTAR: 60-MM, M5)

General
MORTAR, INFANTRY: 60-mm, M19, w/e consisting of a CANNON, 60 MILLIMETER, MORTAR: M19 with MOUNT, MORTAR: 60-mm, M5, is a smooth bore, muzzle-loading, high angle-of-fire weapon. The cannon is composed of a tube, combination base cap, and firing mechanism. The base cap is hollowed and threaded to screw on the barrel. The mount consists of a bipod and a baseplate which is provided with screw-type elevating and traversing mechanisms to lay the mortar and a spring-type shock absorber to absorb the shock of recoil in firing. The cannon is used with the 60-mm mortar mount M5.

Differences among models
Data plate location
Classification: Limited standard (OTCM 37119)

CHARACTERISTICS
Cannon:
Weight: 16.0 lb
Length: 2 ft, 8¼ in.
Mount:
See MOUNT, MORTAR: 60-mm, M5

AMMUNITION
Types: HE; ILLUM; SMOKE, WP; and TP

PERFORMANCE
Muzzle velocity:
CARTRIDGE, 60-MILLIMETER: (full charge
ignition plus 4 propellant increments):
HE (M49A2) and TP (M50A2) 518 fps
SMOKE, WP (M302) 439 fps
ILLUM (M38A3) 484 fps
PROJECTILE, 60-MILLIMETER: (ignition cartridge only) 182.5 fps

Maximum range (45° elevation):
CARTRIDGE, 60-MILLIMETER:
HE (M49A2) and TP (M50A2) 1,090 yd
SMOKE, WP (M302) 1,610 yd
ILLUM (M38A3) 1,100 yd

PROJECTILE, 60-MILLIMETER: training, M69
(ignition cartridge only) 235 yd

Rate of fire:
Sustained: 18 rd per min
Rapid: 85 rd per min

EQUIPMENT
Sighting and fire control:
AIMING POST: M10
SIGHT: M4
TABLE, FIRING: FT 60-A-5
TABLE, FIRING: FT 60-C-3
TABLE, FIRING: FT 60-F-4
TABLE, FIRING: FT 60-G-2


INSTRUCTIONAL MATERIAL
TABLE, FIRING: FT 60-L-1
PROJECTILE, 60 MILLIMETER: training, M69
GRAPHIC TRAINING AID: GTA 9-624; GTA 7-7
TRAINER, MORTAR: subcaliber, pneumatic, M32 or M82A1

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped: 4 mortars per wood box.
Length: 2 ft, 9 in.
Width: 1 ft, 2½ in.
Height: 1 ft, 2¼ in.
Volume: 8.9 cu ft
Gross weight: 90 lb
Ship tons: 0.10

Outside Continental United States
Shipped: 
Length: 
Width: 
Height: 
Volume: 
Gross weight: 
Ship tons: 


*For characteristics and data, see item in sections 14 and 18.
MOUNT, MORTAR: 60-MM, M5

Differences among models

Data plate location

The identification plate of the mount M5 is attached to the body yoke.

Classification: Limited Standard (OTCM 37119).

CHARACTERISTICS

Weight:

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mount</td>
<td>29.2</td>
</tr>
<tr>
<td>Bipod</td>
<td>16.4</td>
</tr>
<tr>
<td>Baseplate</td>
<td>12.8</td>
</tr>
</tbody>
</table>

Elevation (approx) 40° to 85°

Traverse, right or left (approx) 2°

Depression

EQUIPMENT

Basic Issue Items: See ORD 7 SNL A-43.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount with 1 mortar M2 or 1 mortar M19 per wood box.

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 9% in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 2% in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 3% in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.2 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>75 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.105</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 mount with 1 mortar M2 or 1 mortar M19 per wood box.

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 9% in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 2% in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 3% in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>75 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.105</td>
</tr>
</tbody>
</table>

RIFLE, RECOILLESS, 57-MILLIMETER: M18, M18A1, OR T15E16

The rifle data are stamped on the forward surface of the chamber, directly under the tube. The tube data are stamped on the muzzle end of the rifle.

Classification: Standard B (OTCM 38841), except:

- RIFLE T15E16: Limited production

CHARACTERISTICS

Rifles M18 and M18A1 have their chamber and breechblock handles located in different positions. The breechblock cover of the rifle M18 has been replaced on the rifle M18A1 by the breechblock operating lever from which the breechblock handle projects. The M18A1 also contains an improved sear and striker assembly for more positive operation of the rifle.

The rifle T15E16 is similar to the M18A1. The major difference between the rifles is in the linkage between the trigger mechanism group and breech mechanism group. The rifle T15E16 has a firing linkage group which contains a trigger rod, firing rod, trigger and firing rod housings, and a bellcrank. The rods and bellcrank transfer the motion of the trigger to the sear in the breech mechanism group. The rifle T15E16 uses a loader's safety which is similar to the safety lever assembly at the rifles M18 and M18A1.

* For characteristics and data, see item in sections 14 and 18.
11 September 1962

TELESCOPE: M86F or M86C
TABLE, FIRING: FT 57-E-3 (abr)
TABLE, FIRING: FT 57-F-2 (abr)
TABLE, FIRING: FT 57-G-1 (abr)
Basic Issue Items: See ORD 7 SNL C-73

INSTRUCTIONAL MATERIAL
CARTRIDGE, CALIBER .30: ball, M2
BARREL, MACHINEGUN: modified .30 caliber (ORD No. 6535233)
GRAPHIC TRAINING AID: See DA Pam 310-5

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 1 per box.
Length ........................................... 6 ft, 9 in.

Outside Continental United States
Shipped
Length ........................................... 6 ft, 11 in.
Width ........................................... 1 ft, 1½ in.
Height ........................................... 1 ft, 1½ in.
Volume ........................................... 7.9 cu ft
Gross weight ................................... 107 lb
Ship tons ....................................... 0.29

References: FM 23-80, SNL C-73, TM 9-3062, TM 9-3062-34.
CANNON, 37 MILLIMETER GUN, SUBCALIBER: M15

AMMUNITION

<table>
<thead>
<tr>
<th>Type</th>
<th>TP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge</td>
<td>M63 Mod 1</td>
</tr>
</tbody>
</table>

Perfomance

<table>
<thead>
<tr>
<th>Muscular velocity</th>
<th>1,100 fps</th>
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</thead>
<tbody>
<tr>
<td>Range (maximum)</td>
<td>4,980 yd</td>
</tr>
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</table>

Equipment

Sighting and Fire Control:

TABLE, FIRING: FT 57-BA-2 (abridged)
In addition to above equipment, use sighting equipment issued with primary weapon listed in “GENERAL” paragraph.

Basic Issue Items: See ORD 7 SNL C-33, Sec. 17

INSTRUCTIONAL MATERIAL

Storage and Shipment Data

Within Continental United States

Shipped subcaliber gun cannons.

Length

Width

Height

Area

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped subcaliber gun cannons.

Length

Width

Height

Area

Volume

Gross weight

Ship tons

References: SNL C-33, TM 9-308.
ARMAMENT SUBSYSTEM, HELICOPTER, 40-MILLIMETER GRENADE LAUNCHER: M5
(LAUNCHER, GRENADE, 40-MILLIMETER: M75; MOUNT, GRENADE LAUNCHER (11014999))

General

ARMAMENT SUBSYSTEM, HELICOPTER, 40-MILLIMETER GRENADE LAUNCHER: M5 is designed for installation on UH-1B helicopters. The subsystem, electrically powered and remotely controlled, launches antipersonnel type grenades from a turret assembly externally mounted on the helicopter nose. The subsystem consists of the LAUNCHER, GRENADE, 40-MILLIMETER: M75 mounted in a turret assembly, with an ammunition feed system, turret control panel assembly, servo-amplifier junction box assembly, sight mount bracket assembly, and the hand control sight assembly. The copilot-gunner uses the hand control sight assembly to control and direct grenade launcher fire, independently of the helicopter attitude. The turret assembly provides a field of fire ranging from plus 15° to minus 35° in elevation, and from 60° left to 60° right in azimuth. When the subsystem is energized and the hand control sight assembly is not in use, the turret assembly returns to zero azimuth and zero elevation, or "stow" position. When in "stow" position, the grenade launcher may be fired by pilot or copilot from a switch on either cyclic stick as the helicopter is maneuvered to aim the machineguns.

Differences among models

Data plate location:
The subsystem data plate is attached to the back of the turret assembly, in the upper left corner. Individual component data plates are attached to the left front side of the grenade launcher receiver assembly, the under side of the mount portion of the hand control sight assembly, the rear side of the servo-amplifier.
Characteristics

Mount, grenade launcher:
- Weight (w/40-mm launcher, w/o ammunition) (approx) 194.75 lb
- Weight (w/40-mm launcher, w/ammunition) (approx) 268.75 lb
- Turret assembly diameter: 22 in.

Launcher, grenade, 40-mm: M75:
- Weight: 27 lb
- Height: 9 in.
- Width: 8 in.
- Length (barrel extended): 22.5 in.
- Length (barrel retracted): 18 in.

Classification: Standard A (AMCTC item 02177).

Ammunition
- 40-mm (capacity 150 rds)
- Types: HE, practice

Performance
- Rate of fire: 225-230 rds per min

Equipment
- Basic Issue Items: See TM 9-1010-207-12.

Instructional Material

Storage and Shipment Data

SECTION 4
GUNS, 75-MM THROUGH 125-MM
(CLASS 1015)
(Includes gun and howitzer cannons, guns, howitzers, artillery and infantry mortars, gun and mortar mounts, and rifles and subcaliber rifles.)

BATTLE GROUP ATOMIC WEAPON SYSTEM:. M28 (XM28) (GUN, RECOILLESS, 120-MILLIMETER: M63 (XM63E1) w/GUN, 20-MILLIMETER, SPOTTING: M69 (XM69); MOUNT, TRIPOD, RECOILLESS GUN: 120-mm, M120 (XM120) or MOUNT ASSEMBLY: M131 (XM131)----------------- 4-2
CANNON, 75-MILLIMETER GUN: M32 (T91E3); MOUNT GUN: M76 (T138E1) or MOUNT, COMBINATION GUN: M76A1 (T138E2)----------------------------- 4-3
CANNON, 90-MILLIMETER GUN: M36 (T119E1); MOUNT, GUN: 90-mm combination, M78-------------------------- 4-5
CANNON, 90-MILLIMETER GUN: M41 (T139); MOUNT, GUN: 90-mm combination, M87 (T148) or ORD No. 8739343---------------------------- 4-7
CANNON, 90-MILLIMETER GUN: M54 (T125); MOUNT, GUN: 90-mm, M88 (T170E1)------------------------ 4-9
CANNON, 105-MILLIMETER GUN: M68 (T254E2); MOUNT, GUN: 105-mm combination, M116------------------------ 4-10
CANNON, 105-MILLIMETER HOWITZER: M49 (T96E1); MOUNT, HOWITZER: 105-mm, M85 (T67E1)---------- 4-12
CANNON, 105-MILLIMETER HOWITZER: M103 (XM103); MOUNT, HOWITZER: 105-mm, M139 (XM139) (See page 4-44).------------ 4-13
CANNON, 120-MILLIMETER GUN: M58 (T123E1); MOUNT, GUN: 120-mm, combination, M89 (T154) or M89A1 --------------- 4-14
GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M61, w/e (CANNON: 75-mm, automatic gun, M85 (T83E6 or T83E7); RECOIL MECHANISM: T47E2 or M29 (T47E3); MOUNT, GUN: 75-mm, AA, M84 (T89)).--------------------------- 4-16
GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 90-mm, M117, w/e (CANNON, 90-MILLIMETER GUN: M1A2 or M1A2; RECOIL MECHANISM: M1-series; MOUNT, GUN: 90-mm, M1A2)------------------ 4-18
GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 90-mm, M118, w/e (CANNON, 90-MILLIMETER GUN: M2A1 or M2A2; RECOIL MECHANISM: M17-series; FUZE, SETTER-RAMMER, M20; MOUNT, GUN: 90-mm, M2A1)-------------------------- 4-20
HOWITZER, PACK: 75-mm, M16, w/e (CANNON, 75 MILLIMETER PACK HOWITZER: M1A1; RECOIL MECHANISM: M1-series; CARRIAGE: howitzer (pack), 75-mm, M8)-------------------------- 4-22
HOWITZER, LIGHT, TOWED: 105-mm, M101 or M101A1 (CANNON, 105 MILLIMETER HOWITZER: M2A1 or M2A2; RECOIL MECHANISM: M2-series; CARRIAGE, 105 MILLIMETER HOWITZER: M2A1 or M2A2)-------------------------- 4-24
HOWITZER, SALUTING: 75-mm, M120, w/e (CANNON, 75-MILLIMETER PACK HOWITZER: M16A1; RECOIL MECHANISM: M1-series; CARRIAGE: howitzer (pack), 75-mm, M8)-------------------------- 4-26
MORTAR, 81 MILLIMETER: M1, w/e (CANNON, 81 MILLIMETER MORTAR: M1; MOUNT, MORTAR: 81-mm, M4)-------------------------- 4-28
MORTAR, 81 MILLIMETER, M29 and M29E1, w/e (CANNON, 81-mm, M29 or M29E1; MOUNT, MORTAR: 81-mm, M29 or M29A1)-------------------------- 4-30
MORTAR, 107 MILLIMETER: M30 (T104); w/e (CANNON, 107 MILLIMETER MORTAR: M30 (T104); MOUNT, MORTAR: 107-mm, M24 (T61), M24A1, or (ORD No. 8731733) (formerly 4.2-inch)-------------------------- 4-32
MOUNT, TRIPOD, RIFLE: M1917A2, w/e-------------------------- 4-34
RIFLE, 75 MILLIMETER: M20 or T21E12; MOUNT, TRIPOD, WEAPON: M1917A2 or M74, w/e-------------------------- 4-35
RIFLE, 90 MILLIMETER: M67, w/e-------------------------- 4-37
RIFLE, 105 MILLIMETER: M27 or M27A1; MOUNT, TRIPOD, WEAPON: M1917A2 or M74, w/e-------------------------- 4-38
RIFLE, RECOILLESS, 105 MILLIMETER: M40A1 or M40A1C; w/GUN, CALIBER .50, SPOTTING: M8C; MOUNT, RIFLE: 105-mm, M79, M92 (T173) or M149E5-------------------------- 4-40
RIFLE, CALIBER .30, SUBCALIBER: M7-------------------------- 4-42
RIFLE, CALIBER .30, SUBCALIBER: M9-------------------------- 4-43

AGO 5093A
BATTLE GROUP ATOMIC WEAPON SYSTEM: M28 (XM28) (GUN, RECOILLESS, 120-MILLIMETER: M63 (XM63E1) W/GUN, 20-MILLIMETER, SPOTTING: M69 (XM69); MOUNT, TRIPOD, RECOILLESS GUN: M120 (XM120) OR MOUNT ASSEMBLY: M131 (XM131)

General

BATTLE GROUP ATOMIC WEAPON SYSTEM: M28 (XM28) (GUN, RECOILLESS, 120-MILLIMETER: M63 (XM63E1) W/GUN, 20-MILLIMETER, SPOTTING: M69 (XM69); MOUNT, TRIPOD, RECOILLESS GUN: M120 (XM120) OR MOUNT ASSEMBLY: M131 (XM131) is a smoothbore, lightweight, short runge, man or vehicle transported, frontline infantry weapon, with a nuclear capability, and can be fired from a ground mount or vehicle.

The 120-mm recoilless gun M63 consists of three parts permanently assembled: barrel, chamber, and nozzle.

The 20-mm spotting gun M69 is a single-shot, breech-loading weapon, with a manually-operated, vertical sliding wedge breech-block. It has a rifled barrel which is threaded and screwed into the breech housing. It is mounted coaxially under the recoilless gun in the spotting mount.

The 120-mm recoilless gun tripod mount M120 consists of two rear legs and one front telescoping-type leg joined at the outer gimbal ring.

An adapter kit is provided for the weapon system M28. It consists of brackets and supports bolted to TRUCK, UTILITY: 1/4-ton, 4 x 4, M38A1. The brackets and supports are equipped with straps for securing the mount M120, ammunition, and equipment for transportation. The 120-mm recoilless gun vehicle mount M131 is furnished with the kit and mounts the gun M63 for transportation and firing from the truck.

Differences among models

Data plate location

Gun, M63—On the spotting gun bracket beneath the gun barrel.
Gun, M69—Stamped on the right side of the breech housing.

Characteristics and data will be included at a later date.

Mount, tripod M120—On the right side of the front leg yoke.
Mount assembly, M131—On the left side of the mount.

Classification: Standard A (AMCTCM 279)

Weapon system (w/M120 mount):

- Weight: 110 lb
- Length: 5 ft, 9 in.
- Width: 5 ft, 4 in.
- Height: 3 ft, 9 in.

Gun, M63:

- Weight: 77 lb
- Length: approx 3 ft, 11 in.
- Width:
- Height:

Gun, M69:

- Weight: 7 lb
- Length: 2 ft, 3½ in.
- Width:
- Height:

Type of breach mechanism—vertical sliding wedge
Type of firing mechanism—Inertia percussion

Mount, M120:

- Weight: 26½ lb
- Height (assembled):
  - Low silhouette: 2 ft, 10 in.
  - High silhouette: 4 ft, 7 in.
- Length (folded): 4 ft, 1½ in.

Mount assembly M131:

- Weight:
- Length: 2 ft, 3 in.
- Width:
- Height:

AMMUNITION

Gun, M63, types—nuclear, practice, dummy, training
Gun, M69, types—dummy, spotting

PERFORMANCE

Muzzle velocity (classified)
Range: 2,000 meters
Rate of fire

EQUIPMENT

Sighting and fire control:

HOLDER, TELESCOPE MOUNT: M5 (XM5).

For characteristics and data, see item in section 14, 18, and 28.
MOUNT, TELESCOPE: M17 (XM17).
POST, AIMING: M1A2.
QUADRANT, FIRE CONTROL: gunner’s, M1A1, w/CASE.
CARRYING.
SIGHT, BORE, MUZZLE, M30 (XM30) (for 20-mm gun).
TELESCOPE, ELBOW, M107 (XM107).
THERMOMETER, SELF-INDICATING, BIMETALLIC: M1A1, w/c.

Auxiliary sighting and fire control:
CASE, CARRYING: M125 (for M50 bore sight).
CASE, TELESCOPE: M121.
CHEST, M14 (aiming post Light M14)
LIGHT, AIMING POST: M13.
LIGHT, INSTRUMENT: MG1.
AIMING CIRCLE: M2, w/e.
BINOCULAR: M1A1, w/e.
BROAD, PLOTTING: MG1, w/e.
COMPASS, MAGNETIC, UNMOUNTED: M2, w/e.

Bore sighting:
CASE, BORESIGHT: M122 (for M47 and M48 bore sights).
SIGHT, BORE, BREECH, M47 (XM47) (for 120-mm gun).
SIGHT, BORE, MUZZLE: M49 (XM49) (for 120-mm gun).


INSTRUCTIONAL MATERIAL
CARTIDGE, SPOTTING, 20-MILLIMETER, DUMMY: M147 (XM147).
CHARGE, PROPELLING, ATOMIC PROJECTILE, DUMMY: M78 (XM78E1).
PISTON, Launching, ATOMIC PROJECTILE, DUMMY: M3 (XM3).
PROJECTILE, ATOMIC, SUPERCALIBER, 20-MILLIMETER, DUMMY: M421 (XM421).

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 weapon system per shipping container.

Length: 5 ft, 6 in.
Width: 2 ft
Height: 3 ft, 6 in.
Volume: 41.29 cu ft
Gross weight: 419 lb
Ship cost: 3.37

CANNON, 76-MILLIMETER GUN: M32 (T91E3); MOUNT, GUN: M76 (T138E1) OR MOUNT, COMBINATION GUN: M76A1 (T138E2)

Shown: CANNON, 76 MILLIMETER GUN, M32 (T91E3)
MOUNT, GUN: M76 (T138E1)

ORD A1132-A

General

CANNON, 76-MILLIMETER GUN: M32 (T91E3) with MOUNT, GUN: M76 (T138E1) or MOUNT, COMBINATION GUN: M76A1 (T138E2), provides the major armament for the 76-mm full tracked combat tanks M41 and M41A1, respectively.

The principal components of the 76-mm gun cannon M32 are the cannon tube, muzzle brake, bore evacuator chamber, and breech mechanism assembly.

The gun mount M76 or combination gun mount M76A1 consists primarily of a shield assembly and recoil cylinder assembly. The mount supports the cannon and provides attachment for the breech operating mechanism assembly, firing plunger assembly, manual firing and safety mechanism assembly (M76A1), hand firing control assembly (M76), machine gun mounting brackets, recoil guard, replenisher assembly, elevating cylinder assembly (M76), and the elevating gear box assembly (M76A1).

Differences among models

The principal differences between the mounts M76 and M76A1 are that the M76 has a hydraulic elevating cylinder assembly and related parts where the M76A1 has an electro-mechanical elevating gear box assembly and related parts. The mounting pads on the outside of the recoil cylinder are designed for mounting the elevating cylinder assembly on M76 and the elevating gear box assembly on M76A1. The mounting position for the telescope is different on each model. All mounts M76 and mounts M76A1 retain an early type trunnion left cap which does not have an adjustable plate and level vial attached thereto.

Data plate location

Classification: Standard A (OTCM 48841).

Characteristics

Cannon:

Weight 1,329 lb
Weight of tube 962 lb

Length (muzzle to rear face of breech ring) 15 ft. 7 in.
Length of tube (muzzle to breech face of tube) 16 ft

Rifling:

Length 13 ft. ¾ in.
Number of grooves 28
Twist, right hand one turn in 25 calibers

Type of breechblock vertical sliding
Type of firing mechanism spring actuated, inertial percussion

Estimated accuracy life of tube 350 equivalent full change rounds

Mount:

Weight:
M76 1,277 lb
M76A1 1,397 lb

Type of recoil mechanism concentric hydro-spring

Length of recoil:
Maximum 1 ft
Normal 9 to 10½ in.

Number of recoil cylinders 1

Capacity of recoil mechanism (including replenisher assembly) 2 gal

Elevation (max) (approx) 19 deg, 45 minute.
Depression (max) (approx) 9 deg, 45 minute.

Operation of firing linkage manual or electrical

Ammunition

Types: AP-T, HE, HVAP-T, HVAP-DS-T, WP, TP-T, and BLANK

Performance

Muzzle velocity:
AP-T, TP-T 3,208 fps
HVAP-DS-T 4,128 fps
HVAP-T 4,132 fps
HE, WP 3,400 fps

Range:
AP-T, TP-T (2-deg 16 min elevation) 6,000 yd
HVAP-DS-T (1-deg 8 min elevation) 6,000 yd
HVAP-T (2-deg 28 min elevation) 6,000 yd
HE, WP (44-deg 19 min elevation) 16,580 yd

Rate of fire 4-3
EQUIPMENT

Sighting and fire control:

DRIVE, BALLISTICS: M4 (T23)
FUZE SETTER: M17 or M14
INDICATOR, AZIMUTH, MECHANICAL: M31 (T24)
MOUNT, PERISCOPE: M98 (T174E1)
MOUNT, PERISCOPE: M94 (T177E2)
MOUNT, TELESCOPE: M92 (T173)
MOUNT, TELESCOPE: M92A1 (T173E1)
PERISCOPE: M18
PERISCOPE: M17
PERISCOPE: M19
PERISCOPE: M18A2 or M20A1 or M20
PROJECTION—SYSTEM: (FSN 1289-789-7866)
QUADRANT, FIRE CONTROL: gunner's, M1A1 or M1 W/ CASE.
TELESCOPE: M97

Basic Issue Items: See TM 9-2360-201-12.

* For characteristics and data, see item in sections 12, 14, 18, and 27.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

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References: SNL C-82, TM 9-2360-201-12, TM 9-1018-218-35.
CANNON, 90-MILLIMETER GUN: M36 (T119E1); MOUNT, GUN: 90-MM COMBINATION, M78

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<td>Cannon</td>
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<td>1015-723-8860</td>
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<tr>
<td>Mount</td>
<td>M78</td>
<td>1015-728-9250</td>
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**General**

CANNON, 90-MILLIMETER GUN: M36 (T119E1) with MOUNT, GUN: 90-mm combination, M78, provides the major armament of TANK, COMBAT, FULL TRACKED: 90-mm gun, M47.

The cannon is a flat trajectory artillery weapon. It uses fixed ammunition which is loaded into the gun manually. The hinging of a round permits a closing spring mechanism to close the breech.

The breech is opened automatically during counterrecoil of the gun, extracting the empty shell case. The principal components of the cannon are the gun tube, blast deflector, evacuator chamber, and the breech mechanism assembly with related parts.

The mount consists primarily of a shield group and the recoil mechanism assembly. In addition, it provides attachment for the emergency hand elevating screw assembly and the gun elevating cylinder assembly.

**Characteristics**

**Differences among models**

Data plate location
The combination gun mount identification plate is located on the right side of the gun mount below the gun firing relay.

Classification: Standard B (OTCM 36481).

**AMMUNITION**

Types: AP-T, HE-T, TP-T, and smoke (WP-T)

**Performance**

Muzzle velocity:
AP-T: 3,000 fps
HE-T: 2,400 fps

Range:
AP-T: 18,980 yd
HE-T: 14,000 yd

Rate of fire:
Sustained speed: 8 rd per min
Rapid: 16 rd per min

**Equipment**

Sighting and firing control:
Installed on tank M47 prior to issue:
**DRIVE, BALLISTICS:** M3
**INDICATOR, AZIMUTH, MECHANICAL:** M31
**INVERTER, ORD No. 763898**
**MOUNT, PERISCOPE:** M88
**MOUNT, PERSCOPE:** M89
**QUADRANT, FIRE CONTROL:** elevation, M18
**RANGE FINDER, FIRE CONTROL:** M12
**TRANSmitter, SUPERELEVATION:** M22

*For characteristics and data, see item in sections 14, 18, and 27.*
Boxed and stowed in tank M47 prior to issue:
FIRING, TABLE: 90-F-2 (abridged)
FUZE SETTER: M27 or M14
PERISCOPE, M19
PERISCOPE, M20A1, M20, or M20A1
QUADRANT, FIRE CONTROL: gunner's, M1A1 or M1
Basic Issue Items: See TM 9-2350-200-12.

INSTRUCTIONAL MATERIAL

Subcaliber equipment:
MACHINEGUN: cal. .30, M1919A4E1

STORAGE AND SHIPMENT DATA
Within Continental United States

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Outside Continental United States

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DIFFERENCES AMONG MODELS

The combination gun mount ORD No. 8735943 is a modified M87. It differs from the M87 in that the recoil mechanism assembly and cradle assembly were modified, and the splatter guards with their attaching hardware were eliminated on later models. A different elevating mechanism assembly is used in conjunction with combination gun mount ORD No. 8735943.

Elevating mechanism assembly ORD No. 7971087 is used in conjunction with combination gun mount ORD No. 8735943. However, four different models of the elevating mechanism assembly may be used in conjunction with combination gun mount M87. Elevating mechanism assembly ORD No. 7997599 is the original model used with the weapon in the tank M48. Elevating mechanism assembly ORD No. 8370388, developed from ORD No. 7997599, has increased flange thickness of the front housing, released preformed packing, backup rings for the packing, and preformed packing for the piston rod rear guide. Elevating mechanism assembly ORD No. 8382217, developed from elevating mechanism assembly ORD No. 8370388, has the manifold needle valve removed and replaced with packing and plug to close the bore. Elevating mechanism assembly ORD No. 8686541 has rear housing flanges that do not contain ports.

DATA PLATE LOCATION

The model and serial numbers of the cannon are stamped on the top of the breech ring. The identification plate of the gun mount is located on the right side of the cradle.

CLASSIFICATION: Standard A (OTCM 86841).

CHARACTERISTICS

Cannon:

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight (less elevating mechanism)</th>
<th>Weight (including elevating mechanism)</th>
<th>Length (muzzle to rear face of breech ring w/blast deflector)</th>
<th>Type of firing mechanism</th>
<th>Estimated accuracy life of tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>M41</td>
<td>2,845 rd</td>
<td>3,097 rd</td>
<td>16 ft, 1 3/4 in.</td>
<td>Inertia percussion</td>
<td>700 equivalent full charge</td>
</tr>
</tbody>
</table>

Mount:

<table>
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<tr>
<th>Model</th>
<th>Weight (less elevating mechanism)</th>
<th>Weight (including elevating mechanism)</th>
<th>Length of recoil</th>
<th>Type of recoil mechanism</th>
<th>Capacity of recoil mechanism (incl. replenisher)</th>
<th>Elevation (max)</th>
<th>Depression (max)</th>
<th>Traverse</th>
</tr>
</thead>
<tbody>
<tr>
<td>M41</td>
<td>2,370 lb</td>
<td>2,522 lb</td>
<td>1 ft</td>
<td>Concentric hydrospring</td>
<td>5.5 gal</td>
<td>19°</td>
<td>5.5°</td>
<td>360°</td>
</tr>
</tbody>
</table>

AMMUNITON

Types—AP-T, APC-T, HE, HE-T, HEPT, WP-T, TP-T, and HEAT-T

PERFORMANCE

Muzzle velocity:

<table>
<thead>
<tr>
<th>Type</th>
<th>Muzzle velocity</th>
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</thead>
<tbody>
<tr>
<td>AP-T</td>
<td>2,800 fps</td>
</tr>
<tr>
<td>HE-T</td>
<td>2,400 fps</td>
</tr>
<tr>
<td>HEPT</td>
<td>2,600 fps</td>
</tr>
</tbody>
</table>
Range:

- AP-T (M318A1) 21,400 yd
- HE-T (M71A1) 14,000 yd
- HEP-T (T142E5) 10,700 yd

Rate of fire: 

**EQUIPMENT**

Sighting and fire control:

Used with TANK, COMBAT, FULL TRACKED: 90-mm, M48, M48A1, M48C, M48A2, M48A2C.

- Fuse setter: M34, M37
- Indicator, azimuth: M28A1 (T28E1)
- Mount, periscope: M102A1 (T184)
- Mount, telescope: M103 (T191)
- Periscope: M20A1
- Periscope: M27 (T26)
- Quadrant, fire control: elevation, M13
- Quadrant, fire control: gunner’s, M1, M1A1
- Telescope: M7FC (T164E1)

Used with TANK, COMBAT, FULL TRACKED: 90-mm, M48, M48A1, and M48C only.

- Computer, ballistics: M18 (T31)
- Drive, ballistics: M5 (T24E5)
- Indicator, azimuth, mechanical: M28
- Mount, tank periscope: M104 (T196)
- Periscope: M17, M19, M26 (T25)
- Range finder, fire control: M13 (T46E1)
- Sight, periscope: M25 (T46)

Used with TANK, COMBAT, FULL TRACKED: 90-mm, M48A2, M48A2C.

- Card, range, tank: (no data available)

* For characteristics and data, see item in sections 12, 14, 16, 18, and 27.

**INSTRUCTIONAL MATERIAL**

Cartridge, 90-millimeter dummy: M12B2

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

- Shipped
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

*Outside Continental United States*

- Shipped
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

CANNON 90-MILLIMETER GUN: M54 (T125); MOUNT, GUN: 90-MM, M88 (T170E1)

The cannon and mount-combination is a high velocity weapon designed primarily for the M56 as an antitank weapon. It may be fired electrically by depressing a button on the traverse handwheel or mechanically by operating a lever attached to the right side of the front frame.

The cannon consists of three major parts: breech mechanism, tube, and tube support rails. The tube is screwed into the breech ring and has a counterweight at the muzzle end. The breech mechanism is opened manually for the first round by depressing the plunger at the top of the handgrip and pulling downward on the operating handle. Thereafter, the breech is opened, the cartridge case is extracted, the percussion mechanism is cocked, and the breechblock is left in the open position through action imparted during counterrecoil. The cannon is then ready for loading the next round. Each round is loaded manually by the loader.

The gun mount M88 is trunnion-mounted to the top carriage and supports and guides the 90-mm gun M54. It consists of a large welded housing assembly supported underneath by front and rear cross bridges assemblies. It mounts the recoil mechanism, buffer assembly and hydraulic system, hand firing and safety levers, firing linkage, gas blast shield, telescope, and facilities to attach the upper end to the elevating screw.

Differences among models

Data plate location

The model and serial numbers of the gun are stamped on the forward portion of the top of the breech ring. The mount identification plate is located on the front cross frame.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Cannon:

- Weight (w/counterweight) 2,440 lb
- Weight of tube 1,473 lb
- Length 15 ft, 6 3/4 in.
- Riffing:
  - Length 12 ft, 8 3/4 in.
  - Number of grooves 32
  - Twist, right hand one turn in 25 calibers
- Type of breechblock vertical sliding
- Type of firing mechanism spring-actuated, inertia percussion
- Estimated accuracy life of tube 700 equivalent full charge rounds

Mount:

- Weight (w/roll) 1,585 lb
- Type of recoil mechanism hydrospring
- Number of recoil cylinders 2
- Length of recoil Normal
- Maximum Capacity of recoil mechanism (including reservoir) 8 gal
- Elevation (max) 10°
- Traverse, maximum, right or left 30°
- Operation of firing linkage manual or electrical

AMMUNITION

Types AP-T, APC-T, HE, HE-T, HEAT, WP, TP-T, and HEAT-T

Muzzle velocity:

- APC-T, HEAT 2,800 fps
- AP-T, TP-T 3,000 fps
- HE, WP 2,760 fps
- HE-T, WP-T 2,490 fps
- HEAT-T 4,000 fps

Range:

- APC-T (2° 30 min elevation) 5,000 yd
- HEAT (4° 6 min elevation) 5,600 yd
- AP-T, TP-T (2° 16 min elevation) 5,000 yd
- HVAP-T, HVTP-T (2° 9 min elevation) 5,000 yd
- HEF-T (5° 13 min elevation) 5,000 yd
- HE, WP (2° 41 min elevation) 5,000 yd
- HE-T (42° 39 min elevation) 13,963 yd
- WP-T (42° 53 min elevation) 14,263 yd
- HEAT-T (6° 14 min elevation) 7,000 yd

Rate of fire

EQUIPMENT

Sighting and fire control:

- MOUNT, TELESCOPE: M111 (T19)
- FIRING TABLE: FT 90-N-1 and FT 90-N-1, C1
- FUZE SETTER: M27 (T40)
- QUADRANT, FIRE CONTROL: gunner's M1A1, w/case

TELESCOPE: M104 (T285).

INSTRUCTIONAL MATERIAL

CARTRIDGE, 90-MILLIMETER: HVTP-T, M31A1, M31A3, M333, M332A1
CARTRIDGE, 90-MILLIMETER, BLANK: M394
CARTRIDGE, 90-MILLIMETER, DUMMY: M12, M12B1, and M12B2

STORAGE AND SHIPMENT DATA

Within Continental United States

- Shipped Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

Outside Continental United States

- Shipped Length
- Width
- Height
- Volume
- Gross weight
- Ship tons


* For characteristics and data, see item in sections 14 and 18.
CANNON, 105-MILLIMETER GUN: M68 (T254E2); MOUNT GUN: 105-MM COMBINATION, M116

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

Cannon:
- **Weight (complete)**: 2,485 lb
- **Weight of tube**: 1,660 lb
- **Length (muzzle to rear face of breech)**: 18 ft, 2 1/4 in.
- **Length of tube**: 17 ft, 6 1/2 in.
- **Rifling**: 
  - **Length**: 17 ft, 6 1/2 in.
  - **Number of grooves**: 28
  - **Twist, right-hand**: one turn in 18 calibers
- **Type of breechblock**: sliding wedge, drop block, counter-recoil-actuated
- **Type of firing mechanism**: electric firing, automatic mechanically retreated firing pin
- **Estimated accuracy life of tube**: 200 to 300 rd

Mount:
- **Weight**: 5,752 lb
- **Type of recoil mechanism**: concentric hydrospring constant recoil distance

General
The CANNON, 105 MILLIMETER GUN: M68 (T254E2), with MOUNT, GUN: 105-mm combination, M116, provides the major armament of TANK, COMBAT, FULL TRACKED: 105-mm gun, M60.

The cannon consists of a tube and breech mechanism. It is of the semiautomatic, drop-block, counter-recoil-actuated-type which is fired electrically only. The tube is attached to the breech ring of the breech mechanism by interrupted buttress threads and locked with a tapered pin for providing a quick-change principle which allows removal and installation through the shield of the mount which is installed in the tank.

The mount consists primarily of a shield and cradle. The mount is supported on trunnion bearings installed on pins set in the turret. Attachments are provided for mounting the 7.62-mm coaxial machinegun, the articulated telescope, auxiliary firing control box, gunner’s guard, and ejector bracket. The cradle forms the outer cylinder of the hydrospring type concentric recoil mechanism.

Differences among models

Data plate location
The model and serial numbers of the gun cannon are stamped on bottom, rear end of the breech.

Classification: Standard A (OTCM 37119).

INSTRUCTIONAL MATERIAL

AMMUNITION
- Types: APDS-T; HEP-T; and HEAT-T

PERFORMANCE
- Muzzle velocity: *(classified)*
- Range: *(classified)*
- Rate of fire: *(classified)*

EQUIPMENT

Sighting and fire control:
- COMPUTER, BALLISTIC: M131A1
- DRIVE, BALLISTICS: M14 (T12E3)
- INDICATOR, AZIMUTH: M28A3
- MOUNT, TANK PERISCOPE: M104A1
- MOUNT, TELESCOPE: M114 (T199)
- PERISCOPE: M116 (T199)
- POWER UNIT: assembly (attached to periscope mount, M113)
- QUADRANT, FIRE CONTROL: elevation, M13A1
- RANGE FINDER, FIRE CONTROL: M17C, w/case
- SIGHT, INFINITY: M44C
- SIGHT, PERISCOPE: M28C
- Telescope: articulated, M165C

AMMUNITION
- Types: APDS-T; HEP-T; and HEAT-T

PERFORMANCE
- Muzzle velocity: *(classified)*
- Range: *(classified)*
- Rate of fire: *(classified)*

EQUIPMENT

Sighting and fire control:
- COMPUTER, BALLISTIC: M131A1
- DRIVE, BALLISTICS: M14 (T12E3)
- INDICATOR, AZIMUTH: M28A3
- MOUNT, TANK PERISCOPE: M104A1
- MOUNT, TELESCOPE: M114 (T199)
- PERISCOPE: M116 (T199)
- POWER UNIT: assembly (attached to periscope mount, M113)
- QUADRANT, FIRE CONTROL: elevation, M13A1
- RANGE FINDER, FIRE CONTROL: M17C, w/case
- SIGHT, INFINITY: M44C
- SIGHT, PERISCOPE: M28C
- Telescope: articulated, M165C

INSTRUCTIONAL MATERIAL

Subcaliber equipment:
- CARTRIDGE, 7.62-MILLIMETER: NATO ball, M69
- MACHINE GUN: 7.62-mm, tank, M73 (T137E2)

*For characteristics and data, see item in sections 12, 14, 15, 18, and 27.
### Storage and Shipment Data

**Within Continental United States**

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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
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<tr>
<td>Height</td>
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</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

CANNON, 105-MILLIMETER HOWITZER: M49 (T96E1); MOUNT, HOWITZER: 105-MM, M85 (T67E1)

**Classification:** Standard B (OTCM 368(1)

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Secondary item</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannon</td>
<td>M49</td>
<td>1015-730-2520</td>
</tr>
<tr>
<td>M85</td>
<td>1015-733-2512</td>
<td></td>
</tr>
</tbody>
</table>

**General**

CANNON, 105-MILLIMETER HOWITZER: M49 (T96E1) with MOUNT, HOWITZER: 105-mm, M85 (T67E1), provides the major components for the 105-millimeter, full tracked, self propelled howitzer M52 (T98E1) and M52A1.

The cannon consists of a tube screwed into a breech ring at the breech end, with an evacuator chamber and locknut mounted on the muzzle end. A vertical cylinder, an integral part of the left side of breech ring, houses the breechblock closing spring mechanism. The breechblock rides in the machined interior of the breech ring.

The mount consists primarily of a front shield and cradle. The front shield is an armor steel casting which supports the elevation trunnions of the cradle in self-alining bearings. The cradle is a large cylindrical casting with a hollow bore. The bore of cradle contains front and rear follows which provide bearing support surfaces in which the cannon tube slides during recoil and counter-recoil. In addition, the cradle forms the outer cylinder of the recoil mechanism and mounts all the tipping parts including the replenisher assembly, breech operating and firing mechanism assembly, rotor shield, and elevating rack.

**Differences among models**

- Data plate location:
  - The model and serial numbers of the cannon are stamped on the front wall of the breech ring.
  - The mount and recoil mechanism identification plates are mounted on the breech operating and firing mechanism bracket.

**EQUIPMENT**

- **Sighting and fire control:**
  - FUZE SETTER: M27 or M22 and M23 and M28 or M14
  - MOUNT, TELESCOPE: M96A1 or M99
  - MOUNT, TELESCOPE: M100
  - PERISCOPE: M15, M15A1, M17, M23 (T38)
  - POST, AIMING: M1A2
  - QUADRANT, FIRE CONTROL: gunner's, M1A1 or M1, w/case
  - TABLE, firing (FT-105-M-4)
  - TELESCOPE, PANOGRAPHIC: M100 (T182E1)

**AMMUNITION**

- Types: HE, HEP, HEP-T, HEAT, HEAT-T, CHEM, and ILLUM

**PERFORMANCE**

- **Muzzle velocity:**
  - HEAT (charge not adjustable) 1,250 fps
  - HE (maximum zone charge) 1,550 fps

- **Range:**
  - HEAT (625 m/s elevation) 6,700 yd
  - HE (778.6 m/s elevation) 12,205 yd

- **Rate of fire:**

**Equipment**

- For characteristics and data, see item in sections 14.18.27, and 32.

### CARACTERSISTICS

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Mount</th>
<th>Line item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>942 lb</td>
<td>695 lb</td>
</tr>
<tr>
<td>Length</td>
<td>13 ft, 6 in.</td>
<td>6 ft, 4½ in.</td>
</tr>
<tr>
<td>Number of grooves</td>
<td>11</td>
<td>66</td>
</tr>
</tbody>
</table>

Twist, right hand: one turn in 20 calibers
Type of breechblock: vertical sliding
Type of firing mechanism: spring actuated, inertia percussion
Estimated accuracy life of tube: 

Mount:
- Weight: 
- Type of recoil mechanism: concentric hydrospring constant recoil distance
- Length of recoil:
  - Maximum: 1 ft, 1 in.
  - Normal: 11½ in.
- Number of recoil cylinders: 
- Capacity of recoil mechanism:
  - (including replenisher assembly) 3.5 gal
- Depression (max) -10°
- Traverse (right or left) 60°
- Operation of firing linkage: manual

**AMMUNITION**

- Types: HE, HEP, HEP-T, HEAT, HEAT-T, CHEM, and ILLUM
TRIPOD, SURVEYING: FSN 6075-240-1881 (issued by Corps Engineers)

Basic Issue Items: See TM 9-7204.

INSTRUCTIONAL MATERIAL
CARTRIDGE, 105-MILLIMETER BLANK: M39
CARTRIDGE, 105-MILLIMETER DUMMY: M14
CARTRIDGE, 105-MILLIMETER: semi fixed, empty, M1
CARTRIDGE, 105-MILLIMETER: semi fixed, TP-T, M67

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped
Length
Width

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL C-86, TM 9-1324AA, TM 9-1015-211-34, TM 9-7204.

TM 9-500

4-13
MOUNT, GUN: 120-MM, COMBINATION, M89 (T154) OR M89A1
CANNON, 120-MILLIMETER, GUN: M58 (T123E1);

General
CANNON, 120-MILLIMETER GUN: M58 (T123E1) with MOUNT,
GUN: 120-mm, combination, M89, provides the major armament of
TANK, COMBAT, FULL TRACKED: 120-mm gun, M108 (T45E1)
or with mount M89A1 the major armament of TANK, COMBAT,

The cannon principally consists of a tube, counterweight, evac­
uator chamber, and breech ring group with related parts. Ammuni­
tion is of the "separated" type, consisting of a fused or solid
projectile and a propelling charge. The breech mechanism is
designed for automatic opening of the breech during counterrecoil,
and automatic closing through spring action upon insertion of a
cartridge case. The round is ejected automatically upon the opening
of the breech.

The mount consists primarily of a shield, mount adapter, cradle,
and equilibrator mechanism. In addition, it provides attachment for
the breech operating and firing mechanism, coaxial machinegun
mounts, and the equilibrator bracket. The mount supports the
cannon and is attached to the adaptor assembly which is secured
in the turret by the trunnions. The recoil mechanism assembly
absorbs the recoil forces of the cannon and provides counterrecoil
to bring the cannon back to battery.

Differences among models

Data plate location
The tube and breech ring serial numbers of the cannon are
stamped on the breech end of the cannon and the top of
the breech ring, respectively. The mount nameplate is located on the
rear of the mount of the mount housing between the recoil
cylinders.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Mount</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M68</td>
<td>M68</td>
<td>1015-508-0782</td>
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<tr>
<td>M89</td>
<td>M89</td>
<td>1015-735-5100</td>
<td></td>
</tr>
<tr>
<td>M89A1</td>
<td>M89A1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Type of breechblock: vertical sliding
Type of firing mechanism: spring-actuated inertia percussion
Estimated accuracy life of tube: 50,000 rounds

Mount:
- Weight: M89, M89A1: 6,280 lb
- Type of recoil mechanism: M89, M89A1: multiple cylinder hydrospring
- Number of recoil cylinders: M89, M89A1: 4
- Capacity of recoil mechanism: M89, M89A1: 20 gal
- Elevation (max): M89, M89A1: 10°
- Depression (max): M89, M89A1: 8°
- Operation of firing linkage: M89, M89A1: manual or electrical

AMMUNITION

Types: AP-T, HE-T, WP-T, and TP-T

PERFORMANCE

Muzzle velocity:
- HE: 2,500 fps
- AP-T: 3,500 fps

Range:
- HE: 19,910 yd
- AP-T: 25,290 yd

Rate of fire:

EQUIPMENT

Sighting and fire control:
- Installed on tank M102 prior to issue:
  DRIVE, BALLISTICS: M6 (T133E2)
  INDICATOR, AZIMUTH, Mechanical: M39 (T25)
  MOUNT, PERISCOPE: M106 (T150E2)
  PERISCOPE: M99A1 or M99A1
  RANGE FINDER, FIRE CONTROL: elevation, M13 (T21)
  RANGE FINDER, FIRE CONTROL: M14 (T45E1)
- Installed on tank M108A1 prior to issue:
  COMPUTER, BALLISTICS: M14 (T33)
  CORRECTOR, CANT: M3 (T44)
  DRIVE MOUNT, PERISCOPE: M9 (T86)
  INDICATOR, AZIMUTH, MECHANICAL: M39A1 (T28E1)
  INVERTER, ASSEMBLY: (ORD No. 8000314)
  MOUNT, TELESCOPE: M107 (T208)
  PERISCOPE: M29 (T56E1)
  QUADRANT, FIRE CONTROL: elevation, M13 (T21)
  RANGE FINDER, FIRE CONTROL: M13 (T54E1)
  RANGE FINDER, FIRE CONTROL: M15 (T54E1)
  SERVO MECHANISM, ELEVATION: M1 (T1)
  SIGHT, INFINITY: M44 (T139)

* For characteristics and data, see item in sections 12, 14, 15, 16,
18, and 27.
TELESCOPE: M103 (M712)  
TRANSMITTER. SUPERELEVATION: M23 (M14)
Boxed and stowed in vehicle prior to issue:
FIRING TABLE: FT 120-C-1  
FUZE SETTER: M24 or M14
PERISCOPE: M/7
PERISCOPE: M34
PERISCOPE: M97
QUADRANT, FIRE CONTROL: gunner's, MIAl or M1, w/case

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA

Within Continental United States

Skipped
Length
Width

Outside Continental United States

Shipped
Height
Volume
Gross weight
Ship tons

Gun, Anti-Aircraft Artillery, Towed: 75-mm Weapons System, M51, W/E
(Cannon: 75-mm, Automatic Gun, M35 (T83E6 or T83E7); Recoil Mechanism: T47E2 or M29 (T47E3); Mount, Gun: 75-mm, AA, M84 (T69))

General
Gun, Anti-Aircraft Artillery, Towed: 76-mm weapons system, M61, w/e, consisting of Cannon: 76-mm, automatic gun, M36 (T83E6 or T83E7), Recoil Mechanism: T47E2 or M29 (T47E3), and Mount, Gun: 76-mm, AA, M84 (T69) comprises a mobile, medium range, auto-loading weapon which is used primarily against aircraft, but may also be used against ground targets.

The cannon consists of a steel tube screwed into a breech ring that is locked to the tube with a key. Support and alignment for this assembly in the body cradle of the recoil mechanism are provided by rails fastened to the breech ring and the tube support on each side of the cannon. The cannon features an automatic breech mechanism that utilizes the force of counterrecoil to cam the vertically sliding breechblock to the open position and wind the breech closing torsion spring. This spring is released and raises the breechblock to closed position when the round is rammed home, thereby, chambering the round and aligning the percussion mechanism for firing the gun.

The mount is a mobile, four-wheel assembly which incorporates a rigid pedestal assembly, stabilised by four retractable outrigger assemblies: a rotating top carriage assembly that permits lowering or raising of the mount in conjunction with removal or attachment of the front and rear logic assemblies.

The recoil mechanism is a variable hydropneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or carriage. It is installed in the cradle of the mount.

Differences among models
The cannon T83E7 differs from the cannon T83E6 in that the tube of the cannon is chrome-plated internally. The only difference between recoil mechanism T47E2 and T47E3 is that the lower section of the front yoke on the cradle of the T47E3 is removable.

Data plate location
The cannon model and serial numbers are stamped on the rear face of the breech ring. The identification plate of the mount is attached to the right front side of the top carriage.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Model</th>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M36 (T83E6)</td>
<td></td>
<td>T47E2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or M35 (T83E7)</td>
<td></td>
<td>M29 (T47E3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cannon:
- Weight (complete) ........................................... 1,660 lb
- Weight of tube .............................................. 1,030 lb
- Length (muzzle to rear face of breech) ............ 15 ft, 34 in.
- Length of tube .................................................. 14 ft, 5 in.
- Uniform twist, right-hand one turn in 26 calibers
- Type of breechblock vertical sliding
- Type of firing mechanism percussion
- Estimated accuracy life of tube .......................... 1,800 rd

Mount:
- Weight ......................................................... 19,285 lb
- Elevation (max) .............................................. 96°
- Depression (max) .............................................. -6°
- Operation of firing linkage ................................ manual or electric
- Recoil mechanism ............................................... hydropneumatic, variable

<table>
<thead>
<tr>
<th>Number of recoil cylinders</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of recoil: Normal (at zero mils)</td>
<td>2 ft, 8 in.</td>
</tr>
<tr>
<td>Normal (at 1,000 mils)</td>
<td>3 ft, 1 in.</td>
</tr>
</tbody>
</table>

Capacity:
- With reserve oil ........................................... 6 pt, 8 oz
- Reserve oil .................................................. 9 oz

AMMUNITION
Type ......................................................... HE
PERFORMANCE

Muzzle velocity ........................................ 2,800 fps

Range:
  Horizontal ........................................... 14,415 yd
  Vertical ............................................... 10.000 yd

Rate of fire ........................................... 45 rd per min

EQUIPMENT

Sighting and fire control:
  FUZE SETTER: M37 (T35)
  FUZE SETTER: M28
  FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38)
  MOUNT, TELESCOPE: M31A1
  QUADRANT, FIRE CONTROL: gunner's, M1A1, W/CASE
  QUADRANT, FIRE CONTROL: range, M4A1
  TABLE, FIRING: FT 75AA-BG-1
  TABLE, FIRING: FT 75BK-1
  TELESCOPE, PANORAMIC: M12A1H

Basic Issue Items: See ORD 7 SNL D-45

INSTRUCTIONAL MATERIAL

CARTRIDGE, 75-MILLIMETER. DUMMY: T1461, w/FUZE, DUMMY, M38

* For characteristics and data, see item in sections 12, 14, and 15.

CARTRIDGE, 75-MILLIMETER: empty, M334, w/FUZE, inert, M31A1

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipment</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipment</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

PRIME MOVER

TRACTOR, CARGO: M8A1

GUN, ANTIAIRCRAFT ARTILLERY TOWED: 90-MM, M117, W/E
(CANNON, 90-MILLIMETER GUN: M1A2 OR M1A3;
RECOIL MECHANISM: M1-SERIES; MOUNT, GUN: 90-MM, M1A2)

General
GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 90-mm, M117, W/E, consists of a CANNON, 90-MILLIMETER GUN: M1A2 or M1A3; RECOIL MECHANISM: M1-series; MOUNT, GUN: 90-mm, M1A2. The weapon is used against aircraft at medium altitudes. It may also be used against ground and waterborne targets. The cannon M1A2 or M1A3 is a single-barrel, recoil operated, semi-automatic weapon, using fixed, percussion primed ammunition. When mounted on the 90-mm antiaircraft gun mount, the gun cannon is intended primarily for antiaircraft fire but may be used also against ground and waterborne targets. The mount M1A2 is of the trailer type with a two-wheeled bogie for supporting the weight while traveling. In the firing position, the mount is lowered to the ground and the bogie is detached and rolled forward. The recoil mechanism is of the hydropneumatic type with a variable recoil feature to effect different lengths of recoil at various degrees of elevation. The mount is equipped with manual and power-operating elevating and traversing mechanisms. Elevation of the tipping parts is facilitated by spring-type equilibrators. The mount is equipped with electric brakes operated from the prime mover and also hand brakes. The recoil mechanism is a variable hydropneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or mount. It is installed on the mount.

Differences among models
The composition of the steel in CANNON, 90-mm gun, M1A3 is the only difference between the M1A2 and the M1A3. The M1A3 meets new requirements for cold weather operations and fatigue resistance, and will allow retubing.

Data plate location
Classification: Standard B (OTCM 37727).

CHARACTERISTICS
Cannon and mount:
Overall:
Length: 20 ft, 10 in
Width: 8 ft, 6 in
Height: 9 ft, 6 in

Cannon:
Weight (complete): 2.505 lb
Weight of tube: 1,465 lb
Length (muzzle to rear face of breech ring): 15 ft, 6 in
Length of tube: 14 ft, 9 in

Rifling:
Length: 12 ft, 6 in
Number of grooves: 32
Uniform twist, right hand: one turn in 32 calibers
Type of breechblock: vertical, sliding
Type of firing mechanism: inertia
Estimated accuracy life of tube: 1,600 rd

Mount:
Weight of recoil mechanism: 1,650 lb
Number of recoil cylinders: 3
Length of recoil (variable):
Normal: 1 ft, 11½ in
Maximum: 3 ft, 10 in
Capacity of recoil mechanism: R/6 gal
Elevation (max): 80°
Depression (max): 6°
Operation of firing linkage: manual or electric

AMMUNITION
Types: Fixed: HE, WP, APC-T, HVAP-T, and SMOKE

PERFORMANCE
Muzzle velocity:
HE and WP: 2,700 fps
APC-T: 2,800 fps
HVAP-T (M32A1): 3,875 fps
Range:
- HE (td. by 30-sec MT fuse) 12,900 yd
- HE (w/PD fuse), SMOKE 19,560 yd
- APC-T 21,400 yd
- HVAP-T (M332Al) 15,700 yd
- Rate of fire 22 rd per min

EQUIPMENT

Sighting and fire control:
- BINOCULAR: M17Al, w/e
- FIRING TABLE: 90AA-B-3
- FIRING TABLE: 90-C-3
- FUZE SETTER: M1Al
- FUZE SETTER: M26
- FUZE SETTER: M78
- MOUNT, TELESCOPE: M28
- MOUNT, TELESCOPE: M54
- QUADRANT, FIRE CONTROL: gunner's, M1Al, w/case
- REMOTE CONTROL SYSTEM: M1Al
- TELESCOPE, ELBOW: M24Al
- TELESCOPE, ELBOW: M26Al

Basic Issue Items: See ORD 7 SNL 0-28.

PRIME MOVER
- 7½ ton, 6 x 6, truck or 18-ton high speed tractor M4

STORAGE AND SHIPMENT DATA

Within Continental United States

GUN M1AI OR M1Al w/mount M1Al, KD, w/equipment
Shipped 1 gun M1AI or M1Al w/mount M1Al, KD, w/equipment per crate (fully sheathed, skid-type)

* For characteristics and data, see item in sections 14, 18, and 27.

TIME TO EМPLACE

Gun alone 7 min
Gun w/FC equipment 30 min

INSTRUCTIONAL MATERIAL

BASE DUMMY CARTRIDGE: M12 (spare)
CARTRIDGE, 90-MILLIMETER DUMMY: M12B2 w/fuze, MT, inert
CARTRIDGE, 90-MILLIMETER DUMMY, M12 w/fuze, dummy
M1Al
GUN, 37-MILLIMETER GUN, SUBCALIBER: M14, w/e

References: SNL D-28, TM 9-1370.

General

GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 90-mm, M118, w/e, consisting of a CANNON, 90-MILLIMETER GUN: M2A1 or M2A2; RECOIL MECHANISM: M17-SERIES; FUZE, SETTER­RAMMER: M20; MOUNT GUN: 90-mm, M2A1, is a rapid-fire, high-velocity gun, firing armor-piercing, smoke, or high explosive fixed ammunition. The breech is opened automatically in counterrecoil after firing the first round and closed automatically when the round is rammed. The gun is loaded and fired manually. A combination FUZE SETTER-RAMMER: M20, motor drive, and electronic amplifier function as a unit automatically to set projectile fuzes according to fire control system or director data and to ram rounds into the gun chamber at high speeds. Rounds can be hand-rammed when the fuze setter-rammer is not operating. Armor-piercing ammunition is rammed manually. The gun is positioned to azimuth and elevation either manually or by the remote control system according to fire control system. For surface targets, when the required gun elevation is less than 16°, the gun is directed by a periscope-type telescope sighting system.

The cannon consists of a gun tube and breech mechanism. The tube includes the support assembly and recoil side rails, and the breech mechanism includes the breech ring, breechblock, and breech closing mechanisms.

The mount consists of the equilibrators; elevating, traversing, and leveling mechanisms; top carriages; pedestals; and outriggers. Normally, the hatches are opened and the pedestal is emplaced on the ground for firing; however, the gun can be fired from the hatches in an emergency. The pedestal has the base of the mount and chassis for attaching the hatches. It supports the top carriages and leveling mechanism. The cradle of the recoil mechanism supports all of the tipping parts: the cannon assembly, recoil mechanism, counterrecoil buffer, and combination fuze setter-rammer. Spring equilibrators, mounted on the top carriage, counterbalance the overhanging weight of the cannon.

The recoil mechanism is a hydro-pneumatic type shock absorber that eliminates the energy of the recoil gradually and so avoids violent movement of the cannon or mount. It is installed on the mount.

Differences among models

The cannon M2A1 has a different composition steel in the breech ring. This allows the cannon M2A2 to be rethreaded. The gun mount M2A1 is the mount M2A2 modified for use with the fire control system M33C or T33C. A microswitch was mounted on the recoil mechanism cradle and connected to the M33C or T33C. The indicator regulators MIA1 have been changed so as to affect the operating procedure. A gun junction box has been added as part of the remote control system. A signal box has been added to the mount M2A1. The difference in recoil mechanism M17, M17A1, and M17A2 is in the floating piston assembly. The mechanism M17A1 is the M17 modified for use on antiaircraft mount M2A1. The modification consists of the installation of a new-type firing handle in place of the lefthand lever handle. It was also necessary to change the design of the link connecting the breech mechanism handle. This modification converts the present firing mechanism of the recoil mechanisms M17, M17A1, and M17A2 so that it will operate in conjunction with the antiaircraft fire control system M33C or T33C.

Data plate location

The cannon tube serial number and model designations are stamped on the upper surface of the tube. The mount number is stamped on the upper surface of the pedestal. The mount nameplate is attached to the right side top carriage side frame.

Classification: Standard B (OTCM 377Z7).
### CHARACTERISTICS

#### Cannon and Mount:

**Overall:**
- Length: 29 ft, 6 in.
- Width: 8 ft, 7 in.
- Height: 10 ft, 1 in.

**Cannon:**
- Weight (complete): 2,360 lb
- Weight of tube: 1,465 lb
- Length (muzzle to rear end of recoil slide rail): 16 ft, 9 3/4 in.
- Length of tube: 14 ft, 9 3/4 in.

**Rifling:**
- Length: 12 ft, 8 in.
- Number of grooves: 32
- Uniform twist, right hand: One turn in 32 calibers
- Type of breechblock: Vertical, sliding wedge
- Type of firing mechanism: Percussion inertia, manual
- Estimated accuracy life of tube: 1,500 rounds

**Mount:**
- Weight (approx): 6,014 lb.
- Elevation (max): 80°
- Depression (AA firing): 22 1/2°
- Depression (max) minus 10 deg
- Operation of firing linkage: Manual or electric
- Tire size and type: 14.00 x 24, nondirectional "mud or snow" or bus balloon
- Tire pressure: 75 lb
- Type of brakes: Electric-mechanical, compound
- Traverse: Continuous 360 degrees

**Recoil Mechanism:**
- Type: Hydropneumatic
- Number of recoil cylinders: 3
- Length of recoil:
  - Normal (0° elev): 3 ft, 4 in. to 3 ft, 8 in.
  - Normal (80° elev): 3 ft, 1 in. to 2 ft, 6 in.
- Capacity: 2 to 6 gal

#### AMMUNITION

Types (fixed): APC-T, SMOKE, WP, HE, HVAP-T, and TP

#### PERFORMANCE

**Muzzle velocity:**
- APC-T: 2,800 fps
- WP: 2,700 fps
- HE: 2,700 fps

**Ranges:**
- APC-T: 21,100 yards
- WP: 18,400 yards
- HE: 18,400 yards

#### Rate of fire:
- Sustained speed: 25 rounds per min
- Rapid: 28 rounds per min

### EQUIPMENT

#### Sighting and Fire Control:
- AMPLIFIER: M1A2
- DRIVE MOTOR: M2A2
- FUZE SETTER: M24
- REMOTE CONTROL SYSTEM, AUXILIARY: M1

#### INSTRUCTIONAL MATERIAL

- CARTRIDGE, 10 MILLIMETER: dummy, M12, M12M1, M12B1
- GRAPHIC TRAINING AIDS: See DA Pam 310-7

#### STORAGE AND SHIPMENT DATA

- Gun and mount, KD, w/equipment.
- Gun and mount also shipped uncrated in traveling position.
- **Prime Mover**
  - TRACTOR, FULL TRACKED, HIGH SPEED: 18-ton, M4

### References:
- For characteristics and data, see item in sections 11 and 18.

---

* For characteristics and data, see item in sections 11 and 18.
** For characteristics and data, see item in sections 11 and 18.
HOWITZER, PACK: 75-MM, M116, W/E (CANNON, 75-MILLIMETER PACK
HOWITZER: M1A1; RECOIL MECHANISM; M1-SERIES;
CARRIAGE: HOWITZER (PACK), 75-MM, M8)

General
HOWITZER, PACK 75-mm, M116, w/e, consisting of CANNON, 75-MILLIMETER PACK HOWITZER: M1A1 RECOIL MECHANISM: M1A4, M1A5 or MIA6; on CARRIAGE: HOWITZER (pack), 75-mm, M8 is a general-purpose, towed, light field-artillery weapon. The howitzer is used for either direct or indirect fire and can be elevated to high angles to deliver plunging fire on a target. The weapon can be disassembled readily into nine major components for parachute packing in parachute delivery and into eight major components for mule pack in animal transport. In traveling position, the weapon is almost balanced on a two-wheel axle. A caster wheel can be attached to the trail to facilitate manual transport by the gun crew after parachute delivery.

The howitzer cannon consists of a tube, breech ring assembly, operating lever latch, breechblock, firing mechanism, and lock. The howitzer carriage consists of a cradle, equilibrator and rocker assemblies, elevating mechanism, axle and traversing mechanism, front and rear trail assemblies, and wheels and tires.

The recoil mechanism is a variable hydropneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or mount. It is installed on the mount.

Differences among models
The recoil mechanism MIA6 is a modified M1A4; the change being the redesign of the piston, rod assembly and piston rod collar ring. Strenuous tests are also used to test the cylinder support to the bottom sleigh. The M1A7 is a modified M1A6; the M1A7 incorporates a floating piston seal and low temperature packing fillers. This mechanism is filled with petroleum base hydraulic oil. The M1A3 is essentially the same as the M1A5, except that it is redesigned to incorporate a one-piece floating piston and low temperature packing fillers.

Data plate location
The cannon data are stamped on the right side of the cannon tube just below the lifting eye. The recoil mechanism identification plate is located on the left side of the bottom sleigh.

Classification: Standard C (OTCM 87727).

CHARACTERISTICS
Cannon:
Weight (tube and breech mechanism) ........................................... 842 lb
Weight of tube ................................................................. 321 lb
Length (with breech ring) .................................................. 68 in.
Length of tube ............................................................... 8 ft. 11½ in.
Rifling: Length ................................................................. 8 ft.
Number of grooves .......................................................... 28
Twist, right hand ............................................................. one turn in 20 caliber
Type of breech block ......................................................... horizontal sliding wedge
Type of firing mechanism ................................................... continuous pull
Estimated accuracy life of tube ............................................... 20,000 rd

Carriage:
Weight ........................................................................... 918 lb
Type of recoil mechanism ................................................... hydropneumatic
Number of recoil cylinders ................................................ 3
Length of recoil:
Normal ............................................................. 2 ft. 2 in. to 3 ft. 6 in.
Maximum .......................................................... 3 ft. 8 in.
Capacity of recoil mechanism ............................................. 8 pt
Elevation (max) .............................................................. 45°
Depression (max) ............................................................ 15°
Traverse ................................................................. R or L 10°
Operation of firing linkage ................................................. Manual
Tire size and type ......................................................... 6:00 x 16 standard
Tire pressure ................................................................. 30 lb

AMMUNITION

Types:
Semi-fixed ................................................................. HE and SMOKE
Fixed .............................................................. HEAT-T

PERFORMANCE

Muzzle velocity:
Shell HE M48 (chg 4) .................................................... 1,580 fps
Shell HE M66 (chg 1) .................................................... 704 fps
Range (Shell HE M48) ..................................................... 8,430 yd
Rate of fire:
Short bursts ........................................ 6 rd per min
Prolonged firing ..................................... 3 rd per min

EQUIPMENT
Sighting and fire control:
ADAPTER, TELESCOPE: M9
BINOCULAR: M17A1, w/e
MOUNT, TELESCOPE: M3A1
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: gunner's, M1A1, w/case
TABLE, FIRING: FT 76-1-4
TELESCOPE, ELBOW: M62AIC
TELESCOPE, OR PANORAMIC: M1

Basic issue Items: See ORD 7 SNL C-20

INSTRUCTIONAL MATERIAL
Subcaliber equipment:
GUN, 87-MILLIMETER: M1916 or M12
MOUNT, 57-MILLIMETER: M5
MOUNT, 57-MILLIMETER: M6 w/adapter
CARTRIDGE, 76-MILLIMETER DUMMY: M19
CARTRIDGE, 76-MILLIMETER DUMMY: M2A2

STORAGE AND SHIPMENT DATA
Within Continental United States

Howitzer only:
Shipped
Length ...........................................................................5 ft, 9 in.
Width ...........................................................................1 ft, 1 In.
Height ...........................................................................1 ft, 1 In.
Volume ...........................................................................5.7 cu ft
Gross weight ..............................................................404 lb
Ship tons ..............................................................0.14

*For characteristics and data, see item in sections 14, 18, and 27.

Howitzer M1A1 w/carriage M8 (KD) w/equipment
Shipped 1 howitzer M1A1 w/carriage M8 (KD) w/equipment per crate (fully sheathed, skid-type)
Length ..............................................................5 ft, 9 in.
Width ..............................................................2 ft, 10 in.
Height ..............................................................8 ft
Volume ..............................................................48.8 cu ft
Gross weight ..............................................................1,560 lb
Ship tons ..............................................................1.22

Outside Continental United States

Howitzer only.
Shipped
Length ..............................................................
Width ..............................................................
Height ..............................................................
Volume ..............................................................
Gross weight ..............................................................
Ship tons ..............................................................

Howitzer M1A1 w/carriage M8 (KD) w/equipment
Shipped 1 howitzer M1A1 w/carriage M8 (KD) w/equipment per crate (fully sheathed, skid-type)
Length ..............................................................
Width ..............................................................
Height ..............................................................
Volume ..............................................................
Gross weight ..............................................................
Ship tons ..............................................................

PRIME MOVER
4-ton, 4 x 4, truck; airplane C47-unit of parachute loads; glider
GG-4A-unit loads.

References: SNL C-20, TM 9-5051, TM 9-319.

TM 9-500

4-23
HOWITZER, LIGHT, TOWED: 105-MM, M101 AND M101A1 (CANNON, 105-MILLIMETER HOWITZER: M2A1 OR M2A2; RECOIL MECHANISM; M2-SERIES; CARRIAGE, 105-MILLIMETER HOWITZER: M2A1 OR M2A2)

The howitzer cannon data are stamped on top of the breech ring. The carriage identification plate is attached to the left elevating arc. The recoil mechanism identification plate is attached to the left front of the sleigh.

**Classification**
- M101: Standard E (OTCM 37668)
- M101A1: Standard A (OTCM 37668)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>HOWITZER, LIGHT, TOWED: 105-MM, M101 and M101A1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
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<tr>
<td><strong>Width</strong></td>
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<tr>
<td><strong>Height</strong></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
</tr>
</tbody>
</table>

The cannon consists of a tube assembly, breech ring, and locking ring. The cannon is mounted on the recoil sleigh assembly. The firing mechanism is a continuous pull (self-cocking) type actuated by pulling a lanyard. The cannon is single-loaded and air-cooled, and uses semifixed ammunition.

The carriage is of a single-axle and split-trail type. The trails are divided at emplacement, but drawn together and locked during travel. A drawbar is provided for securing to a prime mover. The carriage consists of an equilibrator, shield, elevating mechanism, cradle, gears, elevating arcs, traversing mechanisms, top carriage, wheels, and trails.

The recoil mechanism is a variable hydropneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or carriage. It is installed in the cradle of the carriage.

Differences among models

The major difference between M101 and M101A1 is the M101 has the M2A1 carriage and the M101A1 has the M2A2 carriage.

The muzzle end of the howitzer cannon M2A1 is straight while the M2A2 has a bell-shaped muzzle end.

The carriage M2A2 is equipped with a main shield group composed of right and left upper and lower shields, right and left top flaps, a bottom flap, and right and left auxiliary shields; while the carriage M2A1 is equipped with a right and left main shield and top shield.

Recoil mechanism M2A1 has a two-piece floating piston, with grease keeping the two halves separated; this mechanism is not satisfactory for temperatures below -20°F. In mechanism M2A2, spacers in the floating piston keep the two halves separated the required distance while the mechanism M2A3 is equipped with a one-piece floating piston; both of these mechanisms are satisfactory for operation at either normal or extreme cold temperatures. Recoil mechanisms M2A1, M2A2, and M2A3 which have been overhauled to use Teflon-aluminum seals were given M2A4 designations. The newly manufactured mechanisms, basically identical to the M2A4, were designated M2A5.

Data plate location

The howitzer cannon data are stamped on top of the breech ring. The carriage identification plate is attached to the left elevating arc. The recoil mechanism identification plate is attached to the left front of the sleigh.
Cannon:
Weight 1,044 Ib
Weight of tube 1,044 lb
Length (muzzle to rear face of breech ring) 8 ft. 5\% in.
Length of tube 7 ft. 10\% in.
Rifling:
Length 6 ft. 8 in.
Number of grooves 36
Twist, right hand one turn in 20 calibers
Type of breechblock horizontal sliding wedge
Type of firing mechanism continuous pull
Estimated accuracy life of tube 20,000 rd
Carriage:
Weight (approx):
M2AI 2,495 lb
M2A2 3,000 lb
Recoil mechanism:
Type of recoil mechanism hydropneumatic
Number of recoil cylinders 2
Length of recoil 8 ft. 3\% in. to 9 ft. 1\% in.
Capacity of recoil mechanism 3 to 3\% pts
Elevation (max) 66°
Depression (max) -5°
Operation of firing linkage manual
Traverse, right or left 23°

AMMUNITION
Types CHEM, HE, HEAT-T, HEP, HEP-T, ILLUM, WE (leaflet), SMOKE, TP-T, BLANK, and DUMMY

PERFORMANCE
Muzzle velocity:
Shell, HE (maximum charge) 1,550 fps
Shell, HEAT (charge not adjustable) 1,250 fps
Range:
Shell, HE (782.4 mils elevation and zone VII charge) 12,230 yd
Shell, HEAT (103.3 mils elevation—charge not adjustable) 13,450 yd
Rate of fire:
First 5 minutes 4 rd per min
First 2 minutes 6 rd per min
First 4 minutes 3 rd per min
Prolonged fire 100 rd per hour

EQUIPMENT
Sighting and fire control:
AIMING CIRCLE: M2, w/e
TOPI Aiming: M1A2
BINOCULAR: M1A1, w/e
TELESCOPIC: M1A1, w/e
COMPASS: M2, w/e

Prime Mover:
2\% ton, 6 x 6 cargo truck or 13-ton high speed tractor, M1

INSTRUCTIONAL MATERIAL
Subcaliber equipment:
GUN, 37 MILLIMETER, SUBCALIBER: M13
TABLE, FIRING: FT 37-BA-2
TABLE, FIRING: FT 105-B-4
TABLE, FIRING: FT 105-AM-1 (abridged)
TABLE, FIRING: FT 105-AN-1 (abridged)

STORAGE AND SHIPMENT DATA
Within Continental United States
Howitzer only.
Shipped 1 per box (double-end style).
Length 8 ft. 11\% in.
Width 1 ft. 8\% in.
Height 1 ft. 5\% in.
Volume 22.4 cu ft
Gross weight 1,200 lb
Ship tons 0.56

Howitzer M2AI w/carriage M2AI (KD) w/equipment.
Shipped 1 per crate (fully sheathed skid-type crate).
Length 11 ft. 11 in.
Width 6 ft. 1\% in.
Height 4 ft. 11\% in.
Volume 301.8 cu ft
Gross weight 2,425 lb
Ship tons 7.55

For characteristics and data, see item in sections 14, 18, 26, and 27.
* Issued as required upon special requisition by theater commander.
HOWITZER, SALUTING: 75-MM. M120, W/E (CANNON, 75-MILLIMETER PACK HOWITZER: SALUTING, MIA1C; RECOIL MECHANISM, 75-MILLIMETER PACK HOWITZER: SALUTING, MIA4C OR MIA6C; CARRIAGE, 75-MILLIMETER PACK HOWITZER: M8)

General

HOWITZER, SALUTING: 75-mm, M120, w/e (CANNON, 75-MILLIMETER PACK HOWITZER: SALUTING, MIA1C; RECOIL MECHANISM, 75-MILLIMETER PACK HOWITZER: SALUTING, MIA4C or MIA6C; CARRIAGE, 75-MILLIMETER PACK HOWITZER: M8) is the HOWITZER, PACK: 75-mm, w/e (CANNON, 75-MILLIMETER PACK HOWITZER: MIA1) modified for "saluting purposes by welding a safety device in the howitzer tube (CANNON, 75-MILLIMETER PACK HOWITZER: MIA1) to prevent entrance of a projectile and by inactivating the recoil mechanism. Four weld beads and a safety device of scrap steel are placed in the breech-end of the howitzer tube to prevent the insertion of a projectile. The oil reserve in the recoil mechanism is drained and the setscrew (for recuperator cylinder oil filling valve) is tack welded in place to prevent any future filling of the mechanism with oil. The nitrogen pressure in the recuperator cylinder is released and a 1/4-inch hole is drilled in the bottom of the recuperator cylinder approximately 4 inches from the air-rod of the recuperator cylinder. The recuperator cylinder cover (ORD No. 5015891) is installed and tack welded in place: this will insure that nitrogen will not be added to the mechanism. A bead is welded along the left and right sides of the recoil slides in order to prevent the weapon from sliding out of battery in case the weapon is elevated.

The howitzer cannon MIA1C consists of a tube, breech ring assembly, operating lever latch, breechblock, firing mechanism, and lock.

The carriage M8 consists of the cradle, equilibrator and rocker assemblies, elevating mechanism, front and rear trail assemblies, and wheels and tires.

The recoil mechanism is a variable hydropneumatic-type shock absorber which, in this case, has been inactivated.

Differences among models

Data plate location

A stencil is used to stamp MIA1C on the tube before assembly after the modification to howitzer cannon M1A1 is performed. The recoil mechanism identification plate is located on the left side of the bottom sleigh. The cannon data is stamped on the right side of the tube just below the lifting eye.

Classification: Standard C (OTCM 37789).

CHARACTERISTICS

Cannon:

Weight (tube and breech mechanism) ............................................. 145 lb
Weight of tube ................................................................. 122 lb
Length (with breech ring) ..................................................... 4 ft 11 in.
Length of tube ................................................................. 3 ft 11 3/4 in.
Rifling:

Number of grooves .............................................................. 28
Twist, right hand ............................................................... one turn in 20 calibers

Type of breechblock ......................................................... horizontal sliding wedge
Type of firing mechanism .................................................... continuous pull
Estimated accuracy life of tube ............................................. 2,964 avg
Elevation (max) ................................................................. 65° (400 miles)
Depression (max) .............................................................. 5° (225 miles)
Traverse, R or L ............................................................... 5° (180 miles)
Operation of firing linkage .................................................. manual

Carriage:

Weight ................................................................. 6,000 x 16 standard
Tire size and type .......................................................... 6-00x16 standard
Tire pressure ............................................................... 20 lb

Recoil mechanism:

Type ................................................................. inactivated hydropneumatic
Number of recoil cylinders ................................................ 2

AMMUNITION

Type .......................................................... BLANK

PERFORMANCE

EQUIPMENT

Basic Issue Items
### Storage and Shipment Data

#### Within Continental United States

<table>
<thead>
<tr>
<th>Howitzer only: Skipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6 ft 9 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft 1 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>0.7 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>404 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Howitzer M1A1 w/carriage M8 (KD) w/equipment: Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (fully sheathed, skid-type)</td>
<td>5 ft 9 in.</td>
</tr>
<tr>
<td>Width (fully sheathed, skid-type)</td>
<td>2 ft 10 in.</td>
</tr>
<tr>
<td>Height (fully sheathed, skid-type)</td>
<td>3 ft</td>
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<tr>
<td>Volume (fully sheathed, skid-type)</td>
<td>48.8 cu ft</td>
</tr>
<tr>
<td>Gross weight (fully sheathed, skid-type)</td>
<td>1,800 lb</td>
</tr>
<tr>
<td>Ship tons (fully sheathed, skid-type)</td>
<td>1.22</td>
</tr>
</tbody>
</table>

#### Outside Continental United States

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<tr>
<td>Length</td>
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<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Howitzer M1A1 w/carriage M8 (KD) w/equipment per crate (fully sheathed, skid-type): Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (fully sheathed, skid-type)</td>
<td></td>
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<tr>
<td>Width (fully sheathed, skid-type)</td>
<td></td>
</tr>
<tr>
<td>Height (fully sheathed, skid-type)</td>
<td></td>
</tr>
<tr>
<td>Volume (fully sheathed, skid-type)</td>
<td></td>
</tr>
<tr>
<td>Gross weight (fully sheathed, skid-type)</td>
<td></td>
</tr>
<tr>
<td>Ship tons (fully sheathed, skid-type)</td>
<td></td>
</tr>
</tbody>
</table>

#### Prime Mover

<table>
<thead>
<tr>
<th>4-ton. 4 x 4. truck.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>References: SNL C-20, TM 9-1661, TM 9-319, MWO C20-W33.</td>
<td></td>
</tr>
</tbody>
</table>

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4-27
MORTAR, 81-MILLIMETER: MI, W/E (CANNON, 81-MILLIMETER MORTAR: MI, MOUNT, MORTAR: 81-MM, M4)

CHARACTERISTICS

Cannon: Weighs 44.6 Ib
Length of bore 3 ft, 9½ in.
Length overall 4 ft, 11½ in.
Type of firing mechanism fixed firing pin

Mount:
Weight: Mount w/o baseplate 43.8 lb
Baseplate 65 lb
Elevation (approx) 40 to 86°
Traverse, right or left (approx) 6°

AMMUNITION
Types HE, ILLUM: SMOKE, FS; SMOKE, WP; and TP

PERFORMANCE
Muzzle velocity:
CARTRIDGE, 81-MILLIMETER: (full charge)
HE (M34A1 and TP (M34A1)) 638 fps
HE (M36 and M36A1) 633 fps
HE (M362) 770 fps
ILLUM (M361A1 and M361A2) 873 fps
SMOKE, FS (M37 and M37A1) 873 fps
SMOKE, WP (M37 and M37A1) 873 fps
PROJECTILE, 81-MILLIMETER: training. M68
(ignition cartridge only) 172.8 fps

Maximum range:
CARTRIDGE, 81-MILLIMETER: (full charge)
HE (M34A1 and TP (M34A1)) 3,826 yd
HE (M36 and M36A1) 3,536 yd
HE (M362) (4 inch max) 2,720 yd
ILLUM (M361A1 and M361A2) (4½ deg elevation) 3,990 yd
SMOKE, FS (M37 and M37A1) 3,436 yd
SMOKE, WP (M37 and M37A1) 3,482 yd
PROJECTILE, 81-MILLIMETER: training. M68
(ignition cartridge only) 310 yd

Rate of fire:
Normal 18 to 20 rd per min
Maximum 30 rd per min

EQUIPMENT
Sighting and fire control:
POST, AIMING: M4 (pack transport)
POST, AIMING: M5 or M8 (when not pack transported)
BINOCULARS: M17A1
FUZE SETTER: M14
FUZE SETTER: M23
SIGHT UNIT: M34A2

*For characteristics and data, see item in sections 14, 15, and 27.
SIGHT, BORE, OPTICAL: M46, w/e
TABLE, FIRING: 81-AD-1 (abr)
TABLE, FIRING: 81-AE-1 (abr)
TABLE, FIRING: 81-AF-1 (abr)
TABLE, FIRING: 81-AG-1 (abr)
TABLE, FIRING: 81-AH-1 (abr)
TABLE, FIRING: 81-AI-1 (abr)
TABLE, FIRING: 81-AJ-1 (abr)
TABLE, FIRING: 81-AK-1 (abr)
TABLE, FIRING: 81-AL-1 (abr)
TABLE, FIRING: 81-AM-1 (abr)
TABLE, FIRING: 81-AN-1 (abr)
TABLE, FIRING: 81-AP-1 (abr)
TABLE, FIRING: 81-AQ-1 (abr)
TABLE, FIRING: 81-AR-1 (abr)
TABLE, FIRING: 81-AS-1 (abr)
TABLE, FIRING: 81-AT-1 (abr)
TABLE, FIRING: 81-AY-1 (abr)
TABLE, FIRING: 81-AZ-1 (abr)

Basic Issue Items: See ORD 7 SNL A-33.

INSTRUCTIONAL MATERIAL

FIN ASSEMBLY, 81-MILLIMETER CARTRIDGE: M6, for mortar cartridge, training, M68

GRAPHIC TRAINING AID: See DA Pam 510-5

PROJECTILE, 81-MILLIMETER: training, M68

TRAINER, MORTAR: subcaliber, pneumatic, M8 or M8A1

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mortar and 1 mount per wood box
Length ........................................ 4 ft, 7 in.
Width .......................................... 1 ft, 6 in.
Height .......................................... 1 ft, 3 in.
Volume ........................................ 8.6 cu ft
Gross weight .................................... 230 lb
Ship tons ....................................... 9.21

Outside Continental United States

Shipped
Length ........................................
Width .......................................... 
Height .......................................... 
Volume ........................................ 
Gross weight ...................................
Ship tons ......................................


CHARACTERISTICS

General
MORTAR, 81-MILLIMETER: M29 OR M29E1, w/e, consisting of CANNON: 81-mm, M29 or M29E1; MOUNT, MORTAR: 81-mm, M23 or M23A1 is a smooth bore, muzzle-loading, high angle-of-fire weapon.

The cannon consists of a tube with a base plug and a fixed firing pin for drop firing. The exterior of the cannon is basically grooved to reduce weight and aid in heat dissipation.

The mount consists of a bipod with traversing and elevating mechanisms and a spring-type shock absorber which absorbs the shock of recoil in firing. The baseplate, composed of inner and outer ring assemblies, supports and aligns the cannon.

CANNON, 81-MILLIMETER MORTAR: M29E1, can be combined with either the MOUNT, MORTAR: 81-mm, M23 or M23A1.

Differences among models
The cross-leveling mechanism of mount M23 consists of a turnbuckle and clamping arrangement, while that of the mount M23A1 has an adjustable elevating mechanism on left leg. The baseplate of mount M23A1 has three baseplate latches, while the baseplate of mount M23A1 does not have such latches.

Data plate location
Cannon data are stamped on the underside of the base plug. Mount data are on the mount identification plate attached to the right side of the yoke assembly. Baseplate data are on the identification rings attached to the top surface of the outer ring assembly.

Classifications: Standard A (OTCM 368(1).

AMMUNITION

Types: HE, ILLUM, SMOKE, FB, SMOKE, WP, and TP

Performance

Muzzle velocity:

<table>
<thead>
<tr>
<th>CARTRIDGE, 81 MILLIMETER: (full charge)</th>
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</thead>
<tbody>
<tr>
<td>HE (M3A1) and TP (M3A1)</td>
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<tr>
<td>HE (M3A1 and TP (M3A1)</td>
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<tr>
<td>HE (M3A1)</td>
</tr>
<tr>
<td>HE (M3A1)</td>
</tr>
<tr>
<td>ILLUM (M3A1) and TP (M3A1)</td>
</tr>
<tr>
<td>SMOKE, FB and M3A1</td>
</tr>
<tr>
<td>SMOKE, WP (M67 and M67A1)</td>
</tr>
<tr>
<td>PROJECrILE, 81 MILLIMETER: training (ignition cartridge only)</td>
</tr>
</tbody>
</table>

Maximum range (45° elevation):

<table>
<thead>
<tr>
<th>CARTRIDGE, 81 MILLIMETER: (full charge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE (M3A1) and TP (M3A1)</td>
</tr>
<tr>
<td>HE (M3A1 and TP (M3A1)</td>
</tr>
<tr>
<td>HE (M3A1)</td>
</tr>
<tr>
<td>HE (M3A1)</td>
</tr>
<tr>
<td>ILLUM (M3A1) and TP (M3A1)</td>
</tr>
<tr>
<td>SMOKE, FB (M67 and M67A1)</td>
</tr>
<tr>
<td>SMOKE, WP (M67 and M67A1)</td>
</tr>
<tr>
<td>PROJECrILE, 81 MILLIMETER: training (ignition cartridge only)</td>
</tr>
</tbody>
</table>

Rate of fire:

<table>
<thead>
<tr>
<th>Rate of fire:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
</tbody>
</table>

EQUIPMENT

Sighting and fire control:

AIMING POST: M1A2 or M1
FUZE SETTER: M14 (search type)
FUZE SETTER, M1 or M17
SIGHTUNIT, M3A1

*For characteristics and data, see item in sections 14 and 18.
TABLE, FIRING: 81-AB-1
TABLE, FIRING: 81-AD-1 (abr)
TABLE, FIRING: 81-AF-1 (abr)
TABLE, FIRING: 81-AH-1 (abr)
TABLE, FIRING: 81-B-8 (abr)
TABLE, FIRING: 81-C-1 (abr)
TABLE, FIRING: 81-D-1 (abr)
TABLE, FIRING: 81-F-2 (abr)
TABLE, FIRING: 81-G-2 (abr)
TABLE, FIRING: 81-H-2 (abr)
TABLE, FIRING: 81-V-2 (abr)
TABLE, FIRING: 81-Z-2 (abr)

Baalc beue Iteme: See TM 9-3064, C1.

INSTRUCTIONAL MATERIAL

GRAPHIC TRAINING AID: See DA Pam 810-5
PROJECTILE, 81-MILLIMETER: training, M68
FIN ASSEMBLY, 81-MILLIMETER CARTRIDGE: M6, for mortar
cartridge, training, M68.
TRAINER, MORTAR: subcaliber, pneumatic, M32 or M32A1.

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Description</th>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross weight</td>
<td>60 lb</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Shipped 1 mortar per wood box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>8 ft</td>
<td>3 ft</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft 3 in.</td>
<td>1 ft 3 in.</td>
</tr>
<tr>
<td>Height</td>
<td>9 in.</td>
<td>9 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.9 cu ft</td>
<td>2.9 cu ft</td>
</tr>
</tbody>
</table>

MORTAR, 4.2-INCH: (CANNON M30 ON MOUNT M24 OR M24A1) W/EQUIPMENT

**Characteristics**

<table>
<thead>
<tr>
<th>Model</th>
<th>Model number</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M24</td>
<td>M6921</td>
<td>1012-422-9720</td>
</tr>
<tr>
<td>M24A1</td>
<td>M6941</td>
<td>1012-466-1942</td>
</tr>
</tbody>
</table>

**General**

MORTAR, 4.2-INCH w/equipment, consisting of CANNON, 4.2-INCH M30 and MOUNT, MORTAR, 4.2-INCH: M30 or M24A1, is a rifled, muzzle-loading weapon intended for high-angle firing and is used against all but armored targets. The cannon is fixed from the ground, using mount M24 or M24A1. CANNON, 4.2-INCH, MORTAR: M30, consists of a tube closed at the breech end by a tube cap with an integral firing pin for drop fire. The tube cap is supported and aligned on a baseplate and standard assembly which is equipped with screw-type mechanisms for elevation and traverse. MOUNT, MORTAR: 4.2-INCH, M24 or M24A1, consists of a rotator assembly, a bridge assembly, a standard assembly, and a baseplate assembly. The upper surface of the rotator assembly is used to receive the bridge assembly which acts as a linkunit between the baseplate assembly and the standard assembly. The standard assembly is the support unit for connection to the gun cannon at its forward end and is equipped with screw-type mechanisms for elevation and traverse. The standard assembly also houses a spring-type recoil mechanism. The breech end of the mortar, a double spherical projection, fits into a cap at the rear of the bridge.

**Differences among models:**

The mount M24A1 is provided with a one-piece steel baseplate assembly and the mount M24 with a magnesium baseplate assembly which consists of an inner baseplate and an outer baseplate ring.

**Data plate location:**

Mortar data are found on the mortar nameplate which is located on the coupling and sight mount assembly. The mount data are found on the mount nameplate which is located on the rotator assembly.

**Classification:**

<table>
<thead>
<tr>
<th>Cannon M30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mount M24 Standard B (OTCM 57196)</td>
</tr>
<tr>
<td>Mount M24A1 Standard A (OTCM 57196)</td>
</tr>
</tbody>
</table>

**Performance**

<table>
<thead>
<tr>
<th>Cannon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
</tr>
<tr>
<td>Length of tube:</td>
</tr>
<tr>
<td>Type of firing mechanism:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Muzzle Velocity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARTRIDGE, 4.5-INCH (full charge):</td>
</tr>
<tr>
<td>HE (M329 and M329B1)</td>
</tr>
<tr>
<td>HE (M329A1, M3, M3 alternate)</td>
</tr>
<tr>
<td>CHEM (M3A1, M2, M2 alternate)</td>
</tr>
<tr>
<td>ILLUM (M329)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARTRIDGE, 4.5-INCH:</td>
</tr>
<tr>
<td>Standard elevation:</td>
</tr>
<tr>
<td>HE (M329 and M329B1)</td>
</tr>
<tr>
<td>HE (M329A1, M3, M3 alternate)</td>
</tr>
<tr>
<td>CHEM (M3A1, M2, M2 alternate)</td>
</tr>
<tr>
<td>ILLUM (M329)</td>
</tr>
</tbody>
</table>

**Sighting and fire control**

**Equipment**
EQUIPMENT—Continued
For M30 mortar on M24 or M24A1 mount:
FUZE SETTER: M27
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: gunner’s, M1A1, w/case
SIGHT UNIT: M34A2
TABLE, Firing: FT 4.2-F-1; FT 4.2-F-1; FT 1.2-F-1
SCALE, GRAPHICAL FIRING: M57

INSTRUCTIONAL MATERIAL
CANNON, 60-MILLIMETER MORTAR, SUBCALIBER: M31.
GRAPHIC TRAINING AID: See DA Pam 310-5.
TRAINER, MORTAR: Subcaliber, pneumatic, M32 or M32A1.

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 1 mortar per wood box.
Length: 6 ft, 1½ in.
Width: 1 ft, 1½ in.
Height: 1 ft, 1½ in.
Volume: 9.2 cu ft

Outside Continental United States
Shipped 1 mortar per wood box (M24 or M24A1).
Length: 5 ft, 9½ in.
Width: 3 ft, 11½ in.
Height: 1 ft, 1½ in.
Volume: 20.8 cu ft

Gross weight: 210 lb
Ship tons: 0.15

Shipped 1 mortar per wood box (M32 or M32A1).
Length: 6 ft, 1½ in.
Width: 1 ft, 1½ in.
Height: 1 ft, 1½ in.
Volume: 9.2 cu ft

Gross weight: 725 lb
Ship tons: 0.32

For characteristics and data, see item in sections 12, 14, and 18.

MOUNT, TRIPOD, RIFLE: M1917A2, W/E

General

MOUNT, TRIPOD, RIFLE: M1917A2, w/e, is a lightweight, portable, folding mount. The mount consists of a cradle assembly which rotates in a leg and socket group. Each tripod leg is adjusted separately and can be placed in any desired position. The cradle assembly supports the weapon at the gun pintle and at the elevating and traversing mechanism assembly. The gun pintle is easily disengaged from the cradle assembly; therefore, it may remain attached to the rifle, when the rifle is removed, to facilitate handling. This mount is an interim mount for the 57-mm and 75-mm recoilless rifles. It is to be replaced by MOUNT, TRIPOD, WEAPON: M74. It is similar to MOUNT, TRIPOD, MACHINE-GUN: caliber .30, M1917A1 except that the rear leg is shorter, being only 14 inches long.

Differences among models

Data plate location

The identification plate of the mount is located on the rear leg, directly above the tripod strap. Because the cradle assembly of the mount M1917A2 is identical to that of the caliber .30 machinegun tripod mount M1917A1, the designation M1917A1 may still be stamped on the right side of the cradle.

Classification: Standard B (OTCM 3841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1917A2</td>
<td>4-25501-96</td>
<td>1016-322-9741</td>
</tr>
</tbody>
</table>

Weight: 63 lb

Dimensions (when folded for transportation):

| Length | 2 ft, 5½ in. |

Traversing range:

- Mechanical: 1° 49 min 158 mill
- Least increment: 3 min 15 mill
- Free: 360° ± 4,400 mill

Elevation:

- 65°
- Depression: 20°

EQUIPMENT

Basic items: See ORD 7 SNL C-91.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL C-91, TM 3-3062, TM 9-3140.
RIFLE, RECOILLESS, 75-MILLIMETER: M20, W/E

The rifle consists of a barrel group and a breech mechanism group. The barrel group consists of a tube, tube handle, mounting bracket, hinge block and vent bushing. The breech mechanism group is attached to the rear end of the barrel group and controls the opening and closing of the breech and the firing of the ammunition. The breech mechanism group consists of the breech operating handle housing, the trigger and firing components of the rifle, the closed-breech lock, breechblock, breechblock hinge, and extractor assembly.

Differences among models

Data plate location:

Data are stamped on the rear face of the barrel chamber. The tube data are stamped on the muzzle end of the barrel tube.

Classification: Limited Standard (STCM 1111).

CHARACTERISTICS

Rifle - w/ mount:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20</td>
<td></td>
<td>1015-681-1289</td>
</tr>
</tbody>
</table>

Estimated usable life:

- Tube: 1,000 yd
- Vent assembly: 500 yd

AMMUNITION

Types: HE; HEAT-T; HEP-T; WP; and TP

PERFORMANCE

Muzzle velocity:

- HE: 980 fps
- HEAT-T: 1,000 fps
- HEP-T: 1,400 fps

Range:

- HE: 6,955 yd
- HEAT-T: 6,955 yd
- HEP-T: 7,180 yd

Rate of fire:

- 1,100 yd

EQUIPMENT

Sighting and fire control:

- BINOCULAR: M17A1
- FUZE SETTER: M14
- MOUNT, TELESCOPE: M17
- QUADRANT, FIRE CONTROL: gunner's, M-31, with CASE

TABLE, FIRING:

- FT-75-6A (abt)
- FT-75-A1 (abt)
- FT-75-B (abt)
- FT-75-C (abt)
- FT-75-D (abt)

TELESCOPE: M30 or M31C1 or M30C

Basic issue Items: See ORD 1 SNL C-74.

INSTRUCTIONAL MATERIAL

RIFLE, CALIBER .30, SUBCALIBER: M7
CARTRIDGE, CALIBER .30: ball, M2

GRAPHIC TRAINING AID AND DEVICES: See DA Pam 320-1
### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>7 ft, 1-9/16 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 5/16 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 11/16 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>12.1 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>240 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
</table>

References: FM 23-81, SNL C-74, TM 9-3140, TM 9-3140-34.
RIFLE, 90 MILLIMETER: M67, W/E

**CHARACTERISTICS**

- **Weight**: 22 lb.
- **Length**: 4 ft. 6 in.
- **Twist**: Right-hand
- **Rifling**: One turn in 200 calibers
- **Type of breechblock**: Interrupted thread
- **Type of firing mechanism**: Perforated
- **Estimated usable life, tube**: 2,500 rds

**AMMUNITION**

- **Type of ammunition**: HEAT
- **Muzzle velocity**: 700 fps
- **Range**: 400 meters

**PERFORMANCE**

- **Muzzle velocity**: 700 fps
- **Range**: 400 meters

**EQUIPMENT**

- **Sighting and fire control**:
  - **Light, Instrument**: T25
  - **Mount, Telescope**: M110
  - **Table, Firing**: FT 30-8
  - **Telescope**: M108

**INSTRUCTIONAL MATERIAL**

- **Graphic Training Aid**: See SA Pam 330-8

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped 1 rifle per shipping container.
  - **Length**: 4 ft. 6 in.
  - **Width**: 1 ft. 7 in.
  - **Height**: 1 ft. 6 in.
  - **Volume**: 12.06 cu ft
  - **Gross weight**: 100 lb
  - **Ship tons**: 0.30

**Outside Continental United States**

- Shipped 1 rifle per shipping container.
  - **Length**: 4 ft. 6 in.
  - **Width**: 1 ft. 7 in.
  - **Height**: 1 ft. 6 in.
  - **Volume**: 12.06 cu ft
  - **Gross weight**: 100 lb
  - **Ship tons**: 0.30


*For characteristics and data, see item in section 14.*
RIFLE, 105 MILLIMETER: M27 OR M27A1; MOUNT, RIFLE:
105-MM, M75 OR M75A1, W/E

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M27</td>
<td>4-35100-10</td>
<td>1011-324-903</td>
</tr>
<tr>
<td>M37</td>
<td>4-35100-15</td>
<td>1011-325-074</td>
</tr>
<tr>
<td>M27A1</td>
<td>4-35100-20</td>
<td>1011-391-0102</td>
</tr>
<tr>
<td>M75</td>
<td>4-35100-25</td>
<td>1011-392-0747</td>
</tr>
</tbody>
</table>

General:

RIFLE, 105 MILLIMETER: M27 or M27A1 mounted on MOUNT, RIFLE: 105-mm, M75 or M75A1, is a light-weight, portable, air-cooled, single-loading, recoilless weapon designed to fire fixed ammunition. They are employed as antitank and antipersonnel weapons.

The rifle consists of a tube, firing cable, fulcrum ring, breech-block operating lever assembly, chamber, trunnion assembly, trunnion ring, and trigger block.

The mount consists of the equilibrator and elevating mechanism assembly, traveling lock assembly, and a top and bottom carriage assembly. With the use of an adapter, the mount is designed for truck mounting; the adapter being attached to the bottom carriage.

Differences among models:

The difference between the mount M75 and M75A1 is in the adapter. The mount M75A1 has an aluminum adapter light enough to be handled by one man and in addition can be attached to all three types of jeep. The mount M75 has a steel adapter. A forcing cone was added in the chamber of the rifle M27, making it a M27A1.

Data plate location:

Classifications Standard C (OTCM 37113):

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Rifle with mount:</th>
<th>Weight</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb</td>
<td></td>
</tr>
<tr>
<td>Rifle</td>
<td>M27</td>
<td>12 ft. 7½ in.</td>
</tr>
<tr>
<td></td>
<td>M37</td>
<td>8 ft. 1½ in.</td>
</tr>
<tr>
<td>Rifling:</td>
<td>Length</td>
<td>8 ft. 2¼ in.</td>
</tr>
<tr>
<td></td>
<td>Number of grooves: 36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Twist, right-hand</td>
<td>one turn in 20 calibers</td>
</tr>
<tr>
<td>Type of breechblock</td>
<td>interrupted thread</td>
<td></td>
</tr>
</tbody>
</table>

Type of firing mechanism percatation:

Estimated accuracy life: 2,000 rounds

Estimated life of vent assembly: 600 rounds

Mount:

Type of assembly:

- Weight:
  - W/adapter for M75: 126 lb, 8 oz
  - W/adapter for M75A1: 272 lb

- Elevation: 24°
- Depression: 18°
- Traverse: 60°

AMMUNITION

Types:

- HE, HEAT, HEP, HEP-T, HEAT-T, and WP

PERFORMANCE

Muzzle velocity:

- HE, WP: 1,120 fps
- HEAT: 1,250 fps
- HEP: 1,570 fps
- HEP-T: 1,690 fps

Range:

- HE (at 43° elevation): 7,920 yd
- WP (at 43° elevation): 9,300 yd
- HEAT: 8,900 yd
- HEP (at 43° elevation): 8,900 yd
- HEP-T (at 43° elevation): 9,100 yd

AMMUNITION

AMMUNITION

EQUIPMENT

Sighting and fire control:

- MOUNT, RIGHT: M06 (T102)
- MOUNT, TELESCOPE: M08 (T104)
- TABLE, FIRING: FT 105-AH-3 (abbr)
- TABLE, FIRING: FT 105-AH-2 (abbr)

* For characteristics and data, see item in sections 14 and 18.
TABLE, FIRING: FT 105-AK-1 (abr)
TABLE, FIRING: FT 105-AO-2 (abr)
TABLE, FIRING: FT 105-AP-2 (abr)
TELESCOPE: M96 or M90C
Basic Issue Items: See ORD 7 SNL C-77.

INSTRUCTIONAL MATERIAL

GRAPHIC TRAINING AID AND DEVICES: See DA Pam 310-5.

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Shipped Within Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipped Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: FM 21-8, SNL C-77, TM 9-8058.
RIFLE, 106-MILLIMETER: M40A1 OR M40A1C; W/RIFLE, CALIBER .50, SPOTTING: M8C; MOUNT, RIFLE: 106-MM, M79, M92 (T173), OR M149E5

Shown:
Rifle, 106-millimeter, M40A1C
Rifle, caliber .50
Spotters: M8C
Mount, rifle: 106-mm, M79, M92 (T173), and tripod M27(T26)

General
Rifle, 106-millimeter: M40A1 or M40A1C, w/rifle, caliber .50, spotting: M8C; mount, rifle: 106-mm, M79, M92 (T173), or M149E5. M40A1 with mount M79 is designed for use as a ground antitank weapon or as a self-propelled antitank weapon when mounted on the body of a 1-1/2-ton 4 x 4 utility truck M38C and M38A1C. The M40A1C with mount M92 (T173) is designed for use on the light weapon carrier M274 (mule) with the tripod M27 provided for ground use. The M40A1C with mount M92 (T173) is designed for use as a ground auxiliary antitank weapon in conjunction with multiple 106-mm full-tracked, self-propelled rifles M50. When the M40A1C is mounted on the self-propelled vehicle M50, mount M149E5 is used. Mount M149E5 provides mounting positions for six rifles M40A1C.

Rifles M40A1 and M40A1C consists of a barrel group, breechblock group, vent assembly, and firing cable group. The barrel group is composed principally of a rifle tube, chamber, quick-breakdown sleeve, spotting rifle front mounting bracket, and spotting rifle rear mounting bracket. The breechblock group is composed principally of a firing pin housing assembly, breechblock hinge, locking ram plate, breechblock operating lever dog, extractor, ejector, and breechblock operating lever assembly. The vent assembly consists of a ring assembly, recoil compensating ring, and return retaining screw. The firing cable group is composed principally of the caliber .50 spotting rifle firing cable, 106-mm firing cable, rifle firing cable operating levers, trigger, trigger spring, trigger housing, trigger housing cover, and lanyard rod assembly.

The M92 (T173) is composed of an elevating and firing assembly, traversing assembly, and adapter assembly. The tripod M27 is a three-legged folding base for the mount M92 when the weapon is used on the ground. The M149E5 consists principally of the barrel, elevating mechanism, traversing mechanism, and the weapon mount and control system.

Differences among models
The projectile indicator has been added to the barrel of the 106-mm rifle M40A1C. The bottom of the breechblock operating lever of the 106-mm rifle M40A1C is arranged so that it can be engaged by a breach actuator for hydraulic operation of the breach between the closed and safe positions when the rifle is used as part of the multiple 106-mm full-tracked, self-propelled rifle M50. The breechblock operating lever of the 106-mm rifle M40A1C is designed to provide clearance for movement of the lever when the rifle is used as part of the multiple 106-mm full-tracked, self-propelled rifle M50.

The mount M79 incorporates an integral elevating and traversing base assembly of the wheelbarrow-tripod type which is designed for use as both ground mount and for mounting on 1-1/2-ton 4 x 4 utility trucks M38C and M38A1C. The mount M79 (T173) does not incorporate an integral base assembly but instead is mounted on a separate tripod. The 106-mm rifle mount M92 (T173) is basically identical to the traversing and elevating and firing assemblies of the 106-mm rifle mount M79 except for the addition of an adapter assembly for attaching the mount on the tripod. The mount M149E5 provides six positions for six rifles whereas the M79 and M92 (T173) provide one each.

Data plate location
Rifles M40A1 and M40A1C data appear on the rear face of the rifle chamber. Mounts M79 and M92 (T173) identification plates are located on the left side of the traversing assembly. Rifle M92 data appear on the rear face of the receiver. Mount M149E5 data is located on the left side of the traversing assembly.

Classification
Rifle M40A1 with mount M79 --- Standard A (OTCM 87594)
Rifle M40A1C with mount M92 (T173) --- Standard A (OTCM 87594)
### CHARACTERISTICS

**Rifle w/o mount (M40A1 or M40A1C):**
- Weight (rifle only) ............................................. 25 lb
- Weight (rifle with spotting rifle and accessories) .......... 28 lb
- Length ............................................................ 11 ft, 2 in.
- Length of tube ................................................... 9 ft, 4 in.
- Rifling:
  - Length .......................................................... 8 ft, 91/2 in.
  - Number of grooves ........................................... 36
- Type of breechblock ........................................... one turn in 20 calibers
- Type of firing mechanism:
  - M40A1 or M40A1C w/mount M70 or M92 (T17B) .......... percussion
  - M40A1C w/mount M149E6 ...................... percussion and electrical
- Estimated accuracy life ........................................ 2,600 yd

**Mount:**
- Weight:
  - M79 ...................................................... 194 lb
  - M92 (T17B) ............................................... 117 lb
  - M149E6 ................................................ 1,446 lb
- Depression (maximum):
  - M79 ...................................................... -17°
  - M92 (T17B) ............................................... -17°
  - M149E6 ................................................ -10°
- Traverse (R or L):
  - M79 ...................................................... 360°
  - M92 (T17B) ............................................... 360°
  - M149E6 ................................................ 40°
- Operation of firing linkage:
  - M79 ...................................................... manual
  - M92 (T17B) ............................................... manual
  - M149E6 ................................................ manual and electrical

### AMMUNITION

**Types:** HEAT and HEP-T

### PERFORMANCE

<table>
<thead>
<tr>
<th>Muzzle velocity:</th>
<th>HEAT .................................................. 1,650 fps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HEP-T .................................................. 1,695 fps</td>
</tr>
<tr>
<td><strong>Range:</strong></td>
<td>HEAT (6½° elevation) .................................... 3,500 yd</td>
</tr>
<tr>
<td></td>
<td>HEP-T (9½° elevation) .................................. 7,515 yd</td>
</tr>
</tbody>
</table>

### EQUIPMENT

**Sighting and fire control:**
- For M40A1 or M40A1C rifle on mount M149E6
  - MOUNT, TELESCOPE: M90 (T183)
  - TABLE, FIRING: FT 106-A-1 (abr)
  - TELESCOPE, ELBOW: M92D (T188E1)

Basic issue items: See ORD 7 SNL C-93 and TM 9-2350-212-12.

### INSTRUCTIONAL MATERIAL

**CARTRIDGE, CALIBER .30: ball, M2**

**RIFLE, CALIBER .30, SUBCALIBER: M9**

### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipper</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Volume</th>
<th>Ship tons</th>
</tr>
</thead>
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<td>Shipped</td>
<td></td>
<td></td>
<td></td>
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</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipper</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Volume</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:** SNL C-93, TM 9-1000-205-12, TM 9-1015-221-34, TM 9-2350-212-12.

*For characteristics and data, see item in section 14.
RIFLE, CALIBER .30, SUBCALIBER: M7

General
RIFLE, CALIBER .30, SUBCALIBER: M7, consists mainly of a 75-mm recoilless rifle cartridge case, a modified, vented caliber .30 machinegun barrel, a cut-off 75-mm recoilless rifle projectile, and a breech assembly. It is used in training personnel to operate the 75-mm recoilless rifle M2 or T21E12. The primer body is removed from the 75-mm cartridge case. A pin which is fixed to the base of the 75-mm cartridge case fits into a small slot in the breech body and prevents the breech body from turning when the training device is assembled. The breech body has a door cover which contains the firing pin. Holes, drilled from the outer surface of the caliber .30 machinegun barrel into the bore, allow a portion of the propellant gases to escape through the 75-mm cartridge case into the 75-mm recoilless rifle chamber, and finally through the openings in the breech of the 75-mm recoilless rifle. This results in a miniature back-blast and simultaneously reduces the muzzle velocity of the subcaliber projectile to approach that of the 75-mm recoilless rifle ammunition. The muzzle-end of the caliber .30 machinegun barrel, which is threaded on its outer surface, protrudes through a hole drilled in the cut-off 75-mm projectile. The 75-mm projectile is cut off just forward of the rotating band, and when assembled, the projectile base slides into the cartridge case and is held in place by the breech body which screws onto the end of the caliber .30 machinegun barrel.

Differences among models

Data plate location

Classification: Standard C (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Secondary item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M7</td>
<td></td>
<td>1015-730-4872</td>
<td></td>
</tr>
</tbody>
</table>

Rifling:
- Length: 1 ft, 9½ in.
- Twist: right-hand: one turn in 10 in.
- Number of grooves: 6

AMMUNITION
Type: cartridge, ball, cal. .30, M2

PERFORMANCE
- Muzzle velocity: 1,500 fps
- Range: 1,940 yd

EQUIPMENT
- Sighting and fire control:
  - Use sighting equipment issued with primary weapon listed in GENERAL paragraph.
- Basic issue items: See ORD SNL G-38, section 18.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 2 rifles per wood box.
- Length: 2 ft, 8½ in.
- Width: 9 in.
- Height: 6½ in.
- Volume: 1 cu ft
- Gross weight: 56 lb
- Ship tons: 0.025

Outside Continental United States

Shipped 2 rifles per wood box.
- Length: 2 ft, 4½ in.
- Width: 9 in.
- Height: 6½ in.
- Volume: 1 cu ft
- Gross weight: 55 lb
- Ship tons: 0.025

References: SNL C-33, section 18; TM 9-3140; TM 9-3140-34.
RIFLE, CALIBER .30, SUBCALIBER: M9

General

RIFLE, CALIBER .30, SUBCALIBER: M9, consists of a cartridge case, modified caliber .30 machinegun barrel, cutoff projectile, and a breech assembly. It is used to provide more extensive training in laying and firing the 106-mm rifle M40A1 or M40A2 than would be permissible with the larger ammunition. The use of smaller-bore ammunition prevents wear on the regular piece during practice and is less costly. The primer body is removed from the 106-mm cartridge case and a hole is drilled through the base of the cartridge case to receive the barrel bushing. A pin in the base of the cartridge case projects into a small slot in the bushing and prevents the bushing from turning when the rifle is assembled. The barrel has 24 holes drilled in its bore to reduce the muzzle velocity of the subcaliber round. Perforating the barrel also creates a back blast which simulates the back blast of the 106-mm rifle. The caliber .30 barrel is held in place at the muzzle end by a barrel nut which fits inside of the cutoff projectile. The subcaliber round is hand fed into the caliber .30 barrel chamber. The barrel bushing has a trapdoor or hinge which contains a floating firing pin. The 106-mm rifle firing pin is used to strike the subcaliber rifle M9 pin by percussion, thus causing the subcaliber rifle firing pin to indent the cartridge. The cartridge case is extracted by hand. The extractor of the 106-mm rifle is removed when using the subcaliber rifle M9 to prevent removal of the rifle M9 each time the breechblock is opened.

Characteristics

Length overall

Range (maximum)

Performance

Ammunition

Type

Cartridge, ball, cal. .30, M2

Muzzle velocity

2,000 fps

1,950 yd

Equipment

Storage and Shipment Data

Within Continental United States

Skipped

Length

Width

Height

Volume

Gross weight

Ship tons

Fed.

1 ft, 9 in.

1 ft, 5 in.

1 ft, 5 in.

1 ft, 5 in.

1 ft, 5 in.

1 ft, 5 in.

References: SNL C-31, Section 20; TM 9-1000-395-13; FM 28-82.

Secondary Item

Model

Line item No.

Federal stock No.

M9

1316-224-0042

Classifications

Standard A (OTCM 18861).
CANNON, 105 MILLIMETER HOWITZER: XM103; MOUNT, HOWITZER: 105-MM, XM139

General
CANNON, 105 MILLIMETER HOWITZER: XM103 with MOUNT, HOWITZER: 105-MM, XM139, provides the primary armament for HOWITZER, LIGHT, SELF-PROPELLED: 105-mm, T195E1 and is primarily used for high trajectory fire.

The mount supports the cannon within a cradle and pivots in self-aligning bearings, located at each side of the cradle. The mount also provides mounting facilities for the elevation quadrant, direct fire telescope, and linkage mounts for the panoramic telescope.

The recoil mechanism is of the hydrospring, constant retarding force type.

Table: Characteristics

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XM103</td>
<td>XM139</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mount: Weight (w/liquid)</th>
<th>1,186 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of recoil mechanism</td>
<td>hydrospring</td>
</tr>
<tr>
<td>Number of recoil cylinders</td>
<td>1 concentric</td>
</tr>
<tr>
<td>Length of recoil: Normal</td>
<td>12 in.</td>
</tr>
<tr>
<td>Maximum</td>
<td>metal to metal 14 in.</td>
</tr>
<tr>
<td>Capacity of recoil mechanism</td>
<td>21 qt</td>
</tr>
<tr>
<td>Elevation</td>
<td>76 deg</td>
</tr>
<tr>
<td>Depression</td>
<td>6 deg</td>
</tr>
<tr>
<td>Traverse (left or right)</td>
<td>360 deg</td>
</tr>
</tbody>
</table>

AMMUNITION
Types | Gas, HE, illuminant, leaflet, smoke (colored and WP), blank, dummy

PERFORMANCE
Muzzle velocity | 1,550 fps
Range | 12,000 meters
Rate of fire:
Normal | 1 rd per min
Rapid | 3 rds per min

EQUIPMENT
Sighting and fire control:
- BINOCULAR: M17A1
- FUZE SETTER: M26 with CASE, CARRYING: M66
- FUZE SETTER: M27
- MOUNT, TELESCOPE: T206
- MOUNT, TELESCOPE: T208
- PRISCOPE, TANK: M27
- PRISCOPE, TANK: XM45
- POST, AIMING: M1A1 w/CASE, CARRYING: M401
- QUADRANT, FIRE CONTROL: elevation, M15 (T35E2)
- QUADRANT, FIRE CONTROL: gunner's, M1A1, w/CASE CARRYING: M82
- REFLECTOR, AIMING POST: clear, M1
- REFLECTOR, AIMING POST: red, M1
- TELESCOPE, ELBOW: T176E3
- TELESCOPE, PANORAMIC: T177

Basic issue Items: See TM 9-2350-217-10
### INSTRUCTIONAL MATERIAL

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
<td><strong>per</strong></td>
</tr>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Shipped

Outside Continental United States

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

**References:** TM 9-1015-230-35, TM 9-1015-230-35P.
MOUNT, GUN: SUBCALIBER, CAL .50, M19

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M18</td>
<td></td>
<td>1001723-3172</td>
</tr>
</tbody>
</table>

**General**

MOUNT, GUN: SUBCALIBER, CAL .50, M19, is used with a fixed heavy barrel, cal. .50 BROWNING MACHINE GUN M1* for training purposes only. It provides practice in laying and firing the GUN. ANTI-AIRCRAFT ARTILLERY, SELF-PROPELLED. TWIN 40-MM. M42A1 **. It is installed on the left-hand breach casing of the gun in place of the left automatic loader assembly. The ammunition box located on the left side of the mount holds 40 rounds of linked ammunition for the machine-gun. Actuating the firing linkage (to the striker firing mechanism assembly) of the 40-mm gun operates the firing linkage (to the solenoid firing backside) of the mount, to fire the cal. .50 machine-gun single shot. The empty cartridge cases fall into the clip collecting bag while the links are ejected through the ammunition chute into the bag. A breech bolt in the mount actuates with the links of the bore of the 40-mm gun.

**Differences among models**

Classification: Standard A.

**AMMUNITION**

**EQUIPMENT**

**PERFORMANCE**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

Shipped 1 per container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped 1 per container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: TM 9-7218, SNL A-77.

---

* For characteristics and data, see item in section 2.
** For characteristics and data, see item in section 28.
HOWITZER, LIGHT, TOWED: 105-MM, M102 (CANNON, 105-MM HOWITZER: M137, RECOIL MECHANISM, 105-MM HOWITZER: M37; CARRIAGE, 105-MM HOWITZER: M31)

**Characteristics**

- **Model**
  - Cannon Carriage Mechanism Item No.
  - M102 M107 M31 K57392

**General**

HOWITZER, LIGHT, TOWED: 105-MM is a towed type, lightweight weapon having a low silhouette. The weapon is traversed and elevated by handwheels located on the sides of the carriage. A 6,400-mil traverse capability is provided as the carriage pivots around the center of a circular base by means of a roller located at the rear of the trail assembly. The elevating mechanism utilizes a pair of elevating screw assemblies and is capable of an elevation range from -89 mils to +1,333 mils. The weapon, under normal conditions and average terrain, can be returned to proper deflection within one-half turn of the handwheel after firing maximum charge at low quadrant angles of elevation. The weapon is staked in a firing position. Holes are provided in the firing base for the stakes that are provided as equipment. The weapon is capable of being airlifted. The variable length recoil used on this weapon eliminates the need for a recoil pit. This feature allows the weapon to be employed in a minimum amount of time. The weapon may be towed at 35 miles per hour over hard surfaced roads. A handbrake is provided on each wheel to hold the howitzer in position while it is parked. A bracket is provided on the front pole, and two brackets are provided on the box trail to provide three points for attaching slings to hoist the howitzer.

**Difference among models**

- **Classification:** Standard A.

**Characteristics**

- **Howitzer**
  - Weight: 3,017.5 lb
  - Length: 263 in.
  - Width: 76 in.
  - Height: 62.6 in.
  - Ground clearance: 11.4 in.

**Suspension system**

- **Size:** 7.00 x 16.4 ply
- **Pressure**
  - Transport: 40 psi
  - Tactical: 70 psi

**Traversing mechanism**

- **Size:** 16 x 24 x 10E
- **Pressure, operating:** 4-6 psi
- **Elevation range:** -89 mils to +1,333 mils
- ** Traverse range:** -89 mils +1,333 mils
- **Maximum towing speed:**
  - Cross-country: 10 mph
  - Improved roads: 35 mph
  - Hand parking

**AMMUNITION**

- Types: Chem, HE, HEAT, HE, AT-T, HEP, HEP-T
- Illum, Smoke, Dummy, and Blank.

**Performance**

- Rate of fire:
  - Maximum (rds per min—first 3 min): 10
  - Sustained: 8 rds per min

**Equipment**

- **Sighting and fire control**
  - COLLIMATOR, INFINITY AIMING REFERENCE: M1
  - CORRECTOR, CANT: M4
  - FUZE SETTER: M28
  - FUZE BETTER: M28
  - FUZE BETTER BET: M28
  - MOUNT, TELESCOPE: M114
  - QUADRANT, FIRE CONTROL: M114, gunners, w/one
  - QUADRANT, FIRE CONTROL: M14, (Elevation)
  - TELESCOPE, PANORAMIC: M113
  - TELESCOPE, ELBOW: M114

**INSTRUCTIONAL MATERIAL**
### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 howitzer</td>
<td>202 in.</td>
<td>77 in.</td>
<td>66 in.</td>
<td>984 cu ft</td>
<td>3.415 lb</td>
<td>1.707</td>
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**Outside Continental United States**

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<th>Height</th>
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<th>Gross weight</th>
<th>Ship tons</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**PRIME MOVER**

5/4-ton, 4 x 4 truck

SECTION 5
GUNS, OVER 150-MM THROUGH 200-MM
(CLASS 1025)
(Includes gun and howitzer cannons, and towed gun and howitzer.)

BATTLE GROUP ATOMIC WEAPON SYSTEM: M29 (XM29) GUN, RECOILLESS, 155-MILLI-
METER: M64 (XM64E2) W/GUN, 37-MILLIMETER, SPOTTING: XM77E1; MOUNT, TRIPOD,
RECOILLESS GUN: 155-mm, M121 (XM121). .................................................. 5-2
CANNON, 155-MILLIMETER GUN: M46 (T80); MOUNT, GUN: 155-mm and 8-inch howitzer, M86
(T85) ........................................................................................................... 5-3
CANNON, 155-MILLIMETER HOWITZER: M45 (T186E1); MOUNT, HOWITZER: 155-mm, M80
(T167) ........................................................................................................ 5-5
CANNON, 155-MILLIMETER HOWITZER: M126 (T255E3); MOUNT, HOWITZER: 155-mm, M127
(XM127) (See page 5-11).
CANNON, 175-MILLIMETER GUN: M113; MOUNT, GUN-HOWITZER: M158; RAMMER AND
LOADER ASSEMBLY, ORD NO. 10898300; MECHANISM, FIRING, CANNON: M35 (See page
5-13).
GUN, FIELD ARTILLERY, TOWED: 155-mm, M59, w/e (CANNON, 155-MILLIMETER GUN: M2 or
M2A1; RECOIL MECHANISM: M3-series; CARRIAGE, 155-MILLIMETER GUN: M1)........... 5-7
HOWITZER, MEDIUM, TOWED: 155-mm M114 and M114A1, w/e (CANNON, 155-MILLIMETER
HOWITZER: M1 or M1A1; RECOIL MECHANISM: M6-series; CARRIAGE, 155-MILLIMETER
HOWITZER: M1A1 or M1A2)................................................................. 5-9
BATTLE GROUP ATOMIC WEAPON SYSTEM: M29 (XM29) (GUN, RECOILLESS, 155-MILLIMETER: M64 (XM64E2) W/GUN, 37-MILLIMETER, SPOTTING: XM77E1; MOUNT, TRIPOD, RECOILLESS GUN: 155-MM, M121 (XM121))

The 155-mm recoilless gun XM64 (XM64E2) is an open breech, single-shot, smooth bore muzzle loaded weapon. The gun is supported on the 155-mm tripod mount M121 (XM121) by two trunnions attached to the barrel, located near the chamber portion, and a bracket that accommodates the elevating mechanism. Two lugs for mounting the telescope mount holder M6 (XM6) are provided on the bracket ring. The gun is not equipped with a firing mechanism: a mechanical operated firing device is provided in each propelling charge. Two handles are attached to the barrel and two to the breech end of the gun for easy handling.

The 37-mm spotting gun XM128E1 (Component of 37-mm spotting gun XM77E1) is a single-shot, breechloading, manually operated, smoothbore cannon with a vertical sliding wedge breechblock. The spotting gun is mounted coaxially under the gun M64 as a bracketicus screwed to the muzzle end of the gun M64.

The 155-mm recoilless gun tripod mount M121 (XM121) consists of the carriage assembly and tripod assembly, possibly one of the weapon on the ground. The carriage is used to support the gun when mounted on the tripod or in travel. Utility vehicles are equipped with firing mechanism, plus a firing mechanism for the spotting gun.

For characteristics and data, see item in section 11.
Mount, XM121:

**Tripod assembly:**
- **Weight:** 44 lb
- **Height:** 2 ft, 11 1/2 in.
- **Length (folded):** 4 ft, 4 1/2 in.

**Carriage assembly:**
- **Weight:** 66 lb
- **Height:** 1 ft, 6 1/2 in.
- **Width:** 1 ft, 1/2 in.

**AMMUNITION**

**Gun, M6:**
- Types: nuclear, practice, training dummy

**Gun, XM77E1:**
- Types: dummy, spotting

**PERFORMANCE**

- **Muzzle velocity:** (classified)
- **Range:** 4,000 meters

**EQUIPMENT**

**Sighting and fire control:**
- **HOLDER, TELESCOPE MOUNT:** M6 (XM6).
- **MOUNT, TELESCOPE:** M117 (XM117).
- **POST, AIMING:** M1A2.
- **QUADRANT, FIRE CONTROL:** gunner's, M1A1, w/case, carrying.
- **TELESCOPE, ELBOW:** M107 (XM107).
- **THERMOMETER, SELF-INDICATING, BIMETALLIC:** M1A1, w/case.

**Auxiliary sighting and fire control:**
- **CASE, TELESCOPE:** M121.
- **CHEST, M14 (aiming post light M14).**
- **LIGHT, AIMING POST:** M16.
- **LIGHT, INSTRUMENT:** M64.
- **AIMING CIRCLE:** M2, w/e ****.
- **SIGHT, BORE SIGHT:** M122 (for M51 and M52 bore sights).
- **SIGHT, BORE:** M51.
- **SIGHT, BORE:** M52.

**INSTRUCTIONAL MATERIAL**

- **CARTRIDGE, 37 MILLIMETER, DUMMY:** XM45.
- **CHARGE, PROPPELLING, ATOMIC PROJECTILE, DUMMY:** M71 (XM71E1).
- **PISTON, LAUNCHING, ATOMIC PROJECTILE, DUMMY:** M4 (XM4).
- **PROJECTILE, ATOMIC, SUPERCALIBER, 279-MILLIMETER, DUMMY:** M421 (XM421).

**STORAGE AND SHIPMENT DATA**

**Within and Outside Continental United States**

Shipped one weapon system in two wooden boxes.

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross Weight (box 1 plus box 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 1</td>
<td>4 ft, 11 in</td>
<td>8 ft, 9 1/4 in</td>
<td>1 ft, 7 1/4 in</td>
<td>9.9 cu ft</td>
<td>690 lb</td>
</tr>
<tr>
<td>Box 2</td>
<td>8 ft, 9 1/4 in</td>
<td>2 ft, 7 in</td>
<td>1 ft, 9 in</td>
<td>39.8 cu ft</td>
<td>690 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 1</td>
</tr>
<tr>
<td>Box 2</td>
</tr>
</tbody>
</table>


*** For characteristics and data, see item in sections 14, 18, and 29.
CANNON, 155-MILLIMETER GUN: M46 (T80); MOUNT, GUN: 155-MM AND 8-INCH HOWITZER, M86 (T58)

The CANNON, 155-MILLIMETER GUN: M46 (T80) with MOUNT, GUN: 155-MM and 8-INCH HOWITZER, M86 (T58), provides the major armament for the GUN, SELF-PROPELLED, FULL TRACKED: 155-mm, M53 (T97).

The 155-mm gun cannon consists principally of a firing lock, breech lock, counterbalance assembly, breech mechanism group, and gun tube and breech ring group. The cannon tube is supported and aligned in the mount by means of a finish-machined bearing surfaces on the rear half of the tube. The breech mechanism is hinged at the right side of the breech ring body to swing laterally when the breech is opened. A breechblock counterbalance assembly is mounted between the gun of the breech ring body and the carrier hinge pin, to offset the weight of the breechblock and carrier during breech opening and closing operations. The firing lock is mounted in the breech mechanism.

The 155-mm and 8-inch howitzer mount M86 includes the recoil mechanism, recoil mechanism replenisher assemblies, and cradle group. The cradle provides a central bore in which the gun tube slides during recoil and counterrecoil. The tube is secured against rotation within the cradle by means of the cradle torque key located at the lower front of the cradle.

DIFFERENCES AMONG MODELS

Data plate location

The combined gun and mount identification plate is located on the upper left recoil cradle ring.

CLASSIFICATIONS: Standard A (OTCM 36841).

CHARACTERISTICS

**Cannon and Mount:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M46 (T80)</td>
<td>1025-722-0041</td>
<td></td>
</tr>
<tr>
<td>Mount</td>
<td></td>
<td>1026-723-0089</td>
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</table>

**General**

Muzzle velocity (shell, HE, max zone charge) 2,800 fps

**Range (max) ------------------------------------ 25,715 yd**

**Rate of fire _**

Cannon: Weight (complete) 7,168 lb

Weight of tube 6,825 lb

Length of cannon (muzzle to rear face of firing lock hammer) 24 ft, 3½ in.

Length of tube

**Breech**

Length 19 ft, 2¼ in.

Number of grooves 48

Twist, right-hand 1 turn in 25 calibers

Type of breechblock stepped-thread, interrupted-screw, horizontal-swing.

Type of firing mechanism percussion inertia

Estimated accuracy life of tube 1,800 rd

**Mount**

Weight 4,800 lb

Type of recoil mechanism hydrospring

Number of recoil cylinders 4

Length of recoil:

Normal 19 ft, 2¼ in.

Maximum 25 ft, 6½ in.

Capacity of recoil mechanism (including replenishra assembly) 47 cu ft

Elevation (max) 65°

Depression (max) -5°

Traverse (right or left) 30°

Operation of firing linkage manual

**AMMUNITION**

Types HE, CHEM, separate loading, SMOKE, and ILLUM

**Type of charge**

Propelling charge M19

**PERFORMANCE**

Muzzle velocity (shell, HE, max zone charge) 2,800 fps

Range (max) 25,715 yd

Rate of fire

**EQUIPMENT**

Rifling and fire control

Installed on self-propelled vehicle M58 prior to issue:

INDICATOR, AZIMUTH, MECHANICAL. T27

* For characteristics and data, see items in sections 14, 18, 27, and 28.
**MOUNT, TELESCOPE: M99A1C**  
**MOUNT, TELESCOPE: M101**  
Boxed and stowed on self-propelled vehicle M38 prior to issue:  
**FUZE SETTER: M26 or M27**  
**FUZE SETTER: M38 or M14**  
**PERISCOPE: M13**  
**PERISCOPE: M16A1**  
**PERISCOPE: M17**  
**POST, AIMING: M1A2**  
**QUADRANT, FIRE CONTROL: M1A1 or M1, w/case**  
**TELESCOPE: M99**  
**TELESCOPE, PANORAMIC: M100**  
**TRIPOD, SURVEYING: (FSN 6675-240-1881) (issued by the Corps of Engineers).**

Basic Issue Items: See TM 9-2350-210-12.  

**INSTRUCTIONAL MATERIAL**  
**PROJECTILE, 155-MILLIMETER, EMPTY: M191**  
**PROJECTILE, 155-MILLIMETER, DUMMY: M7**  
**CHARGE, PROPELLING, 155-MILLIMETER: M109**

---

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
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<th>Within Continental United States</th>
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<tr>
<td>Number per crate</td>
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<tr>
<td>Ship tons</td>
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</table>

Number per crate

Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL D-49, TM 9-2350-210-12, TM 9-8025.
CANNON, 155-MILLIMETER HOWITZER: M45 (T186E1); MOUNT, HOWITZER: 155-MM, M80 (T167)

**Characteristics**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
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<td></td>
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<tr>
<td>M45</td>
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</tr>
<tr>
<td>M80</td>
<td>1026-720-7842</td>
<td>1026-820-4015</td>
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</tbody>
</table>

**General**

The CANNON, 155-MILLIMETER HOWITZER: M45 (T186E1) with MOUNT, HOWITZER: 155-mm, M80 (T167), provides the major armament for the HOWITZER, SELF-PROPELLED, FULL-TRACKED: 155-mm, M44 (T194) or M44A1.

The cannon is composed principally of the cannon tube, breech ring group, breech mechanism assembly, counterbalance assembly, and firing mechanism M41. The cannon is mounted through the central bore of the howitzer mount cradle which forms the slide for the howitzer tube during recoil and counterrecoil. A howitzer cradle turnkey engages a keyway on the cannon tube and prevents rotation of the cannon tube.

The mount consists principally of a howitzer mount rammer assembly, four recoil cylinder assemblies, two recoil mechanism replenisher assemblies, and the following group of parts: structure, cradle shield, equilibrator, and elevating mechanism.

**Differences among models**

**Data plate location**

The howitzer model and serial numbers are stamped on the lower rear face of the breech ring.

The mount nameplate is located on the left side of the mount directly below the rammer.

Classification: Standard B (OTCM 3541).

**Cannon:**

<table>
<thead>
<tr>
<th>Weight (complete)</th>
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<tr>
<td>Weight of tube</td>
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<tr>
<td>Length of tube</td>
<td>18 ft, 7½ in</td>
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<tr>
<td>Number of grooves</td>
<td>48</td>
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<tr>
<td>Twist, right-hand</td>
<td>One turn in 2½ calibres</td>
</tr>
</tbody>
</table>

**Type of breechblock** Interrupted slugged thread

**Type of firing mechanism** Percussion

**Estimated accuracy life of tube** 50,000 rounds

**Mount:**

- **Weight:** 10,040 lb
- **Number of recoil cylinders:** 4
- **Capacity of recoil mechanism (includes replenisher):** 17 gal
- **Elevation (max):** 65°
- **Depression (max):** 8°
- **Traverse, maximum, Right or Left:** 80°

**Operation of firing linkage:** Manual or electrical

**AMMUNITION**

- **Types:** Separate-landing-CHEM, HE, ILLUM, SMOKE, and BE SMOKE

**Sighting and fire control:**

**Installation on vehicle prior to issue:**
- MOUNT, TELESCOPE: M81 (T194)
- MOUNT, TELESCOPE: M99 (T195)

**Boxed and stowed on vehicle prior to issue:**
- FUSE SETTER: M20 or M27 or M22
- FUSE SETTER: M23
- POST, ADJING: M14
- QUADRANT, FIRE CONTROL: M1A1, w/case
- TELESCOPE, PANORAMIC: M120ET

**Performance**

- **Muzzle velocity (max):**
  - M3 charge: 1,700 fps
  - M4A1 charge: 1,680 fps
- **Range (HE, max):**
  - M3 charge: 22,000 meters
  - M4A1 charge: 14,400 meters

**Equipment**

- **Sighting and fire control:**
  - MOUNT, TELESCOPE: M81 (T194)
  - MOUNT, TELESCOPE: M99 (T195)
  - Boxed and stowed on vehicle prior to issue:
    - FUSE SETTER: M20 or M27 or M22
    - FUSE SETTER: M23
    - POST, ADJING: M14
    - QUADRANT, FIRE CONTROL: M1A1, w/case
    - TELESCOPE, PANORAMIC: M120ET

*For characteristics and data, see item in sections 14, 18, and 19.*
TELESCOPE: M93 (T158)
TRIPOD, SURVEYING: FSN 6675-240-1851 (issued by Corps of Engineers).
Basic Issue Items: See TM 9-7004, C2.

INSTRUCTIONAL MATERIAL
PROJECTILE, 155-MILLIMETER DUMMY: M7
BAND, DUMMY PROJECTILE: front and rear
CHARGE, PROPELLING, 155-MILLIMETER DUMMY: M2
PROJECTILE, 155-MILLIMETER DUMMY: MK1

STOREAGE AND SHIPMENT DATA

Within Continental United States

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Outside Continental United States

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<tbody>
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<td>Height</td>
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<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
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</tbody>
</table>


Pages 5-7 and 5-8 are rescinded by C 3.
CANNON

Weight: 3,825 lb
Weight of tube: 2,995 lb
Length (muzzle to rear end of breech mechanism): 12 ft, 5% in
Length of tube: 11 ft, 10 in
Breech:
Length: 13 ft, 6 in
Number of grooves: 48
Twist, right-hand: One turn in 25 calibers
Type of firing mechanism: stepped-thread, interrupted-screw

Estimate accuracy life of tube: 18,000 rd

Carriage:
Weight (approx): 8,875 lb
Elevation (max): 6°
Depression (max): -2°
Operation of firing linkage: manual
Tire size and type: 14:00 x 20 combat
Tire pressure: 55 lb
Type of brakes: air service, mechanical parking brakes

Recoil mechanism:
Type: hydraulic
Number of recoil cylinders: 3
Length of recoil: 3 ft, 5 in
Maximum elevation: 3 ft, 3 in
Minimum elevation: -1 ft
Capacity of recoil mechanism: 4 gal

AMMUNITION

Types: HE, CHEM, ILLUM, SMOKE and SMOKE (BE), separate loading.
Type of charge: base and increment
Flash reducer M2 is used with propelling charge M4 or M4A1 to reduce muzzle flash when firing at night.

PERFORMANCE

Muzzle velocity:
HE, CHEM: (Chg 7) 1,800 fps
SMOKE BE (Chg 6) 1,800 fps
ILLUM (Chg 1 only) 1,450 fps

Range (max):
HE, CHEM: (Chg 7) 14,500 yd
SMOKE BE (Chg 6) 13,000 yd
SMOKE BE (colored) (Chg 7) 9,000 yd
ILLUM (Chg 1 only) 13,000 yd

Rate of fire:
First 1/4 min: 1 rd
First 5 min: 5 rd
Total: 40 rd per hr

EQUIPMENT

Sighting and fire control:

On-carryage:
MOUNT, TELESCOPE, M2
TELESCOPE, PANORAMIC, M1A1

Off-carryage:
FUSE SETTER, M24 or M31
FUSE SETTER, M35
POST, AIMING, M1A1

QUADRANT, FIRE CONTROL, M1A1, w/case
THERMOMETER, * SELF-INDICATING, BIMETALLIC, M1, w/e.
WATCH, WRIST: (all services)

INSTRUCTIONAL MATERIAL

SUBCALIBER EQUIPMENT:
CANNON, 37-MILLIMETER GUN, SUBCALIBER, M16, on MOUNT GUN:
subcaliber, 37-mm, M18, w/RECOIL MECHANISM: 37-mm gun M1914, w/e.
PROJECTILE, 155-MILLIMETER, DUMMY: M3
PROJECTILE, 165-MILLIMETER, DUMMY: M7 and M7B1
CHARGE, PROPELLING, 155-MILLIMETER, DUMMY: M7

SHIPMENT AND STORAGE DATA

Within Continental United States:
Howitzer and carriage (KD) w/equipment:
Number per crate (fully sheathed skid-type crate):
Length: 17 ft
Width: 6 ft, 15% in
Height: 8 ft, 14% in
Volume: 5,435 cu ft
Gross weight: 17,111 lb
Ship tons: 21.1

Howitzer MI only:
Number per crate (double-end style): 1
Length: 13 ft, 4% in
Width: 6 ft, 15% in
Height: 2 ft, 6% in
Volume: 960 cu ft
Gross weight: 1,111 lb
Ship tons: 1.67

Outside Continental United States:

Howitzer and carriage (KD) w/equipment:
Number per crate (fully sheathed skid-type crate):
Length:
Width:
Height:
Volume:
Gross weight:
Ship tons:

Howitzer MI only:
Number per crate (double-end style):
Length:
Width:
Height:
Volume:
Gross weight:
Ship tons:

PRIME MOVER

4-ton, 6x6, cargo truck or 18-ton high-speed tractor M1

TIME TO EMPLACE

1 min

References: TM 9-331A, SNL C-38, TM 9-1025-200-20P

* For characteristics and data, see item in section 14, 19, 20, and 21
HOWITZER, MEDIUM, TOWED: AUXILIARY PROPELLED, 155-MM, M123A1, W/E (CANNON, 155-MILLIMETER HOWITZER; M1 OR MIA1; RECOIL MECHANISM: M6-SERIES; CARRIAGE, 155-MILLIMETER HOWITZER; M32)

Characteristics

Classification: Standard A.

Differences among Models

General

HOWITZER, MEDIUM, TOWED AUXILIARY PROPELLED, 155-MM M123A1, W/EQUIPMENT is a medium field artillery weapon consisting of CANNON, 155-MILLIMETER HOWITZER, M1 or MIA1; RECOIL MECHANISM: M6, M6A2 or M6B1; CARRIAGE, 155-MILLIMETER HOWITZER: M32; a hydraulic power unit driven by a 20 horsepower gasoline engine; two-wheel drive units connected to the power unit by four hydraulic lines which drive the carriage wheels; a removable caster assembly to support the trails when maneuvering the weapon; and a mechanical jack for raising and lowering the trails as needed. This propulsion system provides more efficient maneuverability and accurate positioning of the weapon by the driver.

Performance

Type of firing mechanism: percussion hand-blown

AMMUNITION

Types: HE, CHEM, ILLUM, SMOKE

Flash reducers: none

PERFORMANCE

Maximum velocity: 1,050 fps

Range (max) (with full charge): 11,400 yd

Rate of fire:

- Rapid bursts: 3 rds per min
- Prolonged firing: 1 rd per min
EQUIPMENT

Sighting and fire control:

On-carriage:
- MOUNT TELESCOPE: M25 (7678429) (remains intact on end item)
- TABLE, FIRING: FT 151-Q-3
- TELESCOPE, PANORAMIC: M12A7C (7687260)

Off-carriage:
- FUZE, SETTER: M34 and M28 (T46)
- LIGHT, AIMING POST: M14
- POST, AIMING: M1A2
- QUADRANT, FIRE CONTROL: M1A2, w/case
- THERMOMETER, SELF-INDICATING, BIMETALLIC: M1, w/equipment
- WATCH, WRIST: (all services)

Basic Issue Items: See TM 9-1025-200-12.

INSTRUCTIONAL MATERIAL

Subcaliber equipment:
- GUN, SUBCALIBER, 37-MM: CANNON, M1916, on MOUNT,
  M1A1, w/RECOIL MECHANISM, M1916, w/EQUIPMENT.

SHIPMENT AND STORAGE DATA

Within Continental United States

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<th>Description</th>
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<td>Volume</td>
<td>1440 cu ft</td>
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<td>Gross weight</td>
<td>13,500 lb</td>
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<td>Ship tons</td>
<td>6.75</td>
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Outside Continental United States

<table>
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<td>Gross weight</td>
<td>13,500 lb</td>
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<tr>
<td>Ship tons</td>
<td>6.75</td>
</tr>
</tbody>
</table>

PRIME MOVER

5-ton, 6 x 6 cargo truck.

TIME TO EMBLACE

CANNON, 155 MILLIMETER HOWITZER: T255E3; MOUNT, HOWITZER: 155-MM, XM127

General
CANNON, 155 MILLIMETER HOWITZER: T255E3 with MOUNT, HOWITZER: 155-mm, XM127, provides the primary armament for HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, T196E1.

The breech mechanism is a semiautomatic screw block type, designed for separate-loading ammunition. Breech opening is accomplished by utilizing the energy of counterrecoil and closing by a laminated torsion spring. Firing is accomplished by MECHANISM, FIRING, CANNON: M35, which uses cartridge-type primers fired by a continuous pull percussion mechanism.

The mount consists of a cradle assembly that mounts the hydraulic variable recoil mechanism, cradle cam, equilibrator arm, recuperator, replenisher, buffer, upper and lower rotors, bump stops, and dust shield. Pads and brackets are provided for mounting the fire-control equipment.

Differences among models
Data plate location
Classification

CHARACTERISTICS
Cannon:
Weight ........................................... 8,180 lb
Length: Overall .................................. 191.01 in.
Tube .............................................. 143 in.
Rifling:
Length ........................................... 116.82 in.
Number of grooves ................................ 48
Twist, hand ...................................... one turn in 20 calibers
Type of breechblock .............................. Welin-step thread
Type of firing mechanism ...................... percussion manual
Estimated accuracy life of tube .......... 15,000 rd (EFC)
Mount:
Weight (w/o all) ................................ 3,130 lb

* For characteristics and data, see items in section 23.
** For characteristics and data, see items in sections 14, 15, and 27.

Type of recoil mechanism ...................... hydropneumatic
Length of recoil cylinders .................... 2
Length of recoil:
Normal ........................................... high elevation 24 in.
Maximum ........................................... low elevation 36 in.
Capacity of recoil mechanism .............. 6 gal
Elevation ........................................... +75 deg
Depression ....................................... -5 deg
Traverse (left or right) ....................... 360 deg

AMMUNITION
Types ............................................ gas, HE, illumin, smoke (colored and WP), dummy

PERFORMANCE
Muzzle velocity .................................. 1,860 fps
Range ............................................... 14,400 yd
Rate of fire:
Normal ........................................... 1 rd per min
Rapid ............................................... 3 rds per min

EQUIPMENT
Sighting and fire control: **
BINOCULAR: M1A1
FUSE SETTER: M20, w/CASE, CARRYING, M66
FUSE SETTER: MFF or M14
MOUNT, TELESCOPE: T290
MOUNT, TELESCOPE: T208
PERISCOPE, TANK: M27
PERISCOPE, TANK: XM42
PERISCOPE, TANK: XM45
QUADRANT, FIRE CONTROL: elevation, M15 (T23E3)
QUADRANT, FIRE CONTROL: gunner's, M1A1, w/CASE, CARRYING: M2
REFLECTOR, AIMING POST: clear, M1 and red, M2, w/CASE, CARRYING, M14
TELESCOPE, ELBOW: T176E2
TELESCOPE, PANORAMIC: T177
Basic issue Items: See TM 9-2850-217-10

INSTRUCTIONAL MATERIAL
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<td>Gross weight</td>
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References: TM 9-550-217-19
CANNON, 175 MILLIMETER GUN: M113 (T256E3); MOUNT, GUN-HOWITZER: M158; RAMMER AND LOADER ASSEMBLY, ORD NO. 10898300; MECHANISM, FIRING, CANNON: M36

Illustration will be added at a later date

General

CANNON, 175 MILLIMETER GUN: MU3 (T256E3) with MOUNT, GUN-HOWITZER: M168, RAMMER AND LOADER ASSEMBLY, ORD No. 10898300, and MECHANISM, FIRING, CANNON: M36, provides the armament for GUN, FIELD ARTILLERY, SELF-PROPELLED: 175-mm, M107 (T235E1).

The cannon M113 consists of a tube assembly screwed into an internal thread in a breech ring and locked in place by a key and a screw. The tube assembly is of monobloc (one-piece) construction. The chamber and bore are chrome-plated. Longitudinal rails secured to three hoops shrunk onto the jacket maintain the alignment of the cannon in the mount. The breech consists of an outer breech ring containing internal threads into which the tube is threaded.

The gun-howitzer mount M158 includes the recoil mechanism of the hydropneumatic variable recoil type, which controls the forces created by firing and checks the movement of the recoiling parts gradually, to avoid displacement of the vehicle, and also returns the recoiling parts into their original position. The major components are the recoil, counterrecoil, and recuperator cylinders, contained in the gun cradle and the replenisher cylinder.

The rammer and loader assembly operates to lift a projectile from the rear or left side of the vehicle, position it for ramming, and ram it into the cannon chamber. Hydraulic power for operation is obtained from the vehicle hydraulic system. Operation can also be accomplished manually by means of handranks.

The firing mechanism is a percussion type and is operated manually by a lanyard.

*For characteristics and data, see item in section 28.

Differences among models

Data plate location

Classifications: Standard A (OTCM 27657)

CHARACTERISTICS

Cannon:

- Weight:
  - Cannon complete: 18,800 lb
  - Barrel assembly: 12,050 lb
  - breech mechanism: 1,750 lb
  - tipping parts: 18,300 lb

- Length:
  - Tube: 416 in.

- Bore:
  - Diameter: 175-mm, Well-smoothed

Rifling:

- Type: Hydropneumatic

Mount:

- Weight: 10,500 lb

Recoil mechanism:

- Type: Hydropneumatic
- Number of recoil cylinders: 1
- Length of recoil: Normal—high elevation-28.95 in.
  - Maximum—low elevation—63 to 72 in.

Equilibrator:

- Type of recoil oil: FSN 8160-355-4448 (OHC)
Oil capacity: 16 gal
Oil reserve:
Replenisher: 2 pt
Recoverer: 2 pt
Elevation (max): 46 deg
Depression: 0 deg
Turret traverse (right or left): 30 deg
Traversing and elevating operation: manual or hydraulic

AMMUNITION
Type: HE
Loading: separate

PERFORMANCE
Muzzle velocity: 3,000 fps
Range (maximum): 32,800 meters
Allowable recoil (variable)
Rate of fire:
Normal: 1 rd per 2 min
Maximum: 1 rd per min
Maximum number of rounds fired consecutively: 1 rd per min
Maximum powder pressure permitted: 60,000 psi
Average accuracy life: 400 rd (EFC)

EQUIPMENT
Sighting and fire control:
Installed on self-propelled gun M167 prior to issue:
MOUNT, TELESCOPE: direct fire, M18
MOUNT, TELESCOPE: panoramic, M187 (T186E3)
Boxed and stowed on self-propelled gun M167 prior to issue:
BINOCULAR: M1A1
FUZE SETTER: M26 and M27
LIGHT, INSTRUMENT: M62
PERISCOPE, TANK: M17

POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: elevation, M16 (T25E2)
QUADRANT, FIRE CONTROL: gunner's, M2A1
REFLECTOR, AIMING POST: clear, M1
REFLECTOR, AIMING POST: red, M2
SCALE, GRAPHICAL FIRING:
SCALE, GRAPHICAL FIRING: site
TELESCOPE, ELBOW: direct fire, M116C
TELESCOPE, PANORAMIC: M16 (T146)

Basic Issue Items: See TM 9-2800-216-10

INSTRUCTIONAL MATERIAL
PROJECTILE, 175 MILLIMETER, DUMMY:
CHARGE, PROPELLING, 175 MILLIMETER, DUMMY:
PRIMER, PERCUSSION INERT:

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 gun cannon
Length: 
Width: 
Height: 
Volume: 
Gross weight: 
Ship tons:

Outside Continental United States

Shipped 1 gun cannon
Length: 
Width: 
Height: 
Volume: 
Gross weight: 
Ship tons:


* For characteristics and data, see item in sections 12, 14, 18, and 27.
SECTION 6
GUNS, OVER 200-MM THROUGH 300-MM
(CLASS 1030)
(Includes howitzer cannon, towed howitzer, and motorized gun.)

CANNON, 8-INCH HOWITZER: M2A1E1; MOUNT, GUN-HOWITZER: M158; RAMMER AND LOADER ASSEMBLY, ORD No. 10898300; MECHANISM, FIRING, CANNON: M35 (See page 6-9)

CANNON, 8-INCH HOWITZER: M47 (T89); MOUNT, GUN: 155-mm and 8-inch howitzer, M86 (T58) 6-2

GUN, HEAVY, MOTORIZED: 280-mm, M65, w/e (CANNON, 280 MILLIMETER GUN: M66 (T181); RECOIL MECHANISM: M32 (T80E3) AND T81 or M32 (T80E3) AND M33 (T81E1); CARRIAGE, 280 MILLIMETER GUN: M30 (T72) 6-4

HOWITZER, HEAVY, TOWED: 8-inch, M115, w/e (CANNON, 8-INCH HOWITZER: M2 OR M2A1; RECOIL MECHANISMS: M4-series; CARRIAGE, 8-INCH HOWITZER: M1) 6-6
CANNON, 8-INCH HOWITZER: M47 (T89); MOUNT, GUN: 155-MM AND 8-INCH HOWITZER, M86 (T58)

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M47</td>
<td>1065-TE5-8502</td>
<td></td>
</tr>
<tr>
<td>M86</td>
<td>1631-TE5-3335</td>
<td></td>
</tr>
</tbody>
</table>

General

The CANNON, 8-INCH HOWITZER: M47 (T89) with MOUNT, GUN: 155-MM and 8-inch howitzer, M86 (T58), provides the major armament for the HOWITZER, SELF-PROPELLED, FULL TRACKED: 8-inch, M55 (T108).

The 8-inch howitzer cannon M47 consists principally of a firing lock, breechblock counterbalance assembly, breech mechanism group, and gun tube and breech ring group. The gun is supported in the mount by means of finish-machined bearing surfaces on the rear half of the tube. The breech mechanism is hinged at the right side of the breech ring body to swing laterally when the breech is opened. A breechblock counterbalance assembly is connected between the top of the breech ring body and the carrier hinge pin, to offset the weight of the breechblock and carrier during breech opening and closing operations. The firing lock is mounted in the breech mechanism.

The 155-mm and 8-inch howitzer gun mount M86 (T58) includes the recoil mechanism, recoil mechanism replenisher assembly, and cradle group. The cradle provides a central bore in which the cannon tube slides during recoil and counterrecoil. The tube is secured against rotation within the cradle by means of the cradle torque key located at the lower front of the cradle.

Differences among models

Data plate location

The combined gun and mount identification plate is located on the upper left recoil cylinder.

Classification: Standard B (OTCM 38941).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Cannon</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>4,777 lb</td>
</tr>
</tbody>
</table>

Weight of tube: 4,777 lb
Length (muzzle to rear face of firing lock hammer): 18 ft, 5 in.
Length of tube: 13 ft, 8% in.
Rifling:
Length: 46
Number of grooves: one turn in 23 calibers
Twist, right-hand: stepped thread, interrupted-screw, horizontal-swivel
Type of breechblock: percussion inertia
Estimated accuracy life of tube: 9,000 yg

Mount:

Weight: 4,800 lb
Type of recoil mechanism: hydroscopic
Number of recoil cylinders: 4
Length of recoil:
Normal: 25 gal
Maximum: 65°
Depression (max): -5°
Operation of firing linkage: manual

AMMUNITION

Type: HE, separate loading
Type of charge: base and increment

PERFORMANCE

Muzzle velocity: 2,950 fps
Range: 10,615 yd
Rate of fire: 6-2

EQUIPMENT

Sighting and fire control:

Installed on self-propelled vehicle M55 prior to issue:
INDICATOR, AZIMUTH, MECHANICAL: T27
MOUNT, TELESCOPE: M99A1C (T179E5)
MOUNT, TELESCOPE: M101 (T58)

* For characteristics and data, see item in sections 14, 15, 21, and 28.
Boxed and stowed on self-propelled vehicle, M66 prior to issue:
FUZE SETTER: M26 or M27
FUZE SETTER: M28 or M14
PERISCOPE: M18
PERISCOPE: M1A1
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: M1A1, W/CASE
QUADRANT, FIRE CONTROL: M1, W/CASE
TELESCOPE: M99C (TI69El)
TELESCOPE, PANORAMIC: M100 (TI49El)
TRIPOD, SURVEYING: FSN 6676-240-1881 (issued by Corps of Engineers).

Basic Issue Items: See TM 9-2850-210-12.

INSTRUCTIONAL MATERIAL

CHARGE PROPELLING, 8-INCH DUMMY: M4
PROJECTILE, 8-INCH DUMMY: M14

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

GUN, HEAVY, MOTORIZED: 280-MM, M65, W/E (CANNON, 280-MILLIMETER GUN: M66 (T131); RECOIL MECHANISM: M32 (T80E3) and T81 OR M32 (T80E3) AND M33 (T81E1); CARRIAGE, 280-MILLIMETER GUN: M30 (T72))

The GUN, HEAVY, MOTORIZED: 280-mm, M65 w/e, consisting of a CANNON, 280-MILLIMETER GUN, M66; RECOIL MECHANISM: M32 (T80E3) and T81 or M32 (T80E3) and M33 (T81E1) with CARRIAGE, GUN, 280-MILLIMETER: M30, is a mobile, long range, heavy artillery weapon intended for attack on enemy communication centers or field fortifications, especially of masonry or concrete, for counterbattery fire on enemy long range artillery, and for possible use in coast defense operations. It is operated as a fixed mount but is strategically mobile when the gun tube is retracted and the carriage is loaded on the completely detachable units of the heavy artillery transporter T10.

The cannon consists of the tube, jacket, breech ring, and breech bushing as an integral unit, and a detachable breechblock and breech operating mechanism. It is built-up type with the jacket shrunk onto the tube and the breech ring shrunk onto the breech end of the jacket. An extended portion of the jacket forward of the breech ring is of uniform diameter and smoothly finished to provide a bearing surface in the cradle during the recoil and retraction of the tube to the traveling position. Retraction is further facilitated, and the tube supported, by wheels attached to the breech ring which run on rails on the top carriage. Gas erosion of the breechblock is prevented by a DeBange type obturator. Ammunition is separate-loaded.

The gun carriage proper is comprised of three elements: the top carriage, firing base, and float. The top carriage is a rigid, rectangular structure supporting the gun and its various operating mechanisms. The firing base and float are constructed to mount the bottom carriage upon which the weapon recoils and traverses, and through which it has engagement contact with the ground. Traversing is accomplished manually through an arc of 10° upon the ball pintle of the firing base and the float. However, the float may be lifted from the ground to traverse the weapon 360° upon the firing base.

The recoil mechanism is of the double recoil type in which the gun tube and top carriage are separately recoiling masses, and which utilizes the weight of the top carriage to absorb recoil force. The primary recoil mechanism is a hydropneumatic type consisting of two recoil cylinders and a recuperator cylinder assembled with a manifold. It is one of the tipping parts and is attached to the cradle below and parallel to the gun tube. The secondary recoil mechanism is a hydropneumatic type consisting of a recoil cylinder and recuperator cylinder attached to the firing boiters and connected to the elevating pinion shaft housing integral with the top carriage.

Differences among models

Data plate location:

The model and serial numbers of the cannon (formerly gun) are stamped on the upper top surface of the breech ring. The carriage nameplate is attached to the right frame member toward the rear. The primary recoil mechanism nameplate is attached to the lower right side of the recoil mechanism manifold. The secondary recoil mechanism nameplate is attached to the upper face of the recoil mechanism manifold.

Classification: Standard B (OTCM 2111).

CHARACTERISTICS

Cannon:

- Weight: 42,060 lb
- Length (without muzzle brake): 42.8 ft
- Length of tube: 41.9 ft
- Rilling:
  - Number of grooves: 72
  - Twist, right-hand: 1 turn in 20 calibers
- Type of breechblock: Interrupted step-thread
- Type of firing mechanism: Electrical contact-percussion hammer
- Estimated accuracy 3½ of tube

Canon Carriage Recoil mechanism

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M66</td>
<td>M30</td>
<td>1010-322-9782</td>
</tr>
<tr>
<td>M65</td>
<td>M30</td>
<td>1010-034-8027</td>
</tr>
</tbody>
</table>

GENERAL

The GUN, HEAVY, MOTORIZED: 280-mm, M65 w/e, consists of a CANNON, 280-MILLIMETER GUN, M66; RECOIL MECHANISM: M32 (T80E3) and T81 or M32 (T80E3) and M33 (T81E1) with CARRIAGE, GUN, 280-MILLIMETER: M30, is a mobile, long range, heavy artillery weapon intended for attack on enemy communication centers or field fortifications, especially of masonry or concrete, for counterbattery fire on enemy long range artillery, and for possible use in coast defense operations. It is operated as a fixed mount but is strategically mobile when the gun tube is retracted and the carriage is loaded on the completely detachable units of the heavy artillery transporter T10.

The cannon consists of the tube, jacket, breech ring, and breech bushing as an integral unit, and a detachable breechblock and breech operating mechanism. It is built-up type with the jacket shrunk onto the tube and the breech ring shrunk onto the breech end of the jacket. An extended portion of the jacket forward of the breech ring is of uniform diameter and smoothly finished to provide a bearing surface in the cradle during the recoil and retraction of the tube to the traveling position. Retraction is further facilitated, and the tube supported, by wheels attached to the breech ring which run on rails on the top carriage. Gas erosion of the breechblock is prevented by a DeBange type obturator. Ammunition is separate-loaded.

The gun carriage proper is comprised of three elements: the top carriage, firing base, and float. The top carriage is a rigid, rectangular structure supporting the gun and its various operating mechanisms. The firing base and float are constructed to mount the bottom carriage upon which the weapon recoils and traverses, and through which it has engagement contact with the ground. Traversing is accomplished manually through an arc of 10° upon the ball pintle of the firing base and the float. However, the float may be lifted from the ground to traverse the weapon 360° upon the firing base.

The recoil mechanism is of the double recoil type in which the gun tube and top carriage are separately recoiling masses, and which utilizes the weight of the top carriage to absorb recoil force. The primary recoil mechanism is a hydropneumatic type consisting of two recoil cylinders and a recuperator cylinder assembled with a manifold. It is one of the tipping parts and is attached to the cradle below and parallel to the gun tube. The secondary recoil mechanism is a hydropneumatic type consisting of a recoil cylinder and recuperator cylinder attached to the firing boiters and connected to the elevating pinion shaft housing integral with the top carriage.

Differences among models

Data plate location:

The model and serial numbers of the cannon (formerly gun) are stamped on the upper top surface of the breech ring. The carriage nameplate is attached to the right frame member toward the rear. The primary recoil mechanism nameplate is attached to the lower right side of the recoil mechanism manifold. The secondary recoil mechanism nameplate is attached to the upper face of the recoil mechanism manifold.

Classification: Standard B (OTCM 2111).

CHARACTERISTICS

Cannon:

- Weight: 42,060 lb
- Length (without muzzle brake): 42.8 ft
- Length of tube: 41.9 ft
- Rilling:
  - Number of grooves: 72
  - Twist, right-hand: 1 turn in 20 calibers
- Type of breechblock: Interrupted step-thread
- Type of firing mechanism: Electrical contact-percussion hammer
- Estimated accuracy 3½ of tube

Canon Carriage Recoil mechanism

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</tr>
<tr>
<td>M65</td>
<td>M30</td>
<td>1010-034-8027</td>
</tr>
</tbody>
</table>
Carriage:

Type of recoil mechanism:
- Primary: hydropneumatic
- Secondary: hydropneumatic

Number of recoil cylinders:
- Primary: 2
- Secondary: 1

Length of recoil:
- Primary (max allowable at 55 deg): 3 ft, 6 in.
- Secondary (max allowable at 55 deg): 3 ft, 4 in.

Capacity of recoil mechanism (including recuperator):
- Primary: 49.1 gal
- Secondary: 20.8 gal

Elevation (max):
- Primary: 49.1 gal
- Secondary: 20.8 gal

Depression (max):
- Primary: 55°
- Secondary: 6°

Operation of firing linkage: manual

AMMUNITION

Types: HE and separate loading

NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE

Muzzle velocity (HE, max zone): 2,500 fps
Range (HE): 31,400 yd

EQUIPMENT

Sighting and fire control:
- BINOCULAR: MI7Al
- FUZE SETTER: M28
- MOUNT, TELESCOPE: M30
- POST, AIMING: MIA1 (elevation)
- QUADRANT, FIRE CONTROL: gunner's MIA1, w/case
- TABLE, FIRING: FT 280-A-1 (Confidential)
- TABLE, FIRING: FT 280-B-1 (Change No. 1 is Confidential, only.)

*For characteristics and data, see item in sections 14, 18, 27, and 28.

TELESCOPE, PANORAMIC: M12A1

TRIPOD, SURVEYING: FSN 6675-240-1481 (To be issued with POST, AIMING, M1 series only when issued for Arctic use.)

INSTRUCTIONAL MATERIAL

ASSEMBLY, BASE CHARGE: (For 280-mm dummy propelling charge T76).
ASSEMBLY, INCREMENT CHARGE: (For 280-mm dummy propelling charge T76).
EXTRACTOR, DUMMY PROJECTILE, HAND: 280-mm PROJECTILE, 280 MILLIMETER: dummy, T299E2
SPARE PARTS SET, 280 MILLIMETER DUMMY PROJECTILE: T299E2.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
- Length
- Width
- Height
- Gross weight
- Ship tons

Outside Continental United States

Shipped
- Length
- Width
- Height
- Gross weight
- Ship tons

PRIME MOVER

Transporter, heavy artillery, T10 consisting of:
- Front chassis, truck tractor, M249
- Rear chassis, truck tractor, N260

References: TM 9-338-11, TM 9-3019, TM 9-1020-201-22P.
HOWITZER, HEAVY, TOWED: 8-INCH, M115, W/E (CANNON, 8-INCH HOWITZER: M2 OR M2A1; RECOIL MECHANISMS: M4-SERIES; CARRIAGE, 8-INCH HOWITZER: M1)

The HOWITZER, HEAVY, TOWED: 8-inch, M115, w/e, consisting of a CANNON, 8-INCH HOWITZER: M2 or M2A1; RECOIL MECHANISMS: M4-SERIES; CARRIAGE, 8-INCH HOWITZER: M1, is a towed, heavy field artillery weapon which provides heavy, long range fire against heavy fortifications, lines of communications, gun emplacements, and bridges. Ammunition for the weapon is of the separate-loading type.

The cannon consists of a tube, breech ring, and breech mechanism. The tube is screwed into an internal thread in the breech ring and locked in place by three screws. The breech mechanism, attached to the breech ring, consists of the breechblock carrier assembly, breechblock assembly, counterbalance assembly, obturator group, and operating lever assembly. Boring surface for support and alignment on the mount is provided by smoothly finished longitudinal rails. The breech ring carries lugs on the side for support of the breechblock carrier and on the bottom for attachment of the recoil mechanism.

The carriage consists of equilibrator assemblies, elevating and traversing mechanisms, two single-wheel, single-axle heavy limber M6, four dual-wheel, two-axle bogie, and two trails. Four spades, carried on the trails, are used to emplace the weapon.

The recoil mechanism is a variable hydro pneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or carriage. It is installed in the cradle of the carriage.

Differences among models

The cannon M2A1 is ballistically and physically interchangeable with the cannon M2. Both the M2 and M2A1 are capable of being mounted on the carriage M1 and recoil mechanisms, M4, M4A1, M4A2 or M4A3. The M2A1 has approximately the same weight and center of gravity as the M2 but is designed with superior strength steels. The breech ring and mating tube threads on the M2A1 material conform to present cannon thread standards; this prevents the M2A1 breech rings and tubes from being interchangeable with corresponding components of the M2. All other components of the cannon are basically interchangeable.

The recoil mechanism M4A1, basically the M4 with a new type floating piston ORD No. 7115716 incorporated in the mechanism to reduce leakage of nitrogen. The recoil mechanism M4A2 is the M4A1 which has been modified by inserting spacers in the present floating pistons to keep the two halves separated the required distance. The mechanism M4A3 is the new manufacture of the M4A1 with a one-piece floating piston.

Data plate location

The cannon identification plate is located on the breech end; the carriage identification plate above the elevating wheel; the limber identification plate on the limber lift bracket; and the recoil mechanism on the right side, breech end of the cradle.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Cannon and mount:

Overall:
Length...........................................430 in.
Width.............................................112 in.
Height............................................108 in.

Cannon:
Weight (complete w/breech mechanism)...........19,240 lb
Weight of tube....................................9,926 lb
Length............................................17 ft, 8½ in.
Length of tube (muzzle to rear face of breech ring)..........................12 ft, 16½ in.

Firing:
Length............................................18 ft, 8½ in.
Number of grooves..............................84
Twist, right hand................................one turn in 26 calibers

Type of breechblock.........................Interrupted screw stepped thread
Type of firing mechanism.......................percussion hammer
Estimated accuracy life of tube..................5,600 rd

Carriages:
Elevation (max)..................................55°
Depression (max)................................-2°
Traverses...........................................30° R or L
Tire size and type................................11:20 x 20, standard

Tire pressure:
Carriage.........................................45 lb
Limber............................................45 lb

6-6
Recoil mechanism:
Type of recoil mechanism: hydro pneumatic (variable)
Number of recoil cylinders: 3
Length of recoil:
Normal recoil at 376 mils elevation (normal charge): 4 ft. 8 in.
Recoil at 800 to 426 mils elevation (supercharge): 6 ft. 7 in.
Capacity of recoil mechanism: 16 1/2 gal

AMMUNITION

Types: separate-loading HE
Type of charge: base and increment
Weights:
Projectile: 200 lb
Powder charge:
Green bag (6 zones): 13.38 lb
White bag (7 zones): 28.76 lb
Flash reducer M3 is used with propelling charge M2 to reduce muzzle flash when firing at night.

NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE
Muzzle velocity (average velocity with a new howitzer): 1.960 fps
Range (max): 18,610 yd
Rate of fire:
Normal: 1 round per 2 min
Maximum: 1 round per min

EQUIPMENT

Sighting and fire control:
On-carriage equipment:
FUZE SETTER: M26
FUZE SETTER: M28
MOUNT, QUADRANT: M1
MOUNT, TELESCOPE, M18A1
MOUNT, TELESCOPE, M71
QUADRANT, FIRE CONTROL, gunner's M1A1, w/case
TELESCOPE, ELBOW: M16A1G
TELESCOPE, PANORAMIC: M12A7C

Off-carriage equipment:
POST, AIMING: M1A2
TABLE, FIRING: FT 3-J-1
THERMOMETER, SELF-INDICATING, BIMETALLIC, M1, W/CASE complete.
WATCH, WRIST: (all services)

Basic Issue Items: See ORD 7 SNL D-29.

INSTRUCTIONAL MATERIAL
Subcaliber equipment:
CANNON, 37-MILLIMETER GUN: M1916 on MOUNT, GUN; subcaliber, 37-mm, M10, w/recoil mechanism; 37-mm gun M1916, w/e.
PROJECTILE, 8-INCH HOWITZER, DUMMY: M14
PROJECTILE, 8-INCH GUN OR HOWITZER, DUMMY: M1A1

STORAGE AND SHIPMENT DATA
Within Continental United States
Cannon w/carriage M1 and limber M5 (KD) in two packages:
Pkg. No. 1/2—Cannon:
Shipped: 1 cannon per crate (fully sheathed, skid-type, crate, breech and only).

* For characteristics and data, see item in sections 14, 18, 26, and 29.

Heavv carriage limber M5 (KD):
Shipped: 1 heavy carriage limber M5 (KD) per crate (fully sheathed, skid-type).
Length: 8 ft. 11 1/2 in.
Width: 4 ft. 6 in.
Height: 3 ft. 1 1/4 in.
Volume: 116.6 cu ft
Gross weight: 39,430 lb
Ship tons: 39.92

Note: Cannon, carriage and limber also shipped uncrated in traveling position.

Outside Continental United States
Cannon w/carriage M1 and limber M5 (KD) in two packages:
Pkg. No. 1/2—Cannon:
Shipped: 1 cannon per crate (fully sheathed, skid-type)

Length (overall): 18 ft. 5 in.
Width: 2 ft. 7 1/4 in.
Height: 3 ft. 5 3/4 in.
Volume: 161 cu ft
Gross weight: 11,240 lb
Ship tons: 3.93

Pkg. No. 2/2—Carriage M1 w/limber M5 and equipment:
Shipped: 1 carriage M1 w/limber M5 and equipment per crate (fully sheathed, skid-type).
Length: 16 ft. 9 1/2 in.
Width: 4 ft. 6 in.
Height: 3 ft. 1 1/4 in.
Volume: 116.6 cu ft
Gross weight: 29,430 lb
Ship tons: 29.92

Prime Mover:
18-ton, high-speed tractor M4 or 7 1/2-ton 8 x 8, truck, M5

TIME TO EMPLACE
1/2 to 6 hr.

CANNON, 8-INCH HOWITZER: M2A1E1; MOUNT, GUN-HOWITZER: M158; RAMMER AND LOADER ASSEMBLY ORD NO. 108923000; MECHANISM, FIRING, CANNON: M35

Illustration will be added at a later date.

General

CANNON, 8-INCH HOWITZER: M2A1E1 with MOUNT, GUN-HOWITZER: M158, RAMMER AND LOADER ASSEMBLY ORD NO. 108923000 AND MECHANISM, FIRING, CANNON: M35, provides the major armament for the HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, MHO (T236El).

The 8-inch howitzer cannon M2A1E1 consists of a barrel assembly screwed into an internal thread in a breech ring and locked in place by three screws. The barrel assembly is of monobloc (one-piece) construction. The chamber and bore are chrome-plated. Bearings for support and alignment in the mount are provided by longitudinal rails attached to three hoops shrunk on the jacket. The rear half of the breech ring is lined with a breech ring bushing to accommodate the interrupted screw-type breechblock and a bottom lug for connection to the recoil mechanism.

The gun-howitzer mount M158 includes the recoil mechanism of the hydropneumatic variable recoil type, which controls the forces created by firing and checks the movement of the recoiling parts gradually, to avoid displacement of the vehicle, and also returns the recoiling parts into their original position. The major components are the recoil, counterrecoil, and recuperator cylinders, contained in the gun cradle, and the replenisher cylinder.

The rammer and loader assembly operate to lift a projectile from the rear or left side of the vehicle, position it for ramming, and ram it into the cannon chamber. Hydraulic power for operation is obtained from the vehicle hydraulic system. Operation can also be accomplished manually by means of handcranks.

The firing mechanism is a percussion type and is operated manually by a lanyard.

Data plate location

For characteristics and data, see item in section 23.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Mount</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2A1E1</td>
<td>M158</td>
<td>M35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
<th>10,240 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrel assembly</td>
<td>6,450 lb</td>
</tr>
<tr>
<td>Breech mechanism</td>
<td>1,730 lb</td>
</tr>
<tr>
<td>Tipping parts</td>
<td>14,740 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Length</th>
<th>24 ft, 16.8 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannon</td>
<td>17 ft, 9 in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rifling</th>
<th>Number of grooves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>364.8 in.</td>
</tr>
<tr>
<td>Number of grooves</td>
<td>44</td>
</tr>
</tbody>
</table>

| Bore | 28 |
| Diameter | 8 in. |

<table>
<thead>
<tr>
<th>Breechblock</th>
<th>Number of recoil cylinders</th>
<th>Length of recoil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interrupted screw, staggered thread</td>
<td>3</td>
<td>high elevation—28 to 30 in.</td>
</tr>
<tr>
<td>Low elevation—28 to 30 in.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Firing mechanism</th>
<th>Type of recoil oil FSN 9150-255-4443 (OHC)</th>
<th>Oil capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percussion</td>
<td>15 gal</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mount</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,500 lb</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recoil mechanism</th>
<th>Weight (approx)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of recoil cylinders</td>
<td>3,925 lb</td>
</tr>
<tr>
<td>Length of recoil</td>
<td>Hydropneumatic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operation</th>
<th>Manual or hydraulic</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mount</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,500 lb</td>
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<table>
<thead>
<tr>
<th>Type of recoil oil FSN 9150-255-4443 (OHC)</th>
<th>Oil reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic</td>
<td>11 gal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depression</th>
<th>Elevation (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 deg</td>
<td>30 deg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE, dummy</td>
<td>Separate</td>
</tr>
</tbody>
</table>

AMMUNITION

<table>
<thead>
<tr>
<th>Type</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE, dummy</td>
<td>Separate</td>
</tr>
</tbody>
</table>

Difference among models

Data plate location

Classification:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M158</td>
<td>1025-013-5413</td>
<td>1025-014-5163</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cannon:</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2A1E1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
<th>10,240 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrel assembly</td>
<td>6,450 lb</td>
</tr>
<tr>
<td>Breech mechanism</td>
<td>1,730 lb</td>
</tr>
<tr>
<td>Tipping parts</td>
<td>14,740 lb</td>
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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>HE, dummy</td>
<td>Separate</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 23.
PERFORMANCE

Muzzle velocity: 1,500 fps
Range (maximum): 16,500 meters
Allowable recoil (variable): 76 in.
Rate of fire:
   Normal: 1 rd per 2 min
   Maximum: 1 rd per 1 min
Maximum number of rounds fired consecutively:
   at max rate

Maximun powder pressure permitted:
   A; average accuracy life

EQUIPMENT

Sighting and fire control:
   Installed on self-propelled howitzer M110 prior to issue:
      MOUNT, TELESCOPE: direct fire, M138
      MOUNT, TELESCOPE: panoramic, M137 (T186E3)
   Boxed and stowed on self-propelled howitzer M110 prior to issue:
      BINOCULAR: M17A1
      FUSE SETTER: M26 and M27
      LIGHT, INSTRUMENT: M19
      PERISCOPE, TANK: M17
      POST, AIMING: M1A2
      QUADRANT, FIRE CONTROL: elevation, M15 (T23E3)
      QUADRANT, FIRE CONTROL: gunner’s, M1A1
      REFLECTOR, AIMING POST: clear, M1
      REFLECTOR, AIMING POST: red, M2
      SCALE, GRAPHICAL FIRING: M71
      SCALE, GRAPHICAL FIRING: site, M72
      TELESCOPE, ELBOW: direct fire, M116C
      TELESCOPE, PANORAMIC: M115 (T146)

Basic issue items: See TM 9-2300-216-10

* For characteristics and data, see item in sections 12, 14, 18, and 27.

INSTRUCTIONAL MATERIAL

PROJECTILE, 8-INCH, DUMMY: M14
PROJECTILE, 8-INCH, DUMMY: MK1
CHARGE, PROPELLING, 8-INCH, DUMMY: M4
PRIMER, PERCUSSION INERT: MK1A4

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 howitzer cannon

Length
Width
Height
Volume
Area
Gross weight
Ship tons

Outside Continental United States

Shipped 1 howitzer cannon

Length
Width
Height
Volume
Area
Gross weight
Ship tons

Reference: TM 9-2300-216-10
SECTION 7
LAUNCHERS, ROCKET AND PYROTECHNIC
(CLASS 1055)

CART ASSEMBLY, TRANSPORT, 762 MILLIMETER ROCKET: M465 (For characteristics and data, see item in section 19, page 19-222)

CART, ROCKET TRANSPORT, 318 MILLIMETER: M14 (For characteristics and data, see item in section 19, page 19-232)

HANDLING UNIT, ROCKET, TRAILER MOUNTED: 762-mm, M405 and M405A1 (For characteristics and data, see item in section 19, page 19-223)

HANDLING UNIT, ROCKET, TRUCK MOUNTED: 318-mm, M572 (For characteristics and data, see item in section 19, page 19-333)

HEATING AND TIE DOWN UNIT, 762 MILLIMETER ROCKET, TRUCK MOUNTED: M78 and M78A1 (For characteristics and data, see item in section 19, page 19-226)

LAUNCHER, ROCKET: 3.5-inch, M20, M20B1, M20A1, M20A1B1, w/e ........................................ 7-2

LAUNCHER, ROCKET: multiple, 115-mm, M91 (T145) w/e ..................................................... 7-4

LAUNCHER, ROCKET: 318-mm, M34, w/e .......................................................... 7-5

LAUNCHER, ROCKET: 762-mm, M33, w/e .......................................................... 7-6

LAUNCHER, ROCKET: 762-mm, truck-mounted, M239, w/e ............................................. 7-7

LAUNCHER, ROCKET: 762-mm, truck-mounted, M336, w/e ............................................. 7-9
LAUNCHER, ROCKET: 3.5-INCH, M20, M20A1, M20A1B1, W/E

General
LAUNCHER, ROCKET: 3.5-inch, M20, M20A1, M20A1B1, or M20Bl, w/e, is a two-piece, smooth-bore, breech-loading, shoulder weapon of the open-tube type. They are used to launch 3.5-inch rockets and high explosive rockets against ground targets and can be fired from the standing, kneeling, sitting, or prone positions. The rockets are fired electrically by a magneto-type firing mechanism in the trigger grip. These weapons have very little recoil since the propulsion of the rocket is accomplished by the jet action of the propellant powder in the stabilizer tube of the rocket and does not depend upon gas pressure built up inside the launcher tube. Each launcher is issued with an optical type reflecting sight having a bellows-type rubber eyepiece. When firing the launcher, it is essential that no personnel or flammable material be directly behind the launcher, within a distance of 25 yards, to prevent being burned by the propellant. The danger zone is a triangular area with a base and a height of 25 yards. When firing from the prone position, the operator's body should be at an angle of at least 45° from the direction of fire so as to avoid being burned by the propellant. On launchers of early manufacture, a bipod and monopod were provided to permit firing from the prone position. However, launchers of present manufacture do not include these components. On some of the launchers of early manufacture, the monopod was modified by the removal of its extending leg (see launcher M20A1 illustrated).

Differences among models
The barrels of the M20 and M20A1 are manufactured from aluminum tube stock and the component parts fastened to the barrel by means of screws. The barrels of the M20A1B1 and M20Bl are aluminum castings and many of the component parts of the barrel are cast integral with the barrel effecting a slight saving in overall weight. With the addition of a new contactor latch, the launcher M20 becomes the launcher M20A1 and by the same addition the launcher M20Bl becomes the launcher M20A1B1. In addition, there are minor differences which are apparent when the illustrations are compared.

Data plate location
The model and serial numbers are stamped at the rear end of the rear barrel of the launcher M20 and are cast on top of the rear barrel of launcher M20Bl.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight of launcher (approx):</th>
<th>HEAT (M35)</th>
<th>HEAT (M28A2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20 or M20A1 (w/o bipod and monopod)</td>
<td>18 lb</td>
<td>12 lb</td>
</tr>
<tr>
<td>M20Bl or M20A1E1 (w/o bipod and monopod)</td>
<td>13 lb</td>
<td>12 lb</td>
</tr>
</tbody>
</table>

Length overall:
Assembled for firing | 6·ft, 4 in. |
Assembled for carrying (approx) | 2 ft, 6 in.

Type of firing mechanism: electrical

AMMUNITION

Types
HEAT, WP, and practice

PERFORMANCE

Muzzle velocity:
HEAT (M35): 485 fps
HEAT (M28A2): 317 fps

Range:
HEAT (M35): 1,300 yd
HEAT (M28A2): 945 yd

Rate of fire
...

EQUIPMENT

Sighting and fire control:
The following, which are part of the launcher, are used for sighting:
- SIGHT: reflecting, assy (ORD No. 7162947) (M20A1 or M20A1B1).
- SIGHT: reflecting, assy (ORD No. 7141799) (M20 or M20Bl).

Basic Issue Items: See ORD 7 SNL II-42.

INSTRUCTIONAL MATERIAL

GRAPHIC TRAINING AID AND DEVICES: See DA Pam 310-8.

* For characteristics and data, see item in section 14.
### STORAGE AND SHIPMENT DATA

*Within and Outside Continental United States*

Shipped 4 launchers per unit box (VCI pack).

<table>
<thead>
<tr>
<th></th>
<th>Volume</th>
<th>Gross Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20 or M20B1</td>
<td>11.0 cu ft</td>
<td>135 lb</td>
</tr>
<tr>
<td>M20A1 or M20A1B1</td>
<td>11.3 cu ft</td>
<td>139 lb</td>
</tr>
</tbody>
</table>

**References:** TM 9-2002, TM 9-2205, TM 9-1055-201-12P, FM 23-32
LAUNCHER, ROCKET: MULTIPLE, 115-MM, M91 (T145), W/E

**General**

LAUNCHER, ROCKET: multiple, 115-MM, M91, is a 45-tube cluster type launcher designed to launch the 115-MM chemical rocket, M44. The rockets are packaged, shipped, stored and fired from the shipping and firing containers which are mates loaded into the launcher cluster openings and are fired electrically in a nonadjustable, preset sequence, that will allow only one rocket to be fired at a time. The launcher is primarily used for area coverage where dispersion of chemical agent is desirable. The primary source of firing voltage is supplied from a fully charged 24 volt, truck mounted battery. The emergency, or secondary, electrical power is supplied from a thermal cell battery located in the remote firing box assembly. The launcher may be transported by helicopter and fired from the ground, or transported by and fired from a 2½ ton, M85 cargo truck. The M91 can be manhandled on its wheels for short distances but is not designed to be towed.

**AMMUNITION**

<table>
<thead>
<tr>
<th>Type (rocket—M15 (T238))</th>
<th>Chem</th>
</tr>
</thead>
<tbody>
<tr>
<td>(rocket—M44)</td>
<td>Dummy</td>
</tr>
<tr>
<td>(rocket—M41)</td>
<td>Training</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

Range (max) ................................................. 14,000 yd

**EQUIPMENT**

Sighting and fire control:

HOLDER, TELESCOPE MOUNT: XM7.
POST, AIMING: M1A1.
QUADRANT, FIRE-CONTROL: M1A1, w/cam, carrying M42.
SIGHTUNIT, FIRE-CONTROL: M1A1A1 (early production launchers).
SIGHTUNIT: M3 (XM38E2) (later production launchers).
TABLE, FIRING, ROCKET: STR-116-C-1.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 launcher disassembled, w/e per wood shipping container,

<table>
<thead>
<tr>
<th>Length</th>
<th>9 ft, 1 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>7 ft, 3½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>4 ft, 7½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>363 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>2652 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>7.62</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped 1 launcher disassembled, w/e per wood shipping container,

<table>
<thead>
<tr>
<th>Length</th>
<th>9 ft, 1 in.</th>
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<tbody>
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</tbody>
</table>

**References:**


Claustration: Standard A (for USMC use) (OTCM 37455).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight: Launchee w/rooks</th>
<th>4,215 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launchee w/o rockets</td>
<td>1,200 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Length</th>
<th>12 ft, 8 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>5 ft, 7 in.</td>
</tr>
<tr>
<td>Width</td>
<td>9 ft, 9 in.</td>
</tr>
</tbody>
</table>

Turning radius (hand) 300 deg

Turning radius (hand) 960 deg

Turning radius (hand) 72 in.

Tire pressure 25 psi

Elevation:

Maximum 1,086.56 mils

Minimum 14.72 mils

Transverse, R or L 177.77 mils

*For characteristics and data, see Item in sections 14 and 18.
LAUNCHER, ROCKET: 318-MM, XM34, W/E

General

LAUNCHER, ROCKET: 318-mm, XM34, w/e, is a mobile, field artillery-type launcher which provides a base for launching large caliber, free-flight, fin-stabilized, surface-to-surface rockets. It is a helicopter-transportable launcher, designed to be airlifted in phase 1 (parachute and assault landing) airborne operations, towed by standard military vehicles with full ground mobility, or moved by hand for short distances. The launcher is composed principally of a launching beam rail assembly, top carriage assembly, elevating mechanism assembly, and bottom carriage assembly. Jack assemblies enable emplacement on a 6° slope and final cant correction of the launching beam. Traverse of the launching beam to the right or left is provided by means of a pinion and rack-type traverse mechanism. The launching beam is elevated by a double extension ball screw mechanism and traversed by a rack and pinion drive system. The beam is cross-leveled by the two jack assemblies which connect the front floats to the bottom carriage.

Differences among models

Data plate location:

The identification plate for the launcher XM34 is located below the transition on the rear-left side of the launcher.

Classification: Limited production (OTCM 37744).

CHARACTERISTICS

Weight:

- Launcher, w/rocket, w/tool kit ........................................... 2,288 lb
- Launcher, w/o rocket, w/o tool kit ................................... 1,817 lb

Length

- Launcher, w/rocket (to top of fins) .................................. 18 ft, 1 in
- Launcher, w/o rocket ......................................................... 14 ft

Width

- Launcher, w/rocket ......................................................... 6 ft, 2 in
- Launcher, w/o rocket ......................................................... 4 ft, 1½ in

Road clearance ................................................................. 11 in

Turning radius:

- W/M-3m ................................................................................. 21 ft, 2 in
- W/H-100 ............................................................................... 17 ft, 4 in

Fording depth, w/o fendering kit ........................................ 49 in

The present ................................................................. 25 psi

Elevation:

- Maximum (on level ground) ................................................. 35° (677.75 miles)
- Minimum (on level ground) ............................................... 0° (0 miles)

Traverse, R or L ...................................................... 15° (266.67 miles)

AMMUNITION

Type (rocket XM51) .......................................................... flash smoke

NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE

Vehicle:

- Range ................................................................. 39,400 meters

Rate of fire:

EQUIPMENT

Sighting and fire control:

- HOLDER, TELESCOPE MOUNT: XM7
- POST, AIMING: MIA2
- QUADRANT, FIRE CONTROL: MIAl, gunner's, w/CASE
- SIGHTUNIT: M84A2C, w/CASE

Basic Issue Items: See TM 9-1055-212-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

- Length ................................................................. 18 ft, 1 in
- Width ................................................................. 6 ft, 2 in
- Height ................................................................. 4 ft, 1½ in
- Volume ................................................................. 395 cu ft
- Gross weight .......................................................... 1,850 lb
- Ship tons ............................................................... 9.05

Outside Continental United States

- Length ................................................................. 18 ft, 1 in
- Width ................................................................. 5 ft, 2 in
- Height ................................................................. 4 ft, 1½ in
- Volume ................................................................. 406 cu ft
- Gross weight .......................................................... 2,133 lb
- Ship tons ............................................................... 10


* For characteristics and data, see item in sections 14 and 18.
LAUNCHER, ROCKET: 762-MM, M33, W/E

General
LAUNCHER, ROCKET: 762-mm, M33, w/e, is a helicopter-transportable field artillery weapon which provides a base for launching surface-to-surface, large caliber, free-flight, fin-stabilized rockets against terrestrial targets. It consists principally of a launching beam assembly, top carriage assembly, bottom carriage assembly, and elevating and traversing mechanisms. Elevation is accomplished by screw-type mechanisms which can be operated manually or electrically with an elevating tool assembly. Traverse is accomplished by a rack and sprocket shaft which is manually operated. Cross-leveling and stabilizing are accomplished manually by four screw-type leveling jack assemblies. The launcher is primarily a helicopter-transportable weapon; however, it may be air-dropped from a cargo plane, carried in assault aircraft, towed by a motor vehicle, or towed manually for short distances.

Differences among models
Data plate location
The identification plate for the launcher M33 is located on the left rear side of the top carriage assembly.
Classification: Standard A (OTCM 87711 and 87713).

CHARACTERISTICS

Weight:
Launcher w/rocket .................................. 10,588 lb
Launcher w/o rocket .................................. 4,774 lb
Length:
Launcher w/rocket .................................. 36 ft, 10 in.
Launcher w/o rocket .................................. 28 ft, 10 in.
Height:
Launcher w/rocket .................................. 10 ft
Launcher w/o rocket .................................. 7 ft, 10 in.
Width .................................................. 9 ft, 11 in.
Tire pressure ........................................... 55 psi

Elevation:
Maximum .............................................. 62° (1,100 mils)
Minimum ............................................... -1° (16 mils)
Traverse, R or L ...................................... 10° (177.78 mils)

AMMUNITION
Type (Rocket—M2-series and XM2) .......................... HE and practice
NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE
Velocity .................................................. (classified)
Range ..................................................... (classified)
Rate of fire ............................................. (classified)

EQUIPMENT
Sighting and fire control:
POST, AIMING: M1A1
QUADRANT, FIRE CONTROL: MIA1 w/CASE
SIGHT UNIT: XM43 (modified)
TABLE, FIRING: FTR 762-C-1, FTR 762-D-1.

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped
Length .................................................. (classified)
Total Height ......................................... (classified)
Volume ................................................. (classified)
Gross weight .......................................... (classified)
Ship tons .............................................. (classified)

Outside Continental United States

Shipped
Length .................................................. (classified)
Total Height ......................................... (classified)
Volume ................................................. (classified)
Gross weight .......................................... (classified)
Ship tons .............................................. (classified)


* For characteristics and data, see item in section 10.
LAUNCHER, ROCKET: 762-MM, TRUCK-MOUNTED, M289, W/E

General

LAUNCHER, ROCKET: 762-mm, truck-mounted, M289, w/e, is a mobile, heavy field artillery type launcher which provides a base for launching surface-to-surface, large caliber, free-flight, fin-stabilized rockets against terrestrial targets. The launcher M289 is composed of the 762-mm rocket launcher (ORD No. 8417300) and the 6-ton, 6 x 6 truck chassis M139D (ORD No. 8416461). The launcher M289 consists of a 6-ton 6 x 6 chassis (M139D) which is equipped with five screw-type leveling jack assemblies, a launching beam assembly, elevating mechanism group, equilibrator assemblies, traversing mechanism group, and the electrical system. The jack assemblies are used to level the launcher on any lengthwise slope of 10° or less. The launcher is also cross-leveled 100 percent with the leveling jack assemblies and leveling vials mounted on the launcher. The launcher is equipped for power and manual elevating but provides for manual traversing only.

Differences among models

Data plate location

The 6-ton 6 x 6 truck chassis M139C identification plate is mounted on the instrument panel to the right of the instrument cluster. When the 762-mm rocket launcher ORD No. 8417309 is mounted on the chassis M139C, this chassis is modified and becomes an M139D chassis. The weight and dimensional data on this identification plate is not applicable when the launcher has been mounted on the truck chassis in which case the weight and dimensional data contained in the tabulated data portion of TM 9-1066-202-10 will apply. The gasoline-engine generator set M26 identification plate is mounted on the right side of the top carriage assembly. The rocket launcher M289 identification plate is mounted on the right side of the top carriage assembly.

Classification: Standard 8 (OTCM 37119).

CHARACTERISTICS

Weight:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M289</td>
<td>4-26560-10</td>
<td>1055-034-8099</td>
</tr>
</tbody>
</table>

Length:

- Launcher w/rocket: 46 ft, 1 in.
- Launcher w/o rocket: 42 ft, 4 in.

Height:

- Launcher w/rocket: 12 ft, 7½ in.
- Launcher w/o rocket: 12 ft, 0½ in.

Width:

- Launcher w/rocket: 10 ft
- Launcher w/o rocket: 10 ft

Road clearance:

- 1 ft, 1 in.

Turning radius:

- 30 ft

Fording depth (max):

- w/foraging kit: 6 ft, 6 in.
- w/o foraging kit: 2 ft, 6 in.

Tire pressure:

- Front tires: 60 psi
- Rear tires: 46 psi

Elevation:

- Maximum: 60° (1,066.66 mlns)
- Minimum: 0° (0 mlns)

Traverse, R or L:

- 16° (286.66 mlns)

AMMUNITION

Types (rocket—M41-series and XM140) — HE and practice
NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE

Range (at 45° elevation) (classified)
Rate of fire (classified)

EQUIPMENT

Sighting and fire control:

- MOUNT, QUADRANT: M1
- MOUNT, TELESCOPE: M30
- POST, AIMING: M1A2
- QUADRANT, FIRE CONTROL: M1A1, w/CASE
- TABLE, FIRING: 784-B-5
- TELESCOPE, PANORAMIC: M12A7
- TRIPOD, SURVEYING: FSN 6676-240-1981 (To be issued w/AIMING POST M1 series ONLY when issued for arctic use.) (Issued by Corps of Engineers.)

Basic issue Items: See TM 9-1065-202-10 and Cl.

* For characteristics and data, see item in sections 14, 18, and 28.

7-7
INSTRUCTIONAL MATERIAL

GRAPHIC TRAINING AID: See DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
<td></td>
</tr>
<tr>
<td>Uncrated w/beam</td>
<td>42 ft, 4 in.</td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>30 ft, 3½ in.</td>
</tr>
<tr>
<td>Beam on two skid bases</td>
<td>42 ft, 4 in.</td>
</tr>
<tr>
<td>Width:</td>
<td></td>
</tr>
<tr>
<td>Uncrated (w/ or w/o beam)</td>
<td>10 ft</td>
</tr>
<tr>
<td>Beam on two skid bases</td>
<td>4 ft, 11 in.</td>
</tr>
<tr>
<td>Height:</td>
<td></td>
</tr>
<tr>
<td>Uncrated w/beam</td>
<td>11 ft, 10 in.</td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>8 ft, 10 in.</td>
</tr>
<tr>
<td>Beam on two skid bases</td>
<td>2 ft, 7¾ in.</td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Gross weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncrated w/beam</td>
<td>41,800 lb</td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>30,100 lb</td>
</tr>
<tr>
<td>Beam in crate</td>
<td>9,450 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>22</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
<td></td>
</tr>
<tr>
<td>Uncrated w/beam</td>
<td>42 ft, 4 in.</td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>30 ft, 3½ in.</td>
</tr>
<tr>
<td>Height:</td>
<td></td>
</tr>
<tr>
<td>Uncrated w/beam</td>
<td>12 ft, 6¾ in.</td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>10 ft, 2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Unloaded</td>
<td>5,291.26 cu ft</td>
</tr>
<tr>
<td>Gross weight:</td>
<td></td>
</tr>
<tr>
<td>Uncrated w/beam</td>
<td>42,400 lb</td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>36,700 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>107.28</td>
</tr>
</tbody>
</table>

LAUNCHER, ROCKET: 762-MM, TRUCK-MOUNTED, M386, W/E

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>Launcher w/rocket: 49,163 lb</td>
</tr>
<tr>
<td></td>
<td>Launcher w/o rocket: 54,259 lb</td>
</tr>
<tr>
<td>Length</td>
<td>Launcher w/rocket: 36 ft, 6 in</td>
</tr>
<tr>
<td></td>
<td>Launcher w/o rocket: 32 ft, 12 in</td>
</tr>
<tr>
<td>Height</td>
<td>Launcher w/rocket (max): 12 ft, 6 in</td>
</tr>
<tr>
<td></td>
<td>w/o fins: 2 ft, 9 1/4 in</td>
</tr>
<tr>
<td></td>
<td>w/fin fixed: 3 ft, 8 in</td>
</tr>
<tr>
<td>Road clearance</td>
<td>3 ft, 8 in</td>
</tr>
<tr>
<td>Turning radius</td>
<td>47 ft</td>
</tr>
<tr>
<td>Forging depth (max)</td>
<td>1 ft</td>
</tr>
<tr>
<td>w/foraging kit</td>
<td>3 ft</td>
</tr>
<tr>
<td>w/o foraging kit</td>
<td>2 ft</td>
</tr>
<tr>
<td>Tire pressure</td>
<td>Front tires: 60 lb</td>
</tr>
<tr>
<td></td>
<td>Rear tires: 60 lb</td>
</tr>
</tbody>
</table>

**General**

LAUNCHER, ROCKET: 762-mm, truck-mounted, M386, w/e, is a mobile, heavy field artillery type launcher which provides a base for launching surface-to-surface, large caliber, free-flight, fin-stabilized rockets. It is composed of the 762-mm rocket launcher (ORD No. 8417300) and the 6-ton 6 x 6, M139 (modified) chassis. The launcher M386 consists of the chassis which is equipped with a gasoline generator set M26, launching beam assembly, elevating mechanism assembly, traversing mechanism group, equilibrator assemblies, and the power generation system. Three screw-type jacks are used to provide stability when elevating or firing the launcher. Elevation of the launcher is either done manually or by power. Traversing is accomplished by a rack and pinion which is operated manually.

**Differences among models**

Data plate location:

The identification plate for the rocket launcher M386 is fastened to the top surface near the center of the left side. The gasoline engine-generator set M26 data plate is riveted to the front side of the generator control box.

Classification: Standard A (OTCM 3944).
SECTION 8
ASSEMBLIES INTERCHANGEABLE BETWEEN WEAPONS
IN TWO OR MORE CLASSES
(CLASS 1090)
(Includes tripod mount)

MOUNT, TRIPOD, WEAPON: M74

Page 8-2
MOUNT, TRIPOD, WEAPON: M74

General
MOUNT, TRIPOD, WEAPON: M74, is a lightweight portable folding mount made of aluminum. It is used primarily for ground fire. This mount has as a central member a socket with three projecting lugs. Attached to these lugs are three legs which may be clamped independently in various positions. It is equipped with a spring-type recoil mechanism and a screw-type elevating and traversing mechanism. This mount was designed to replace MOUNT, TRIPOD, MACHINE GUN: caliber .30, M1917A1 for mounting MACHINE GUN, CALIBER .30; Browning, M1917A1, M1918A4, flexible, M1918A4E1, and M1918A6. It also mounts the 57-mm and 76-mm rifles for antitank ground fire.

Differences among models

Data plate location
The identification plate containing the name, model designation, manufacturer, and serial number is located on the left-hand side of the cradle and pintle group.

Classification: Standard B (OTCM 38841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M74, w/e</td>
<td>4-26091-10</td>
<td>1990-317-2424</td>
</tr>
</tbody>
</table>

Sighting and Fire Control

Basic issue items: See ORD 7 SNL A-5.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount per wood box.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 10 in.</td>
<td>1 ft, 9 in.</td>
<td>1 ft, 2 in.</td>
<td>3.9 cu ft</td>
<td>35 lb</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 mount per

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN, 2.75-INCH ROCKET LAUNCHER: XM16 (MACHINEGUN, 7.62-MILLIMETER: M60CA1; MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM (7792569); LAUNCHER, ROCKETS: XM157 OR XM158; MOUNT, ROCKET LAUNCHER, 2.75-INCH, HELICOPTER ARMAMENT SUBSYSTEM (11700100))

General

ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN, 2.75-INCH ROCKET LAUNCHER: XM16 is a dual-weapon subsystem designed for installation on the UH-1B helicopter. The subsystem is composed of four MACHINEGUNS, 7.62-MILLIMETER: M60CA1; one MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM; two LAUNCHER, ROCKETS: airborne, 2.75-inch FFAR, XM157 or XM158; and one MOUNT, ROCKET LAUNCHER, 2.75-inch HELICOPTER ARMAMENT SUBSYSTEM. The machinegun portion of the subsystem (four machineguns and mount) is substantially the same as the M6 armament subsystem. The rocket launcher mount is composed of left-hand and right-hand rack and support assemblies, which carry the rocket launchers; a rocket intervalometer, mounted in the instrument console in the helicopter cabin, one infinity reflex sight XM60 and one sight roof mount, fixed to the helicopter cabin roof above the pilot's windshield. When the subsystem is energized, the rocket launcher portion provides the pilot with the capability of firing seven pairs of rockets in addition to the suppressive fire capability of the machinegun portion of the subsystem. As in the M6 armament subsystem, the co-pilot uses a sighting station to control and direct machinegun fire. When the co-pilot has released the sighting station switches, machinegun mounts return to the slow position of zero azimuth and zero elevation. The machineguns may then be fired from the appropriate switch on either cyclic stick, with the helicopter being maneuvered to aim the guns. When rocket fire is desired, the pilot selects the number of rocket pairs to be fired, sights the target through the infinity reflex sight, and maneuvers the helicopter to aim the rockets. Rockets are fired from a switch on the cyclic stick. Machinegun and rocket firing circuits are interconnected so that while the rocket firing switch is depressed, machinegun firing circuits are interrupted.

Differences among models:

LAUNCHER, ROCKET: airborne, 2.75-inch FFAR, XM157 is a seven-tube nonrepairable launcher with a fixed hook-type firing contact imbedded at the rear of each tube. Launcher XM157 has a smooth cylindrical outer tube cover and is loaded from the front. LAUNCHER, ROCKET, AIRCRAFT: 2.75-inch, XM158 is a seven-tube repairable launcher with a swing-away firing contact secured to the outer surface of each tube. There is no overall tube cover; tubes are painted for protection and are bound together at the suspension lugs by front and rear sets of straps. The launcher is loaded from the rear.

Data plate location:

Data plates are attached to the back of each mount assembly, to the left front side of the rocket launcher XM157, to the front hard point of the rocket launcher XM158, to the sighting station just under the sunshade, to the body of the control box panel, to the sight XM60, and to the sight mount.

Classification

CHARACTERISTICS

Armament subsystem:

Weight (w/machineguns and rocket launchers, w/o ammunition) (approx) 388 lb
Launcher elevation limit: +88.9 mls
Launcher depression limit: -88.9 mls

* Characteristics and data will be added at a later date.
AMMUNITION
7.62-mm capacity 6,000 rds
Types ball, AP, tracer, dummy
2.75-inch rockets capacity 14 rockets
Types HE, practice, inert

PERFORMANCE
Rate of fire (machineguns) 2,200 rds per min
Rate of fire (rockets) six pairs per second

EQUIPMENT
Basic Issue Items: See TM 9-1090-201-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
SECTION 9  
MISCELLANEOUS WEAPONS AND EQUIPMENT  
(CLASS 1095)  
(Includes pyrotechnic pistol, hand pyrotechnic and ground signal projectors, and bayonet and bayonet-knife scabbards.)

<table>
<thead>
<tr>
<th>Item</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PISTOL, PYROTECHNIC: AN-M8, W/MOUNT: pyrotechnic pistol, M1</td>
<td>9-2</td>
</tr>
<tr>
<td>PROJECTOR, PYROTECHNIC, HAND: M9</td>
<td>9-3</td>
</tr>
<tr>
<td>PROJECTOR, SIGNAL, GROUND: M1A1</td>
<td>9-4</td>
</tr>
<tr>
<td>SCABBARD, BAYONET: M1917</td>
<td>9-5</td>
</tr>
<tr>
<td>SCABBARD, BAYONET-KNIFE: M8 and M8A1</td>
<td>9-6</td>
</tr>
<tr>
<td>SIMULATOR, MACHINEGUN FIRE, CAL .30 (ORD No. 8429609) and SIMULATOR, RIFLE FIRE: CAL .30 (ORD No. 8429307)</td>
<td>9-7</td>
</tr>
</tbody>
</table>
PISTOL, PYROTECHNIC: AN-M8, W/MOUNT: PYROTECHNIC PISTOL, M1

Major Items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No</th>
<th>Federal stock No</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN-M8</td>
<td>4-29300-00</td>
<td>1095-726-5820</td>
</tr>
<tr>
<td>AN-M8 with mount M1</td>
<td>4-29310-00</td>
<td>1095-726-5657</td>
</tr>
</tbody>
</table>

General

PISTOL, PYROTECHNIC: AN-M8, is a double-action, single-loading pistol used for projecting flares or signaling between troops, from ground troops to aircraft, from aircraft to aircraft, or from aircraft to ground troops. MOUNT: pyrotechnic pistol M1, is used only when signaling from aircraft and is attached to the fuselage. The pistol is retained in the mount by lugs on the muzzle end of the barrel. Flares or signals may be loaded into the barrel from either the muzzle or breech end.

Differences among models

Data plate location

Data are located on right-hand side plate of pistol.

Classification: Standard A (OTCM 3694).

CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>lbs</th>
<th>lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of pistol</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Weight of mount</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Overall length of pistol</td>
<td>8.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Overall length of pistol and mount assembled</td>
<td>8.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Length of barrel</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Diameter of bore</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Operation</td>
<td>semi-auto</td>
<td>semi-auto</td>
</tr>
<tr>
<td>Diameter of bore</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Trigger pull</td>
<td>5 to 8</td>
<td>5 to 8</td>
</tr>
</tbody>
</table>

AMMUNITION

FLARE, AIRCRAFT: parachute, M9A1; SIMULATOR, PROJECTILE AIRBURST: M74 and M74A1; SIGNAL, ILLUMINATION, AIRCRAFT: double star (green-green, red-red, red-yellow, yellow-yellow), single star (green and yellow), green tracer (green-red star, red-red star), red tracer (green-green star, red-red star, yellow tracer (red-yellow star), night drift.

PERFORMANCE

Maximum range:
- FLARE, AIRCRAFT: M9A1: 80 ft (projected from airplane in flight)
- SIMULATOR, PROJECTILE, AIRCRAFT: M74 (15° above horizontal): 100 ft (height of burst above ground)
- SIGNAL, ILLUMINATION, AIRCRAFT: double star: (approx) 250 ft altitude

GENERAL

PROJECTOR, PYROTECHNIC, HAND: M9

General

PROJECTOR, PYROTECHNIC, HAND: M9, is a manually-operated, muzzle-loading projector used for projecting flares or signals for signaling between ground troops or from ground troops to aircraft. This projector has no trigger and is fired by striking the rounded base of the hand knob against the hand or the ground.

Differences among Models

Data plate location

The name and model number of the projector are stamped in the breech plate.

Classification: Limited standard (OTCM 37119).

CHARACTERISTICS

Weight: 1 lb
Length overall: 9 in.
Length of barrel: 6 in.
Diameter of bore: 1\(\frac{1}{2}\) in.
Operation: Manual
Cooling: Air

AMMUNITION

Types: SIGNAL, ILLUMINATION, AIRCRAFT: double star (green-green, green-yellow, red-green, red-red, red-yellow, yellow-yellow), single star (green, red, yellow), green tracer (green-red star, red-red star), red tracer (green-green star, green-red star, red-red star), yellow tracer (red-yellow star), night drift.

PERFORMANCE

Maximum range:

SIGNAL, ILLUMINATION, AIRCRAFT
(all models) (approx) 250 ft altitude

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 80 projectors per wood box (VCI pack).

Length: 3 ft, 2 in.
Width: 1 ft, 8\(\frac{3}{4}\) in.
Height: 1 ft, 8\(\frac{1}{2}\) in.
Volume: 3.8 cu ft
Gross weight: 146 lb
Ship tons: 0.15

Outside Continental United States

Shipped 40 projectors per wood box (VCI pack).

Length: 1 ft, 8\(\frac{3}{4}\) in.
Width: 1 ft, 8\(\frac{1}{2}\) in.
Height: 1 ft, 8\(\frac{1}{2}\) in.
Volume: 3.2 cu ft
Gross weight: 76 lb
Ship tons: 0.08

References: TM 9-1290, TM 9-2018, TM 9-2205, TM 9-1095-201-20P.
PROJECTOR, SIGNAL, GROUND: M1A1

General
The PROJECTOR, SIGNAL, GROUND: M1A1 is a manually-operated, muzzle-loading projector which is used for projecting high-burst ranging signals from the ground and field artillery training.

Differences among models

Data plate location
This projector has no name, serial number, caution, or instruction plates affixed to it or stamped in it.

Classification: Limited standard (OTCM 37119).

CHARACTERISTICS

Weight (w/body assy) 12 lb, 11 oz

Length:
Overall 4 ft, 9 1/2 in.
(w/o body assy and spike) 3 ft, 3 1/2 in.
(w/body assy w/spike) 4 ft, 1 in.

Barrel 1.636 in.

Diameter of bore 1.626 in.

Operation Manual

COOLING

AMMUNITION

Type SIMULATOR, PROJECTILE AIRBURST: M27

PERFORMANCE

Maximum range (approx) 650 ft altitude

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 6 projectors per wood box (VCI pack).

Length 4 ft, 6 1/2 in.
Width 1 ft, 7 1/2 in.
Height 1 ft, 7 in.
Volume 6.9 cu ft
Gross weight 140 lb
Ship tons 0.17

Outside Continental United States
Shipped 2 projectors per wood box (VCI pack).

Length 4 ft, 6 1/2 in.
Width 1 ft, 7 1/2 in.
Height 2 ft
Volume 3.5 cu ft
Gross weight 66 lb
Ship tons 0.07

SCABBARD, BAYONET: M1917

General

SCABBARD, BAYONET: M1917, is used to facilitate the carrying of BAYONET: M1917, when not in use. It is made of olive-drab plastic with steel trimming and is designed for a 17-inch long blade.

Differences among models

Data plate location.

Classification: Limited standard (OTCM 4112).

CHARACTERISTICS

Weight
Length overall approx. 18 3/4 in.
Width

EQUIPMENT

Basic Issue Items

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 250 scabbards per wood box.

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped 60 scabbards per wood box.

Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL B-8, TM 9-2205.

* For characteristics and data, see Item 1 in section 2.
**SCABBARD, BAYONET-KNIFE: M8 AND M8A1**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Tactical stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8</td>
<td>1095-726-5709</td>
<td></td>
</tr>
<tr>
<td>M8A1</td>
<td>1095-608-0389</td>
<td></td>
</tr>
</tbody>
</table>

**General**

SCABBARD, BAYONET-KNIFE: M8 and M8A1 are used to facilitate the carrying of BAYONET-KNIFE: M4, M5, M5A1, and M6. They have a strap which is wrapped around the butt of the knife. They are also provided with a leather thong by means of which the point of the scabbard may be tied to the leg of the wearer when the scabbard is worn on the belt. The scabbards are made of olive-drab webbing and plastic with metal trimmings and are designed for a 6-inch blade.

**Differences among models**

The scabbard M8 has a belt strap without a double hook. The scabbard M8A1 has a belt strap assembly which contains a double hook for fastening it to a cartridge belt.

**Data plate location**

The model number of the scabbard is stamped on the outer ferrule.

**Classification**: Standard B (OTCM 36841).

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight</th>
<th>Length overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8</td>
<td></td>
<td>approx 13½ in.</td>
</tr>
<tr>
<td>M8A1</td>
<td></td>
<td>approx 1½ in.</td>
</tr>
</tbody>
</table>

**EQUIPMENT**

| Basic Issue Items |

**INSTRUCTIONAL MATERIAL**

For Graphic Training Aids and Devices, see DA Pam 47-4.

**STORAGE AND SHIPMENT DATA**

Within Continental United States

Shipped 200 bayonet-knives per wood box (VCI pack).

- **Length**: 4 ft, 1½ in.
- **Width**: 1 ft, 1½ in.
- **Height**: 1 ft, 1 in.
- **Volume**: 8.2 cu ft
- **Gross weight**: 145 lb
- **Ship tons**: 0.21

Outside Continental United States

Shipped 100 bayonet-knives per wood box (VCI pack).

- **Length**: 2 ft, 2½ in.
- **Width**: 1 ft, 1½ in.
- **Height**: 1 ft, 4 in.
- **Volume**: 4.4 cu ft
- **Gross weight**: 70 lb
- **Ship tons**: 0.11

**References**: SNL B-8, TM 9-2205.

*For characteristics and data, see Item 4 in section 7.*
SIMULATOR, MACHINEGUN FIRE: CAL .30 (ORD NO. 8429609) AND
SIMULATOR, RIFLE FIRE: CAL .30 (ORD NO. 8429307)

**Secondary Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORD No. 8429609</td>
<td></td>
<td>1095-022-0880</td>
</tr>
<tr>
<td>ORD No. 8429307</td>
<td></td>
<td>1095-063-0487</td>
</tr>
</tbody>
</table>

**General**

SIMULATOR, MACHINEGUN FIRE: cal .30 (ORD No. 8429609)
and SIMULATOR, RIFLE FIRE: cal .30 (ORD No. 8429307), are
weapons which fire 18 rounds of caliber .30 ammunition to simulate
machinegun or rifle fire. The rounds are fired sporadically in both
timing and direction. The two simulators are similar in operation
with the machinegun fire simulator firing bursts of three or four
shots and the rifle fire simulator firing single shots. The timer may
be set to start firing up to 1 hour in 5-minute increments. The
simulators are electrically operated, battery-powered units designed
to be dropped from a plane. Four or five minutes after the last
shot is fired, they destroy themselves.

**Differences among models**

The machinegun fire simulator has a timer that is set to fire
three or four shots at a time while the timer in the rifle fire
simulator is set to fire single shots only.

**Date plate location**

Classification: Limited production (OTCM)

**Characteristics**

- Diameter: 4½ in.
- Length: 18 in.
- Weight: 17 lb
- Type of operation: electrical
- Power: batteries (DRY)
- Timer motor: 4½ volt
- Firing circuit: 8 volt
- Time-Delay: up to 60 min (in 5 min increments)
- Direction of timer sweep arm: clockwise
- Parachute (paper carton or canvas bag): 6 ft dia.

**Ammunition**

Cal .30, M2 ball (only)

**Performance**

**Equipment**

Basic Issue Items: See TM 9-1095-202-10

**Instructional Material**

**Storage and Shipment Data**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: TM 9-1095-202-10
SECTION 10
NUCLEAR ORDNANCE
(CLASS 1100)
(Includes atomic training warhead sections)

<table>
<thead>
<tr>
<th>Warhead Section, Atomic, Training</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>M40</td>
<td>10-2</td>
</tr>
<tr>
<td>XM52</td>
<td>10-3</td>
</tr>
<tr>
<td>M72</td>
<td>10-4</td>
</tr>
<tr>
<td>M74</td>
<td>10-5</td>
</tr>
<tr>
<td>XM99</td>
<td>10-6</td>
</tr>
</tbody>
</table>
WARHEAD SECTION, ATOMIC, TRAINING: M40

(Warhead section, atomic, training: M40 consists of the atomic warhead in guided missile training adaptation kit case M108, which carries at its forward end a dummy static tube, and houses the training radar fuse, burst switch control dial, sequential timer, ballistic center, terminal board, rotary switch, training baro-switch, training interconnecting box, dummy battery power supply, resistors, capacitor, relay, electrical connectors and receptacles, cable assemblies, pneumatic tank and valve, and other components simulating the internal parts of the operational warhead section. The M40 trainer has the same external configuration as the operational warhead section. It is a Not-To-Be-Fired Item containing inert components. These components provide an effective method of instructing operator and maintenance personnel without the necessity of using operational items, in proficiency atomic training of the LA CROSSE rocket firing batteries, in all operations pertaining to the war reserve warhead section equipment they will later use. No explosive hazard exists with the M40 trainer, but proper procedures should be observed in training, however, so that when a live unit is handled, safety will be a normal routine.

Differences among models

Data plate location
Classification

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped per shipping container

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped per shipping container

Length
Width
Height
Volume
Gross weight
Ship tons

References: TM 9-1100-400-35P

10-2
WARHEAD SECTION, ATOMIC, TRAINING: XM52

Model

XM52

Line item No. Federal stock No.

Performance

Equipment

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped per shipping container

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped per shipping container

Length

Width

Height

Volume

Gross weight

Ship tons

Characteristics

General

WARHEAD SECTION, ATOMIC, TRAINING: XM52 consists of the atomic warhead to rocket training adaptation kit case XM88, which houses the atomic training warhead, timer, simulator, and components designed to simulate the internal parts of an operational warhead section and give the same indications during electrical test as would be received from the operational adaptation kit. These components provide an effective method of instructing operator and maintenance personnel without the necessity of using operational items in proficiency atomic training of the LITTLE JOHN rocket firing batteries, in all operations pertaining to the war reserve warhead section equipment they will later use. A jumper in the warhead connector provides the same test indications as a warhead in an operational warhead section. The XM52 trainer has the same external configuration as the operational warhead section. No explosive hazard exists with the XM52 warhead section. Proper procedures should be observed in training, however, so that when a live unit is handled, safety will be a normal routine.

Differences among models

Date plate location

The identification data are stencilled with white stencil ink, and "TRAINING ONLY" with red stencil ink on the outside surface of the trainer case structure.

Classification

Classified

References: TM 9-1100-212-12, TM 9-1100-212-36, TM 9-1100-212-35P
GENERAL

WARHEAD SECTION, ATOMIC, TRAINING: M72 consists of the atomic warhead to rocket training adaptation kit case, which houses the atomic training warhead, the selector, ballistic, digital read-out, and pressure checkout assemblies, adaptation kit subassembly, and timer. The M72 trainer is a Not-To-Be-Fired training aid, designed to familiarize the HONEST JOHN battalion or battery with required mating, testing and firing of the war reserve warhead section in proficiency operator and maintenance atomic training. It incorporates dummy components, in similar to the war reserve warhead section in size, shape, weight, center of gravity and all external controls, connections, and features, and simulates the functions and electrical indications of the war reserve warhead section when used for mating and testing. Prefire testing of the M72 warhead section requires no external test equipment, as it contains a hand-powered generator which furnishes power for test purposes. The test simply furnishes a GO-NO GO type indication by the illumination of lamps. A switch allows the instructor to simulate a GO-NO GO indication in training. The M72 trainer has been made rugged to afford continual assembly, disassembly, and checkout. It does not contain any nuclear, explosive, or radioactive components. The same, normal, handling procedures as prescribed for the war reserve warhead sections should be exercised, however, in training, since one purpose of this training aid is to familiarize the trainer with the handling care required of the war reserve warhead sections.

DIFFERENCES AMONG MODELS

Data plate location
The identification data are stenciled with white stencil ink, and "TRAINING ONLY" with red stencil ink on the outside surface of the trainer case structure.

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

per shipping container

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

per shipping container

Length

Width

Height

Volume

Gross weight

Ship tons

WARHEAD SECTION, ATOMIC, TRAINING: M74

General
WARHEAD SECTION, ATOMIC, TRAINING: M74 consists of a warhead section and a forward body section carrying at its forward end a self-aligning static tube (Static probe). The warhead section is fabricated of sheet steel and houses the cartridge assembly, cables, pneumatic system, and dummy warhead with concrete ballast, and is equipped with an instructor's control panel. This panel is not incorporated in war reserve materiel and is used in training to induce the malfunctions (in the cartridge assembly, warhead, and missile cable circuits) that can be detected by the test set and the launcher control indicator, and to regulate cartridge and warhead pneumatic pressure. The forward body section is a sheet steel unit and incorporates the dummy "transponder" control group. The forward self-aligning static tube (static probe) consists of a steel static tube probe, a plastic vane and body assembly, aft pole and collar which facilitate assembly of static tube to forward body section. To prevent use on war reserve materiel, the O-ring end of the static tube is substantially oversized so that it will not mate to a war reserve forward body section. The M74 trainer is a Non-To-Be-Fired training item containing inert components which simulate the war reserve items. It is designed to provide proficiency and field testing of operator and maintenance personnel of a NIKE-HERCULES battery in the operations pertaining to the war reserve warhead section. The M74 warhead section simulates the war reserve warhead section physically, and conforms to the required weight, center of gravity, external and internal configurations, and its internal circuits provide the same electrical response as war reserve materiel. All Safety Procedures for war reserve must be complied with in training, familiarizing the personnel thoroughly in war reserve safety requirements. The M74 trainer is used in performing disarm procedures simulating the war reserve item.

Differences among models
Differences within M74 trainers: M74 trainers serial numbered from 1 through 134 use "baro" simulators with terminal boards in the cartridge assembly and a "prony brake" system in conjunction with the servo mechanisms. Those serial-numbered from 135 on use "baro" simulators with connectors, instead of terminal boards in the cartridge assembly, and use a resistor to replace the "prony brake".

Data plate location
The identification data are stenciled with white stencil ink, and "TRAINING ONLY" with red stencil ink on both sides of the warhead section and the forward body section.

Classification: Limited production (OTCM 37330)

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

WARHEAD SECTION, ATOMIC, TRAINING: XM99

Model
XM99
Line item No. 1105-846-7423
Federal stock No.

General
WARHEAD SECTION, ATOMIC, TRAINING: XM99 consists of the atomic warhead to rocket training adaptation kit case XM88, which houses the test panel, height of burst selector switch, timer, safe plate and arm plug, simulated locking ring, and other components simulating the internal parts of the operational warhead section. The safe plate and arm plug is designed to prevent interchangeability with the safe plate and arm plug used with an operational warhead section. The XM99 trainer has the same external configuration, weight, and balance and is designed to simulate the operational warhead section for operator and maintenance training of the LITTLE JOHN rocket firing batteries in all operations pertaining to the war reserve warhead section equipment they will later use. Simulating components are used within the training adaptation kit XM88 to give the same indications during electrical test as would be received from the operational adaptation kit. Prefire checkout and fuse setting are performed in the same manner as with an operational warhead section. The height of burst selector switch is purely mechanical, to simulate the various switch positions for training purposes. The XM99 trainer test panel area contains provisions for simulating continuity and timer malfunctions that can be detected by the test set, in training. The XM99 trainer can be mated to a rocket motor training device, but will not mate with an operational rocket motor. No explosive hazard exists with the XM99 trainer, but proper procedures should be observed in training, however, so that when a live unit is handled, safety will be a normal routine.

Differences among models
Data plate location
The identification data are stenciled with white stencil ink, and "TRAINING ONLY" with red stencil ink on the outside surface of the trainer case structure.
SECTION 11
FIRE CONTROL DIRECTORS
(CLASS 1210)

DIRECTOR: M15 (T41E2)
For data and characteristics, see FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) (Section 13).
SECTION 12

FIRE CONTROL COMPUTING SIGHTS AND DEVICES
(CLASS 1220)

(Includes ballistics computers; ballistics drives; computing sights; graphical firing scales; graphical firing fan tables; plotting boards; and slide rule).

The combat tanks that the ballistics computer are used with are: the ballistics computer M13 is used with RANGE FINDER, FIRE CONTROL: M18* in the TANK, COMBAT, FULL TRACKED: 90-mm gun, M36*, M36A1*, and M36C* and TRAINER, TANK GUNNERY: 90-mm M36* the ballistics computer M13A1 is used with RANGE FINDER, M13A1* in the TANK, COMBAT, FULL TRACKED: 90-mm gun, M36A2* and the TRAINER, TANK GUNNERY: 90-mm M36C* the ballistics computer M13A1C is used with the RANGE FINDER, FIRE CONTROL M17* in the TANK, COMBAT FULL TRACKED: 105-mm gun, M36A2C* the ballistics computer M13A1D is used with RANGE FINDER, FIRE CONTROL: M17C* in the TANK, COMBAT, FULL TRACKED: 105-mm gun, M36 and TRAINER, TANK GUNNERY: 105-mm gun, M36* the ballistics computer M13A2 is used with RANGE FINDER, FIRE CONTROL M17* in the TANK, COMBAT, FULL TRACKED: 105-mm gun, M36A1* the ballistics computer M13B1C is used with RANGE FINDER, FIRE CONTROL: M17* in the TANK, COMBAT, FULL TRACKED: 90-mm gun, M36A2*.

Differences among models
The main differences between the six models of the ballistics computer are that M13 and M13A1 have the range scale graduated

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M13 (T31)</td>
<td>1220-344-4678</td>
<td></td>
</tr>
<tr>
<td>M13A1 (T31E1)</td>
<td>1220-546-0738</td>
<td></td>
</tr>
<tr>
<td>M13A1C</td>
<td>1220-546-4455</td>
<td></td>
</tr>
<tr>
<td>M13A1D</td>
<td>1220-670-0139</td>
<td></td>
</tr>
<tr>
<td>M13A2</td>
<td>1220-856-0454</td>
<td></td>
</tr>
<tr>
<td>M13B1C</td>
<td>1220-870-0574</td>
<td></td>
</tr>
</tbody>
</table>

* For characteristics and data, see items in sections 14 and 23.
in yards, and M1A1C, M1A1D, and M1A2 have the range scale graduated in meters. M1A2 requires disassembly of rear bracket to remove switch, and in M1A1, M1A1C, and M1A2D the switch can be removed without disassembling the rear bracket. M1A2 has a one-piece and in the plate of ammo selector shaft, M1A1 and M1A1C have two-piece shaft, and M1A1D has two piece shaft and steps on the ammo selector shaft. M1A2 has an integral stud and cover of the circuit breaker; its ammunition wheel access hole is not drilled. It has an integral light conductor rod clamp for the counter assembly, and its outer dial has to be removed before removing the light ring, which has lower bracket.

The M1A1, M1A1C, and M1A1D have separate switch guard of counter assembly, and have a separate light conductor rod clamp for the counter assembly, and their light ring has no bracket and can be removed at any time. M1A1, M1A1, and M1A1C have a full set and spares of superposition rings, and their computer mount is part of the computer. M1A1D has no drive output shaft cover, no outer unit box, and the computer mount is part of the tank.

The identification plate is located on the front panel of the housing.

Classification:

- M1A2 Standard B
- M1A1C Standard B (OTCM S275)
- M1A2D Standard A (OTCM 1000)
- M1A2 Standard A (OTCM 100)
- M1A1 Standard B (OTCM 100)

**CHARACTERISTICS**

- Length, overall: 21.1 in.
- Height, outer and input shaft: 2.1 in.
- Depth: 10.1 in.
- Weight, outer and input shaft/line included: 38.3 lb.

**Input from range finder M1A2:**

- 500 to 4,000 yd.
- From computer, manual operation: 6 to 4,000 yd.
- Input range from range finder M17, M17C, 500 to 4,000 yd.
- Superposition: ±100 mils.
- Range correction: ±11 percent.

**PERFORMANCE**

**EQUIPMENT**

Basic Line Items:
- M1A2—See ORD 1 ENL G 254.
- M1A1—See TM 9-7222.
- M1A1C.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States:

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>21.1 in.</td>
<td>38.3 lb.</td>
</tr>
<tr>
<td>Width</td>
<td>17.4 in.</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>20.3 in.</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>4.86 cu ft</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States:

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>21.1 in.</td>
<td>38.3 lb.</td>
</tr>
<tr>
<td>Width</td>
<td>17.4 in.</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>20.3 in.</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>4.86 cu ft</td>
<td></td>
</tr>
</tbody>
</table>

**Data plate location:**

The identification plate is located on the front panel of the housing.

**Classification:**

- M1A2 Standard B
- M1A1C Standard B (OTCM S275)
- M1A2D Standard A (OTCM 1000)
- M1A2 Standard A (OTCM 100)
- M1A1 Standard B (OTCM 100)

**CHARACTERISTICS**

- Length, overall: 21.1 in.
- Height, outer and input shaft: 2.1 in.
- Depth: 10.1 in.
- Weight, outer and input shaft/line included: 38.3 lb.

**Input from range finder M1A2:**

- 500 to 4,000 yd.
- From computer, manual operation: 6 to 4,000 yd.
- Input range from range finder M17, M17C, 500 to 4,000 yd.
- Superposition: ±100 mils.
- Range correction: ±11 percent.
COMPUTER, BALLISTICS: M14 (T33)

11 September 1962

Model M14

General

COMPUTER, BALLISTICS: M14 is used with TANK, COMBAT, FULL TRACKED: 105-mm gun, M103A1. The computer consists of a computer main housing assembly, range servo amplifier assembly, and circuit breaker assembly. The computer receives range data by a synchro transmitting system from the range finder. The computer then applies ammunition data and any required ballistic corrections. Both ammunition data and ballistic corrections are introduced manually into the computer. The product is the super-elevation angle (elevation above the line-of-sight) required for the particular ammunition being fired at the measured range. This super-elevation data is then transmitted from the computer by four mechanical and one electrical output to the periscope, the superelevation signal generator, superelevation transmitter, cant corrector, and range finder cant corrector.

Characteristics

Secondary Item

Model Line item No. Federal stock No. 1220-622-4934

- CIRCUIT BREAKER ASSEMBLY
- ORDA1496

Differences among models

Data plate location

The identification plate (nameplate) for the ballistics computer is located on the computer main housing assembly. The identification plate for the range servo amplifier assembly is located on the range servo amplifier housing.

Classification: Standard A (OTCM 3649).

Characteristics

Computer main housing assembly:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 7 in.</td>
</tr>
<tr>
<td>Depth</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>70 lb</td>
</tr>
</tbody>
</table>
Range limits:
Input from range finder: 600 yd to 6,000 yd
Output from computer: 0 yd to 4,800 yd
Super elevation: 70 mil
Range correction: ± 15%
Electrical operating voltage: 24 ± 6 v dc, 115 ± 11.5 vac, 400 ± 40 cps

Range servo amplifier assembly:
Length: 9 1/2 in.
Height: 8 in.
Depth: 5 1/2 in.
Weight: 12 lb

Circuit breaker assembly:
Length: 6 1/2 in.
Height: 8 1/2 in.
Depth: 5 3/4 in.
Weight: 8 lb

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 ballistic computer per shipping container
Length: 2 ft, 2 3/4 in.
Width: 1 ft, 8 1/4 in.
Height: 2 ft, 1 1/4 in.
Volume: 7.925 cu ft
Gross weight: 117.92 lb
Ship tons: 0.25

Outside Continental United States
Shipped 1 ballistic computer per shipping container
Length: 2 ft, 2 3/4 in.
Width: 1 ft, 8 1/4 in.
Height: 2 ft, 1 1/4 in.
Volume: 7.925 cu ft
Gross weight: 117.92 lb
Ship tons: 0.25

COMPUTER, GUN DIRECTION. M18 W/E

Model: M18, w/e
Line item No.: 4-10742-96
Federal stock No.: 1220-448-0131

General
COMPUTER, GUN DIRECTION, M18 is a portable general-purpose, digital computer capable of solution of fire control problems for five selected weapons. Information on two types of weapons is preloaded into the memory of the computer. Additional information affecting the ballistics of the weapon may be inserted by the operator. Meteorological data may be entered by mechanical tape reader or manually through the keyboard. The computer is mounted on the gun computer table. Certain connections for power are made through electrical connectors on the table. Three-phase, 120/208 volt, 400 cycle prime power is supplied from a generator set through a cable assembly.

The computer is housed in a watertight case having removable front and rear covers.

Differences among models
Data plate location
The identification plate is located on the top portion of the computer case.

Classification: Standard A (OTCM 37683).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (approx.)</td>
<td>200 lb</td>
</tr>
<tr>
<td>Computer</td>
<td></td>
</tr>
<tr>
<td>Table</td>
<td>123 lb</td>
</tr>
<tr>
<td>Cable and bracket adapter</td>
<td>3 lb</td>
</tr>
<tr>
<td>Depth:</td>
<td></td>
</tr>
<tr>
<td>Computer</td>
<td>2 ft, 10 in.</td>
</tr>
<tr>
<td>Table</td>
<td>2 ft, 7 in.</td>
</tr>
<tr>
<td>Width:</td>
<td></td>
</tr>
<tr>
<td>Computer</td>
<td>2 ft, 5 in.</td>
</tr>
<tr>
<td>Table</td>
<td>2 ft, 4 in.</td>
</tr>
<tr>
<td>Cable and bracket adapter</td>
<td>1 in.</td>
</tr>
<tr>
<td>Height:</td>
<td></td>
</tr>
<tr>
<td>Computer</td>
<td>15 in.</td>
</tr>
<tr>
<td>Table</td>
<td>11 in.</td>
</tr>
<tr>
<td>Cable and bracket adapter</td>
<td>1 in.</td>
</tr>
</tbody>
</table>

Table:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legs closed</td>
<td>5 in.</td>
</tr>
<tr>
<td>Legs open, retracted</td>
<td>1 ft, 9 in.</td>
</tr>
<tr>
<td>Legs extended</td>
<td>2 ft, 9 in.</td>
</tr>
<tr>
<td>Cable and reel, assy. (dim)</td>
<td>2 ft, 1 in.</td>
</tr>
<tr>
<td>Cable and bracket adapter</td>
<td>15 in.</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-40°F to 125°F ambient</td>
</tr>
<tr>
<td>Input frequency</td>
<td>400 cps ±2 percent</td>
</tr>
<tr>
<td>Input voltage</td>
<td>120/208 V ±3%, 3 phase, 4 wire</td>
</tr>
<tr>
<td>Power</td>
<td>0.7 kw per computer mercury unit</td>
</tr>
<tr>
<td>Type</td>
<td>Magnetic disk</td>
</tr>
<tr>
<td>Capacity</td>
<td>8,192 words (units)</td>
</tr>
</tbody>
</table>

PERFORMANCE EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 computer, w/table per plastic case.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>41 1/2 in.</td>
</tr>
<tr>
<td>Width</td>
<td>35 1/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>23 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>18 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>135 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.46</td>
</tr>
</tbody>
</table>

Shipped 1 cable and reel, assy per wood box.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>25 in.</td>
</tr>
<tr>
<td>Width</td>
<td>25 in.</td>
</tr>
<tr>
<td>Height</td>
<td>11 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>3 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>127 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.12</td>
</tr>
</tbody>
</table>

References: TM 9-1220-221-10/1, TM 9-1220-221-10/2, TM 9-1220-221-20/1, TM 9-1220-221-20/2, TM 9-1220-221-20P, TM 9-1220-221-34/1, TM 9-1220-221-34/2, TM 9-1220-221-34/3, TM 9-1220-221-34/4, TM 9-1220-221-34/5, TM 9-1220-221-35P.
DRIVE, BALLISTICS: M4 (T23)

General

DRIVE, BALLISTICS: M4 (T23) consists of a ballistic unit, a level vial, and linkage which connects the gunner's and commander's MOUNT. PERISCOPE: M93 (T176E1) and M94 (T177E2) with the gun. The ballistic drive is mounted on the turret roof above the gun and is used to introduce super-elevation by varying the line-of-sight of the PERISCOPE: M20 (T36) or M20A1 to compensate for the trajectory of the projectile used as indicated on the range scale of the ballistic unit.

The ballistic drive M4 (T23) is used with the TANK, COMBAT, FULL TRACKED: 76-mm gun, M4 (T41E1) and M41A1.

Differences among models

Data plate location

Classification: Standard A (OTCM 35322).

CHARACTERISTICS

Length ................................................................. 2 ft. 8½ in.
Width ................................................................. 2 ft. 15⅛ in.
Height ................................................................. 1 ft. 8 in.
Weight ................................................................. 41 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-2350-201-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped ballistics drives per box.

Length .................................................................
Width .................................................................
Height .................................................................
Volume .................................................................
Gross weight .........................................................
Ship tons .............................................................

Outside Continental United States

Shipped ballistics drives per box.

Length .................................................................
Width .................................................................
Height .................................................................
Volume .................................................................
Gross weight .........................................................
Ship tons .............................................................

References: SNL F-359, sec. 1, TM 9-6065, TM 9-2360-201-12.
DRIVE, BALLISTICS: M6 (T23E2)

General

DRIVE, BALLISTICS: M6 (T23E2) consists of a ballistic unit with range scales, and the shafts, coupling, arm, and link that connect to the gunner's and commander's periscopes, and couple directly with the range finder. It receives superelevation data from a ballistics computer and transmits the angular value received from the position of the gun, plus superelevation data to the gunner's periscope, thereby compensating for the ballistics of the projectile. The coupling between the ballistics drive and the gunner's periscope is designed to compensate for minor misalignment of the ballistics drive relative to the periscope head while maintaining rotary motion. The ballistics drive M6 (T23E2) is attached to the turret roof by two brackets. A level vial is provided for initial alignment at zero elevation. A lamp assembly allows for use of the 24-volt vehicle power source or power from LIGHT INSTRUMENT: M30. A range knob rotates the range scales displacing the sights the proper distance.

The ballistics drive M6 (T23E2) is used with the TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 (T43E1).

Differences among models

Data plate location

Classification: Standard B (OTCM 86117).

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6(T23E2)</td>
<td>1220-764-9131</td>
<td></td>
</tr>
</tbody>
</table>

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft. 6 1/4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>6 3/8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>6 1/2 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>27 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped ballistics drives per box.

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped ballistics drives per box.

Length

Width

Height

Volume

Gross weight

Ship tons

References: SNL F-359, sec. 1, TM 9-6065.
DRIVE, BALLISTICS: M10 (T24E3), M10A4, and M10B1

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M10</td>
<td></td>
<td>1220-678-2184</td>
</tr>
<tr>
<td>M10A4</td>
<td></td>
<td>1220-858-9458</td>
</tr>
<tr>
<td>M10B1</td>
<td></td>
<td>1220-870-4270</td>
</tr>
</tbody>
</table>

General

DRIVE, BALLISTICS: M10 (T24E3) is part of the fire control system of TANK, COMBAT, FULL TRACKED: 105-mm gun, M60; the M10A4 is part of the fire control system of TANK, COMBAT, FULL TRACKED: 105-mm gun, M60A1; the M10B1 is part of the fire control system of TANK, COMBAT, FULL TRACKED: 105-mm gun, M48A3.6

The ballistic drive is a differential drive which converts super-elevation data from the computer to the correct super-elevation angle in mils and adds this angle to the gun elevation angle.

The ballistic drive is mounted to the roof by two supports and consists of a super-elevation box, junction box, cross-shaft that connects to the periscope, and linkages that connect to the gun trunnion and range finder.

The ballistic computer output shaft transmits super-elevation data to the super-elevation box of the ballistic drive, causing an angular displacement of the direct linkage to the range finder and coupling to the gunner's periscope, thus depressing the line-of-sight of both the range finder and gunner's periscope.

Without change in super-elevation, the ballistic drive acts as a solid linkage causing equal angular movement of both the gunner's periscope and range finder corresponding to the movement of the gun in elevation or depression.

Differences among models

The ballistic drive M10 and M10B1 have a support bracket for the elevation quadrant; the M10A4 does not. The M10 and M10A4 have a level vial on the right side of the connecting arm; the M10B1 has the level vial on the left side. The M10 and M10B1 have a light assembly: the M10A4 does not. The M10A4 has a longer linkages than the M10 and M10B1. Other minor differences appear in the various assemblies.

Data plate location

The identification plate (nameplate) is located on the main housing cover of the super-elevation box assembly.

Classification: M1C-Standard A (OTCM 37002).

M10A4

M10B1

6 For characteristics and data, see item in section 33.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Item</th>
<th>M10</th>
<th>M10A4</th>
<th>M10B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (installed)</td>
<td>(approx) 4 ft 7 in.</td>
<td>(approx) 4 ft 7 in.</td>
<td>(approx) 4 ft 7 in.</td>
</tr>
<tr>
<td>Width (installed)</td>
<td>(approx) 3 ft 8 in.</td>
<td>(approx) 3 ft 9 in.</td>
<td>(approx) 3 ft 9 in.</td>
</tr>
<tr>
<td>Height (installed)</td>
<td>(approx) 2 ft 8 in.</td>
<td>(approx) 2 ft 8 in.</td>
<td>(approx) 2 ft 8 in.</td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M10 and M10B1</td>
<td>(approx) 153 lb</td>
<td>(approx) 153 lb</td>
<td>(approx) 153 lb</td>
</tr>
<tr>
<td>M10A4</td>
<td>(approx) 174 lb</td>
<td>(approx) 174 lb</td>
<td>(approx) 174 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic issue items: M10—See TM 9-2350-215-10.
M10B1—See TM 9-2350-224-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 ballistic drive per shipping container.

Length                   46 in.
Width                    26 in.
Height                   20 in.
Volume                   14.918 cu ft
Gross weight             271 lb
Ship ton                 0.35

Outside Continental United States

Shipped 1 ballistic drive per shipping container.

Length                   46 in.
Width                    26 in.
Height                   20 in.
Volume                   14.918 cu ft
Gross weight             271 lb
Ship ton                 0.35

PLOTTING BOARD: M5A2

Major Item

Model: M5A2
Line item No.: 4-01520-20
Federal stock No.: 1220-670-2071

General

PLOTTING BOARD: M5A2 is used by the flash ranging platoon of observation batteries of the field artillery to plot and determine the location of hostile batteries by plotting the azimuth of the flash or smoke from enemy guns, as reported from two or more observation posts. The center of impact of friendly fire also may be determined.

The plotting board plots at a standard map scale of 1/25,000 meters. The scales are graduated to match the grid.

Differences among models

Data plate location

The identification plate (nameplate) is located on the bracket of the plotting board.

Classification: Standard B (OTCM 37342).

CHARACTERISTICS

Length: (approx) 3 ft. 9 in.
Width: (approx) 3 ft. 4½ in.
Height: (approx) 2 ft. 10½ in.
Weight: (approx) 276 lb
Range: Unlimited
Azimuth scale: 0-6,490 mils

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL F-233.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shippe 1 plotting boards per
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shippe 1 plotting boards per
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-233, TM 9-5109.
PLOTTING BOARD: M10

General
PLOTTING BOARD: M10 consists of a rotatable pivoted disk of transparent plastic material attached to a flat base of white material. The top disk is roughened to take pencil marks which can be erased after the completion of a problem. Three scales and a fine line are printed on the top disk. It is used with caliber .30 machineguns, 105-mm howitzers, and 75-mm rifles, for plotting indirect fire data. Location of the gun and target, as obtained at the observation post, in terms of azimuth and distance, are plotted individually on the rotatable disk. The center of the disk represents the location of the observation post. Distance in yards and azimuth in mils of the target from the gun is read directly on the board. For operating instructions, see TM 9-575.

Differences among models
The item name and model number are located in the upper right-hand corner of the plotting board.

Classification: Standard B (OTCM 37601).

CHARACTERISTICS
Range scale: Grid interval depends on map scale
Azimuth scale: 0 to 6,400 mils
Square of base: 8.3% in.
Diameter of disk: 8.5 in.
Thickness: 0.75 in.
Weight: 0.75 lb

PERFORMANCE
Basic Issue Items: See ORD 7 SNL F-314.

INSTRUCTIONAL MATERIAL
For graphic training aids and devices, see DA Pam 810-6.

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 120 plotting boards (w/equipment) per shipping container
Length: 8 ft, 3 in.
Width: 1 ft, 11\% in.
Height: 1 ft, 6\% in.
Volume: 9 cu ft
Gross weight: 200 lb
Ship tons: 0.28

Outside Continental United States
Shipped 120 plotting boards (w/equipment) per shipping container
Length: 8 ft, 3 in.
Width: 1 ft, 11\% in.
Height: 1 ft, 6\% in.
Volume: 9 cu ft
Gross weight: 200 lb
Ship tons: 0.28

References: SNL F-314, TM 9-576.
**PLOTTING BOARD: M16**

**Characteristics**

- **Model**: M16, w/e
- **Line Item No.** 4-01519
- **Federal stock No.** 1220-602-7941

**General**

PLOTTING BOARD: M16 is a portable instrument used with MORTAR, INFANTRY: 81-mm, M29 and MORTAR, INFANTRY: 4.2-inch, M80 to compute the range and azimuth of a target for indirect firing of the mortar. The plotting board utilizes known range and azimuth data from the mortar to the observation post in combination with reported data received from the post concerning the target's location with respect to the post, to geometrically compute the range and azimuth from the mortar.

**Limits of operation:**

- **Asimuth**: 6,400 mils (unlimited)
- **Range**: unlimited

**Dimensions:**

- **Length**: 1 ft, 10 in.
- **Width**: 1 ft, 9\(\frac{1}{2}\) in.
- **Thickness**: 3 lb, 13 oz

**Performance**

**Equipment**

Basic Issue Items: See TM 9-1220-204-12.

**Instructional Material**

**Storage and Shipment Data**

**Within Continental United States**

- **Shipping board per shipping container**
  - **Length**: 8 ft, 1 in.
  - **Width**: 2 ft, 6 in.
  - **Height**: 1 ft, 11\(\frac{1}{2}\) in.
  - **Volume**: 12.42 cu ft
  - **Gross weight**: 196 lb
  - **Shipment**: 0.81

**Outside Continental United States**

- **Shipping board per shipping container**
  - **Length**: 8 ft, 1 in.
  - **Width**: 2 ft, 6 in.
  - **Height**: 1 ft, 11\(\frac{1}{2}\) in.
  - **Volume**: 12.42 cu ft
  - **Gross weight**: 196 lb
  - **Shipment**: 0.81

**References:**

- TM 9-1220-204-12
- TM 9-1220-204-32
- TM 9-1220-204-35P
PLOTTING BOARD, FLASH RANGING, FIRE CONTROL: M18 (M5A2E1)

Model: M18
Line item No.: 4-50300-15
Federal stock No.: 4-50300-15

General
PLOTTING BOARD, FLASH RANGING, FIRE CONTROL: M18 is an M6 type plotting board redesigned for use as a sound ranging or flash ranging plotting board with lightweight and easier handling characteristics. It is a component of PLOTTING SET, SOUND RANGING: M5A.

Magnesium is employed for weight reduction. A three-leg support is being utilized. In addition to two-man operation, reversal of the drafting machine allows one man to operate both the vernier scale and micrometer adjustments. The gridded disk is made reversible to reduce replacement frequency when becoming too rough to use. A scale for sound ranging is designed for field addition or removal.

Differences among models

Data plate location
The identification plate (nameplate) is located on the vernier bracket assembly.

Classification: Standard A (OTCM 37845).

CHARACTERISTICS

| Diameter (w/o brackets) | .3 ft, 5 in. |
| Height | .2 ft, 11½ in. |
| Weight | .168 lb |

* For characteristics and data, see item in section 18.

Azimuth calibration: 0 to 6,400 mils
Grid scale: 40-mm = 1,000-mm

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

| Shipped per |
| Length |
| Width |
| Height |
| Volume |
| Gross weight |
| Ship tons |

Outside Continental United States

| Shipped per |
| Length |
| Width |
| Height |
| Volume |
| Gross weight |
| Ship tons |

References:

12-13
PLOTTING BOARD, INDIRECT FIRE, FIRE CONTROL: M17, w/e

General

PLOTTING BOARD, INDIRECT FIRE, FIRE CONTROL: M17 is essentially the M10 plotting board with the yard scales converted to meters and an improved pivot arrangement to provide for the easy removal of the rotatable disk from the base.

Differences among models

Data plate location

The item name and model number are located in the upper right-hand corner of the plotting board.

Classification: Standard A (OTCM 37601).

CHARACTERISTICS

Azimuth
Range
Diameter
Thickness
Weight

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 80 plotting boards, w/e per shipping container

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped 80 plotting boards, w/e per shipping container

Length
Width
Height
Volume
Gross weight
Ship tons

REFERENCES

PLOTTING BOARD, SOUND RANGING, FIRE CONTROL: M1, AND M1A1, AND WIND CORRECTOR, SOUND RANGING: M1

**Major item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1, PLOTTING BOARD, w/e</td>
<td>4-01532-10</td>
<td>1220-670-3050</td>
</tr>
<tr>
<td>M1A1, PLOTTING BOARD, w/e</td>
<td>4-01533-20</td>
<td>1220-670-3051</td>
</tr>
<tr>
<td>M1, WIND CORRECTOR, w/e</td>
<td>4-10964-00</td>
<td>1220-671-7082</td>
</tr>
</tbody>
</table>

**General**

PLOTTING BOARD, SOUND RANGING, FIRE CONTROL: M1, AND M1A1, WITH WIND CORRECTOR, SOUND RANGING: M1 are used for determining the location of enemy guns and for determining the changes in time differences due to the direction and velocity of the wind, respectively. They are used by field artillery.

An arm graduated in yards to a scale of 1/20,000 (M1) or 1/26,000 (M1A1) is pivoted about a bracket. By plotting on sound ranging plotting board M1 or M1A1 the differences in time at which the sound of the gun reaches each of several microphone stations, usually situated at equal distances along either a straight line or an arc the location of the enemy gun is determined. By plotting data relating to the sounds of bursts, this instrument can also be used for adjustments of fire of gun and howitzer batteries. The wind corrector M1 gives the time difference corrections in both value and sign, with plus and minus having the same significance as on the sound ranging plotting board M1.

**Differences among models**

The plotting board M1A1 is the M1 modified to plot at a scale of 1/26,000 instead of 1/20,000.

**Data plate location**

Classification

<table>
<thead>
<tr>
<th>Plotting board M1</th>
<th>Standard C (OTCM 37107)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plotting board M1A1</td>
<td>Standard B (OTCM 36841)</td>
</tr>
<tr>
<td>Wind corrector M1</td>
<td>Standard A (OTCM 37763)</td>
</tr>
</tbody>
</table>

**Characteristics**

Sound ranging plotting board M1 or M1A1:

<table>
<thead>
<tr>
<th>Range:</th>
<th>0-20,000 yd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-difference scale:</td>
<td>60-0.60'</td>
</tr>
<tr>
<td>Subbase length (sound):</td>
<td>4.45, 5, 5.5 sec</td>
</tr>
</tbody>
</table>

Microphone station radius: 26, 30, 36 sec

Angle of swing, range asymptote arm: 120°

Correction charts:

<table>
<thead>
<tr>
<th>Temperature</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptote</td>
<td>4</td>
</tr>
</tbody>
</table>

Sound ranging wind corrector M1:

<table>
<thead>
<tr>
<th>Wind correction scale:</th>
<th>0-20-20-20-20 sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azimuth scale:</td>
<td>0-6,400 mils</td>
</tr>
<tr>
<td>Wind direction scale:</td>
<td>0-360°</td>
</tr>
<tr>
<td>Wind arm scale, wind velocity for 4 sound seconds subbase:</td>
<td>0-30</td>
</tr>
<tr>
<td>Wind arm scale, wind velocity for 4.5 sound seconds subbase:</td>
<td>0-30</td>
</tr>
</tbody>
</table>

**Performance**

**Equipment**

Basic Issue Items: See ORD 7 SNL F-163, for plotting board and ORD 7 SNL F-163, for wind corrector.

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States

<table>
<thead>
<tr>
<th>Plotting board M1 or M1A1:</th>
<th>Board</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Length</td>
<td>7 ft</td>
<td>4 ft, 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>4 ft, 8 in.</td>
<td>3 ft, 8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 8 in.</td>
<td>1 ft, 4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>54.6 cu ft</td>
<td>21.1 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>82 lb</td>
<td>82 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.68</td>
<td>0.68</td>
</tr>
</tbody>
</table>

Wind corrector M1:

<table>
<thead>
<tr>
<th>Shipped (number per box):</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft, 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>7 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.9 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>82 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.07</td>
</tr>
</tbody>
</table>
Plotting board M1 or M1A1:

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Board</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
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</table>

Wind corrector M1:

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL F-163, SNL F-154; TM 9-676, TM 9-4109.
SCALE, GRAPHICAL FIRING: M40A1

General

SCALE, GRAPHICAL FIRING: M40A1 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules or wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A gage point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M40A1 is used with the CANNON, 75 MILLIMETER PACK HOWITZER: M1A1.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard C (OTCM 37255).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Length</th>
<th>12 in.</th>
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</thead>
<tbody>
<tr>
<td>Width</td>
<td>(approx) 2½ in.</td>
</tr>
</tbody>
</table>

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Graphical firing scales per wood box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Graphical firing scales per wood box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SNL F-329; TM 9-524, TM 9-1220-216-12P.
SCALE, GRAPHICAL FIRING: M41A1

General

SCALE, GRAPHICAL FIRING: M41A1 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules or wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A stage point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale: M41A1 is used with the CANNON, 76 MILLIMETER GUN: M32.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 56441).

CHARACTERISTICS

Length .................................................. 12 In.
Width ................................................... (approx) 2 3/8 in.

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped graphical firing scales per wood box.

Length ......................................................
Width ......................................................
Height ......................................................
Volume ......................................................
Gross weight ............................................
Ship tons .................................................

Outside Continental United States

Shipped graphical firing scales per wood box.

Length ......................................................
Width ......................................................
Height ......................................................
Volume ......................................................
Gross weight ............................................
Ship tons .................................................

References: SNL F-329, TM 9-524, TM 9-1220-216-12P.
SCALE, GRAPHICAL FIRING: M42

SCALE, GRAPHICAL FIRING: M42 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules or wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A gage point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M42 is used with the CANNON, 90 MILLIMETER GUN: M36, M41 and M64.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Length 12 in.
Width (approx) 2¾ in.

General

SCALE, GRAPHICAL FIRING: M42 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules or wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A gage point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M42 is used with the CANNON, 90 MILLIMETER GUN: M36, M41 and M64.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Length 12 in.
Width (approx) 2¾ in.

REFERENCES: SNL F-329, TM 9-524, TM 9-525, TM 9-1220-216-12P.
Deleted by C 1.

Pages 12-21 and 12-22 are rescinded by C 3.
SCALE, GRAPHICAL FIRING: M45A1

M45A1, w/e 4-8720-10 1220-885-4979

General
SCALE, GRAPHICAL FIRING: M45A1 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M45A1 graphical firing scale is graduated according to firing table FT 185-3-9 Cl0 and is used with CANNON, 155 MILI-METER GUN: M2.

Data plate location
The data are printed on the face of the scale.

Classification: Standard A (OTCM 06841).
Deleted by C 1.
SCALE, GRAPHICAL FIRING: M48

General

SCALE, GRAPHICAL FIRING: M48 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules or wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A gage point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M48 is used with the CANNON, 120-MILLIMETER GUN: M58.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard B (OTCM 38841)

<table>
<thead>
<tr>
<th>Model</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M48</td>
<td>1220-678-3066</td>
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CHARACTERISTICS

<p>| | |</p>
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<thead>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td>12 in.</td>
</tr>
<tr>
<td>Width</td>
<td>(approx) 2¾ in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>graphical firing scales per wood box.</td>
</tr>
<tr>
<td>Length</td>
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</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
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</tr>
<tr>
<td>Volume</td>
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</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>graphical firing scales per wood box.</td>
</tr>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
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<td>Height</td>
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<td>Volume</td>
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<tr>
<td>Gross weight</td>
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</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-509, TM 9-624, TM 9-625, TM 9-1220-216-12P.
SCALE, GRAPHICAL FIRING: M50

General

SCALE, GRAPHICAL FIRING: M50 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M50 graphical firing scale is graduated according to firing table FT 4.2-8-1 and is used with MORTAR, chemical, 4.2-inch, M1A1 and M2.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 38841).

CHARACTERISTICS

Length

Width

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

Length

Width

Height

Volume

Gross weight

Ship tons

References: SNL F-329, TM 9-1220-216-12P.

Pages 12-27 and 12-28 are rescinded by C 3.
SCALE, GRAPHICAL FIRING: M60

**General**

SCALE, GRAPHICAL FIRING: M60 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M60 graphical firing scale is used with MORTAR, INFANTRY: 4.2-inch, M30. It is a replacement for the M57 graphical firing table.

**Differences among models**

**Data plate location**

The data are printed on the face of the scale.

---

**Secondary item**

<table>
<thead>
<tr>
<th>Model</th>
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<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
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<td>4-37260-15</td>
<td>1220-315-490</td>
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</table>

**Classification:** Standard A (OTCM 36970).

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within and outside Continental United States

Shipped graphical firing scales per wood box.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:**
SCALE, GRAPHICAL FIRING: M64

General

SCALE, GRAPHICAL FIRING: M64 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M64 is graduated according to firing table FT 155-Q-3 and is used with CANNON, 155-MILLIMETER HOWITZER: M1A1 and HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, M44.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 37418).

Characteristics

<table>
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<th>Model</th>
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<tbody>
<tr>
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</table>

Performance

Equipment

Basic issue items: See SM 9-5-1200.

Instructional Material

Storage and shipment data

Within and outside Continental United States

Shipped graphical firing scales per wood box.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
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<tr>
<td>Height</td>
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</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: SM 9-5-1200.
SCALE, GRAPHICAL FIRING: M65

Model | Line item No. | Federal stock No. |
------|---------------|------------------|
M65, w/e | 4-37245-16 | 1220-446-7913 |

General:
SCALE, GRAPHICAL FIRING: M65 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as “RANGE,” “ELEVATION,” “DRIFT,” etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the “RANGE” scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the “RANGE” scale.

The graphical firing scale M65 is used with 8-inch howitzers. It was designed to replace the graphical firing scale M47A1.

Differences among models:

Data plate location
The data are printed on the face of the scale.

Classification:

Characteristics

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
</tr>
</thead>
</table>

Performance

Equipment

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References:
General

SCALE, GRAPHICAL FIRING: M70 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as “RANGE,” “ELEVATION,” “DRIFT,” etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the “RANGE” scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the “RANGE” scale.

The M70 graphical firing scale is used with CANNON, 155-MILLI­­METER HOWITZER, M1A1 and HOWITZER, MEDIUM, SELF-­PROPELLED: 155-mm, M44 when PROJECTILE, 155 MILLI­­METER: illuminating, M118 is used.

Differences among models

Data plate location

The data are printed on the face of the scale.
SCALE, GRAPHICAL FIRING: M71

Model: M71, w/o 4-37246-10 1220-798-8969

General
SCALE, GRAPHICAL FIRING: M71 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M71 graphical firing scale is graduated according to firing table FT 8-J-3 and is used with CANNON, 8-INCH HOWITZER: M2 or M2A1 on CARRIAGE, 8-INCH HOWITZER: M1 and HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M55. It is a replacement for the M47A1 graphical firing scales.

Differences among models:

Data plate location:
The data are printed on the face of the scale.

Classification: Standard A (OTCM 37594).

CHARACTERISTICS

Length

Width

PERFORMANCE

EQUIPMENT

Basic Issue Items: See SM 9-5-1200.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

Length

Width

Height

Volume

Gross weight

Ship tons

References: SM 9-5-1200.
SCALE, GRAPHICAL FIRING: M73

General
SCALE, GRAPHICAL FIRING: M73 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designated and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M73 graphical firing scale is graduated according to firing table FTR 762-F-1 and is used with LAUNCHER, ROCKET: 762-mm, truck-mounted, M386.

Differences among models
Data plate location
Data are printed on the face of the scale.

Classification: Standard A (OTCM 37575).

<table>
<thead>
<tr>
<th>Model</th>
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<tbody>
<tr>
<td>M73, w/e</td>
<td>4-37257-01</td>
<td>1220-898-4214</td>
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</table>

Characteristics

Performance

Equipment

Instructional Material

Storage and Shipment Data

Within and outside Continental United States

Shipped
graphical firing scales per wood box.

Length

Width

Height

Volume

Gross weight

Ship tons

References:
SCALE, GRAPHICAL FIRING: M74

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M74, w/e</td>
<td>4-37256-07</td>
<td>1220-862-2694</td>
</tr>
</tbody>
</table>

General

SCALE, GRAPHICAL FIRING: M74 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rules are plotted with reference to the "RANGE" scale.

The M74 graphical firing scale is graduated according to firing table FTR 762-D-1 and is used with LAUNCHER, ROCKET: 762-mm, M33.

Differences among models

Data plate location

Data are printed on the face of the scale.

Classification: Standard A (OTCM 37446).
SCALE, GRAPHICAL FIRING: XM75

General
SCALE, GRAPHICAL FIRING: XM75 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "VERTICAL INTERVAL (TEMP)," etc., printed ballistic data, and a plastic indicator with matte to receive pencil markings for reference.

The XM75 graphical firing scale is used with BATTLE GROUP, LIGHTWEIGHT: 120-mm weapon system, XM28.

Differences among models

Data plate location
The data are printed on the face of the scale.

Classification: Classification pending.
SCALE, GRAPHICAL FIRING: XM76

**General**  
SCALE, GRAPHICAL FIRING: XM76 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "VERTICAL INTERVAL (TEMP)," etc., printed ballistic data, and a plastic indicator with matte to receive pencil markings for reference.

The XM76 graphical firing scale is used with BATTLE GROUP, HEAVY: 155-mm weapon system, XM29.

**Data plate location**  
The data are printed on the face of the scale.

**Classification:** Classification pending.

**References:** SM 9-5-1200.
SCALE, GRAPHICAL FIRING: XM77

General

SCALE, GRAPHICAL FIRING: XM77 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "VERTICAL INTERVAL (TEMP)," etc., printed ballistic data, and a plastic indicator with matte to receive pencil markings for reference.

The XM77 graphical firing scale is used with BATTLE GROUP, HEAVY: 155-mm weapon system, XM29.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Classification pending.
SCALE, GRAPHICAL FIRING: M78

**Model**
M78, w/e 4-37259-05

**Federal stock No.**
1220-882-7797

**General**
SCALE, GRAPHICAL FIRING: M78 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M78 graphical firing scale is graduated according to firing table FTR 762-A-2 and is used with LAUNCHER, ROCKET: 762-mm, truck-mounted, M289.

**Differences among models**

**Data plate location**
The data are printed on the face of the scale.

**Classification:** Standard A (OTCM 37698).

**Characteristics**

**Performance**

**Equipment**

**Instructional Material**

**Storage and Shipment Data**

**Within and outside Continental United States**

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
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**References:**
SCALE, GRAPHICAL FIRING: M79

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M79, w/o</td>
<td>4-37268-06</td>
<td>1210-884-7766</td>
</tr>
</tbody>
</table>

**General**

 SCALE, GRAPHICAL FIRING: M79 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M79 graphical firing scale is graduated according to FTR 762-C-1 and is used with LAUNCHER, ROCKET: 762-mm, M33.

**Characteristics**

<table>
<thead>
<tr>
<th>PERFORMANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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<tr>
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**Equipment**

**Basic Issue Items:**

**Instructional Material**

**Storage and Shipment Data**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Ship ton</td>
</tr>
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</tr>
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<td></td>
</tr>
</tbody>
</table>

**References:** None.
SCALE, GRAPHICAL FIRING: M80

General

SCALE, GRAPHICAL FIRING: M80 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M80 graphical firing scale is graduated according to firing table FTR 762-B-2 and is used with LAUNCHER, ROCKET: 762-mm, truck-mounted, M289.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 37761).

<table>
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<td>37552-07</td>
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<tbody>
<tr>
<td>EQUIPMENT</td>
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</table>

| INSTRUCTIONAL MATERIAL |               |

| STORAGE AND SHIPMENT DATA |               |

Within and outside Continental United States

Shipped: graphical firing scales per wood box

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<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
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<th>Gross weight</th>
<th>Ship tons</th>
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<tbody>
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</table>

References:

12-41
SCALE, GRAPHICAL FIRING: M81

General
SCALE, GRAPHICAL FIRING: M81 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M81 graphical firing scale is graduated according to firing table FTR 762-E-1 and is used with LAUNCHER, ROCKET: 762-mm, truck-mounted, M3S6.

Differences among models

Data plate location
The data are printed on the face of the scale.

Classification: Standard A (OTCM 37761).

Model Line item No. Federal stock No.
M81, w/e ----------------- 4-37257-05 1220-884-7784

CHARACTERISTICS

Length
Width

PERFORMANCE
EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within and outside Continental United States

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<td>Length</td>
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<td>Gross weight</td>
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<td>Ship tons</td>
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References:
SCALE, GRAPHICAL FIRING: SITE, M52

**CHARACTERISTICS**

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**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-1220-217-12P.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within and outside Continental United States:

Shipped graphical firing scales per wood box.

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<th>Measurement</th>
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<td>Width</td>
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<td>Volume</td>
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<td>Gross weight</td>
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<td>Ship tons</td>
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</table>

**REFERENCES:**

SNL F-351, TM 9-1220-217-12P.
Deleted by C L.
SCALE, GRAPHICAL FIRING: SITE, M56

**GENERAL**
SCALE, GRAPHICAL FIRING, site M56 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "SITE AND VERTICAL INTERVAL," and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections.

The graphical firing scale M56 is graduated according to FT 8-J-1 and is used with 8-inch howitzers.

**DIFFERENCES AMONG MODELS**

**Data plate location**
The data are printed on the face of the scale.

**Classification**: Standard B (OTCM 37504).

**CHARACTERISTICS**

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**PERFORMANCE**

**EQUIPMENT**
Basic Issue Items: See TM 9-1220-217-12P.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

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<td>Gross weight</td>
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<td>Ship tons</td>
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</tbody>
</table>

**References**: SNL F-351, TM 9-1220-217-12P.
SCALE, GRAPHICAL FIRING: SITE, M58

General

SCALE, GRAPHICAL FIRING: SITE M58 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "SITE AND VERTICAL INTERVAL," and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections.

The graphical firing scale M58 is used with CANNON, 155-MILLIMETER GUN; M2 or M2A1 and CARRIAGE, 155-MILLIMETER GUN; M1.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 36220).

---

**CHARACTERISTICS**

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**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within and outside Continental United States

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<tr>
<td></td>
<td>Ship tons</td>
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</tr>
</tbody>
</table>

**References:**

---

12-10
SCALE, GRAPHICAL FIRING: SITE, M67

**General**

SCALE, GRAPHICAL FIRING: SITE M67 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "SITE AND VERTICAL INTERVAL," and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections.

The graphical firing scale M67 is graduated according to firing table FT 155-Q-3 and is used with CANNON, 155-MILLIMETER HOWITZER: M1A1 and HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, M44.

**Differences among models**

**Data plate location**

The data are printed on the face of the scale.

**Classification:** Standard A (OTCM 37413).

---

**Characteristics**

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<thead>
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---

**Performance**

**Equipment**

Basic Issue Items: See SM 9-5-1200.

---

**Instructional Material**

---

**Storage and Shipment Data**

Within and outside Continental United States:

Shipped graphical firing scales per wood box.

Length
Width
Height
Volume
Gross weight
Ship tons

References: SM 9-5-1200.
SCALE, GRAPHICAL FIRING: SITE, M72

General

SCALE, GRAPHICAL FIRING: site M72 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "SITE AND VERTICAL INTERVAL," and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections.

The graphical firing scale M72 is graduated according to firing table FT 8-J-2 and is used with 8-inch howitzers.

Differences among models

Data plate location

Classification: Standard A (OTCM 37504).

<table>
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<tr>
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<td>M72, w/e</td>
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CHARACTERISTICS

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PERFORMANCE

EQUIPMENT

Basic Issue Items: See SM 9-5-1200.

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

<table>
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<th>Description</th>
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<tbody>
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<td>Volume</td>
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<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
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</tr>
</tbody>
</table>

References: SM 9-5-1200.
SIGHT, COMPUTING: M13A1

**General**

SIGHT, COMPUTING: M13A1 converts estimates of target course and target speed into leads for the gun. At the same time, it increases automatically the vertical angle by the amount of superelevation. Estimates of the course and speed of the target are continuously made by members of the gun crew using the reflex sights M24C located at both ends of the computing sight. These estimates are set into a computing mechanism where they are resolved mechanically. The resulting action moves the reflex sights, through which the target is tracked, so that the line-of-sight with respect to the axis of the gun bore is positioned to include the necessary vertical and lateral leads. Thus, the gun tubes are displaced a sufficient amount to fire towards the target's anticipated position.

Each reflex sight reticle is illuminated for night operation by a LIGHT, INSTRUMENT: M44. Speed ring sights are provided for use in the event of failure of the computing sights.

The computing sight M13A1 is used for direct fire against aircraft with CANNON, 40 MILLIMETER DUAL AUTOMATIC GUN: M2 or M2A1 on the MOUNT, GUN: 40-mm, twin M4 or M4E1, and GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED: twin 40-mm, M19A1.

**Differences among models**

Data plate location:
The identification plate is located on the main support bracket.

Classification: Limited standard (OTCM 32265).

**CHARACTERISTICS**

**Target maximum limit:**
- Azimuth: 6,400 mils
- Speed: 500 mph

**Superelevation:**
- At 0-mil gun elevation: 9 mils
- At 1,600-mils gun elevation: 0 mils
- Direction-of-flight arrow: 360°

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL F-316.

**INSTRUCTIONAL MATERIAL**

For graphic training aids and devices, see DA Pam 310-5.

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

Shipped 1 computing sight per box (w/e).

- Length: 6 ft, 3 in.
- Width: 2 ft
- Height: 1 ft, 4 in.
- Volume: 16.7 cu ft
- Gross weight: 300 lb
- Ship tons: 0.42

*Outside Continental United States*

Shipped per

- Length: 6 ft, 3 in.
- Width: 2 ft
- Height: 1 ft, 4 in.
- Volume: 16.7 cu ft
- Gross weight: 300 lb
- Ship tons: 0.42

**References:** SNL F-316, TM 9-1609.
SIGHT, COMPUTING: M38 (T154)

General
SIGHT, COMPUTING: M38 (T154) is an on-carriage sighting device designed for controlling fire against aerial, on vehicular or fixed targets. Estimated target course and speed information is set into the computer assembly manually by the sight-setter, where the necessary amount of lead for the gun is resolved mechanically. The resulting action moves the SIGHT, REFLEX: M24C,* through which the target is tracked, so that the line-of-sight with respect to the axis of the gun bore is deflected in both elevation and azimuth and is positioned to include the necessary vertical and lateral leads. Thus, the gun is maintained on an effective line of fire. LIGHT, INSTRUMENT: M44 illuminates the reticle of SIGHT, REFLEX: M24C for night operation. Speed ring sights are provided for use in the event of failure of the computing sight.

The computing sight M38(T154) is used on the GUN, ANTI-AIRCRAFT ARTILLERY, SELF-PROPELLED: twin 40-mm, M42 and M41A1.

Data plate location
The identification plate of SIGHT, REFLEX: M24C, is located on the sight body mount.

Classification: Standard A (OTCM 37205).

CHARACTERISTICS

Data plate location
The identification plate of SIGHT, REFLEX: M24C, is located on the sight body mount.

Classification: Standard A (OTCM 37205).

**For characteristics and data, see item in section 14.**

Secondary item

<table>
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<tr>
<th>Model</th>
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<tbody>
<tr>
<td>M38(T154)</td>
<td></td>
<td>1220-766-5137</td>
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</tbody>
</table>

Differences among models

* Length, ring sight support stowed: 5 ft, 1 in.
* Width: 1 ft, 10 in.
* Height: 2 ft, 1 in.
* Weight: 305 lb
* Speed settings: 0 to 700 mph (20 mph increments)
* Angle:
  - Target course azimuth: 360°
  - Maximum dive: 85°
  - Maximum climb: 85°
  - Elevation limits (power): 3 to ±85°

Maximum lead deflection:
- Vertical: (approx) 400 miles
- Lateral: (approx) 400 miles

Superelevation:
- At 0-mil gun elevation: 9 mils
- At 1,600-mils gun elevation: 0 mils
- Gun mount operating voltage: 24-volts dc
- Average projectile velocity: 819 yds per sec
Basic triangulation of computer:
Long leg ................................. 5.850 in.
Short leg ................................ 2.440 in.

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-7218.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped computing sight per box.
Length ....................................
Width ....................................

Outside Continental United States

Shipped computing sight per box.
Length ....................................
Width ....................................
Height ....................................
Volume ....................................
Gross weight .............................
Ship tons ................................

References: SNL F-363, TM 9-6061, TM 9-1220-201-35P.
TABLE, GRAPHICAL FIRING FAN: M1

General

TABLE, GRAPHICAL FIRING FAN: M1 is of the protractor type and is fabricated of plastic. It is used with CANNON, 105 MILLIMETER HOWITZER: M2A1. It is a replacement for SCALE, GRAPHICAL FIRING: M39A1.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped graphical firing fan tables per

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<tr>
<th>Line item No.</th>
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Outside Continental United States

Shipped graphical firing fan tables per

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Reference: TM 9-1220-216-12P.
### TABLE, GRAPHICAL FIRING FAN: M2

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<tr>
<th>Model</th>
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<tbody>
<tr>
<td>M2, w/o</td>
<td>4-87255-10</td>
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</table>

#### General

TABLE, GRAPHICAL FIRING FAN: M2 is of the protractor type and is fabricated of plastic. It is used with CANNON, 155-MILLIMETER HOWITZER: M1 and M1A1.

#### Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

#### CHARACTERISTICS

#### PERFORMANCE

#### EQUIPMENT

Basic Issue Items: See TM 9-1220-216-12P.

### INSTRUCTIONAL MATERIAL

#### STORAGE AND SHIPMENT DATA

**Within Continental United States**

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<td>Volume</td>
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**Outside Continental United States**

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<td>Gross weight</td>
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Reference: TM 9-1220-216-12P.
SECTION 13

FIRE CONTROL SYSTEMS, COMPLETE

(CLASS 1230)

(Includes antiaircraft fire control and field artillery fire control systems.)

<table>
<thead>
<tr>
<th>FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C, M33A1C, M33B1C, and T33C, w/e</th>
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</tr>
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<tbody>
<tr>
<td>FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38)</td>
<td>13–10</td>
</tr>
<tr>
<td>FIRE CONTROL SYSTEM, FIELD ARTILLERY: M35 or M35C</td>
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</tbody>
</table>
(Includes system components listed below)

- **Acquisition Antenna Assembly**
- **Radar Cabinet Assembly**
- **Computer Assembly**
- **Tactical Control Console Assembly**
- **Tracking Console Assembly**

The acquisition antenna continuously searches the defense area and presents target position information through the radar cabinet to the tactical control console and tracking console, where the information is displayed as acquisition video signals on a 10-inch cathode ray tube and a 6-inch cathode ray tube on each console.

**General**

FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C, M33A1C, M33B1C, or T33C, consists of the ANTENNA, ACQUISITION ASSEMBLY; ORD No. 8005306 or 7621808, the CABINET, RADAR ASSEMBLY; ORD No. 7622362, 7622222, or 7622021, the ANTENNA TRACKING ASSEMBLY; ORD No. 7622329 or 7622028, the CONSOLE, TACTICAL, CONTROL ASSEMBLY; ORD No. 7622182 or 7622166, the COMPUTER, and the CONSOLE, TRACKING ASSEMBLY; ORD No. 7622182 or 7622028.

A periscope maintains synchronism with the ANTENNA, TRACKING ASSEMBLY, to provide visual observation of the target area, and

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M33C</td>
<td>6-14444-30</td>
<td>1250-596-0902</td>
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<tr>
<td>M33A1C</td>
<td>6-14444-20</td>
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<td>M33B1C</td>
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<tr>
<td>T33C</td>
<td>6-14444-40</td>
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</table>

Any target may be selected and transferred to the track antenna assembly. Associated with the radar cabinet assembly and tracking console assembly, to track the target and provide accurate present position information to the computer assembly, which automatically determines the firing data used to direct guns, set projectile fuses and supply coordinate data to the tactical control console assembly, which plots present and predicted target positions on plotting boards. The incoming radar impulse reflected from the target is displayed on tracking video on three 6-inch cathode ray tubes located on the tracking console. A system of cables transmits power, signal, and communication data between components of the antiaircraft fire control system. The antiaircraft fire control system M33 or T33 series is a mobile, integrated, electromechanical fire control system. It is capable of locating and displaying on a cathode-ray tube high-speed targets within the defense area, on the basis of radar or optical observation, supplying firing data to direct accurately the fire of antiaircraft guns. To accomplish its mission, the system requires from outside sources only primary power, early warning information, and meteorological data.

13-2
can be used for spotting purposes, and for optical tracking. The CABINET, RADAR ASSEMBLY, the COMPUTER ASSEMBLY, the CONSOLE, TACTICAL CONTROL ASSEMBLY, and the CONSOLE, TRACKING ASSEMBLY are located in the TRAILER, FIRE CONTROL MOUNT: M242. When the system is ready for travel, all the component parts are housed on trailers. The antiaircraft fire control systems M38C, M38A1C, M38BIC, and T33C are designed to compute the necessary firing data for controlling the 90-mm antiaircraft guns.

Components:

- ANTENNA, ACQUISITION ASSEMBLY: ORD No. 7621808 AND ORD No. 8005806 ........................................... 13-4
- ANTENNA, TRACKING ASSEMBLY: ORD No. 7604171 AND ORD No. 7621595 ........................................... 13-5
- CABINET, RADAR ASSEMBLY: ORD No. 7622027, ORD No. 7622222, AND ORD No. 7622362 ............................. 13-6
- COMPUTER ASSEMBLY: ORD No. 7604074 AND ORD No. 7621789 ......................................................... 13-7
- CONSOLE, TACTICAL CONTROL ASSEMBLY: ORD No. 7604182 AND ORD No. 7621619 ............................ 13-8
- CONSOLE, TRACKING ASSEMBLY: ORD No. 7622028 AND ORD No. 7622329 ............................. 13-9

Differences among models

The various models of the antiaircraft fire control system M38 and T33 series are basically similar. The models differ in the type of trailers, trucks, truck chassis, and vans used. Fire control systems M38C and M38A1C employ a rectangular, horizontally elongated ANTENNA, ACQUISITION ASSEMBLY: ORD No. 8005806. M38BIC and T33C employ a round-reflector ANTENNA, ACQUISITION ASSEMBLY: ORD No. 7621808.

Classifications: Standard B (OTCM 37119), except T33C.

PERFORMANCE

- Acquisition radar:
  - Range: 120,000 yd
  - Search altitude: 76,000 ft
  - Rotation: 10, 20, or 30 rpm
- Tracking radar:
  - Limits of operation:
    - Azimuth: no limit
    - Elevation: 180 to +1,400 mils
  - Range: 0 to 100,000 yd
  - Target speed: 0 to 1,500 fps

EQUIPMENT

- Basic Issue Items: See ORD 7 SNL F-342.
- STORAGE AND SHIPMENT DATA
  - Within Continental United States
    - Shipped:
      - Length
      - Width
      - Height
      - Volume
      - Gross weight
      - Ship tons
  - Outside Continental United States
    - Shipped:
      - Length
      - Width
      - Height
      - Volume
      - Gross weight
      - Ship tons

ANTENNA, ACQUISITION ASSEMBLY: ORD NO. 7621808 AND ORD NO. 8005306

General

ANTENNA, ACQUISITION ASSEMBLY: ORD NO. 7621808 or ORD NO. 8005306, consists of an antenna and antenna drive, orientation test set, radio frequency coupler, acquisition modulator, and antenna mounting legs. The acquisition antenna is a reflector-type antenna with a fiberglass protective dome. The antenna receives radio frequency energy, forms it into a beam, and radiates it into space. In the M33 system, the beam is raised or lowered by use of the cosecant bar; in the T33 system, the beam is raised or lowered by vertical movement of the acquisition scanner. The antenna also picks up the returned echo signals, reflected from the target, and feeds them to the CABINET, RADAR ASSEMBLY. The acquisition antenna assembly and the CABINET, RADAR ASSEMBLY are components of the acquisition radar, which presents range and azimuth position information of the target to the tracking radar (see ANTENNA, TRACKING ASSEMBLY). The acquisition antenna controls, which consist of the azimuth-acquisition control and the range-acquisition control, are components of the CONSOLE, TACTICAL CONTROL ASSEMBLY and console tracking assembly. The acquisition antenna radiates radio pulses in either a pencil-shaped beam or a cosecant-squared beam, and continuously searches the defense area. It normally rotates continuously through 360° of azimuth at speeds of 10, 20, or 30 rpm. The radio frequency rotary coupler transfers power and signal voltages between the fixed components of the antenna mounting and the rotating portion of the acquisition antenna. The acquisition antenna assembly is not located on the fire-control system trailer when the FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33 or T33 series is emplaced, but is separately emplaced on the ground.

The acquisition antenna assembly ORD No. 7621808 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33BIC and T33C. The model ORD No. 8005306 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33AIC.

Differences among models

Model ORD No. 7621808 is a round-reflector antenna, used with FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33BIC and T33C. Model ORD No. 8005306 is a rectangular, horizontally elongated antenna, used with FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33AIC.

Data plate location

Classification: Standard B.

CHARACTERISTICS

Peak power: 1 megawatt
Frequency band: 3,100 to 3,500 mc
Length: 16 ft
Width: 5 ft
Height: 15 ft
Weight: 2,243 lb

PERFORMANCE

Rotation: 10, 20, or 30 rpm
Search altitude: 75,000 ft
Range: 120,000 yards

EQUIPMENT

Basic Issue Items: See ORD 7 SNL F-342.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

ANTENNA, TRACKING ASSEMBLY: ORD NO. 7604171 AND ORD NO. 7621595

General

ANTENNA, TRACKING ASSEMBLY: ORD No. 7604171 or ORD No. 7621595 consists of the elevation and azimuth tracking drives and data converters, upper section and lower section periscopes, collector ring, tracking radio frequency coupler, tracking scanner, and tracking waveguide lens. The tracking antenna ORD No. 7604171 or ORD No. 7621595 is mounted on the fire-control system trailer roof. The collector ring transfers power and signal voltages between the fixed components of the fire-control system trailer and the rotating portion of the tracking antenna. The tracking antenna is a reflector-type antenna, which radiates a sharply focused pencil beam in a conical path. It receives returned echo pulses reflected from any target upon which it may be directed. The tracking antenna assembly and the CABINET, RADAR ASSEMBLY are components of the tracking radar, which tracks a target and furnishes accurate target range, azimuth and elevation position information to the COMPUTER ASSEMBLY. A periscope maintains synchronism with the tracking antenna to provide visual observation of the target area, and can be used for spotting purposes, and for optical tracking.

The tracking antenna assembly ORD No. 7604171 is a component of FIRE CONTROL SYSTEM, ANTI AIRCRAFT: M33C and M33AIC. ORD No. 7621595 is a component of FIRE CONTROL SYSTEM, ANTI AIRCRAFT: M33BIC and T33C.

Differences among models

The two models are basically similar, differing in minor details.

Data plate location

Classification: Standard B.

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<tr>
<td>ORD No. 7621595</td>
<td>1230-762-1595</td>
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</table>

CHARACTERISTICS

Limits of operation:
Azimuth
Elevation
-180 to +1,600 mils
Peak power (RF)
250 kw
Frequency band
8,000 to 9,000 mc
Width, waveguide lens diameter
6 ft. 9 in.

PERFORMANCE

Range
100,000 yd.

EQUIPMENT

Basic Issue Items: See ORD 7 SNL F-342.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

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Outside Continental United States

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</table>

CABINET, RADAR ASSEMBLY: ORD NO. 7622027, ORD NO. 7622222, AND ORD NO. 7622362

The radar cabinet consists of the radar power control panel; low voltage power supplies; voltage regulators; delay timers; acquisition and track radar high voltage power supplies; tracking trigger, carrier, timing wave, and tracking range generators; tracking and range modulators; elevation and azimuth angle detectors, and high power servos; relay and test amplifiers; pulse demodulators; pulse and moving target synchronizers; video and mark mixer, and the switching and mixing unit.

The radar cabinet assembly ORD No. 7622027 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: T33C. Model ORD No. 7622222 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33B1C. Model ORD No. 7622362 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33A1C.

Differences among models
The various models are basically similar, differing in minor details.

Data plate location
Classification: Standard B.

CHARACTERISTICS

Frequency:
Acquisition radar ..............................................3,100 to 3,500 mc
Tracking radar .....................................................8,500 to 9,600 mc

Peak (RF) power:
Acquisition radar ..............................................1,000 kw
Tracking radar .....................................................250 kw

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL F-342.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 radar cabinet per box.
Length ............................................................
Width ...........................................................
Height ...........................................................
Volume ..........................................................
Gross weight ...................................................
Ship tons .........................................................

Outside Continental United States
Shipped 1 radar cabinet per box.
Length ............................................................
Width ...........................................................
Height ...........................................................
Volume ..........................................................
Gross weight ...................................................
Ship tons .........................................................

COMPUTER ASSEMBLY: ORD NO. 7604074 AND ORD NO. 7621789

COMPUTER ASSEMBLY: ORD Nos. 7604074 and 7621789 consists of the computer power control panel; correction panel; low voltage power supplies; voltage regulators; computer modulators; low power servo and DC amplifiers; relay panels; fuse, elevation, azimuth, and time of flight servos. The computer assembly receives accurate present position information from the radar cabinet assembly and tracking antenna assembly and automatically determines the firing data, which is used to direct guns and set projectile fuzes and to supply coordinate data to tactical control console assembly, which plots present and predicted target positions on plotting boards. The computer assembly calculates where to aim a gun, considering the motion of the target along either a straight line or a curved path, at a constant or changing speed, likewise considering the forces that affect the speed of the projectile due to gravity and atmospheric conditions.

The computer assembly ORD No. 7604074 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33A1C. The model ORD No. 7621789 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33B1C and T33C.

Differences among models

The various models are basically similar, differing in minor details.

Data plate location

Classification: Standard B.

CHARACTERISTICS

Limits of operation:

- Azimuth: no limit
- Elevation: -200 to +1,600 mils

Slant range: 40,000 yd
Time of flight (servo): 36 sec
Target velocity: 500 yd per sec
Wind velocity: 15 mph
Angular cracking rate:
  - Azimuth: 700 mils/sec
  - Elevation: 500 mils/sec

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL F-342.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

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<th>Shipped</th>
<th>Length</th>
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<th>Gross weight</th>
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Outside Continental United States

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<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

CONSOLE, TACTICAL CONTROL ASSEMBLY: ORD NO. 7604182 AND ORD NO. 7621619

**General**

CONSOLE, TACTICAL CONTROL ASSEMBLY: ORD No. 7604182 and 7621619, consists of the horizontal-range, present and predicted altitude plotting boards; plan position, precision and target rate indicators; acquisition antenna control and monitor control panels. Present and predicted target position coordinate plotting data is supplied to the tactical control console assembly by the computer assembly. The horizontal-range plotting board plots present and predicted target positions in the horizontal plane. The altitude plotting board consists of two sections: one plots present altitude and present horizontal range; the other plots predicted altitude and predicted horizontal range. The target-rate indicator displays target velocity and acceleration information on panel meters. The controls of the acquisition antenna assembly which are part of the tactical control console assembly consist of the azimuth-acquisition control, range-acquisition control, elevation and azimuth acquisition scan controls.

The tactical control console assembly ORD No. 7604182 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33A1C. The model ORD No. 7621619 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33BIC and T33C.

**Characteristics**

Plotting boards:

- **Width:**
  - Horizontal range: 28.8 in.
  - Present altitude: 14.4 in.
  - Predicted altitude: 14.4 in.

**Dimensions**

- **Height:**
  - Horizontal range: 28.8 in.
  - Present altitude: 38.0 in.
  - Predicted altitude: 14.6 in.

**Limits of operation:**

- Horizontal range: 40,000 yd
- Present altitude: -500 to +20,000 yd
- Predicted altitude: 500 to +26,000 yd altitude, 0 to 36 sec time of flight.

**Performance**

**Equipment**

**INSTRUCTIONAL MATERIAL**

**Storage and Shipment Data**

**Within Continental United States**

- Shipped 1 tactical control console per box.
  - Length: 
  - Width: 
  - Height: 
  - Volume: 
  - Gross weight: 
  - Ship tons: 

**Outside Continental United States**

- Shipped 1 tactical control console per box.
  - Length: 
  - Width: 
  - Height: 
  - Volume: 
  - Gross weight: 
  - Ship tons: 

**References:** SNL F-342, TM 9-6092 series, TM 9-6093 series, TM 9-679B, TM 9-9620 series.
CONSOLE, TRACKING ASSEMBLY: ORD NO. 7622028 AND ORD NO. 7622329

CONSOLE TRACKING ASSEMBLY: ORD No. 7622028 or 7622329 consists of the precision, trial-fire, tracking elevation, azimuth, range and plan-position indicators, tracking and acquisition receiver controls, indicator high voltage power supply; and the tracking-console control drawer. The tracking console assembly provides indicators and controls for observing and tracking targets designated by the officer stationed at the tactical control console.

The tracking console assembly ORD No. 7622028 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33B1C and T33C. The tracking console assembly ORD No. 7622329 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33A1C.

Differences among models:
The two models are basically similar, differing in minor details.

Performance

Gross weight

Volume

Weight

Height

Shipped

Volume

Height

Weight

Shipped

Volume

Height

Weight

FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38)
(Includes system components listed below)

SYSTEM, SIGHTING:
M37 (T34E1)

*PERISCOPE:
M23 (T33)

*COMPUTER, BALLISTICS:
M10 (T27E2)

SELECTOR, TARGET:
M5 (T1E2)

SYSTEM, CABLE:
M9 (T1E1)

CONTROL, POWER:
M16 (T21E1)
(HYDRAULIC PUMPS)

RESOLVER, WIND UNIT ASSEMBLY
ORD No. 7630042

*COMPONENTS OF DIRECTOR: M15

WIRING SET: M26 NOT SHOWN

Component:

<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL, POWER: M16 (T21E1)</td>
<td>18-12</td>
</tr>
<tr>
<td>DIRECTOR: M15 (T41E2)</td>
<td>13-13</td>
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<tr>
<td>COMPUTER, BALLISTICS: M10 (T27E1)</td>
<td>13-14</td>
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<td>PERISCOPE: M22 (T33)</td>
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<td>RESOLVER, WIND UNIT ASSEMBLY, ORD No. 7630042</td>
<td>13-17</td>
</tr>
<tr>
<td>TRACKER, RADAR: M4 (T9)</td>
<td>13-18</td>
</tr>
<tr>
<td>SELECTOR, TARGET: M5 (T1E2)</td>
<td>13-20</td>
</tr>
<tr>
<td>CABLE SYSTEM, FIRE CONTROL: M36 (T31E1)</td>
<td>13-22</td>
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<tr>
<td>SIGHTING SYSTEM, AUXILIARY: M37 (T34E1)</td>
<td>13-24</td>
</tr>
<tr>
<td>TELESCOPE: M95 (T15E1) (azimuth) and M96C (elevation)</td>
<td>13-26</td>
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<tr>
<td>WIRING SET: M26 (T3E1)</td>
<td>13-27</td>
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Component:

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<th>Model</th>
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<tbody>
<tr>
<td>M38 (T38), w/2</td>
<td></td>
<td>FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) is used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapon system. M38 to form a compact, highly mobile weapon designed primarily for use against low flying, high speed aircraft and designated as the &quot;Skysweeper.&quot; Components of the DIRECTOR: M15 (T41E2), the TRACKER, RADAR: M4 (T9), and COMPUTER, BALLISTICS: M10 (T27E2) supply automatic gun laying data to the CONTROL, POWER: M16 (T21E1) of the gun and to PERISCOPE: M22 (T33) on the computer which is continuously aligned with the automa. The RESOLVER, WIND UNIT ASSEMBLY introduces wind component corrections to the electronic computing circuits of the power control. The com may be positioned on a target manually by means of knobs, sighting being done by auxiliary TELESCOPE: M95 (T15E1) (azimuth) and M96C (elevation) of the SYSTEM, SIGHTING, AUXILIARY: M37 (T34E1). The SELECTOR, TARGET: M5 (T1E2) is an auxiliary sighting device which is used to spot targets that are more hazardous than the one the on-mount personnel have engaged, and to sound a warning horn on the mount, automatically aligning the radar beam with the spotted target. The WIRING SET: M26 (T3E1) includes electrical connections to the gun mount and the fire control system. The CABLE SYSTEM, FIRE CONTROL: M36 (T31E1) includes the power supply cable and the electrical connections between the target selector and the on-mount major items of the fire control system.</td>
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<td>13-10</td>
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</tbody>
</table>
Classification: Standard B (OTCM 37255).

PERFORMANCE

Limits of operation:
- Elevation: Powered -90 to 1,490 mils, Manual -104 to 1,511 mils
- Azimuth: No limit
- Searching range: 24,000 yd
- Target speed: 0 to 1,800 fps

EQUIPMENT

Basic Issue Items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

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Outside Continental United States

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</table>

CONTROL, POWER: M16 (T21E1)

The control, power: M16 (T21E1) includes the gun traversing and elevating equipment of the FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M3B and contains two independently operating power systems, an azimuth power system and an elevation power system. Each power system consists of a hydraulic pump assembly, a case assembly housing the amplifier chassis, a gearing assembly, hydraulic lines and fittings. The hydraulic pumps drive the hydraulic motors geared to the elevation rack of the gun cradle and the azimuth ring gear. The gun dial assemblies, mounted on the gearing assemblies, contain dials for indicating gun azimuth and elevation. The COMPUTER, BALLISTICS: M10 calculates the gun position required to score hits on a target and supplies separate azimuth and elevation information to the power control M16, which positions the gun accordingly for firing by traversing the top carriage and simultaneously elevating or depressing the gun.

The power control M16 is a component of FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M3B (T38) used on GUN, ANTI-AIRCRAFT ARTILLERY, TOWED: 76-mm weapons system, M51.

Differences among models

Data plate location

The identification plates of the azimuth power control and of the elevation power control are located on the corresponding case assemblies.

Classification: Standard B (OTCM 37254).

CHARACTERISTICS

Type: Electro-hydraulic-mechanical

Elevation limits:

Manual:
- Upper: 1,511 mils
- Lower: -106 mils

Powered:
- Upper: 1,490 mils
- Lower: -90 mils
- Variable: 470 to -90 mils

Azimuth coverage: Continuous 6,400 mils

Slew speed, maximum:
- Azimuth: 1,050 mils/sec

Acceleration, average:
- Azimuth: 2,500 mils/sec
- Elevation: 2,000 mils/sec

Hydraulic pressure, maximum:
- Azimuth: 3,000 psi
- Elevation: 2,000 psi

Hydraulic transmission, each:
- Replenishing pressure: 110 psi
- Fluid capacity: 5 gal

Mechanical transmission, each:
- Oil capacity: 5 qt

Power requirements: 115-v, 60-c, 3-phase ac

Power control case assembly:
- Length: 49 in
- Width: 14 in
- Height: 29 in

Hydraulic pump assembly:
- Length: 34 in
- Width: 13 in
- Height: 14 in

Weight, dry:
- Azimuth power system: 1,000 lb
- Elevation power system: 1,000 lb

REFERENCES:

SNL F-350, TM 9-3026, TM 9-6081.
DIRECTOR: M15 (T41E2)

**Model**: M15 (T41E2)

**Line item No.**: 1210-335-5930

**Federal stock No.**: 1210-335-5930

**General**
DIRECTOR: M15 (T41E2) is composed of the COMPUTER, BALLISTICS: M16 (T31E2), PERISCOPE: M22 (T33), RESOLVER, WIND UNIT ASSEMBLY (ORD No. 7530042), and TRACKER, RADAR: M4 (T9). During tracking operation the TRACKER, RADAR: M4 (T9) continuously furnishes target present position information to the COMPUTER, BALLISTICS: M16 (T31E2). From these data, the computer calculates the gun position required to score on the target. The computer also includes a PERISCOPE: M22 (T33) for manually controlled optical tracking of an acquired target. Wind corrections are introduced to the computer circuits by the RESOLVER, WIND UNIT ASSEMBLY ORD No. 7530042 to compensate for the effect of ballistic wind on the projectile during its time of flight.

The director M15 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.

**Data plate location**

**Classification**: Standard B (OTCM 37236).

**Characteristics**

**Performance**

**Equipment**

**Basic Issue Items**: See ORD 7 SNL D-48.

**Instructional Material**

**Storage and Shipment Data**

**Within Continental United States**

<table>
<thead>
<tr>
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<th>Length</th>
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<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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**Outside Continental United States**

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</tbody>
</table>

**References**: SNL F-800, TM 9-3026, TM 9-6081.
COMPUTER, BALLISTICS: M10 (T27E2)

Differences among models

Data plate location
The identification plate is located on the rear face of the console.

Classification: Standard B (OTCM 37255).

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M10 (T27E2)</td>
<td>1285-335-5035</td>
<td></td>
</tr>
</tbody>
</table>

General

COMPUTER, BALLISTICS: M10 (T27E2) components are contained in a large console mounted in the forward right corner of the gun carriage of the gun mount and to the right of the gun barrel. Mounted on the rear face of the console are the PERISCOPE: M22, the handlebar unit, rate sensitivity switch, and the dial panel unit containing dials, control knobs, the gun control switch, and control transmitters. The console contains two electronic racks and five electro-mechanical assemblies which include the converter units, prediction unit, inverter unit, and the ballistic unit. PERISCOPE: M22 is connected mechanically through shafts to a converter unit, computer servo-motors position the optical elements of the periscope, thereby affording a means of optical tracking. The periscope line-of-sight is normally aligned with the radar, when traveling, the periscope swings outward and down. The ballistic computer M10 is mechanically and electrically, through WIRING SET: M26, connected to the TRACKER RADAR: M4 and to CONTROL, POWER: M16. The CABLE FIRE CONTROL SYSTEM, M38 connects the computer to the SELECTOR, TARGET: M3. The ballistic computer M10 is used to calculate gun-positioning data from target present-position data. Present-position information is supplied as electrical data either by TRACKER RADAR: M4 or by the handlebar unit and PERISCOPE: M22. From this information, the ballistic computer M10 continuously calculates the gun position required to score hits on a target and supplies this information to CONTROL, POWER: M16, which positions the gun accordingly. The RESOLVER, WIND UNIT ASSEMBLY ORD No. 740042, mounted on the CONTROL, POWER: M16, introduces wind corrections to the computer circuits to compensate for the effect of ballistic wind on the projectile during its time of flight.

The ballistic computer M10 is a part of the DIRECTOR: M15, which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T88), used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.

Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electro-mechanical</td>
<td>Altitude: 1,550 to 11,500 yd</td>
</tr>
<tr>
<td>Elevation</td>
<td>-180° to 1,650 mils</td>
</tr>
<tr>
<td>Sight range</td>
<td>0 to 11,500 yd</td>
</tr>
<tr>
<td>Target speed</td>
<td>0 to 600 yd/sec</td>
</tr>
<tr>
<td>Projectile time of flight</td>
<td>0 to 14.5 sec</td>
</tr>
<tr>
<td>Quadrant elevation</td>
<td>-200° to 1,650 mils</td>
</tr>
<tr>
<td>Wind velocity</td>
<td>0 to 120 mph</td>
</tr>
<tr>
<td>Max. velocity correction</td>
<td>1,625 to 3,625 fps</td>
</tr>
<tr>
<td>Air density correction</td>
<td>-25 to 25 percent</td>
</tr>
<tr>
<td>Trunnion tilt correction</td>
<td>5°</td>
</tr>
<tr>
<td>Power requirements</td>
<td>115-v, 60 c, 3-phase, ac</td>
</tr>
<tr>
<td>Depth</td>
<td>61 in.</td>
</tr>
<tr>
<td>Width</td>
<td>34.5 in.</td>
</tr>
<tr>
<td>Height</td>
<td>65.1 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>1,902 lb</td>
</tr>
<tr>
<td>Weight (w/PERISCOPE: M22)</td>
<td>2,030 lb</td>
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</table>

Performance

Equipment

Basic issue items: See ORD.:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
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<th>Volume</th>
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Outside Continental United States

<table>
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<tr>
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</tbody>
</table>

PERISCOPE: M22 (T33)

General

PERISCOPE: M22 (T33) is an optical instrument that has an offset line-of-sight to enable an operator to view the target without exposing himself. It consists of a main housing which mounts the periscope tube with a rotating head, an eyepiece, a line-of-sight indicator, and a filter control. The housing, tube, and head contain prisms and lenses. Light enters the rotating head through a glass window, is reflected down by a right angle reflecting head prism, passes through a Dove prism which is rotated by a gear mechanism, to maintain an erect image and is deflected into the eyepiece by a Penta prism in the main housing. Periscope M22 (T33) is bolted to the rear of the console unit of COMPUTER, BALLISTICS: M10 (T27E2), and is connected mechanically, through shafts to the converter unit. Computer servo motors position the optical elements of the periscope, thereby affording a means of optical tracking. The periscope line-of-sight is normally continuously aligned with the antenna of the tracking radar scanner except in search. The operator of the COMPUTER, BALLISTICS: M10 (T27E2) can assume control of the gun through the handlebar unit beneath the periscope sight, firing buttons on the handlebar unit are provided for firing the gun during radar automatic and periscope tracking. The reticle is placed in the optical system of the periscope M22, and the combined image of reticle markings and target are transmitted by the optical system as a single image. The reticle speed rings are used to track rapidly moving targets, as an emergency mode of operation. Proper lead is introduced to the gun by centering the target on one of the speed rings instead of the reticle. These speed rings are graduated to introduce lead angles consistent with target speeds of 200 or 800 yd/sec. Reticle lamps provide illumination of the reticles. During traveling, the periscope is folded downward for protection.

Periscope M22 (T33) is a part of DIRECTOR: M15 (T4E2), which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38), used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 76-mm weapons system, M61.

Differences among models

Data plate location

The identification plate is located on the periscope assembly base.
Classification: Standard B (OTCM 37255).

CHARACTERISTICS

Coverage:
- Azimuth: Continuous 6,400 mils
- Elevation: -200 to 1,550 mils
- Magnification: 2 X
- Field of view: 30°
- Weight: 128 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 periscope per box.
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

Outside Continental United States

Shipped 1 periscope per box.
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

References: SNL F-860, TM 9-3026, TM 9-6081.
RESOLVER, WIND, UNIT ASSEMBLY, ORD NO. 7630042

**Secondary Item**

<table>
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<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>ORD No. 7630042</td>
<td></td>
<td>1290-763-0042</td>
</tr>
</tbody>
</table>

**General**

RESOLVER, WIND, UNIT ASSEMBLY, ORD No. 7630042 contains terminal blocks and potentiometers, and introduces wind component corrections to the electronic computing circuits of COMPUTER: M16 (TT712). Two dials and knobs provide for manually setting the values of ballistic wind into the wind resolver. The MAIN START-STOP buttons for CONTROL, POWER: M16 are also located on the resolver case. WIRING SET: M26 provides connections from the wind resolver to CONTROL, POWER: M16. The wind resolver is mounted on the elevation main case of CONTROL, POWER: M16.

The wind resolver is a part of the DIRECTOR: M16, which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38'), used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.

**Differences among models**

**Data plate location**
- The identification plate is located on the cover.

**Classification:** Standard B.

**CHARACTERISTICS**

- **Azimuth coverage:** continuous 360°
- **Wind velocity:** 6 to 120 mph
- **Power requirements:** 90-w, 60-c, 1-phase, ac

- Length: 12 in.
- Width: 12 in.
- Height: 3 in.
- Weight: 20 lb

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 1 SNL D-49.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped 12 wind resolver assemblies per shipping container</th>
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</thead>
<tbody>
<tr>
<td>Length: 2 ft, 8 in.</td>
</tr>
<tr>
<td>Width: 2 ft, 1/4 in.</td>
</tr>
<tr>
<td>Height: 1 ft, 9 1/4 in.</td>
</tr>
<tr>
<td>Volume: 9.5 cu ft</td>
</tr>
<tr>
<td>Gross weight: 182 lb</td>
</tr>
<tr>
<td>Ship tons: 0.24</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
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<tr>
<td>Gross weight: 182 lb</td>
</tr>
<tr>
<td>Ship tons: 0.24</td>
</tr>
</tbody>
</table>

**References:** SNL F-350, TM 9-3026-1, TM 9-3026-3, TM 9-6081 series.
General

TRACKER, RADAR: M4 (T9) consists of electronic components contained in a large console mounted to the left of the gun barrel, and of a parabolic reflector-type antenna of a scanner unit mounted on top of the console. The console unit mounts 20 subassemblies including amplifiers, synchronizer, oscillator, radar modulator, range indicator, magnetron and linkage, regulated power supply, and motor generator. The scanner unit includes a parabolic reflector, antenna and antenna nutator assembly, carried in trunnions providing for the elevation motion of these three items. The trunnions are free to rotate in azimuth. A shaft transmits gun azimuth data to the radar. The WIRING SET: M26 interconnects the radar tracker M4 and the COMPUTER, BALLISTICS: M10. Target range is obtained by measuring the time interval between the transmission of a pulse of radio frequency energy and the reception of reflections of this energy from the target. The radar tracker M4 detects airborne targets and tracks automatically any selected target. It supplies automatically target present-position data, azimuth, elevation, and slant range to COMPUTER, BALLISTICS: M10. The radar tracker can likewise be set to search the sky for targets, it can be set for manual range tracking, or in the periscope search and SELECTOR, TARGET: M5 modes of operation, the parabolic reflector-type antenna of the scanner unit, follows the PERISCOPE: M22 of the COMPUTER, BALLISTICS: M10 but does not originate data.

The radar tracker M4 is a part of the DIRECTOR: M15, which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38), used on GUN, ANTIAIRCRAFT, ARTILLERY, TOWED: 75-mm weapons system, M51.

Differences among models

Data plate location

Classification: Standard B (OTCM 37258).

CHARACTERISTICS

Wavelength, nominal .................................. 3 cm
Frequency ........................................... 8,500 to 9,600 megacycles
Peak power output .................................. 40 kw
Power requirements ................................. 115-v, 60-c, 3-phase, ac
Range:
- Searching, maximum ...................................... 24,000 yd
- Automatic tracking ........................................ 21,000 yd
- Minimum ....................................................... 300 yd

Elevation limit (scanner):
- Lower .......................................................... -175 mils
- Upper .......................................................... 1,550 mils

Azimuth coverage .................................................. 6,400 mils

Rotation of scanner, maximum .................................. 60 rpm

Tracking rates, automatic or manual:
- Elevation angle ............................................... .760 mils/sec
- Azimuth angle .................................................. 1,500 mils/sec
- Slant range ...................................................... 600 yd/sec

Length .............................................................. 6 ft, 3 in.
Width ............................................................... 3 ft, 6 in.
Height ............................................................... 6 ft, 5 in.
Weight .............................................................. 2,068 lb

PERFORMANCE

EQUIPMENT

Basic issue items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 radar tracker per box.
Length ..............................................................
Width ..............................................................
Height ............................................................
Volume ............................................................
Gross weight ....................................................
Ship tons ........................................................

Outside Continental United States

Shipped 1 radar tracker per box.
Length ..............................................................
Width ..............................................................
Height ............................................................
Volume ............................................................
Gross weight ....................................................
Ship tons ........................................................

References: SNL F-310, TM 9-3026, TM 9-6081.
SELECTOR, TARGET: M5 (T1E2)

General

SELECTOR, TARGET: M5 (T1E2) is an off-mount auxiliary sighting unit of SYSTEM, FIRE CONTROL: M38 (T38) which is used to spot visible targets that are more hazardous than the one the on-mount personnel have engaged, and to sound a warning horn on the mount, automatically aligning the radar beam with the spotted target. The target selector M5 consists of the target selector group and the TRIPOD: M25 (T25). The target selector group consists of the cant corrector which supports the target selector group on the tripod; the transformer housing and quill housing groups; the levelling assembly fastened to the transformer housing, consisting of two vial levels; and the turret group which supports a signal light and includes a control arm supporting the ring sight and the hand grip that contains the trigger switch for signalling from the target selector M5 to the gun mount.

Pressing the trigger switch on the hand grip sounds a warning horn on the gun mount. Rotation of the hand grip in a vertical plane and of the turret in a horizontal plane is translated into electrical data by the synchro control transformers contained in the transformer housing. This data can be used by the fire control system on the mount to lay the gun and direct the computer periscope and radar scanner to any target, that is sighted through the target selector ring sight. When not in use, the target selector group is stowed in the CASE. CARRYING: T63.

CABLE SYSTEM, FIRE CONTROL: M36 (T31E1) includes the target selector M5 and the on-mount major items of the SYSTEM, FIRE CONTROL: M38.

The target selector M5 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.

Differences among models

Data plate location

The identification plates are located on the housing and on the tripod head assembly.
CHARACTERISTICS

Type: Ring and peep sight, manually operated, tripod-mounted.

Coverage:
- Elevation: -200 mils to 1,600 mils
- Azimuth: Continuous 6,400 mils

Target selector group:
- Height: 19 in.
- Diameter of path of handle, maximum: 17 in.
- Weight: 28.2 lb

Tripod:
- Height:
  - Extended, maximum: 64 1/2 in.
  - Telescoped: 42 1/2 in.
  - Diameter, folded: 6 1/2 in.
- Weight: 20.5 lb

Carrying case:
- Length: 20 1/4 in.
- Width: 14 1/2 in.
- Height: 11 1/2 in.
- Weight: 35.0 lb

PERFORMANCE

EQUIPMENT

Basic issue items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

References: SNL F-350, TM 9-3216, TM 9-6081.
CABLE SYSTEM, FIRE CONTROL: M36 (T31E1)

General

CABLE SYSTEM, FIRE CONTROL: M36 (T31E1) includes three cables, two reels, and the communication junction box. Two cables, the 25-foot 20-conductor cable and the 75-foot 20-conductor cable, stowed in the shorter of the two reels are used to connect the SELECTOR, TARGET: M5 (T1E2) with the on-mount major items of the FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) through the WIRING SET: M26 (T5E1) and the communication junction box. These two cables are identical except for length and are interchangeable. The third, 75-foot 3-conductor power cable, which is stored on the other reel, is used to interconnect the 115-volt ac power source and the WIRING SET: M26 (T5E1). thereby supplying the integral fire control system with primary power. Each cable reel is fitted with a clamp for holding a cable connector while the cable is being wound onto the reel. These cables and the communication junction box transmit power and communication, including alarm, signal data, voice and radio between the on-mount and off-mount system components. Each of the three cables terminates in a male plug on one end and a female receptacle on the other. These connectors are protected with screw-on caps when the cable assemblies are wound on the reels. The communication junction box is waterproof. It serves as a control point and includes facilities for linking the communication circuits of the FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) with external telephone and radio circuits. The communication junction box includes a control panel on which are mounted switches, pilot lights, cable receptacles: two 115-volt convenience outlets; binding posts for two telephone sets and for radio input to the communication circuit: ringers; relays; resistors; terminal blocks; and wiring.

The cable system M36 (T31E1) is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M36 (T38) used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system. M38.

Differences among models

Data plate location

Classification: Standard B (OTCM 37265).

CHARACTERISTICS

- Number of cables: 3
- Number of reels: 2
- Length of cable:
  - Mount junction box to communication junction box: 26 ft
  - Target selector to communication junction box: 75 ft
  - Power: 100 ft
- Weight:
  - Cables and reels: 44 lb
  - Communication junction box: 27 lb
Communication junction box:

- Length: 12 in.
- Width: 9 1/2 in.
- Height: 7 1/4 in.

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL D-48.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

- **Within Continental United States**
  - Shipped 1 cable system per box.
  - Length: 
  - Width: 
  - Height: 
  - Volume: 
  - Gross weight: 
  - Ship tons: 

- **Outside Continental United States**
  - Shipped 1 cable system per box.
  - Length: 
  - Width: 
  - Height: 
  - Volume: 
  - Gross weight: 
  - Ship tons:

**References:** SNL F-350, TM 9-3026, TM 9-5081.
**General**

**SIGHTING SYSTEM, AUXILIARY: M37 (T34El)** consists of a supporting bracket mounted on the rear of the transmission box of the loader rammer and straddling the gun barrel. The telescopes, one on the left, TELESCOPE: M96 (azimuth) and the other on the right, TELESCOPE: M96C (elevation), are mounted on the opposite ends of the supporting bracket. The main mounting bracket assembly supports two telescope bracket assemblies, each consisting of a yoke hinged to a mount bracket, to which a pivoting clamp is attached. The mount bracket supports an instrument light clamp and the telescope clamp provides pin screws for the lateral and vertical adjustments for baresight of the telescopes. The telescopes and their mounting brackets can be detached from the main supporting bracket and stowed in a carrying case. Each telescope contains a suitable reticle which is illuminated by means of dry cell batteries. Two headrests and three pairs of filters are provided.

The sighting system M37 is a component of FIRE CONTROL SYSTEM, ANTI AIRCRAFT: M38 (T89) used on GUN, ANTI AIRCRAFT ARTILLERY, TOWED, 105-mm weapons system, M2. The sighting system M37 is used for emergency gunline around fire only, when the gun is sighted in the conventional manner with the telescopes of the sighting system, the gun laying being achieved through the manual operation of the azimuth and elevation handwheels on the power control main cases.

**Differences among models**

**Data plate location**

The identification plate is located on the main bracket assembly.

**Classification:** Standard II (OTCM 37255).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
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<td>M37 (T34El)</td>
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<td>1240-755-0292</td>
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<table>
<thead>
<tr>
<th>Stowed position:</th>
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<tbody>
<tr>
<td>Width</td>
<td>.68 in.</td>
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<tr>
<td>Height</td>
<td>.22 in.</td>
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<tr>
<td>Weight, completely assembled</td>
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<table>
<thead>
<tr>
<th>Telescope mount bracket, stowed position:</th>
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<tbody>
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<td>Width</td>
<td>.66 in.</td>
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<tr>
<td>Height</td>
<td>.16½ in.</td>
</tr>
<tr>
<td>Depth</td>
<td>.13 in.</td>
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<tr>
<td>Weight, completely assembled</td>
<td>.18 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL D-49.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

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<thead>
<tr>
<th>Shipped 1 sighting system per box.</th>
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</thead>
<tbody>
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</tr>
<tr>
<td>Width</td>
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<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
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</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped 1 sighting system per box.</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Length</td>
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</table>


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SIGHTING SYSTEM, AUXILIARY: M37 (T34El) consists of a supporting bracket mounted on the rear of the transmission box of the loader rammer. The telescopes, one on the left, TELESCOPE: M96 (azimuth) and the other on the right, TELESCOPE: M96C (elevation), are mounted on the opposite ends of the supporting bracket. The main mounting bracket assembly supports two telescope bracket assemblies, each consisting of a yoke hinged to a mount bracket, to which a pivoting clamp is attached. The mount bracket supports an instrument light clamp and the telescope clamp provides pin screws for the lateral and vertical adjustments for baresight of the telescopes. The telescopes and their mounting brackets can be detached from the main supporting bracket and stowed in a carrying case. Each telescope contains a suitable reticle which is illuminated by means of dry cell batteries. Two headrests and three pairs of filters are provided.

The sighting system M37 is a component of FIRE CONTROL SYSTEM, ANTI AIRCRAFT: M38 (T89) used on GUN, ANTI AIRCRAFT ARTILLERY, TOWED, 105-mm weapons system, M2. The sighting system M37 is used for emergency gunline around fire only, when the gun is sighted in the conventional manner with the telescopes of the sighting system, the gun laying being achieved through the manual operation of the azimuth and elevation handwheels on the power control main cases.

**Differences among models**

**Data plate location**

The identification plate is located on the main bracket assembly.

**Classification:** Standard II (OTCM 37255).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M37 (T34El)</td>
<td></td>
<td>1240-755-0292</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Stowed position:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Width</td>
<td>.68 in.</td>
</tr>
<tr>
<td>Height</td>
<td>.22 in.</td>
</tr>
<tr>
<td>Weight, completely assembled</td>
<td>.39 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telescope mount bracket, stowed position:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>.66 in.</td>
</tr>
<tr>
<td>Height</td>
<td>.16½ in.</td>
</tr>
<tr>
<td>Depth</td>
<td>.13 in.</td>
</tr>
<tr>
<td>Weight, completely assembled</td>
<td>.18 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL D-49.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th>Shipped 1 sighting system per box.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped 1 sighting system per box.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
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<tr>
<td>Volume</td>
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<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

TELESCOPE: M96 (T155) (AZIMUTH) AND M96C (T155E1) (ELEVATION)

General

TELESCOPE: M96 (T155) (azimuth) and M96C (T155E1) (elevation) are optical instruments that have an offset line-of-sight. The telescopes are symmetrical opposites of each other but their optical systems are identical. Each telescope consists of a head assembly, a tube, and an elbow assembly. The head assembly contains the head prism and supports a window and sunshade. The tube encloses the objective assembly and the reticle and erector assembly that contains the reticle lens, two erector lenses, and associated diaphragms and spacers. The tube contains the elbow prism and the eyepiece assembly, and supports the eyepiece. The telescope M96 contains an azimuth reticle and telescope M96C contains an elevation reticle. The image is presented superimposed on the reticle pattern to the observer. An instrument light on each telescope illuminates the reticle pattern.

The azimuth telescope M96 and the elevation telescope M96C are mounted on the opposite ends of the supporting bracket of SIGHTING SYSTEM, AUXILIARY: M3 (T34E1) which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33 (T36) used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M2. The gun is sighted in the conventional manner with the azimuth and elevation telescopes M96 and M96C for emergency ground fire only, the gun laying being achieved through the manual operation of the azimuth and elevation hand-wheels on the power control main cases.

Differences among models

The telescopes M96 and M96C are symmetrical opposites of each other. The telescope M96 contains an azimuth reticle and telescope M96C contains an elevation reticle.
Data plate location

The identification plates of the azimuth and elevation telescopes are located on the elbow assemblies.

Classification: Standard B (OTCM 37756).

**CHARACTERISTICS**

- Magnification: 8 power
- Field of view: 13° 25 min
- Eye distance: 2.165 in.
- Width: 10 1/2 in.
- Diameter, maximum: 3 in.
- Length: 2 ft. 2 1/2 in.

**PERFORMANCE**

**EQUIPMENT**

Basic issue items: See ORD 7 SNL D-48.

---

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-350, TM 9-8026, TM 9-6081.
WIRING SET: M26 (T5E1)

General

WIRING SET: M26 (T5E1) consists of a junction box-end and a collector ring assembly that are located within the gun pedestal, and seven cable harnesses that are enclosed in metal conduits the ends of which make waterproof connections with the major items. Each cable conductor is terminated in a terminal block connection. The wiring set M26 complements SYSTEM, CABLE: M36 in supplying power to all major items of the FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M38 and interconnects these items for the transmission of power, signal data, and communication data. The off-mount components of the FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M38 are connected electrically through the SYSTEM, CABLE: M36 to the junction box that, in turn, connects the off-mount components and the power source to the collector ring assembly through which are made all electrical connections between the fixed pedestal and the rotatable top carriage of the gun mount. The leads from the collector ring assembly are connected to a terminal board on the elevation power control case. Cable harnesses from components within the elevation power control case extend to the COMPUTER, BALLISTICS: M10 console, the elevation hydraulic assembly, the azimuth power control case and RESOLVER, WIND, UNIT ASSEMBLY ORD No. 7630042. Additional cable harnesses interconnect the COMPUTER, BALLISTICS: M10 console unit, the azimuth hydraulic assembly, azimuth power control case, and the junction box on loader rammer.

The wiring set M26 is a component of FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M38 (T5E), used on GUN, ANTI-AIRCRAFT ARTILLERY, TOWED: 76-mm weapons system, M61.

Different among models

The identification plate of the collector ring assembly is located on the bottom of the cover. A manila tag is attached to a screw supporting the junction box.
CHARACTERISTICS

Number of cables ............................................. 7
Junction box:
  Length .................................................. 20\% in.
  Width .................................................... 18\% in.
  Height .................................................... 6\% in.
Collector ring assembly:
  Diameter .................................................. 15 in.
  Height ..................................................... 16\% in.
Weight:
  Cables, total ........................................... 62 lb
  Junction box ............................................. 6 lb
  Collector ring assembly ................................. 57 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 wiring set per box.
  Length ..................................................
  Width ...................................................
  Height .................................................
  Volume ................................................
  Gross weight ........................................
  Ship tons .............................................

Outside Continental United States

Shipped 1 wiring set per box.
  Length ..................................................
  Width ...................................................
  Height .................................................
  Volume ................................................
  Gross weight ........................................
  Ship tons .............................................

References: SNL F-860, TM 9-5026, TM 9-5081.

Pages 13-29 through 13-32 are rescinded by C 3.
POWER SUPPLY: M27

General

POWER SUPPLY: M27 is used with COMPUTER, GUN DIRECTION: M16 or M16C, either when the computer is used alone or as a component of FIRE CONTROL SYSTEM, FIELD ARTILLERY: M15 or M15C.

The power supply is contained in an aluminum case. Two recessed grooves along the length of the lid, into which fit the u-channel runners attached to the bottom of the case, permit the power supplies to be stacked for battalion operation. The front panel, visible when the doors are opened, contains circuit breakers, an elapsed time indicator, a pushbutton-operated frequency meter, a voltmeter, and the voltmeter circuit selector switch. The rear panel of the power supply has a recessed surface for mounting four connectors.

Differences among models

Data plate location

The identification plate (nameplate) is mounted on the left-hand door of the power supply.

Classification: Standard B (OTCM 3688).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 in</td>
<td>12 in</td>
<td>1 ft, 37/8 in</td>
<td>25 lb</td>
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</table>

PERFORMANCE

Input voltage 120v, 600 cps, 3 phase
Output 120v, 600 cps (50g and servo rel), 24v dc, 120v dc

EQUIPMENT

STORAGE AND SHIPMENT DATA

Basic issue items: See TM 9-1220-206-12.

INSTRUCTIONAL MATERIAL

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped power supplies per</th>
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<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
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<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
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Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped power supplies per</th>
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<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
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<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
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</table>

SECTION 14
OPTICAL SIGHTING AND RANGING EQUIPMENT
(CLASS 1240)

(Includes auxiliary sighting system: periscope, sight, and telescope mounts; elbow and panoramic telescopes; periscopes; range finders; bore and reflex sights; sight units; telescope adapters; and telescope mount holders.) (For additional adapter telescopes, azimuth instruments, periscopes, and telescopes, see section 27. For additional periscope and telescope mounts, see section 18.)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
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</tr>
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<td>14-4</td>
</tr>
<tr>
<td>HOLDER, TELESCOPE MOUNT: XM5</td>
<td>14-5</td>
</tr>
<tr>
<td>HOLDER, TELESCOPE MOUNT: XM6</td>
<td>14-6</td>
</tr>
<tr>
<td>HOLDER, TELESCOPE MOUNT: XM7</td>
<td>14-7</td>
</tr>
<tr>
<td>MOUNT, TANK PERISCOPE: M95 (T175E1)</td>
<td>14-8</td>
</tr>
<tr>
<td>MOUNT, TANK PERISCOPE: M94 (T175E2)</td>
<td>14-9</td>
</tr>
<tr>
<td>MOUNT, TANK PERISCOPE: M104 (T184E1) and M102A1 (T184)</td>
<td>14-10</td>
</tr>
<tr>
<td>MOUNT, TANK PERISCOPE: M106 (T176E2)</td>
<td>14-11</td>
</tr>
<tr>
<td>MOUNT, SIGHT: M74 or M74C; SIGHT, FRONT: M26 (T91)</td>
<td>14-12</td>
</tr>
<tr>
<td>MOUNT, TANK PERISCOPE: M104 (T195), M104A1 (T195E1), and M104A2</td>
<td>14-13</td>
</tr>
<tr>
<td>MOUNT, TANK PERISCOPE: M113</td>
<td>14-14</td>
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<tr>
<td>MOUNT, TANK PERISCOPE: M115 (T197)</td>
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<td>MOUNT, TELESCOPE: M21A1</td>
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<td>MOUNT, TELESCOPE: M23</td>
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<td>MOUNT, TELESCOPE: M30 (T39)</td>
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<td>MOUNT, TELESCOPE: M54</td>
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<td>MOUNT, TELESCOPE: M90 (T183)</td>
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<tr>
<td>MOUNT, TELESCOPE: M92 (T178) and M92A1 (T178E1)</td>
<td>14-21</td>
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<tr>
<td>MOUNT, TELESCOPE: M96 (T183)</td>
<td>14-22</td>
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<tr>
<td>MOUNT, TELESCOPE: M99 (T179), M99C (T179E2), M99A1 (T179E4), and M99A1C (T179E5)</td>
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<tr>
<td>MOUNT, TELESCOPE: M100 (T160E1)</td>
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<td>MOUNT, TELESCOPE: M101 (T181)</td>
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<tr>
<td>MOUNT, TELESCOPE: M104 (See page 14-95)</td>
<td>14-26</td>
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<tr>
<td>MOUNT, TELESCOPE: M111 (T219)</td>
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<td>MOUNT, TELESCOPE: M114 (T190)</td>
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<td>MOUNT, TELESCOPE: XM117</td>
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</tr>
<tr>
<td>MOUNT, TELESCOPE: M137 (T186E3) (See page 14-95)</td>
<td>14-30</td>
</tr>
<tr>
<td>MOUNT, TELESCOPE: M138 (See page 14-97)</td>
<td>14-31</td>
</tr>
<tr>
<td>MOUNT, TELESCOPE: M146 (T206) (See page 14-98)</td>
<td>14-32</td>
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<tr>
<td>MOUNT, TELESCOPE: M145 (T208) (See page 14-99)</td>
<td>14-33</td>
</tr>
<tr>
<td>PERISCOPE, TANK: M4A1</td>
<td>14-34</td>
</tr>
<tr>
<td>PERISCOPE, TANK: M10F and M10P</td>
<td>14-35</td>
</tr>
<tr>
<td>PERISCOPE, TANK: M12</td>
<td>14-36</td>
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<tr>
<td>PERISCOPE, TANK: M15A1</td>
<td>14-37</td>
</tr>
<tr>
<td>PERISCOPE, TANK: M20 (T35), M20A1, M20A3, M20A3C, and M20A3F</td>
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<tr>
<td>PERISCOPE, TANK: M22 (T33)</td>
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<tr>
<td>PERISCOPE, TANK: M23 (T38)</td>
<td>14-40</td>
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<tr>
<td>PERISCOPE, TANK: M26 (T25)</td>
<td>14-41</td>
</tr>
<tr>
<td>PERISCOPE, TANK: M29 (T50E1)</td>
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</tr>
<tr>
<td>PERISCOPE, TANK: XM30</td>
<td>14-43</td>
</tr>
<tr>
<td>PERISCOPE, TANK: M31 (T50)</td>
<td>14-44</td>
</tr>
<tr>
<td>PERISCOPE, TANK: M42 (XM42) (See page 14-100)</td>
<td>14-45</td>
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<tr>
<td>POWER UNIT: assembly (ORD No. B289242)</td>
<td>14-46</td>
</tr>
</tbody>
</table>

14-1
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(For characteristics and data, see item in section 18)

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SIGHTING SYSTEM, AUXILIARY: M37
(For characteristics and data, see FIRE CONTROL, ANTIAIRCRAFT: M38, section 13.)

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(For characteristics and data, see FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38, section 13.)

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TELESCOPE, PANORAMIC: M115 (T146) (See page 14-104)
ADAPTER, TELESCOPE: M9 AND M9A1

General
ADAPTER, TELESCOPE: M9 or M9A1, is a component of SIGHTUNIT: M34A1 when supporting TELESCOPE, ELBOW: M62A1C and a component of SIGHTUNIT: M34A2C when supporting TELESCOPE, ELBOW: M62A1D. The telescope adapters are mounted on telescope mount M79 with cross-level assembly (ORD No. 6271189). The telescope adapter is composed of the telescope holder assembly and the azimuth worm housing assembly. The TELESCOPIC ELBOW: M62 or M62A1C, is mounted in the telescope holder of the telescope holder assembly. The telescope holder is pivoted so that it may be tilted manually to raise or depress the telescope 15 degrees in elevation above or below a level (zero) line. The telescope adapter M9 is used as a component of SIGHTUNIT: M34 or M34A1. The telescope adapter M9A1 is used as a component of SIGHTUNIT: M34A2. The telescope adapter M9 or M9A1 is used in conjunction with TELESCOPE, ELBOW: M62 or M62A1C, may be issued in lieu of TELESCOPIC PANTHERIC: M1, when used with CANNON, 75 MILLIMETER PACK HOWITZER: M1A1 and M9.

Differences among models
The azimuth clamp on the telescope adapter M9A1 locks the azimuth scale on the azimuth housing by means of the clamping wing screw. An index is provided on the clamp to align the azimuth scale with the index on the azimuth worm housing. The scale on the telescope adapter M9 can be rotated after the four, flathead, special screws that secure the azimuth clamping rings are loosened. The telescope adapter M9A1 and the micrometer scale can be released for setting purposes by depressing the scale release button. The scale on the telescope adapter M9 is secured by the slotted locking nut within the micrometer knob.

Data plate location
The identification plate is located on the top surface of the bar of the bracket, of the telescope holder assembly.

Classifications
M9 ... Limited standard (used for training) (OTCM 37284)
M9A1 ... Standard A

CHARACTERISTICS
Weight: ... 2 lb
Height: ... 81/2 in.
Width (along centerline of worm gear): M9 ... 3 in.
M9A1 ... 3 1/4 in.
Depth (through azimuth worm housing): ... 3 in.

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 60 telescope adapters per shipping container

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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 1/4 in.</td>
<td>1 ft, 10 3/8 in.</td>
<td>1 ft, 3 in.</td>
<td>4.8 cu ft</td>
<td>170 lb</td>
<td>0.12</td>
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</table>

Outside Continental United States

Shipped 60 telescope adapters per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 1/4 in.</td>
<td>1 ft, 3 in.</td>
<td>1 ft, 8 in.</td>
<td>4.8 cu ft</td>
<td>175 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

CORRECTOR, CANT: M3 (T16)

CORRECTOR, CANT: M3 (T16), which mounts to DRIVE-MOUNT, PERISCOPE, M9 (T84), is a component of the primary fire control system for TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1 (T43E2). An optical-mechanical instrument, the cant corrector improves the sighting accuracy of the tank's 120-mm gun cannon by compensating for deflection errors caused by a canted position of the vehicle. The cant corrector projects an illuminated reticle image into the 6-power field of view of PERISCOPE: M29.

Performance

Equipment


Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped 3 cant correctors per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft, 5 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 4½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, ½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>0.638 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>44.94 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 3 cant correctors per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft, 6 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 4½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, ½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>0.638 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>44.94 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.09</td>
</tr>
</tbody>
</table>

References: TM 9-1290-277-36, TM 9-1290-277-35P.
HOLDERS, TELESCOPE MOUNT: XM5

General

HOLDER, TELESCOPE MOUNT, XM5 is the means by which TELESCOPE, ELBOW: XM107 and MOUNT, TELESCOPE, XM117 are attached to the weapon of battle group lightweight weapon system XM28. It is also used to correct the effects of cant.

Data plate location

The identification plate (nameplate) is located on the rocker arm.

Characteristics

Length ........................................ 6% in.
Width ........................................ 2½ in.
Height ........................................ 2 in.
Weight ....................................... 1 lb

Performance

EQUIPMENT

Basic issue items: See TM 9-1000-208-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 80 telescope mount holders per shipping container

Length ........................................ 8 ft 9 in.
Width ........................................ 1 ft 11½ in.
Height ........................................ 1 ft 2½ in.
Volume ....................................... 8.78 cu ft
Gross weight .................................. 180 lb
Ship tare ...................................... 0.22

Outside Continental United States

Shipped 80 telescope mount holders per shipping container

Length ........................................ 3 ft 9 in.
Width ........................................ 1 ft 11½ in.
Height ........................................ 1 ft 2½ in.
Volume ....................................... 8.78 cu ft
Gross weight .................................. 180 lb
Ship tare ...................................... 0.22

References: TM 9-1240-284-26, TM 9-1240-284-36P.
HOLDER, TELESCOPE MOUNT: XM6

General
HOLDER, TELESCOPE MOUNT, XM6 is the means by which TELESCOPE, ELBOW: XM107 and MOUNT, TELESCOPE: XM117 are attached to the weapon of battle group heavy weapon system XM29. It is also used to correct the effects of cant.

Differences among models

Data plate location
The identification plate (nameplate) is located on the rocker arm.

Classification: Standardization pending.

CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.21</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 80 telescope mount holders per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ft 10½ in</td>
<td>1 ft 10½ in</td>
<td>1 ft 2½ in</td>
<td>8.22 cu ft</td>
<td>173 lb</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Outside Continental United States
Shipped 80 telescope mount holders per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ft 10½ in</td>
<td>1 ft 10½ in</td>
<td>1 ft 2½ in</td>
<td>8.22 cu ft</td>
<td>173 lb</td>
<td>0.21</td>
</tr>
</tbody>
</table>

HOLDER, TELESCOPE MOUNT: XM7

General
HOLDER, TELESCOPE MOUNT: XM7, is designed to hold SIGHTUNIT: M34A2C on LAUNCHER, ROCKET: 318-mm, XM34 and LAUNCHER, ROCKET: 115-mm, M91 (T146). It is attached to a bracket on the left side of the launcher, it allows the sightunit to be used to lay the launcher in azimuth and elevation for indirect fire.

Differences among models
The identification plate (nameplate) is located on the upper base of the telescope mount holder.

Classification: Standardization pending.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 1/2 lb</td>
<td>6 1/2 ft</td>
<td>6 1/2 in.</td>
<td>6 1/2 ft</td>
</tr>
</tbody>
</table>

PERFORMANCE

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 8 telescope mount holders per shipping container
Length | Width | Height | Volume | Gross weight | Ship tons |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 1 1/8 in.</td>
<td>1 ft, 6 in.</td>
<td>5 ft</td>
<td>2.0 cu ft</td>
<td>55.6 lb</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Outside Continental United States
Shipped 8 telescope mount holders per shipping container
Length | Width | Height | Volume | Gross weight | Ship tons |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ft, 1 1/8 in.</td>
<td>1 ft, 6 in.</td>
<td>5 ft</td>
<td>2.9 cu ft</td>
<td>55.6 lb</td>
<td>0.07</td>
</tr>
</tbody>
</table>

References: TM 9-1240-201-35, TM 9-1240-201-36P.
MOUNT, TANK PERISCOPE: M93 (T176E1)

Model: M93 (T176E1)

Line item No.: 1240-766-2160

Federal stock No.: 1240-766-9160

General

The Mount, Tank Periscope: M93 (T176E1), located at the gunner's station of the 76-mm gun tank M41, consists of a bracket, guard with headrest, and gun-ready signal light assembly. The mount, which is attached to the turret roof, is used to support the periscope M20. A guard assembly, with attached right-side half headrest, is provided as the rear of the mount to protect the observer if the periscope head is hit. Two guard knobs secure the guard assembly to the mount. The signal light is similar in design to M88 and T176E2, the receptacle being mounted in different location.

Differences among models

Data plate location

The identification plate is located on the bracket assembly.

Classification: Standard A.

CHARACTERISTICS

- Weight: 20 lb
- Length: 11 in.
- Width: 1 ft, 1 in.
- Height: 1 ft, 2 in.

PERFORMANCE

EQUIPMENT

Basic issue Items: See TM 9-2350-201-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 6 periscope mounts per shipping container

- Length: 2 ft, 4⅛ in.
- Width: 2 ft, 3 in.
- Height: 2 ft, 2⅜ in.
- Volume: 11.76 cu ft
- Gross weight: 182 lb
- Ship tons: 0.29

Outside Continental United States

Shipped 6 periscope mounts per shipping container

- Length: 2 ft, 4⅛ in.
- Width: 2 ft, 3 in.
- Height: 2 ft, 2⅜ in.
- Volume: 11.76 cu ft
- Gross weight: 182 lb
- Ship tons: 0.29

References: SNL P-358, TM 9-6065.
MOUNT, TANK PERISCOPE: M94 (T177E2)

**General**

MOUNT, TANK PERISCOPE: M94 (T177E2), located at the commander's station of the TANK, COMBAT, FULL TRACKED: 76-mm gun. M41, consists of a bracket, guard with headrest, and gun-ready signal light assembly. The mount, which is attached to the turret roof, is used to support the PERISCOPE: M20. A guard assembly, with attached right-side half headrest, is provided at the rear of the mount to protect the observer if the periscope head is hit. Linkage on the left side of the bracket provides coupling to DRIVE, BALLISTICS: M4. Two guard knobs secure the guard assembly to the mount. The linkage is similar to the linkage of MOUNT, PERISCOPE: M89, with a slight difference in arm and connectors. The signal light is similar in design to M99.

**Data plate location**

The identification plate is located on the bracket assembly.

**Characteristics**

| Weight | 30 lb |
| Length | 1 ft, 8 in. |
| Width | 1 ft, 4 in. |
| Height | 1 ft, 6 in. |

**Performance**

**EQUIPMENT**

Basic issue items: See TM 9-2360-201-12.

**INSTRUCTIONAL MATERIAL**

**Within Continental United States**

Shipped 4 periscope mounts per shipping container

| Length | 1 ft, 9 in. |
| Width | 1 ft, 8 in. |
| Height | 1 ft, 4 in. |
| Volume | 4.25 cu ft |
| Gross weight | 157.5 lb |
| Ship tons | 0.11 |

**Outside Continental United States**

Shipped 4 periscope mounts per shipping container

| Length | 1 ft, 9 in. |
| Width | 1 ft, 8 in. |
| Height | 1 ft, 4 in. |
| Volume | 4.25 cu ft |
| Gross weight | 157.5 lb |
| Ship tons | 0.11 |

**References:** SNL P-388, TM 9-4056.
MOUNT, TANK PERISCOPE: M102 (T184E1) AND M102A1 (T184)

General

MOUNT, TANK PERISCOPE: M102 (T184E1) or M102A1 (T184) is attached to the turret roof of the TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A1, M48A2 or M48C, and TRAINER, TANK GUNNERY: 90-mm gun, M20, and is used to support the PERISCOPE: M20A3 or M20A1 either for observing or for sighting in direct or indirect fire operation of the 90-mm gun. A guard, with headrest assembly, is provided to protect the observer should the head of the periscope be hit and is also used to provide support for the head of the observer while sighting through the periscope. A signal light assembly is attached to the front of the mount and serves as a ready to fire signal from the loader.

Differences among models

Basically M102 and M102A1 are identical. The difference is in the design of the bracket and clamping screw assembly. The bracket assembly of M102A1 has a rear mounting surface onto which an adapter is secured to support the signal light assembly, and M102 contains a bracket and clamping screw assembly which has provisions for directly mounting the signal light assembly without making use of an adapter.

Data plate location

The identification plate is located on the bracket.

Classification: Standard A

CHARACTERISTICS

| Length: | M102 | 1 ft, 2 3/4 in. |
|         | M102A1 | 1 ft, 2 3/4 in. |

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M102 (T184E1)</td>
<td>1240-820-1054</td>
<td></td>
</tr>
<tr>
<td>M102A1 (T184)</td>
<td>1240-820-1167</td>
<td></td>
</tr>
</tbody>
</table>

Performace

EQUIPMENT

Basic issue items: See ORD 1 SNL G-254.

INSTRUCTIONAL MATERIAL

Storage and Shipment Data

Within Continental United States

Shipped 1 periscope mount per shipping container

| Length | 1 ft, 2 3/4 in. |
|        | 11 1/4 in. |
| Width  | 1 ft, 1 in. |
| Height | 2.4 cu ft |
| Volume | 2.4 cu ft |
| Gross weight | 67 lb |
| Ship tons | 0.05 |

Outside Continental United States

Shipped 1 periscope mount per shipping container

| Length | 1 ft, 2 3/4 in. |
|        | 11 1/4 in. |
| Width  | 1 ft, 1 in. |
| Height | 2.4 cu ft |
| Volume | 2.4 cu ft |
| Gross weight | 67 lb |
| Ship tons | 0.05 |

References: SNL P-378, TM 9-6011.
EQUIPMENT

General

MOUNT, TANK PERISCOPE; M106 (T176E2), located at the gunner's station of the TANK, COMBAT, FULL TRACKED; 120-mm gun, M103 (T43E1), consists of a bracket, guard with headrest, and gun-ready signal light assembly. The mount, which is attached to the turret roof, is used to support the periscope M20 series. A guard, with attached full headrest, is provided at the rear of the mount to protect the observer if the periscope head is hit. Two guard knobs secure the guard assembly to the mount.

Differences among models

The identification plate is located on the bracket assembly.

Classification: Standard B (OTCM 36117).

CHARACTERISTICS

PERFORMANCE
MOUNT, SIGHT: M74 OR M74C; SIGHT, FRONT: M26 (T91)

**Secondary Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M74C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M26</td>
<td>(T91)</td>
<td></td>
</tr>
</tbody>
</table>

The sight mount differs only in the engraved graduation lines and figures on the leaf. In addition, two open sights are provided, of the jackknife folding leaf type, that can be held in a vertical position, by spring pressure, or can be snapped down. The sight mount M74 or M74C contains the rear leaf sight which has a peep hole, adjustable for elevation and windage, and is used in connection with the SIGHT, FRONT; M26 which is clamped around the rifle barrel at the muzzle end in a forward vertical position, and serves as a forward element of an open sight. When using the telescope, the open sights are folded down. The mount contains azimuth and elevation adjusting mechanisms for borsighting the instrument.

**Characteristics**

- **Elevating limit (rear leaf sight):**
  - M74: 0 to 1,200 yd
  - M74C: 0 to 1,200 yd

- **Windage limit:** 0 to 10 mils R and L (2-mil intervals).

**Performance**

**Equipment**

- Basic issue items: See ORD 7 SNL C-76.

**Storage and Shipment Data**

**Within Continental United States**

- Shipped 72 sight mounts per shipping container
  - Length: 2 ft, 8 in.
  - Width: 1 ft, 9 in.
  - Height: 7.1 cu ft
  - Gross weight: 126 lb
  - Ship tons: 0.18

- Shipped 240 front sights per shipping container
  - Length: 2 ft, 9 in.
  - Width: 1 ft, 11% in.
  - Height: 7.7 cu ft
  - Gross weight: 125 lb
  - Ship tons: 0.11

**Outside Continental United States**

- Shipped 72 sight mounts per shipping container
  - Length: 2 ft, 8 in.
  - Width: 1 ft, 14% in.
  - Height: 7.7 cu ft
  - Gross weight: 126 lb
  - Ship tons: 0.19

- Shipped 240 front sights per shipping container
  - Length: 2 ft, 9 in.
  - Width: 1 ft, 11% in.
  - Height: 7.7 cu ft
  - Gross weight: 125 lb
  - Ship tons: 0.11

References: SNL F-329, TM 9-1614.
MOUNT, TANK PERISCOPE: M104 (T195), M104A1 (T195E1), AND M104A2

CHARACTERISTICS

Weight:
- M104 .................................................. 3 lb. 5 oz.
- M104A1 ............................................... 5 lb. 3 oz.

PERFORMANCE EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 8 periscope mounts per shipping container

Length .................................................. 1 ft. 1½ in.
Width ................................................... 1 ft. 1 in.
Height ................................................... 1 ft. 4½ in.
Volume ................................................... 1.301 cu ft
Gross weight ........................................... 50.75 lb
Ship tons ............................................... 0.03

Outside Continental United States
Shipped 8 periscope mounts per shipping container

Length .................................................. 1 ft. 1½ in.
Width ................................................... 1 ft. 1 in.
Height ................................................... 1 ft. 1½ in.
Volume ................................................... 1.301 cu ft
Gross weight ........................................... 50.75 lb
Ship tons ............................................... 0.03

Reference: SNL F-38, TM 9-6774.
MOUNT, TANK PERISCOPE: M105 (T185)

General

MOUNT, TANK PERISCOPE: M105 (T185), is used to support PERISCOPE: M20A3 on RIFLE, SELF-PROPELLED: 105-mm. M19.

The periscope mount is equipped with an adjusting rod and various arm and connector assemblies which form the connecting linkage to the rifle gun trunnion shaft. This linkage transmits rifle elevation movement to the head of installed periscope M20A3 through the drive mounting assembly. An attached level vial tube is provided to synchronize the mount to the rifle at zero elevation.

A guard and hooding assembly is provided to protect the observer should the head of the periscope be hit; and it is also used to provide support for the head of the observer while sighting through the installed periscope.

Differences among models

Data plate location

The identification plate (nameplate) is located on the mounting bracket.

Classification: Standard A.

CHARACTERISTICS

Length ........................................ 1 ft, 10 in.
Width (connecting linkage in normal
position) ....................................... 1 ft, 2½ in.
Height (connecting linkage in normal
position) ....................................... 11½ in.
Weight (approx) .................................. 40 lb

For characteristics and data, see item in section 38.

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount per shipping container:

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft, 10 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 3½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 1½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>3.23 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>58 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 mount per shipping container:

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft, 10 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 5½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 1½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>8.23 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>68 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.00</td>
</tr>
</tbody>
</table>

References: SNL P-396, TM 9-1187.
MOUNT, TANK PERISCOPE: M113

General

MOUNT, TANK PERISCOPE, M113, is used to support PERISCOPE: XM30 on TANK, COMBAT, SELF-PROPELLED: flamethrower, M67A1 or M30C on TANK, COMBAT, SELF-PROPELLED: flamethrower, M67A1.

The mount consists essentially of an adapter plate assembly and a link assembly. The lower end of the link assembly connects to the gun trunnion and the upper end connects to the connecting arm of the adapter plate assembly. The connecting arm is pinned to the output coupling of the mount mates with the input coupling of the periscope XM30, providing a direct drive from the flamethrower to the periscope.

Data plate location

The identification plate (nameplate) is located on the adapter plate.

Classification: Standard A.

CHARACTERISTICS

Height (including headrest) .................................. 2 ft. 7 in.
Length (front to back, including linkage) ........................ 2 ft. 2¼ in.
Width (side to side) ............................................ 1 ft. 4½ in.
Weight ..................................................................... 78 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-7622.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 periscope mount per shipping container.

Length ................................................................. 2 ft. 4 in.
Width ................................................................. 1 ft. 11 in.
Height ................................................................. 11 in.
Volume ............................................................... 4.1 cu ft
Gross weight ....................................................... 120 lb
Ship tons ............................................................. 0.10

Outside Continental United States

Shipped 1 periscope mount per shipping container.

Length ................................................................. 2 ft. 4 in.
Width ................................................................. 1 ft. 11 in.
Height ................................................................. 11 in.
Volume ............................................................... 4.1 cu ft
Gross weight ....................................................... 120 lb
Ship tons ............................................................. 0.10


14-14A
MOUNT, TANK PERISCOPE, M115 (T197)

General

MOUNT, TANK PERISCOPE: M115 (T197), located at the gunner's station of TANK, COMBAT, FULL TRACKED: 105-mm gun, M60, consists of a mount plate assembly, headrest assembly, and an exterior shield assembly. The periscope mount, which is attached to the turret roof, is used for securing PERISCOPE: M31 (T50), power unit assembly, and SIGHT, INFINITY: M44C to the turret. The exterior shield assembly provides protection for the exposed periscope head. An adjustable support and headrest is provided at the rear of the mount to support and protect the gunner.

Differences among models

Data plate location

The identification plate (nameplate) is located at the rear of the mount.

Classifications: Standard B (AMCTC 512).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M115</td>
<td>...</td>
<td>1240-678-2193</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-2860-315-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 5 in.</td>
<td>1 ft, 2¼ in.</td>
<td>11% in.</td>
<td>4.831 cu ft</td>
<td>126.60 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 mount per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 5 in.</td>
<td>1 ft, 2¼ in.</td>
<td>11% in.</td>
<td>4.831 cu ft</td>
<td>126.60 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

MOUNT, TELESCOPE: M21A1

LIMITS OF OPERATION:

<table>
<thead>
<tr>
<th>Limits of operation</th>
<th>Elevation</th>
<th>Cross level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1,955.80 mils of arc</td>
<td>533.40 mils of arc</td>
</tr>
</tbody>
</table>

INSTRUCTIONAL MATERIAL

PERFORMANCE

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 telescope mount per shipping container

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft, 6% in.</td>
<td>1 ft, 2% in.</td>
<td>1 ft, 2% in.</td>
<td>65.67 lb</td>
</tr>
<tr>
<td>Volume</td>
<td>2.122 cu ft</td>
<td>65.67 lb</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 telescope mount per shipping container

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 8% in.</td>
<td>1 ft, 2% in.</td>
<td>1 ft, 2% in.</td>
<td>65.67 lb</td>
</tr>
<tr>
<td>Volume</td>
<td>2.122 cu ft</td>
<td>65.67 lb</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Classifications: Standard A (OTCM 25702).

REFERENCES: SNL F-197, section 2, TM 9-6108, TM 9-144.
MOUNT, TELESCOPE: M28

General

MOUNT, TELESCOPE: M28, consists of a mounting bracket, spindle bracket, spindle assembly, elevation worm housing, telescope holder, and instrument light column. It provides for the mounting of TELESCOPE, ELBOW: M24A1 when it is used as direct sight on antiaircraft artillery, and has elevation and azimuth adjusting worm mechanisms for aligning the telescope to the axis of the bore of the gun during bore sighting. The telescope and mount move with the gun in azimuth or elevation. LIGHT, INSTRUMENT: M36, is used to illuminate the telescope reticle for night operation.

The telescope mount M28 is used with the CANNON: 90-MM, MILLI-METER GUN: antiaircraft, M1A3 on the MOUNT, GUN: antiaircraft, 90-mm, M1A1.

Differences among models

Data plate location

The identification plate is located on the elevation worm housing

Classification:

CHARACTERISTICS

PERFORMANCE

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States:

Shipped 1 telescope mount per box.

Length: 1 ft. 4 in.
Width: 9 in.
Height: 9 in.
Volume: 0.8 cu ft.
Gross weight: 48 lb.
Ship tons: 0.02

Outside Continental United States:

Shipped 1 telescope mount per box.

Length: 1 ft. 4 in.
Width: 9 in.
Height: 9 in.
Volume: 0.8 cu ft.
Gross weight: 48 lb.
Ship tons: 0.02

References: SNL F-214, TM 9-6101.
MOUNT, TELESCOPE: M30 (T38)

M30 (T38) is used with TELESCOPE, PANORAMIC: M12A1; on GUN, HEAVY, MOTORIZED: 280-mm, M66, and on LAUNCHER, ROCKET: 142-mm, truck-mounted, M289, for laying the weapon in azimuth only. This mount, which is of the azimuth compensating type, is used to keep the line of sight at a constant elevation regardless of the angle to which the weapon is elevated or depressed. The mount has rocker that is operated by means of the longitudinal leveling worm. The actuating arm, which has pads for seating a gunner's quadrant, is assembled in a hub mounted in the rocker and leveling worm housing. An extension for the telescope socket of the mount is for raising the telescope when necessary for the line of sight to clear the weapon shield. This mount does not have scales or micrometers, but has an index on the cross leveling mechanism and a matching pointer on the segment. This mount does not use an angle of site mechanism.

DIFFERENCES AMONG MODELS

Data plate location
The identification plate (nameplate) is on the housing.

Classification: Standard B (OTCM 38416).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M30 (T38)</td>
<td>1240-788-2079</td>
<td></td>
</tr>
</tbody>
</table>

Limits of operation:
- Elevation: 640.08 mils of arc
- Cross level: 353.56 mils of arc
- Cant correction: 213.38 mils

INSTRUCTIONAL MATERIAL

Domestic Pack

Shipped mount per wood box

Length: _________________________________
Width: _________________________________
Height: _________________________________
Volume: _________________________________
Gross weight: __________________________
Ship tons: ____________________________

Oversea Pack

Shipped mount per wood box

Length: _________________________________
Width: _________________________________
Height: _________________________________
Volume: _________________________________
Gross weight: __________________________
Ship tons: ____________________________

References: SNL F-222, TM 9-6103.
MOUNT, TELESCOPE: M54

MOUNT, TELESCOPE: M64, is used with TELESCOPE, EL-BOW: M361 on MOUNT, GUN: M1A2 for CANNON, 90 MILLI-METER GUN: M1A2 or M1A3 for aiming in azimuth for antimechanized fire. The mount consists principally of a mounting bracket, spindle assembly, elevation worm housing, and telescope holder. The mount is adjusted to the line of sight of the axle of the bore of the gun by means of worm adjusting mechanisms. The mount is of the rigidly mounted single-purpose type. It has elevation and azimuth adjusting worm mechanisms. When a telescope mount on the azimuth side is secured in place, the movement of the gun in azimuth will move the telescope and mount in azimuth. The telescope mount on the elevation side will operate in the same manner. The mount is used for aiming the gun in azimuth for antimechanized fire. LIGHT, INSTRUMENT: M36, is used with this mount for night operation.

General

The identification plate (nameplate) is on the mounting bracket.

Classification: Standard (OTCM 25847).

CHARACTERISTICS

- Length
- Width
- Height
- Weight

Model

Line item No.
M64

Federal stock No.
1240-767-8424

PERFORMANCE

EQUIPMENT

Basic issue items: See ORD 7 SNL D-28.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Domestic Pack

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Oversea Pack

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL P-224, TM 9-6181.

14-19
MOUNT, TELESCOPE: M90 (T183)

General

MOUNT, TELESCOPE: M90 (T183), consists of a mount, housing a socket and drive worm assembly, a cant correction knob, and azimuth and elevation adjustment worms. It provides for the mounting of the TELESCOPE, ELBOW: M90D when it is used as direct sight. The slotted and tapered objective end of the telescope fits into the slotted, keyed and tapered bore of the socket incorporated in the mount. A round nut is provided to lock the telescope in place. When the cant correction knob in the mount is turned, the mount, through the combined rotations of the drive worm and the gear segment of the socket, will provide cant correction to the elbow telescope. When the azimuth adjustment worm is turned, it will deflect the telescope reticle cross to either right or left of a vertical target line. When the elevation adjustment worm is turned, it will deflect the telescope reticle cross above or below a horizontal target line.

The telescope mount M90 is used with the RIFLE, 106 MILLI-"MET: recoilless, M40A1 or M40A1C.

Differences among models

Data plate location

The identification plate is located on the mount (housing).

Classifications Standard A.

CHARACTERISTICS

Cant correction knob:

Range:

Right .................................. 21 deg
Left .................................. 21 deg

Turns:

Right .................................. 3½
Left .................................. 3½

Boresighting adjustment worms:

Asimuth correction:

Right .................................. 11 mils
Left .................................. 11 mils

Elevation correction:

Right .................................. 11 mils
Left .................................. 11 mils

Length .................................. 21½ in.
Width .................................. 2½ in.
Height .................................. 2½ in.

Weight .................................. 3 lb

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 48 telescope mounts per shipping container

Length .................................. 1 ft, 7¾ in.
Width .................................. 1 ft, 1½ in.
Height .................................. 1 ft, 1½ in.
Volume .................................. 2.62 cu ft
Gross weight .................................. 183.5 lb
Ship tons .................................. 0.87

Outside Continental United States

Shipped 48 telescope mounts per shipping container

Length .................................. 1 ft, 7¾ in.
Width .................................. 1 ft, 3½ in.
Height .................................. 1 ft, 2½ in.
Volume .................................. 2.62 cu ft
Gross weight .................................. 183.5 lb
Ship tons .................................. 0.87

References SNL F-552, TM 9-4141.
MOUNT, TELESCOPE: M92 (T178) AND M92A1 (T178E1)

General

MOUNT, TELESCOPE: M92 (T178) and M92A1 (T178E1) provide support of TELESCOPE: M97 (T176) series parallel to the line-of-sight of CANNON, 76 MILLIMETER GUN: M32 (T31E2). Each telescope mount consists of two parts: a bracket assembly and a mount assembly. The bracket assembly is mounted on the gun shield adapter mounting pad and the mount assembly is mounted on the right side of the gun near the breech. An azimuth index knob and an elevation index knob provide for azimuth and elevation adjustments of ±2 mils on the mount assemblies to allow adjustment of the telescope in bore-sighting and synchronizing the fire control instruments. Locking levers are provided to lock the azimuth and elevation adjusting components in position when bore-sighting and synchronization of all fire control instruments is achieved.

Telescope mount M92 (T178) is used on TANK, COMBAT, FULL TRACKED: 76-mm gun, M41 (T41E2) and TRAINER, TANK GUNNERY: 76-mm gun, M17. Telescope mount M92A1 (T178E1) is used on TANK, COMBAT, FULL TRACKED: 76-mm gun, M41A1 (T41E2) and TRAINER, TANK GUNNERY: 76-mm gun, M17A1.

Differences among models

The bracket assemblies for telescope mounts M92 and M92A1 are identical. Their mount assemblies differ in the bracket design. The mount assembly of telescope mount M92 is positioned on top of the gun; whereas, the mount assembly of telescope mount M92A1 is positioned on the side of the elevating mechanism, due to the design of new turret elevating and traversing mechanism used in TANK, COMBAT, FULL TRACKED: 76-mm gun, M41A1 (T41E2).

Data plate location

The identification plate is located on the housing of the mount assembly.

Classification: Standard A.

CHARACTERISTICS

Length:
Bracket assembly: 111/2 in.
Mount assembly: 13 in.

Width:
Bracket assembly: 81/2 in.
Mount assembly: 7 1/8 in.

Height:
Bracket assembly: 6 in.
Mount assembly: 7 1/8 in.

Weight:
Bracket assembly: 12 lb
Mount assembly: 11 lb

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Bracket assembly

Within Continental United States

Shipped bracket assemblies per box.

Length: 111/2 in.
Width: 81/2 in.
Height: 7 1/8 in.
Volume: 13 in.
Gross weight: 12 lb
Ship tons: 0

Outside Continental United States

Shipped bracket assemblies per box.

Length: 111/2 in.
Width: 81/2 in.
Height: 7 1/8 in.
Volume: 13 in.
Gross weight: 12 lb
Ship tons: 0

Mount assembly, MOUNT TELESCOPE: M92
Within Continental United States

<table>
<thead>
<tr>
<th>Shipped mount assemblies per box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped mount assemblies per box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Mount assembly, MOUNT, TELESCOPE, M92A1.

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped mount assemblies per box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped mount assemblies per box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: TM 9-6049, TM 9-1290-231-36P.
MOUNT, TELESCOPE: M96 (T189)

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M96 (T189)</td>
<td></td>
<td>1240-344-4664</td>
</tr>
</tbody>
</table>

General

MOUNT, TELESCOPE: M96 (T189), supports and aligns TELESCOPE: M93 (T183) for direct fire sighting on the HOWITZER, SELF-PROPELLED, FULL TRACKED: 155-mm, M44 (T194) or M44A1. The telescope mount M96 (T189) is bolted to the howitzer mount and moves in elevation and azimuth with the weapon. The telescope is secured to the telescope mount at three points by means of the front holder, the clamp assembly, and the locking screw knob and locking screw. The cant corrector assembly connects to the telescope by the cant corrector coupling, and centers the bubble in the level vial, and positions the reticle of the telescope so that the etchings are horizontal whenever the trunnions of the howitzer mount are canted. The cant corrector is manually operated by rotating the level vial drive worm (cant corrector) knob and is capable of compensating for cant angles from 0° to 15° in either direction.

Differences among models

Data plate location

The identification plate (nameplate) is located on the telescope mount bracket.

Classification: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Max. overall:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>22 3/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>10 1/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>9 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>49 1/2 lb.</td>
</tr>
</tbody>
</table>

Level vial rotation (cant correction):

| Right  | 0° to 15° |
| Left   | 0° to 15° |

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-7004.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 3 telescope mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>3 ft. 10 1/4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>2 ft. 4 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 8 3/8 in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lb.</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 3 telescope mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>3 ft. 10 1/4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>2 ft. 4 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 8 3/8 in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lb.</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.23</td>
</tr>
</tbody>
</table>

MOUNT, TELESCOPE: M99 (T179), M99C (T179E2), M99A1 (T179E4), AND M99A1C (T179E5)

Each mount, when cross and longitudinally leveled, corrects for azimuth error resulting when the weapon is elevated with the trunnions out of level (canted). The telescope mount consists of the trunnion arm, long link, and bellcrank assemblies of the linkage system; the gimbal with the telescope housing assembly, cant correction mechanism which provides mounting for the telescope and includes the counter; the azimuth assembly which includes level vials; and the electrical installation which provides reticle illumination.

Telescope mount M90 (T179) or M99A1 (T179E4) supports TELESCOPIC PANORAMIC M100 (T149E1) and is used with the telescope to lay HOWITZER, SELF-PROPELLED, FULL TRACKED 105-mm, M32 (T98E1) or M3A1 for indirect fire. It also supports the telescope mounting bracket of MOUNT, TELESCOPE: M300 (T149E1) which with TELESCOPE: M101 (T149E1) is used to lay the howitzer for direct fire. Telescope mount M99C (T179E2) or M99A1C (T179E5) supports TELESCOPIC PANORAMIC M160 (T149E1) and is used with the telescope to lay the GUN, SELF-PROPELLED, FULL TRACKED 155-mm, M32 (T97E1) and the HOWITZER, SELF-PROPELLED, FULL TRACKED 8-inch, M58 (T169) for indirect fire.

Differences among models:
Telescope mounts M90 (T179) and M99C (T179E2) are basically the same, design differences exist between the supports and the trunnion arm, long link, and bellcrank assemblies. The major difference between the M90 (T179) and M99A1 (T179E4) is the azimuth assembly. Telescope mount M32 (T98E1) employs a curved support assembly; and on the M99A1 (T179E4), the curved support is replaced by a worm and nut mechanism. The M99A1C (T179E5) is similar to the M99C (T179E2) and has different wiring harness assembly.

Secondary Item

Model | Line item No. | Federal stock No.
--- | --- | ---
M90 (T179) | ... | 1240-244-4666
M99C (T179E2) | ... | 1240-544-1666
M99A1 (T179E4) | ... | 1240-544-6677
M99A1C (T179E5) | ... | 1240-546-0718

Data plate location
The identification plate (nameplate) is located on the azimuth assembly bracket.

Classification
M99 (T179) | Standard A
M99C (T179E2) | Standard A
M99A1 (T179E4) | Standard A
M99A1C (T179E5) | Standard A

Characteristics
Length: M99 (T179) | ... | 32 in.
M99C (T179E2) | ... | 24¼ in.
Width | ... | 22 in.
Height | ... | 39¼ in.
Weight: M99 (T179) | ... | 478 lb
M99C (T179E2) | ... | 358 lb

Performance

Instructional Material

Storage and Shipment Data
Telescope mount M99 or M99A1

Within Continental United States
Shipped 1 telescope mount per box

Length | ... | ...
Width | ... | ...
Height | ... | ...
Volume | ... | ...
Gross weight | ... | ...
Ship unit | ... | ...

14-24
### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>1 telescope mount per box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>__________________________</td>
</tr>
<tr>
<td>Width</td>
<td>__________________________</td>
</tr>
<tr>
<td>Height</td>
<td>__________________________</td>
</tr>
<tr>
<td>Volume</td>
<td>__________________________</td>
</tr>
<tr>
<td>Gross weight</td>
<td>________________________</td>
</tr>
<tr>
<td>Ship tons</td>
<td>________________________</td>
</tr>
</tbody>
</table>

Telescope mount M99C or M99A1C

### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>1 telescope mount per box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>__________________________</td>
</tr>
<tr>
<td>Width</td>
<td>__________________________</td>
</tr>
<tr>
<td>Height</td>
<td>__________________________</td>
</tr>
</tbody>
</table>

References: SNL F-372, TM 9-6039.
MOUNT, TELESCOPE: M100 (T169E1)

General

MOUNT, TELESCOPE: M100 (T169E1), consists of two major components, a telescope mounting bracket and a mount yoke. The telescope mounting bracket supports the eyepiece end of TELESCOPE: M101 (T169E1), while the mount yoke supports the objective end and PERISCOPE: M23 (T38). Together they are used as a unit for direct fire with the HOWITZER, SELF PROPELLED, FULL TRACKED: 105-mm, M52 (T90E1) or M52A1. The telescope mounting bracket is secured to the bracket of MOUNT, TELESCOPE, M99 (T179), while the mount yoke is secured to the howitzer cradle and moves in elevation with the weapon. The telescope locking handle provides for locking of the objective end of the telescope with the mount yoke. Periscope guides, extending from the periscope mounting plate, position and secure the periscope to the yoke.

Differences among models

Data plate location

The identification plate (nameplate) is located on the telescope mounting bracket.

Classification: Standard A.

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-7204.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped per

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped per

Length

Width

Height

Volume

Gross weight

Ship tons

References: SMI, P-240, TM 8-5685.
MOUNT, TELESCOPE: M101 (T181)

General

MOUNT, TELESCOPE: M101 (T181), consists of the front and rear clamp assemblies secured to the support. A spring-loaded plunger in the front clamp assembly secures the front of the telescope objective tube, and a threaded shaft and shoe in the rear clamp assembly secures the rear of the objective tube. The cant corrector and ocular portions of the telescope are supported by the outrigger, which is an integral part of the support casting. Telescope mount M101 (T181) supports and aligns TELESCOPE: M99 (T159) or M99C (T160E1) for direct fire sighting on the GUN, SELF-PROPELLED, FULL TRACKED: 155-mm, M53 (T97) and the HOWITZER, SELF-PROPELLED, FULL TRACKED: 8-in. M55 (T108), respectively.

Characteristics

Data plate location

The identification plate (nameplate) is located on the support.

Classification: Standard A.

<table>
<thead>
<tr>
<th>Secondary Item</th>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M101 (T181)</td>
<td>1240-344-6071</td>
</tr>
</tbody>
</table>

Performance

Equipment

Basic issue items: See TM 9-2280-210-10.

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped 3 telescope mounts per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft. 8% in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 9 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 4% in.</td>
</tr>
<tr>
<td>Volume</td>
<td>8.56 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 3 telescope mounts per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft. 8% in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 9 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 4% in.</td>
</tr>
<tr>
<td>Volume</td>
<td>8.56 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.16</td>
</tr>
</tbody>
</table>

References: SNL F-391, TM 9-4041.
MOUNT, TELESCOPE: M111 (T219)

Secondary item

Model | Line item No. | Federal stock No.
M111 (T219) | ........................ | 1200-668-9976

General

MOUNT, TELESCOPE: M111 (T219) attaches to the 90-mm gun mount M88 on the 90-mm full track self-propelled gun M56 (T101) and is used to support TELESCOPE: M104 (T201) or M106C for sighting and ranging on targets. The telescope mount elevates and deflates with the weapon, maintaining a constant relative position between centerlines of the gun tube and the telescope. Two boresight knob assemblies are provided to enable making azimuth and elevation boresight adjustments. The mount supports the LIGHT, INSTRUMENT: M36 which illuminates the reticle patterns of the TELESCOPE: M104 (T201) or M106C during night operation.

Differences among models

Data plate location

The identification plate is located on the top of the mount.

Classification: Standard A (OTCM 67889).

CHARACTERISTICS

Weight: ............... 40 lb
Length: ........................ 13% in.
Width: ........................ 12% in.
Height: ........................ 12% in.
PERFORMANCE EQUIPMENT

Basic Issue Items: See TM 9-2350-213-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telescope</td>
<td>1</td>
<td>1 ft, 11 in.</td>
<td>9 in.</td>
<td>1 ft</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telescope mount</td>
<td>1</td>
<td>1 ft, 11 in.</td>
<td>9 in.</td>
<td>1 ft</td>
</tr>
</tbody>
</table>

Volume: 1.4 cu ft
Gross weight: 39 lb
Ship tons: 0.03

MOUNT, TELESCOPE: M114 (T199)

General
MOUNT, TELESCOPE: M114 (T199), supports TELESCOPE: M105C for use as the secondary direct fire control system in TANK, COMBAT, FULL TRACKED: 105-mm gun, M60. The mount consists of a base housing assembly, and adjustable slide assembly, and an adjustable holder assembly capable of vertical movement within the slide. Bore sight knobs and scale disks for adjusting the telescope in deflection and elevation, and locking mechanisms for holding the adjustments constitute the operating components of the mount.

Differences among models
Data plate location
Data plate is located on the upper main bracket.
Classification: Standard A.

CHARACTERISTICS
Length .......... (approx) 103/4 in.
Width ......... (approx) 103/4 in.
Height .......... (approx) 13 in.
Weight .......... (approx) 45 lb

Bore sight knob scales—graduated in 0.1-mil increments, numbered every mil.

Elevation scale .......... 0.5 to 6.5 mils
Deflection scale .......... 0.5 to 6.5 mils

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 telescope mount per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume (cu ft)</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 83/4 in.</td>
<td>1 ft, 43/4 in.</td>
<td>1 ft, 23/4 in.</td>
<td>2.723 cu ft</td>
<td>74.5 lb</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Outside Continental United States
Shipped 1 telescope mount per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume (cu ft)</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 83/4 in.</td>
<td>1 ft, 43/4 in.</td>
<td>1 ft, 23/4 in.</td>
<td>2.723 cu ft</td>
<td>74.5 lb</td>
<td>0.07</td>
</tr>
</tbody>
</table>

MOUNT, TELESCOPE: XM117

GENERAL
MOUNT, TELESCOPE: XM117, mounts TELESCOPE, ELBOW: XM107 and is attached to the battle group lightweight weapon system XM28 or battle group heavy weapon system XM29 as a unit by means of HOLDER, TELESCOPE MOUNT: XM6 or XM6.

The telescope mount consists of three main parts. The lower part contains a horizontal axis, a male dovetail, a locking device, and an elevation knob with scales. The center part has a vertical axis, azimuth knob, stationary and adjustable scales and a pair of cross-level vials. The upper part which supports the elbow telescope is comprised of a telescope support and horizontal and vertical axes. The telescope support has an open sight and an angle-of-attitude knob with scales.

DIFFERENCES AMONG MODELS

Data plate location
Data plate is located on main body.

Classification: Standardization pending.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>XR117</th>
<th>XR117</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line item No.</td>
<td>1240-601-6266</td>
<td></td>
</tr>
<tr>
<td>Federal stock No.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Length ................................................. 4% in.
Width ................................................. 6% in.
Height ................................................. 7% in.
Weight ................................................. 4 lb, 10 oz

Dial graduations:
Coarse elevation scale ................. 0 to 6,400 mils
Micrometer elevation scale .......... 0 to 100 mils

Micrometer azimuth scale .............. 0 to 100 mils
Coarse deflection slip scale ......... 0 to 6,400 mils
Micrometer deflection slip scale ..... 0 to 100 mils

PERFORMANCE

EQUIPMENT

Basic issue item: See TM 9-1000-209-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 10 telescope mounts per shipping container.

Length ................................................. 2 ft, 3% in.
Width ................................................. 1 ft, 3 in.
Height ................................................. 10% in.
Volume ................................................. 2.60 cu ft
Gross weight ....................................... 61.6 lb
Ship tons ............................................ 0.66

Outside Continental United States
Shipped 14 telescope mounts per shipping container.

Length ................................................. 2 ft, 9 in.
Width ................................................. 2 ft, 6 in.
Height ................................................. 1 ft, 3 in.
Volume ................................................. 7.62 cu ft
Gross weight ....................................... 181 lb
Ship tons ............................................. 0.19

PERISCOPE, TANK: M4A1

GENERAL

PERISCOPE, TANK: M4A1, is a tank periscope equipped with a built-in telescope and is used for gun sighting and observation. The periscope is so mounted that the upper window extends above the tank body. The periscope consists of the head, body, elbow, and a solid glass prism for both the head and the elbow. The prisms are used to reflect the image to the observer's eye position. Adjustment knobs with deflection graduations which permit easy and rapid bore sighting are provided. The reticle of the telescope is used for accurate gun sighting. The head is made of shatterable plastic. Heads are readily replaceable by substituting a spare. A record of the vertical and lateral adjustment is entered on each spare head. When a shattered head is replaced, the adjustment data recorded on the spare head is used to make the required adjustment in the periscope without the need of scales going through the operation of bore sighting.

The periscope M4A1 containing TELESCOPE: M38A2 is used with 76-mm combination gun mounts M4 and M4A1; containing TELESCOPE: M77C is used with 106-mm combination gun mounts M52 and M51.

DIFFERENCES AMONG MODELS

Data plate location

Data plate is located on the body assembly.

Data plate is located on the body assembly.

CLASSIFICATION: Obsolescence pending.

CHARACTERISTICS

Periscope offset

DEFLECTION (HORI.), FOR BORE SIGHTING

30-0-30 mils

ELEVATION (VERTICAL), FOR BORE SIGHTING

30-0-30 mils

MAGNIFICATION (TELESCOPE)

1.44 power

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

For graphic training aids and devices, see DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 periscopes per box

Length ..... 2 ft, 11 in.

Width ..... 1 ft, 2 in.

Height ..... 9 in.

Volume ..... 2.5 cu ft

Gross weight ..... 92 lb

Ship tons ..... 0.06

Outside Continental United States

Shipped periscopes per box

Length

Width

Height

Volume

Gross weight

Ship tons

References: SNL F-335, TM 9-4112.
PERISCOPE: M10F AND M10P

PERISCOPE: M10F or M10P is an optical instrument that has an offset line-of-sight to enable an operator to view the surrounding terrain without exposing himself. It is provided with two optical systems: one having 1-power (1X), for observation of general terrain and for sighting on near targets, and the other having 6-power (6X), for sighting on distant targets, with a porro-prism erecting system and a focusing eyepiece, built into the body of the periscope, instead of being incorporated as a separate telescope within the periscope. The periscopes M10F or M10P consist of the body assembly which is a cast aluminum body containing the lower prisms and reticles of both optical systems and lenses, and the head assembly consisting of a molded, shatterable plastic head containing a 90° prism. Both optical systems are provided with graduated reticles. Vertical and lateral adjusting mechanisms operated by knobs are provided for making adjustments for aligning the reticles to the bore of the gun. Illumination of the reticle patterns is provided. The periscope is secured to the turret of the vehicle and its line-of-sight elevates with the weapon.

Differences among models
Periscopes M10F and M10P are identical except for their reticle patterns.

Data plate location
The identification plate (nameplate) is located on the body.

Classification: Unclassified.
CHARACTERISTICS

Magnification:
- Near sight: \( 1 \times \)
- Distant sight: \( 6 \times \)

Diopter adjustments: \( \pm 2 \frac{1}{2} \) dipters

Field of view:
- 1-power:
  - Horizontal: \( 42^\circ, 10 \text{ min} \)
  - Vertical: \( 8^\circ, 10 \text{ min} \)
- 6-power, horizontal: \( 10^\circ, 20 \text{ min} \)

Reticle range:
- 1-power:
  - M10F: 0 to 1,200 yd
- 6-power:
  - M10P: 0 to 4,400 yd
  - M10P: 0 to 4,200 yd

Reticle deflections: \( R \& 0-300 \) mule

Center-to-center distance between head prism and eyepiece: \( 9\frac{1}{2} \) in.

Length: \( 13\frac{1}{4} \) in.

Width: \( 8\frac{1}{4} \) in.

Thickness: \( 5\frac{1}{2} \) in.

Weight: \( 11\frac{1}{4} \) lb

PERFORMANCE

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORED AND SHIPMENT DATA

Within Continental United States

Shipped:
- 2 periscopes per box

Length: 1 ft, 11 in.

Width: 1 ft, 7 in.

Height: 1 ft

Volume: 3.0 cu ft

Gross weight: 86 lb

Ship tons: 0.08

Outside Continental United States

Shipped:
- 2 periscopes per box

Length: 1 ft, 11 in.

Width: 1 ft, 7 in.

Height: 1 ft

Volume: 3.0 cu ft

Gross weight: 86 lb

Ship tons: 0.08

PERISCOPE: M12

PERISCOPE: M12 is an optical instrument that has an offset line-of-sight to enable an operator to view the surrounding terrain without exposing himself. It is of the solid plastic type, single power of magnification, with second surface mirrors cemented at a 45° angle in the head and elbow, and is waterproof. Periscope M12 has only the mirrors and does not have windows. It is supported by a metal band in either a viewing or a retracted position in a periscope holder which is secured to the body of the vehicle and can be elevated, depressed, or rotated in azimuth.

The periscope M12 is used with the LANDING VEHICLE, TRACKED: MK 4, LVT (4), w/e.

Differences among models

Data plate location

The identification data are stamped on the band.

Classification

**CHARACTERISTICS**

Field of view:
- **Vertical**: ............. 25°
- **Horizontal**: ............. 60°
- **Length**: ............. 11 ¼ in.
- **Width**: ............. .6½ in.

* For characteristics and data see item in section 21.

### PERFORMANCE

#### EQUIPMENT

#### INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>per</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>per</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-1608E.
PERISCOPE, TANK: M15A1

PERISCOPE, TANK: M15A1 is an optical instrument that has an offset line-of-sight to enable an operator to view the surrounding terrain without exposing himself. It is a binocular-type instrument having two built-in optical systems, a one-power system for wide close-in vision of the terrain, and a 7-power system for stereoscopic long range vision, having two eyepieces with individual focusing adjustments. A porro-prism erecting system and optical components are built into the body of the periscope, instead of being incorporated as a separate telescope within the periscope. The periscope M15A1 consists of two major parts. The body assembly contains the lower prisms, optical components and reticle of the 7-power system, and the observation window and the plain mirror of the 1-power system. The head assembly contains the head prism. Located on the side of the body assembly is an eccentric mechanism which locks the head assembly in position. A reticle, placed in the image plane of the left objective of the 7-power system, is graduated in mils for measuring lateral and vertical deflections, and may be illuminated by LIGHT, INSTRUMENT: M33. An adjustable headrest is provided for the convenience of the observer. Desiccating capsules containing silica gel are inserted in the prism housing to absorb moisture. Indicator windows facilitate examination of the silica gel.

The periscope M15A1 is used by the tank commander for observation purposes and for controlling and adjusting fire. Periscope M15A1 is used with GUN, SELF-PROPELLED, FULL TRACKED: 155-mm, M3 (T87); HOWITZER, SELF-PROPELLED, FULL TRACKED: 105-mm, M52 (T99E1) or M15A1; and HOWITZER, SELF-PROPELLED, FULL TRACKED: 8-inch, M55 (T108).

### Differences among models

#### Data plate location

The identification plate (nameplate) is located on the body assembly.

### Classification: Standard A.

### Characteristics

<table>
<thead>
<tr>
<th>Magnification:</th>
<th>Close vision</th>
<th>Long range vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field of view:</td>
<td>Close vision (1X):</td>
<td></td>
</tr>
<tr>
<td>Horizontal</td>
<td>60°</td>
<td>10°, 20 min</td>
</tr>
<tr>
<td>Vertical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long range vision (7X):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>1 1/8 in.</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>.15 lb, 12 oz</td>
<td></td>
</tr>
</tbody>
</table>

### Performance

#### Equipment

In-use issue items. See Td 9-7204.

### Instructional Material

#### Storage and shipment data

**Within Continental United States**

- Shipped 6 periscopes per shipping container
- Length: 2 ft, 13/4 in.
- Width: 2 ft, 4 1/2 in.
- Height: 1 ft, 4 1/2 in.
- Gross weight: 176.5 lb
- Gross weight: 8.35 cu ft
- Gross weight: 0.21

**Outside Continental United States**

- Shipped 6 periscopes per shipping container
- Length: 2 ft, 13/4 in.
- Width: 2 ft, 4 1/2 in.
- Height: 1 ft, 4 1/2 in.
- Gross weight: 176.5 lb
- Gross weight: 8.35 cu ft
- Gross weight: 0.21

### References

- SNL F-235, Vol. 6; TM 9-1608F.
PERISCOPE: M20 (T35), M20A1, M20A3, M20A3C, M20A3F

PERISCOPE: M20 (T35), M20A1, M20A3, M20A3C, or M20A3F is a monocular-type optical instrument that has an offset line-of-sight to enable an operator to view the surrounding terrain without exposing himself. It has two built-in optical systems, a 1-power system for wide-angle close observation of terrain and a 6-power system for sighting distant objects and aiming on targets. It is composed of two separate major components, secured to the periscope mount, the head assembly and the body assembly. The head assembly contains a first-surface mirror used by both optical systems. The body assembly contains the 6-power optical system and the penta prism, lenses, diaphragm, and reticle of the 6-power optical system. A manually controlled spring-loaded elevation input coupling is provided on the head assembly for rotation of the internal mirror to deviate the line-of-sight. The mirror returns to its original position due to the spring-loaded action of the coupling. A diopter scale is provided on the eyepiece for focusing. The azimuth and elevation boresighting knobs are provided for making boresighting adjustments. Illumination of the reticle patterns is provided for by LIGHT, INSTRUMENT: M36.

The filler assembly is a cover used to cover the gap between the head and body assemblies, to keep out dust and outside light. Periscope M20 or M20A1 is a component of the fire control system on TANK, COMBAT, FULL TRACKED: 76-mm gun, M41 and M41A1: TRAINER, TANK GUNNERY: 76-mm gun, M17 and M17A1: TANK, COMBAT, FULL TRACKED: 90-mm gun, M47: TRAINER, TANK GUNNERY: 90-mm gun, M18: TANK, COMBAT, FULL TRACKED: 90-mm gun, M46 and M48; TRAINER, TANK GUNNERY: M20; and TANK, COMBAT, FULL TRACKED: 120-mm gun, M83. Periscope M20, M20A1, or M20A3 is used on TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A2. Periscope M20A3C is used on RIFLE, 106 MILLIMETER: multiple, self-propelled, M65. Periscope M20A3F is used on TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A2C.

Differences among models
Periscopes M20, M20A1, M20A3, M20A3C, and M20A3F are very much alike as far as functioning and external appearance are concerned. M20A3C differs in its reticle design. M20, M20A1, M20A3, and M20A3F have similar reticles. Minor differences exist between models in the design of head and body assemblies, some head assemblies having internal components welded instead of being pinned, and the body assemblies use different types of boresighting knobs. M46 and M48A1 differ from the rest in the location of the locking levers. M20-series periscopes are equipped with a filler assembly except on TANK, COMBAT, FULL TRACKED: 90-mm gun, M47 and on TRAINER, TANK GUNNERY: M18.

Data plate location
The identification plates (nameplates) are located on the head and body assemblies.

Classification

CHARACTERISTICS
Magnification:
Close vision: 10X
Long range vision: 6X
Field of view:
Close vision (10X):
Horizontal: 93°, 16 min
Vertical: 7°, 9 min
Long range vision (6X):
Line-of-sight rotation:
Depression: 22°
Elevation: 18°
**STORAGE AND SHIPMENT DATA**

**INSTRUCTIONAL MATERIAL**

**PERFORMANCE**

<table>
<thead>
<tr>
<th>Equipment Item</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20 and M20A1</td>
<td>3 ft, 7 in.</td>
<td>16.5 cu ft</td>
<td>0.41</td>
<td>lb</td>
</tr>
<tr>
<td>M20A3</td>
<td>3 ft, 1 in.</td>
<td>198.5 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M20A3C</td>
<td>2 ft, 1 in.</td>
<td>168.5 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M20A3F</td>
<td>3 ft, 1 in.</td>
<td>168.5 lb</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:**

PERISCOPE, TANK: M23 (T38)

**Model**
M23

**Secondary Item**

<table>
<thead>
<tr>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1240-344-4644</td>
<td></td>
</tr>
</tbody>
</table>

**General**

PERISCOPE, TANK: M23 (T38) is a simply constructed, sealed, optical instrument having a magnification of 1-power and a field of view of 10°. The periscope consists of a one-piece housing, an optical system with two windows, a 90° prism, and a mirror. The line-of-sight through the instrument is depressed 2°, 15 min ± 2 min in elevation with respect to a line-of-sight normal to the upper window. A lock is provided to secure the periscope to MOUNT, TELESCOPE: M100 (T160E1). PERISCOPE: M23 is used with TELESCOPE: M101 (T160E1) and forms part of the fire control equipment for HOWITZER, LIGHT, SELF-PROPELLED: full tracked, 105-mm, M52 (T98E1) or M52A1 in direct fire.

**Data plate location**
The identification plate (nameplate) is located on the lock side of the periscope housing.

**Classification:** Standard A.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Length (max)</th>
<th>Width (max)</th>
<th>Height (max)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.5 in.</td>
<td>4.75 in.</td>
<td>5.83 in.</td>
<td>5.60 lb</td>
</tr>
</tbody>
</table>

**Performance**

<table>
<thead>
<tr>
<th>Magnification</th>
<th>Field of view</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-power</td>
<td>10°</td>
</tr>
</tbody>
</table>

**Equipment**

Basic Issue Items: See TM 9-7204.

**Storage and Shipment Data**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped 24 periscopes per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length: 3 ft, 2 in.</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped 24 periscopes per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length: 3 ft, 2 in.</td>
</tr>
</tbody>
</table>

**Instructional Material**

References: TM 9-7204.

14-39
PERISCOPE, TANK: M26 (T25)

The periscope is of solid plastic with single power of magnification.

Data plate located on body assembly.

Classifications: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M26</td>
<td></td>
<td>1240-768-8875</td>
</tr>
</tbody>
</table>

General

PERISCOPE, TANK: M26 (T25), mounted in the periscope mounts around the driver's hatch opening of TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 (serial numbers 5 through 59), and TANK, COMBAT, FULL TRACKED: 90-mm gun, M48, M48A1, and M46E-(serial numbers 1 through 3741), is used for observation of terrain.

Differences among models

Data plate located on body assembly.

Classification: Standard A.

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-2335-206-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 8 periscopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 7 in.</td>
<td>1 ft, 7 1/2 in.</td>
<td>1 ft</td>
<td>4.21 cu ft</td>
<td>170.08 lb</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 8 periscopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 7 in.</td>
<td>1 ft, 7 1/2 in.</td>
<td>1 ft</td>
<td>4.21 cu ft</td>
<td>170.08 lb</td>
<td>0.11</td>
</tr>
</tbody>
</table>

References: SNL F-2355, Vol. 18.
PERISCOPE, TANK: M29 (T50E1)

Model: M29
Secondary Item: Line item No. Federal stock No. 1240-620-1241

PERISCOPE, TANK: M29 (T50E1), is used as part of the primary fire control system for TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1 (T43E2). It is a monocular-type instrument containing two optical systems: a unity power system for wide, close-in vision of the terrain, and an eight-power system for sighting of distant targets.

This periscope differs from the normal in that the gun laying reticles with separate boresighting mechanisms are optically projected into separate and independently collimated optical systems by CORRECTOR, CANT: M3 for the eight-power system and SIGHT, INFINITY: M4.

Differences among models:

Data plate location:
The identification plate is located on the rear of the periscope.

Classification: Standard A.

CHARACTERISTICS

Height 
Width 
Depth (max) 
Weight 
Magnification 
Field of view:

Eight-power system
Unity-power system:
Horizontal
Vertical

Maximum adjustable line-of-sight from horizontal:
Elevation
Depression

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 4 periscopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 11½ in.</td>
<td>2 ft, ¾ in.</td>
<td>2 ft, ½ in.</td>
<td>.124 cu ft</td>
<td>.178 lb</td>
<td>.81</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 4 periscopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 11½ in.</td>
<td>2 ft, ¾ in.</td>
<td>2 ft, ½ in.</td>
<td>.124 cu ft</td>
<td>.178 lb</td>
<td>.81</td>
</tr>
</tbody>
</table>

PERISCOPE: XM30

General

PERISCOPE: XM30 serves as part of the fire control system for TANK, COMBAT, FULL TRACKED: flamethrower, M67Al and is used as a means of sighting the flame gun and the caliber .30 machinegun.

It is oriented and linked to the flame gun trunnion through MOUNT, PERISCOPE: XM113 so that the line-of-sight of the periscope moves with the gun whenever it is elevated or depressed. When installed, the periscope projects through the roof of the tank cupola. The basic function of the periscope is to raise the observer’s line of vision, placing his eye, in effect, outside of the tank at a vantage point for the flame gun and the caliber .30 machinegun. The cap assembly of the periscope, which protrudes above the turret, is protected by the guard of the periscope mount. Periscope XM30 consists of the cap assembly with an air valve assembly, the body housing containing the main cell assembly and the elbow housing, with the eyepiece cell assembly, eyeshield assembly, and reticle assembly.

Dimensions among models

Data plate location

The identification plate (nameplate) and a caution plate are located on the elbow housing.

Classification: Standardization pending.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>1 ft. 9½ in.</td>
</tr>
<tr>
<td>Length (front to back)</td>
<td>.10½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>6 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>.11½ lb</td>
</tr>
</tbody>
</table>

Magnification: 1.6 power
Field of view: 45°
Diameter of exit pupil: .174
Effective focal length of objective: 1.440
Effective focal length of eyepiece: 1.269
Elevation of line-of-sight (max): 60°
Depression of line-of-sight (max): ±10°
Boresight adjustment (azimuth and elevation): ±30 mils

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped periscopes per:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped periscopes per:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

PERISCOPE, TANK: M31 (T50)

General

PERISCOPE, TANK: M31 (T50) is used in conjunction with SIGHT, INFINITY: M44C and MOUNT, PERISCOPE: M116 (T167) as part of the primary fire control system for TANK, COMBAT, FULL TRACKED: 105-mm gun, M60.

It is a monocular-type instrument containing two optical systems: a unity-power system (non-power magnification) for wide vision of the terrain and an alllight-power system for sighting on distant targets.

Differences among models

Data plate location

The identification plate (nameplate) is located on the rear of the periscope.

Classification: Standard B (AMCTC 812).

CHARACTERISTICS

Height ........................................ 17 1/2 in.
Width .......................................... 12 1/4 in.
Weight ........................................ 18 1/2 lb

Magnification:

Viewer ........................................ 1 power
Eyepiece ...................................... 6 power

Field-of-view:

Viewer:

Vertical .................................... 6°, 48 min
Horizontal .................................. 30°, 82 min
Eyepiece .................................... 8°

Total reticle movement (horizontal, vertical) ........ 14 mil

Maximum adjustable line-of-sight from horizontal:

Elevation ...................................... 22°
Depression ..................................... 18°

Doreight knob scale (gun laying reticle)—graduated in 0.1 mil increments.

Diopter scale—-3 to +3 diopters graduated in 0.5 diopter increments.

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 4 periscopes per shipping container

Length ........................................ 2 ft, 11 1/2 in.
Width .......................................... 2 ft, 1/4 in.
Height ......................................... 2 ft, 1/2 in.
Volume ........................................ 12.4 cu ft
Gross weight .................................. 178 lb
Ship tons ...................................... 0.31

Outside Continental United States

Shipped 4 periscopes per shipping container

Length ........................................ 2 ft, 11 1/2 in.
Width .......................................... 2 ft, 1/4 in.
Height ......................................... 2 ft, 1/2 in.
Volume ........................................ 12.4 cu ft
Gross weight .................................. 178 lb
Ship tons ...................................... 0.31

POWER UNIT: ASSEMBLY (ORD NO. 8289242)

Model

<table>
<thead>
<tr>
<th>Secondary Item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8289242</td>
<td>1240-672-1120</td>
<td></td>
</tr>
</tbody>
</table>

General

- POWER UNIT: assembly (8289242) is attached to PERISCOPE: M3 in TANK, COMBAT, FULL TRACKED: 105-mm gun, M60.

- The power unit assembly consists primarily of a housing, a rheostat, a receptacle assembly, and a contact assembly.

Differences among models

Data plate location

- The identification plate (nameplate) is located on the lower portion of the power unit assembly.

Classification

- CHARACTERISTICS
  - Length: 6 1/2 in. (approx)
  - Width, overall: 5 1/2 in. (approx)
  - Depth: 3 1/2 in. (approx)

- PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

- Shipped 12 power unit assemblies per shipping container

  - Length: 1 ft, 7 1/2 in.
  - Width: 1 ft, 11 in.
  - Height: 1 ft, 11 1/2 in.
  - Volume: 1.2 cu ft
  - Gross weight: 47 lb
  - Ship tons: 0.03

Outside Continental United States

- Shipped 12 power unit assemblies per shipping container

  - Length: 1 ft, 7 1/2 in.
  - Width: 1 ft, 11 in.
  - Height: 1 ft, 11 1/2 in.
  - Volume: 1.2 cu ft
  - Gross weight: 47 lb
  - Ship tons: 0.03

PERISCOPE, TANK: M37

General

PERISCOPE, TANK: M37 is of the solid plastic type, having a simple power of magnification. It is used with TANK COMBAT FULL TRACKED: 105-mm gun, M50A1.

Differences among models

Data plate location

The identification is stamped on the body of the periscope.

Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>1 power</td>
</tr>
<tr>
<td>Field of view:</td>
<td></td>
</tr>
<tr>
<td>Horizontally</td>
<td>22 deg.</td>
</tr>
<tr>
<td>Vertically</td>
<td>8 deg.</td>
</tr>
<tr>
<td>Length (including crash pad)</td>
<td>1 ft. 3(\frac{1}{2}) in.</td>
</tr>
<tr>
<td>Width (including crash pad)</td>
<td>4(\frac{1}{4}) in.</td>
</tr>
<tr>
<td>Depth (including crash pad)</td>
<td>8(\frac{1}{4}) in.</td>
</tr>
<tr>
<td>Weight</td>
<td>16 lb.</td>
</tr>
</tbody>
</table>

PERFORMANCE

For characteristics and data, see item at section 22.

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped periscope per shipping container.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>31 in.</td>
</tr>
<tr>
<td>Width</td>
<td>26 in.</td>
</tr>
<tr>
<td>Height</td>
<td>25(\frac{3}{4}) in.</td>
</tr>
<tr>
<td>Volume</td>
<td>0.67 cu ft.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>119.3 lb.</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped periscope per shipping container.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>31 in.</td>
</tr>
<tr>
<td>Width</td>
<td>26 in.</td>
</tr>
<tr>
<td>Height</td>
<td>25(\frac{3}{4}) in.</td>
</tr>
<tr>
<td>Volume</td>
<td>0.67 cu ft.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>119.3 lb.</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.21</td>
</tr>
</tbody>
</table>

RANGE FINDER, FIRE CONTROL: M12 (T41E3) AND T41

General

RANGE FINDER, FIRE CONTROL: M12 (T41E3) or T41, is essentially a stereoscopic, ballistic-computing range finder operated by the gunner who, through the use of various adjustment knobs, indexes the proper ammunition, sets the ballistic correction, ranges and tracks the target, and boresights the gun for firing. The range finder consists of two end housing assemblies, a telescope assembly, a compensator assembly, a collimator assembly, a ballistic cam housing assembly, and the main housing which contains gearing, wiring, and other associated parts. The range finder is supported by two main bearing assemblies attached to the tank turret roof. The range finder is connected, through connectors and rods, to the ballistic drive and the gun traverses. TRANSMITTER, SUPER-ELEVATION: M12 (T13), is connected by a cable to a receptacle at the rear of the range finder M12.

Differences among models

The difference between the range finder M12 and the T41 is in the geared relationship of the super-elevation synchro to the rest of the gear train in the range finder. The exterior appearance of the cam housing for range finder M12 is changed by the substitution of a bulged ballistic cam housing cover which is necessary to provide space for the addition of the super-elevation mechanism assembly. Also, the ammo data chart for the T41 differs from the M12 chart.

Data plate location

Classification: M12 ......................... Standard C (OTCM 37107)
CHARACTERISTICS

Weight .................................................. 270 lb.
Length (overall) ...................................... 5 ft. 4½ in.
Depth (overall) ........................................ 2 ft. 1½ in.
Height (overall) ........................................ 2 ft. 4 in.
Range .................................................. 600 to 5,000 yd
Magnification ......................................... 7½ power
Base length ............................................. 6 ft
Exit pupil ............................................... 0.197 in. (5-mm)
Field of view .......................................... 5°
Diopter adjustment ................................... -2 to +3 diopters
Interpupillary adjustment ......................... 38-mm to 72-mm

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

For graphic training aids and devices, see DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped range finders per box
Length ..................................................
Width ..................................................
Height ..................................................
Volume ..................................................
Gross weight ........................................
Ship tons ............................................

Outside Continental United States

Shipped range finders per box
Length ..................................................
Width ..................................................
Height ..................................................
Volume ..................................................
Gross weight ........................................
Ship tons ............................................

References: SNL P-356, Section I, TM 9-506.
RANGE FINDER, FIRE CONTROL: M13 (T46E1) AND M13A1 (T46E4)

General

RANGE FINDER, FIRE CONTROL: M13 (T46E1) and M13A1 (T46E4), is a stereoscopic-type instrument used as the principal ranging device in the primary sighting system for the 90-mm gun tanks M48, M48A1, M48C, M48A2, and M48A2C, and is used for direct fire operation. These range finders provide automatic and continuous ranging information through an output shaft to the ballistic computer. For sighting systems that do not include a ballistic computer, the range information may be read from the range scale. Accuracy of the range finder is inherently high because of its long base length and 10-power magnification. The range finder may also be used, if the gunner's periscope is out of order, for boresighting the gun. Either the left or right end of the range finder may be used for boresighting.

The fire control range finder M13 (T46E1) is used with TANK, COMBAT, FULL TRACKED: 90-mm gun, M48, M48A1, and M48C. The fire control range finder M13A1 (T46E4) is used with TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A2.

Differences among models

The difference between the range finders M13 and M13A1 is in the design of end housings and stereo reticle and lamp housings.

Data plate location

The data are stamped on the instrument panel.

Classification:

M13: Standard A
M13A1: Standard A (OTCM 35972)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Secondary Item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M13</td>
<td></td>
<td>1240-344-4654</td>
</tr>
<tr>
<td>M13A1</td>
<td></td>
<td>1240-608-2062</td>
</tr>
</tbody>
</table>

Model

- M13
- M13A1

Data plate location

The data are stamped on the instrument panel.

Classification:

- M13: Standard A
- M13A1: Standard A (OTCM 35972)

CHARACTERISTICS

- Weight: 133.38 lb
- Length (overall): .85 in.
- Depth (overall): .34 in.
- Height (overall): .12 in.
- Range: 650 to 4,800 yd
- Magnification: 10 power
- Base length: .79 in.
- Exit pupil: 2.50-mm
- Field of view: 4°
- Interpupillary adjustment: .48 to .72 mm
- Focus adjustment: 4.00 diopters
## M13A1:

<table>
<thead>
<tr>
<th>Performance Equipment</th>
</tr>
</thead>
</table>

**Basic Issue Items:**
- M18—See ORD 1 SNL C-254
- M13A1—

**INSTRUCTIONAL MATERIAL**

---

### STORAGE AND SHIPMENT DATA

#### Within Continental United States

Shipped 1 range finder per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>7 ft, 6 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 11½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>2 ft, 6 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>36.801 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>622 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.92</td>
</tr>
</tbody>
</table>

#### Outside Continental United States

Shipped 1 range finder per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>5 ft, 6 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 11¼ in.</td>
</tr>
<tr>
<td>Height</td>
<td>2 ft, 6 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>36.801 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>622 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.92</td>
</tr>
</tbody>
</table>

---

**References**: SNL F-356, Section 3, TM 9-6023, TM 9-1240-218-35P.
RANGE FINDER, FIRE CONTROL: M14 (T42E1)

General

RANGE FINDER, FIRE CONTROL: M14 (T42E1), is essentially
e stereoscopic, internally collimated instrument incorporating two
sighting telescopes and ballistic computing and transmitting mech­
nanisms for use in armored vehicles. The range finder is operated
by the gunner, who controls adjustment knobs to index the proper
ammunition, sets ballistic correction, corrects for tank cant, ranges
and tracks the target, and finally sights the gun for firing. The
weapon can be fired against fixed or moving ground subjects from
the stationary tank. TRANSMITTER, SUPERELEVATION: M12
(T43) is connected by a cable to a receptacle at the rear of the
range finder M14.

Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>400 lb</td>
</tr>
<tr>
<td>Length (overall)</td>
<td>6 ft, 8 in</td>
</tr>
<tr>
<td>Depth (overall)</td>
<td>1 ft, 11 in</td>
</tr>
<tr>
<td>Height (overall)</td>
<td>1 ft, 21/2 in</td>
</tr>
<tr>
<td>Range</td>
<td>500 to 6,000 yd</td>
</tr>
</tbody>
</table>

* For data and characteristics, see item in section 16.

References: SNL F-866, Section 5: TM 9-6045.
RANGE FINDER, FIRE CONTROL: M15 (T52)

General
RANGE FINDER, FIRE CONTROL: M15 (T52) functions as the primary sighting and fire-control equipment for the 120-mm gun in TANK, COMBAT, FULL TRACKED; 120-mm gun, M103A1 (T43E3). It is a stereoscopic, internally collimated instrument incorporating two sighting telescopes. In addition to its function under normal operations, the range finder can also be used as an offset direct-sighting telescope by which the 120-mm gun cannon can be laid in the event that either side (or end housing assembly) is damaged.

Differences among models
Data plate location
Classification: Standard A (OTCM 56540).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (overall)</td>
<td>80.2 in.</td>
</tr>
<tr>
<td>Depth (overall)</td>
<td>23 in.</td>
</tr>
<tr>
<td>Height (overall)</td>
<td>14.5 in.</td>
</tr>
<tr>
<td>Range</td>
<td>500 to 3,000 yd</td>
</tr>
<tr>
<td>Magnification</td>
<td>8.6 power</td>
</tr>
<tr>
<td>Focus length</td>
<td>75 in.</td>
</tr>
<tr>
<td>Cant adjustment</td>
<td>0 to 2½ mils or 15.47°</td>
</tr>
<tr>
<td>Exit pupil</td>
<td>4.30-mm</td>
</tr>
<tr>
<td>Field of view</td>
<td>4.3°</td>
</tr>
<tr>
<td>Dioptr adjustment</td>
<td>-3 to +3 diopters</td>
</tr>
<tr>
<td>Interpupillary adjustment</td>
<td>38-mm to 10-mm</td>
</tr>
<tr>
<td>Weight</td>
<td>450 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE
EQUIPMENT
Basic Issue Items: See TM 9-2350-234-1.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped range finders per

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped range finders per

| Length | Width | Height | Volume | Gross weight | Ship tons |

References: TM 9-4240-225 P5, TM 9-1240-244-35P.
RANGE FINDER, FIRE CONTROL: M17C

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M17C, w/e</td>
<td></td>
<td>1210-976-2178</td>
</tr>
</tbody>
</table>

General

RANGE FINDER, FIRE CONTROL: M17C, is a hermetically sealed, full field coincidence image instrument used as the ranging device of the primary sighting and fire control for TANK, COMBAT, FULL TRACKED: 105-mm gun, M48. It is mounted to the turret wall. This instrument provides ranging information to COMPUTER, BALLISTICS: M18A1D by means of the range output shaft which mechanically connects the range finder to the computer. It may also be used as an offset telescope under emergency conditions.

Differences among models

Data plate location

Data plate is located on central panel of range finder.

Classifications: Standard A (OTCM 57902).

CHARACTERISTICS

Weight (including end housing assemblies) ............ 149 lb
Length (including end housing assemblies) .......... 7 ft
Base length ............. 3 ft, 7 in
Width ............. 1 ft, 2 lb
Height (housing height) ............. 1 ft
Magnification ............. 10 power
Field of view ............. 4° (actual)
Diameter of exit pupil ............. 0.120 in.
Diopter adjustments ............. +4 to -4

Operating voltage ............. 24 v
Range ............. 0.500 to 4,400 meters

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-2350-210-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 range finder per shipping container
Length ............. 7 ft, 6 in.
Width ............. 1 ft, 11 1/2 in.
Height ............. 2 ft, 6 in.
Volume ............. 36.801 cu ft
Gross weight ............. 652 lb
Ship tons ............. 0.92

Outside Continental United States

Shipped 1 range finder per shipping container
Length ............. 7 ft, 6 in.
Width ............. 1 ft, 11 1/2 in.
Height ............. 2 ft, 6 in.
Volume ............. 36.801 cu ft
Gross weight ............. 652 lb
Ship tons ............. 0.92

SIGHT: M4

**Limits of operation:**
- Elevation: 0 to 80°
- Deflection: 0 to 150 mils right and left

**PERFORMANCE EQUIPMENT**

**Base Issue Items:** See ORD 7 SNL A-18.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 1 in.</td>
<td>1 ft, 10½ in.</td>
<td>1 ft, 4 in.</td>
<td>6.3 cu ft</td>
<td>180 lb</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 1 in.</td>
<td>1 ft, 10½ in.</td>
<td>1 ft, 4 in.</td>
<td>6.3 cu ft</td>
<td>180 lb</td>
</tr>
</tbody>
</table>

**CHARACTERISTICS**

- Length (max) = 4½ in.
- Width (max) = 8½ in.
- Height (max) = 1½ in.
- Weight (max) = 1.16 lb

**General**

SIGHT, M4, is a small compact instrument provided with a collimator instead of a telescope. They are easily attached to or detached from mortars with which they are used in high-angle fire. The cross level, used in conjunction with the cross leveling mechanism, indicates when the mortar is cross leveled. Elevation angles are set on an elevation scale and micrometer. The longitudinal level centers when the mortar elevating mechanism has elevated the mortar to the elevation indicated on the elevation scale and micrometer. Deflections are set on a deflection micrometer. An open sight is used to pick up the target, and the collimator is used for final accurate aiming. The collimator assembly may be depressed or elevated to bring the target into the field of view. The M4 sight is used with MORTAR, INFANTRY: 60-mm, M2 and M19.

**Differences among models**

**Data plate location**

The identification is located directly above the cross level.

**Classification:** M4—Limited Standard (OTCM 37119).

**References:**

- SNL F-148, TM 9-676, TM 9-10185.
SIGHT: M6

General
SIGHT. M6 has an adjustment mirror for reciprocal laying, and a deflection scale to permit greater traverse than sight M4. The deflection scale can be disengaged by pushing outward on the micrometer knob. The cross level is on the mortar mount yoke and is not part of the sight. In all other respects, the sight is similar to the sight M4 and is used in the same manner.

Differences among models

Data plate location
The identification is located directly below the cross level.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (max)</td>
<td>7 in.</td>
</tr>
<tr>
<td>Width (max)</td>
<td>4 1/2 in.</td>
</tr>
<tr>
<td>Height (max)</td>
<td>4 1/2 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>6 1/2 lb</td>
</tr>
<tr>
<td>Limits of operation:</td>
<td>Elevation</td>
</tr>
<tr>
<td></td>
<td>0 to 90°</td>
</tr>
<tr>
<td></td>
<td>Deflection</td>
</tr>
<tr>
<td></td>
<td>0 to 3600 mils right and left</td>
</tr>
</tbody>
</table>

PERFORMANCE

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Inside Continental United States</th>
<th>Shipped sights per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped sights per</td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

SIGHT: M39 (T156)

GENERAL

The sight, M39 (T156), is used with launchers: rocket: 1.5-inch, M20, M20A1, M20A1, and M20AJB1.

The sight consists of an elevation plate (range scale) with auxiliary scale, elevation release pin frame indicator, reticle, eyepiece, and a lens cover. It has a stadia-type reticle.

Data plate location:

The identification plate (nameplate) is located on the body of the sight.

Basic issue items:

Spec ORD 7: SNL B-42.

REFERENCES:

TM 9-1210-296-3IP.
SIGHT, BORE, MUZZLE: XM50

General
SIGHT, BORE, MUZZLE: XM50, is used to bore-sight RIFLE, SPOTTING, 20 MILLIMETER: XM69 on the weapon of battle group lightweight weapon system XM28.

The muzzle bore-sight is a 3-power, fixed focus telescopic instrument that provides the optical line-of-sight by which the spotter's rifle is aimed during the bore-sighting procedure. A reticle is incorporated in the telescope. The reticle pattern consists of a horizontal and vertical line (crosshair). Both lines are graduated in 2-mil increments.

Differences among models

Data plate location
Data plate is located on the mandrel bracket of the sight.

Classification: Standardization pending.

CHARACTERISTICS

Magnification 3 power

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 30 muzzle bore sights per shipping container
Length 1 ft, 4 1/4 in.
Width 1 ft, 3 3/4 in.
Height 1 ft, 1 in.
Volume 1.99 cu ft
Gross weight 58.5 lb
Ship tons 0.05

Outside Continental United States
Shipped 30 muzzle bore sights per shipping container
Length 1 ft, 4 1/4 in.
Width 1 ft, 3 3/4 in.
Height 1 ft, 1 in.
Volume 1.99 cu ft
Gross weight 58.5 lb
Ship tons 0.05

SIGHT, BORE, OPTICAL: M45 (T151E1)

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M45, w/e</td>
<td></td>
<td>1240-000-8811</td>
</tr>
</tbody>
</table>

General

SIGHT, BORE, OPTICAL: M45 (T151E1), is essentially a fixed-focus telescope adapted for use to align the axle of the bore of the 81-mm, 105-mm, and 107-mm (formerly 4.2 in.) mortars with a distant aiming point.

The bore sight consists fundamentally of TELESCOPE, ELBOW: M62A1C, body assembly, telescope clamp, two strap assemblies, and a clamp assembly.

The bore sight is constructed so that the telescope line-of-sight lies in the plane established by the centerlines of the V-slides.

When the bore sight is properly secured to a mortar tube, the centerline of the contacting V-slide is parallel to the centerline of the mortar tube. The cross-level vial, when centered, indicates that the centerlines of both slides, the elbow telescope, and the mortar tube lie in the same vertical plane.

Differences among models

Data plate location

The identification plate (nameplate) is located on the body of the bore sight.

Classification: Standard A (OTCG 36241).

CHARACTERISTICS

Magnification: 8 power
Field of view: 17°, 15'
Diameter of exit pupil: 0.16 in.
Equivalent focal length of objective: 2.382 in.
Clear eye distance: 0.604 in.

Length: 4 1/4 in.
Width: 4 in.
Height (w/o strap): 4 1/4 in.
Weight: 3 1/2 lb

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-1240-278-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

SIGHT, INFINITY: M44 (T159) AND M44C (T159E1)

General
SIGHT, INFINITY: M44 (T159) is an optical fire control instrument which serves as a member of the fire control system in TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1 (T43E3). SIGHT, INFINITY: M44C (T159E1) serves in a similar capacity for TANK, COMBAT, FULL TRACKED: 105-mm gun, M60. The infinity sight is mounted on the front of DRIVE-MOUNT, PERISCOPE: M9 in the tank M103A1 or on the rear of MOUNT, PERISCOPE: M116 (T197) in the tank M60. In use, the infinity sight projects an illuminated circular reticle image into the unity power optical system of PERISCOPE: M29. This illuminated circle is used by the gunner as a sighting reference for the coaxial machinegun within the turret. This projected reticle image is superimposed on target and may be observed when sighting on target through unity power system of the periscope.

Differences among models
Differences between models exist in the reticle, lens, and body.

Data plate location
The identification plate (nameplate) is located on the housing assembly cover.

Classifications: M44—Standard A (OTCM 36540). M44C—Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M44</th>
<th>M44C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>5 1/2 ft</td>
<td>5 1/2 ft</td>
</tr>
<tr>
<td>Width</td>
<td>4 1/8 in.</td>
<td>4 1/8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>3 3/4 in.</td>
<td>3 3/4 in.</td>
</tr>
</tbody>
</table>

Weight

- 1 1/2 lb

Illuminated circle

- 20 mil dia.

Lamp operating voltage

- 24-v dc

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

- Shipped 20 infinity sights per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M44</th>
<th>M44C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft, 4 1/8 in.</td>
<td>2 ft, 4 1/8 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 8 1/4 in.</td>
<td>1 ft, 8 1/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 3 in.</td>
<td>1 ft, 3 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.212 cu ft</td>
<td>4.212 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>66.6 lb</td>
<td>66.6 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.10</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Outside Continental United States

- Shipped 20 infinity sights per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M44</th>
<th>M44C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft, 4 1/8 in.</td>
<td>2 ft, 4 1/8 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 8 1/4 in.</td>
<td>1 ft, 8 1/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 3 in.</td>
<td>1 ft, 3 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.212 cu ft</td>
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</tr>
<tr>
<td>Gross weight</td>
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<td>66.6 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.10</td>
<td>0.10</td>
</tr>
</tbody>
</table>

SIGHT, PERISCOPE: M25 (T42)

**General**

SIGHT, PERISCOPE: M25 (T42), serves as a member of the fire-control systems of TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A1 for sighting MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, within the tank commander's cupola. When installed, the sight projects through the roof of the tank cupola and is located and supported by MOUNT, PERISCOPE: M104.

The eyepiece of the sight, which contains the eyepiece and field lens, is fixed and remains stationary relative to the tank. The body prism rotates the line-of-sight from 15° depression to 60° elevation in maintaining the line-of-sight parallel to the line of fire of the machinegun throughout the gun's full range. Connection from the gun to the sight is made through a quick-release link assembly, movement of which is transmitted to the body prism through tape-connected pulleys.

Means for making azimuth boresighting adjustment is provided by an eccentric adjusting pin at the mounting flange of the sight. Elevation adjustment is provided at the connecting arm to which the link assembly connects.

The sight is sealed against the entrance of moisture to the optical system and is filled with dry nitrogen gas.

**Characteristics**

Diameter of exit pupil ... ... ... 0.3358 in.
Length, front to back (max) w/o link assembly ... ... 8.5% in.
Width, side to side (max) ... ... ... ... ... ... ... ... ... ... 6 in.
Height ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... 1 ft, 2¾ in.
Weight (w/o link assembly) ... ... ... ... ... ... ... ... ... ... 7 lb, 13 oz
Weight of link assembly ... ... ... ... ... ... ... ... ... ... 31 oz

**Performance**

**Equipment**

Basic Issue Items: See ORD 7 SNL C-254.

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped 4 sights per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped 4 sights per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SNL F-284, TM 9-6173.
SIGHT, PERISCOPE: M28 AND M28C

General

SIGHT, PERISCOPE: M28 and M28C, is monoculur-type optical sighting instrument used to lay a caliber .50 machinegun on target in tanks and armored vehicles. When installed, the sight projects through the roof of the cupola and is located and supported by MOUNT, PERISCOPE: M104A1.

The eyepiece of the sight, which contains the eyepiece center lens and field lens, is fixed and remains stationary relative to the vehicle. The prism rotates the line-of-sight from 16° to 60° elevation in maintaining the line-of-sight parallel to the line-of-fire of the machinegun throughout the gun's full range.

Means for making azimuth bore-sighting adjustment are provided by azimuth adjustment pin at the mounting flange of the sight. Elevation adjustment is provided at the connecting arm to which the sight link assembly connects. A rubber eyecup serves to protect the eyepiece and prevent injury to the machine gunner. An adjusting wrench is chained to the sight in order to provide the operator with a means of adjusting the azimuth adjusting pin while bore-sighting the installed sight.

The sight M28 is used with CARRIER, PERSONNEL, FULL-TRACKED: armored, M59; MORTAR, INFANTRY, SELF-PRO-PULLED: full-tracked, 120-inch, M14; TANK, COMBAT, FULL-TRACKED: 105-mm gun, M6A1 and M6A2.

The sight M28C is used with TANK, COMBAT, FULL-TRACKED: 105-mm gun, M60.

Differences among models

The only difference between the M28 and M28C is the reticle. The sight M28 is calibrated in yards while the sight M28C is calibrated in meters.
PERFORMANCE

Data plate location

The identification plate (nameplate) and caution decalcomania are located on the rear of the sight.

Classifications

<table>
<thead>
<tr>
<th>M28</th>
<th>M28C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHARACTERISTICS

Weight (w/o link assembly, eyeshield and clamp) . . . . . 3 lb
Length (front to back) . . 8 in.
Width (side to side) . . . . . 5½ in.
Height (w/o attached chain) . . . . . 14½ in.
Magnification . . 1.5 power
Field of view . . . . . 49°
Diameter of exit pupil . . . 0.17 in.
Vertical rotation of line of sight . . 75°

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 4 periscope sights per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 9¾ in.</td>
<td>1 ft, 7¼ in.</td>
<td>1 ft, 1½ in.</td>
<td>8.81 cu ft</td>
<td>59 lb</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 4 periscope sights per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 8 in.</td>
<td>1 ft, 7¼ in.</td>
<td>1 ft, 1½ in.</td>
<td>8.81 cu ft</td>
<td>60 lb</td>
<td>0.08</td>
</tr>
</tbody>
</table>

SIGHT, REFLEX: M18; MOUNT, SIGHT, ORD No. 7675757

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 20 reflex sights per shipping container</td>
<td>1 ft, 1 1/4 in.</td>
<td>8 In.</td>
<td>0.7 cu ft</td>
<td>56 lb</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 12 sight mounts per shipping container</td>
<td>1 ft, 1 1/4 in.</td>
<td>8 In.</td>
<td>0.7 cu ft</td>
<td>56 lb</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

**General**

SIGHT, reflex, M18 with sight mount ORD No. 7675757 completes a projection-type collimator sight used for direct sighting of MOUNT, MACHINEGUN: multiple caliber .50, M45C. The sight mount ORD No. 7675757 is a clamping device used to attach the SIGHT, reflex, M18 to the weapon. The mount clamps onto the horizontal sight brace of the machinegun mount. A dovetail and a slot with a locking lever secure the reflex sight in place. The reflex sight can be easily attached and removed.

**Differences among models**

**Data plate location**

The identification plate (nameplate) is located on the left side of the reflex sight housing.

**Classification:** Standard A (OTCM 36841).

**CHARACTERISTICS**

SIGHT, reflex, M18:

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Height</th>
<th>Width</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>(approx) 8 in.</td>
<td>(approx) 9 in.</td>
<td>(approx) 6 in.</td>
<td>4.16 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL A-61.

References: SNI F-340, TM 9-1883A.
SIGHT, REFLEX: M24C

General
SIGHT, reflex, M24C, is mounted by a bracket which is integral with, and extends to, the rear of main body assembly. A stud on the bottom of the bracket engages the reflex sight support cap adapter to position the sight in kalmuth, and the main body clamping bolt secures the sight to the reflex sight support shaft. The main body assembly of the reflex sight is a hollow casting which incloses the optical system; consisting of an amber glass window, a reticle, a plate glass mirror, the objective, and a flat-glass reflector. The reticle may be illuminated by an electric lamp which intensity is regulated by a rheostat. The elevation is imparted to the reflex sight by rotation of the computing sight M88 (T124).

Differences among models:

Data plate location
The identification plate (nameplate) is located on the top of the reflex sight.

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>(approx) 9 in.</td>
</tr>
<tr>
<td>Width</td>
<td>(approx) 6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>(approx) 10 in.</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
</tbody>
</table>

Limit of operation:

- Elevation
- Deflection

Field of sight

Magnification

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped reflex sights per wood box.

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped reflex sights per wood box.

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-345, TM 9-6061, TM 9-1220-291-35P.
SIGHTING SYSTEM, AUXILIARY: M7

General

SIGHTING SYSTEM, AUXILIARY: M7 is a fire correction system designed to permit both azimuth and elevation compensation for movement of the gun mount due to irregular terrain. It consists of an azimuth side and elevation side which are basically similar, and are manually operated, each with an attached periscope-type telescope in which the line of sight is about 12 inches higher than the line of viewing. It requires either two TELESCOPE: M60 as components of the azimuth and elevation sides; or TELESCOPE: M60AIC as component of the elevation side and TELESCOPE: M60AID as component of the azimuth side. Both telescopes traverse and elevate with the gun and are controlled by linkage mechanisms of the sighting system M7, so as to follow the elevation motion of the gun up to an elevation of 267 miles (15°). The azimuth operator tracks the target with the desired deflection of the reticle pattern. The elevation operator tracks the target with the desired range line of the reticle pattern.

The azimuth mechanism with telescope permits determination of horizontal movement of the gun mount and correction of fire. The elevation mechanism with telescope permits determination of elevation of the gun mount and correction of fire. The azimuth and elevation side each consists of a telescope mount assembly with attached control to position the telescope; a link mechanism assembly with a shaft which transmits movement of the mount; a connecting link assembly; and an arm with yoke assembly, which serves as an adjustable coupling between the sighting system and the gun. The mechanisms differ in that the azimuth side consists of righthand assemblies, and the elevation side consists of lefthand assemblies. Three interchangeable filter assemblies, amber, red, and neutral, are provided with each telescope. The amber and red filters are used for observing under haze and glare conditions, while the neutral filter is used for observing targets in the direction of the sun. Provision is made for illuminating the reticle for night operation by LIGHT, INSTRUMENT: M38.

The auxiliary sighting system M7, with periscope type TELESCOPE: M60, M60AIC and M60AID (p. 11-63) is used with MOUNT, GUN: 90-mm, antiaircraft artillery, M2 and M2A1.

14-63
Data plate location

The identification plates (nameplates) are located on the azimuth and elevation telescope mount bracket assemblies.

Classification: Standard C (OTCM 37107).

**CHARACTERISTICS**

Magnification: 8X

Elevation:
- Range limits: 175 to +270 mils
- Total range: 445 mils
- Field of view: 13°, 25 min
- Lateral deflection (lead) reticle:
  - Telescope: M60, only:
    - Graduations: 50-0-50 miles
    - Divisions: 5 mil
    - Range scale: 6,500 yd
  - Filters: amber, red, neutral

**PERFORMANCE**

**EQUIPMENT**

Basic issue items: See ORD 7 SNL D-38.

---

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 auxiliary sighting system per box.

<table>
<thead>
<tr>
<th>Length</th>
<th>248 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>55 in</td>
</tr>
<tr>
<td>Height</td>
<td>89 in</td>
</tr>
<tr>
<td>Volume</td>
<td>21 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>299 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.13</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped 1 auxiliary sighting system per box.

<table>
<thead>
<tr>
<th>Length</th>
<th>248 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>55 in</td>
</tr>
<tr>
<td>Height</td>
<td>89 in</td>
</tr>
<tr>
<td>Volume</td>
<td>21 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>299 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.13</td>
</tr>
</tbody>
</table>

References: SNL F-252, TM 9-6047.
SIGHTUNIT: M34, M34A1, M34A2, M34A2C

### General

SIGHTUNIT: M34, M34A1, M34A2, and M34A2C is made up of two or more pieces of sighting equipment (generally consisting of a telescope and mount which cannot be disassembled by using troops). Sights units are used for pointing the weapon for indirect fire. Elevation angles are set on an elevation scale and micrometer on the mount. Azimuth angles are set on an azimuth scale and micrometer or on the adapter when using an elbow telescope. The adapter is provided with an azimuth worm throwout device for rapid approximate setting.

The M34, M34A1, or M34A2 is used with RIFLE, 75 MILLIMETER: M20 and T21 E12; MORTAR, INFANTRY: 4.2-inch, M30; MORTAR, INFANTRY: 81-mm, M29; and MORTAR, SELF-PROPELLED, FULL-TRACKED: 4.2-inch, M4*. The sightunit M34A2C is used with LAUNCHER, ROCKET: 81-mm, XM24* and LAUNCHER, ROCKET: 110-mm, M91 (T14).

### Differences among models

Each of the sightunits is assembled from similar models of three basic units as listed below:

<table>
<thead>
<tr>
<th>SIGHTUNIT</th>
<th>TELESCOPE MOUNT</th>
<th>TELESCOPE ADAPTER</th>
<th>ELEVATION TELESCOPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M34</td>
<td>M79</td>
<td>M9</td>
<td>M62</td>
</tr>
<tr>
<td>M34A1</td>
<td>M79</td>
<td>M9</td>
<td>M62A1C</td>
</tr>
<tr>
<td>M34A2</td>
<td>M79</td>
<td>M9A1</td>
<td>M62A1C</td>
</tr>
<tr>
<td>M34A2C</td>
<td>M79</td>
<td>M9A1</td>
<td>M62A1D</td>
</tr>
</tbody>
</table>

### Data plate location

Identification plates (nameplates) on all models are on the telescope mount below the longitudinal level.

### Classification

- M34: Standard A (OTCM 36841).
- M34A2: Standard A (OTCM 36841).
- M34A2C: Standard A.

*For characteristics and data, see Item in sections 7 and 23.

### Characteristics

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
<th>Elevation limits of operation</th>
<th>Depression limits of operation</th>
<th>Field of view</th>
<th>Azimuth</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 1/4 in.</td>
<td>3 3/4 in.</td>
<td>4 1/2 in.</td>
<td>14 lb</td>
<td>1,500 mils (90°)</td>
<td>200 mils (112°)</td>
<td>12°, 12 min</td>
<td>6,400 mils (360°)</td>
</tr>
</tbody>
</table>

### Equipment

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No</th>
<th>Federal Stock No</th>
</tr>
</thead>
<tbody>
<tr>
<td>M34</td>
<td>1240-769-7864</td>
<td></td>
</tr>
<tr>
<td>M34A1</td>
<td>1240-764-7864</td>
<td></td>
</tr>
<tr>
<td>M34A2</td>
<td>1240-500-7869</td>
<td></td>
</tr>
<tr>
<td>M34A2C</td>
<td>1240-785-8652</td>
<td></td>
</tr>
</tbody>
</table>

### Instructional Material

### Storage and Shipment Data

**Within Continental United States**

- Shipped 8 sightunits per shipping container
  - Length: 1 ft, 9 in.
  - Width: 1 ft, 1 1/2 in.
  - Height: 1 ft, 1 1/2 in.
  - Volume: 2.2 cu ft
  - Gross weight: 86.8 lb
  - Ship tons: 0.06

**Outside Continental United States**

- Shipped 8 sightunits per shipping container
  - Length: 1 ft, 9 in.
  - Width: 1 ft, 1 1/2 in.
  - Height: 1 ft, 1 1/2 in.
  - Volume: 2.2 cu ft
  - Gross weight: 86.8 lb
  - Ship tons: 0.06

### References

- See ORD 7 SNL C-74
- See ORD 7 SNL A-87
- See TM 9-1064-212-12

---

**Ord A1637**

SIGHTUNIT: XM43 AND XM43 MODIFIED

SECONDARY ITEM

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XM43</td>
<td>1240-674-1383</td>
<td></td>
</tr>
<tr>
<td>XM43 modified</td>
<td>1240-674-1383</td>
<td></td>
</tr>
</tbody>
</table>

General

SIGHTUNIT, XM43 is composed of TELESCOPE, ELBOW: M62A1C; ADAPTER, TELESCOPE: M9A1; and a telescope mount assembly which is a modification of MOUNT, TELESCOPE: M79, and a dove-tail mount assembly.

SIGHTUNIT, XM43 modified is used with LAUNCHER, ROCKET: 762-mm, M33. It is composed of TELESCOPE, ELBOW: M62A1D; ADAPTER, TELESCOPE: M9A1; and MOUNT, TELESCOPE: 8228-0099.

The sightunit is used for boresighting and indirect fire sighting operations.

Differences among models

The sightunits XM43 and XM43 modified differ in their components as listed in "GENERAL" above.

Data plate location

There are three identification plates (nameplates) on the sightunit, located as follows: The identification plate for the sightunit and mount assembly are located on the lower left side of the sightunit and the identification plate for the elbow telescope is located on the triangular-shaped cover below the rubber eyecup on the upper left side of the sightunit.

Classification: Standardization pending.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Length</th>
<th>.7 ft, 6½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>3¾ in.</td>
</tr>
<tr>
<td>Height</td>
<td>17½ in.</td>
</tr>
<tr>
<td>Elevation</td>
<td>1,600 mins (90°)</td>
</tr>
<tr>
<td>Depression</td>
<td>200 mins (115°)</td>
</tr>
<tr>
<td>Out-of-level correction</td>
<td>±10° max</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-1055-204-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Domestic Pack

Shipped 1 sightunit per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>.7 ft, 6½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>11½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>6½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>.0775 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>13½ lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>6.015</td>
</tr>
</tbody>
</table>

Oversea Pack

Shipped 1 sightunit per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 6¼ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>11½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>6½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>.0798 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>13½ lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>.010</td>
</tr>
</tbody>
</table>

References: TM 9-1240-223-16P.
SIGHTUNIT: M53 (XM53E2)

The telescope is supported in the rotating head of the telescope mount which dovetails into a slot in a bracket on the weapon. A locking device, operated by a lever on the mount, secures the sight unit in the dovetailed slot. Warm mechanisms, scope, knobs, and radiometric leveling sights for adjusting the sight unit in elevation and azimuth are on the mount.

The sight unit is used with LAUNCHER, ROCKET: multiple 140-mm. M141.

LIGHT, INSTRUMENT: XM3 is used with the sight unit.

Differences among models:

Data plate location

Classification: Standard A (OTC 38112)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>13 in.</td>
</tr>
<tr>
<td>Width</td>
<td>10 in.</td>
</tr>
<tr>
<td>Height</td>
<td>10 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>6.25 lb</td>
</tr>
<tr>
<td>Magnification</td>
<td>1 power</td>
</tr>
<tr>
<td>Field of view</td>
<td>10 deg</td>
</tr>
<tr>
<td>Diameter of exit pupil</td>
<td>0.125 in.</td>
</tr>
<tr>
<td>Diameter of entrance pupil</td>
<td>0.009 in.</td>
</tr>
<tr>
<td>Equivalent focal length of objective</td>
<td>3.500 in.</td>
</tr>
<tr>
<td>Limits of operation:</td>
<td></td>
</tr>
<tr>
<td>Elevation</td>
<td>1,600 miles (90 deg)</td>
</tr>
<tr>
<td>Depression</td>
<td>200 miles (11.21 deg)</td>
</tr>
<tr>
<td>Azimuth</td>
<td>4,600 miles (360 deg)</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 sightunit per shipping container.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>13 in.</td>
</tr>
<tr>
<td>Width</td>
<td>10 in.</td>
</tr>
<tr>
<td>Height</td>
<td>10 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>6.4 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>10 lb</td>
</tr>
<tr>
<td>Ship tone</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 sightunit per shipping container.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>13 in.</td>
</tr>
<tr>
<td>Width</td>
<td>10 in.</td>
</tr>
<tr>
<td>Height</td>
<td>10 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>6.4 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>10 lb</td>
</tr>
<tr>
<td>Ship tone</td>
<td>0.005</td>
</tr>
</tbody>
</table>

TELESCOPE: M7

Model: M7

General

TELESCOPE: M7 is a straight tube telescope which is provided with two dust caps retained by a carrying strap. It is characterized by a large, bright field of view and has no magnification.

The telescope M7 is used as a component of several sighting instruments for tracking moving targets in elevation and azimuth.

Differences among models

Data plate location

The identification data are located on the tube toward the rear.

Classification:

CHARACTERISTICS

Magnification: 1 power
Field of view: 11°

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped in telescopes per box (w/equipment).

Length: 2 ft
Width: 1 ft
Height: 1 in
Volume: 1.3 cu ft
Gross weight: 70 lb
Ship tons: 0.06

Outside Continental United States

Shipped telescopes per box (w/equipment).

Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-183, TM 9-1603.
TELESCOPE: M60A1C AND M60A1D

DATA PLATE LOCATION

The identification plate of telescope M60A1C or M60A1D is located on the elbow housing assembly.

CLASSIFICATION:

M60A1C ........................................ Standard C
M60A1D ........................................ Standard C

GENERAL

TELESCOPE: M60A1C or M60A1D is a periscope-type telescope in which the line of sighting is about 12 inches higher than the line of viewing. It consists of an objective, two erectors, eyepiece assembly, two 45° prisms, reticle, and filters. A fluted, soft rubber eyeshield is fitted on an adapter which is screwed to the eyepiece assembly. Three interchangeable filters, red, amber, and neutral, are furnished with each telescope. The red and amber filters are used for observing under haze and smoke conditions while the neutral filter is useful for observing targets in the direction of the sun. Any one of the filters can be slipped into the end of the eyepiece after unscrewing the knurled eyeshield adapter.

Telescopes M60A1C and M60A1D are components of SIGHTING SYSTEM AUXILIARY: MT (P. 14-33), with the MOUNT, GUN: 90-mm anti-aircraft artillery, M2 and M2A1. Telescopes M60A1C is used on the elevation side, and telescope M60A1D on the azimuth side.

DIFFERENCES AMONG MODELS

Telescopes M60A1C and M60A1D differ principally in the reticle pattern which is seen through the eyepiece superimposed on the target.

DATA PLATE LOCATION

The identification plate of telescope M60A1C or M60A1D is located on the elbow housing assembly.

CLASSIFICATION:

M60A1C ........................................ Standard C
M60A1D ........................................ Standard C

CHARACTERISTICS

- Magnification ......................................................... 3X
- Azimuth range ......................................................... no limit
- Elevation:
  - Range limits ................................................... -176 to +370 mils
  - Total range ...................................................... 445 mils
- Field of view ....................................................... 13°, 56 min
- Lateral deflection (lead) reticle:
  - Filters .......................................................... red, amber, neutral

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Shrinkage</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Shrinkage</th>
</tr>
</thead>
</table>

References: SNL F-252. TM 9-6047.
TELESCOPE: M69G

**EQUIPMENT**

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States:

- Shipped telescope per:
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

Outside Continental United States:

- Shipped telescope per:
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**References:** SNL F-235, TM 9-1508

---

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M69G</td>
<td>1240-678-4689</td>
<td></td>
</tr>
</tbody>
</table>

**General**

TELESCOPE: M69G is used on mobile artillery for direct sighting. This telescope is slender with an enlarged eyepiece. The reticle pattern is etched on the plane surface of a plano-convex lens for the ammunition for which the reticle is graduated.

**Differences among models**

- **Data plate location**
  - The identification plate (nameplate) is located on the telescope tube directly behind the front collar.

<table>
<thead>
<tr>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LENGTH</strong></td>
</tr>
<tr>
<td><strong>DIAMETER</strong></td>
</tr>
<tr>
<td><strong>WEIGHT</strong></td>
</tr>
<tr>
<td><strong>LIMITS OF ERROR:</strong></td>
</tr>
<tr>
<td>Magnification:</td>
</tr>
<tr>
<td>Field of view:</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

---

ORD A1624
TELESCOPE: M73B1

General

TELESCOPE: M73B1 is a slender sighting device used on light mobile artillery and rifles. The image is erected by mirrors. The reticle is a cross-wire type. Two adjusting knobs in the telescope body tube move the reticle for elevation and windage adjustment. The telescope when unserviceable is to be replaced by TELESCOPE: M1.

Differences among models

Data plate location

The identification plate, (nameplate), is located on the top of the telescope tube.

Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Maximum line</th>
<th>Maximum figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>M73B1</td>
<td>1240-757-9921</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Range deflection: 14-0-14 miles

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Telescope per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>--------</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Telescope per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>--------</td>
</tr>
</tbody>
</table>

References: SNL F-289, TM 9-1603.
TELESCOPE: M81

**General**

TELESCOPE: M81 is used on light mobile artillery and rifles. It is a slender-type device equipped with a rubber eyeshield and a rain-sun shield. The reticle is a cross-wire type. The image is erected by erecting lenses. Two knobs provide horizontal and vertical movement of the reticle. The telescope when unserviceable is to be replaced by TELESCOPE: M84.*

**Differences among models**

**Data plate location**

The identification plate (nameplate) is located on the right side of the tube, approximately midway along the length.

**Classification:**

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Length</th>
<th>Diameter</th>
<th>Width</th>
<th>Limits of operation:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Magnification: 2.2 power</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Field of view: 4&quot;, 80 min</td>
</tr>
</tbody>
</table>

**Range, elevation yards:**

- Maximum line
- Maximum figure
- Range deflection: 14-0-14 miles

*For characteristics and data, see item on page 14-73.

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Basic Issue Items:**

- TELESCOPES

**Shipped telescopes per:**

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

**Outside Continental United States:**

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

**References:** SNL F-289, TM 9-1603.
TELESCOPE: M82

M82

General

TELESCOPE: M82 is used on light mobile artillery and rifles. It is a slender-type device equipped with a rubber eyeshield and a rain-sun shield. The reticle is a tapered post type. The telescope when unserviceable is to be replaced by TELESCOPE: M84.

Differences among models

Data plate location

The identification plate (nameplate) is located on the right side of the tube, approximately midway along the length.

Classification: Standard B (TOPIC 38941)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M82</td>
<td></td>
<td>1240-739-7767</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped telescopes per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped telescopes per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SNL F-289, TM 9-1603.
TELESCOPE: M84

General

TELESCOPE: M84 is of the straight tube type with a fixed focus, used for direct sighting. It is used as a sniper's sighting device with RIFLE, CALIBER .30, M1C and M1D for accurate fire. This telescope has a large bright field of view. It uses a sunshade to shade the objective and prevent reflections and an eyeshield to position the observer's eye. It has an elevation range knob graduated from 0 to 900 yards in 50 yard intervals, which corresponds to an elevation of 12.1 mils. A windage knob having a range of 20 minutes right or left is used to correct drift.

This telescope uses LIGHT, INSTRUMENT: M34 for night operation.

Differences among models

Data plate location

The identification plate (nameplate) is attached to the tube.

Classification: Standard B (OTCM 3644)

CHARACTERISTICS

Length (without eyeshield):
- Sunshade retracted: 11.353 in.
- Sunshade extended: 13.313 in.

Length (with eyeshield):
- Sunshade retracted: 12.475 in.
- Sunshade extended: 13.139 in.

Power: 2.2X

Field of view: 5°, 22 min

Knob movement:
- Range: 0 to 900 yd
- Windage: 20 min L to 20 min R

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped per
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

Outside Continental United States

Shipped
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

References: SNL F-289, TM 9-6131.
TELESCOPE: M85C AND M85A1C

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M85C</td>
<td></td>
<td>1240-729-7776</td>
</tr>
<tr>
<td>M85C, w/e</td>
<td></td>
<td>1240-678-4691</td>
</tr>
<tr>
<td>M85A1C</td>
<td></td>
<td>1240-729-7776</td>
</tr>
<tr>
<td>M85A1C, w/e</td>
<td></td>
<td>1240-678-4692</td>
</tr>
</tbody>
</table>

General

TELESCOPE: M85C and M85A1C (fixed-focus type) is used with RIFLE, 75 MILLIMETER: M20 and M31E12 for direct fire. The telescope is mounted in a dovetail slot in MOUNT, TELESCOPE: M78 which is attached to the rifle. The reticle pattern is for CARTRIDGE, 75 MILLIMETER: HE, AT, M310, LIGHT, INSTRUMENT: M36. is used with these telescopes for night operation.

Differences among models

The telescope M85A1C is the same as the telescope M85C except that the M85A1C has an improved method of mounting the mirror holder.

Data plate location

The identification plate (nameplate) is located on the objective adapter.

Classification:

M85C: Limited Standard (for training) [OTCM 37284].
M85A1C: Limited Standard [OTCM 37284].

CHARACTERISTICS

Magnification ........................................... 3X
Field of view ......................................... 51°, 30 min

Range, elev:

Max light ........................................... 2,000 yd
Max figure ........................................... 2,000 yd
Range, deflection mils .............................. 30-0-30

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

M85C only .............................................. Within Continental United States

Shipped per

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL F-410, TM 9-1602.
TELESCOPE: M86F (M86C)

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M86F</td>
<td></td>
<td>1240-788-7882</td>
</tr>
<tr>
<td>M86F w/e</td>
<td></td>
<td>1240-678-4696</td>
</tr>
</tbody>
</table>

General
TELESCOPE: M86F (M86C) is used with MOUNT, SIGHT: M4 and SIGHT, FRONT: M2G on RIFLE, 57 MILLIMETER: M18 and M18A1, for direct firing of CARTRIDGE, 57 MILLIMETER: HE, M30G or M306A1. The telescope is secured in a rear sight mount which is in turn secured to the rifle so that the telescope and mount move with the rifle in azimuth and elevation. The gunner uses the graduations on the stadia reticle, which with a rod of definite length measures the distance to the target. Then, aims with that part of the reticle which represents the desired deflection and range. The reticle may be illuminated with LIGHT, INSTRUMENT: M32 for night operation.

Differences among models

Data plate location
The identification plate (nameplate) is on the body shoulder.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

| Magnification | 2.8X |
| Field of view | .7°, 3 min |

Range, elev:
Max line: 1,800 yd

Max figure: 30-0-30

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

TELESCOPE: M90C, M90D, AND M90F

These telescopes are identical, except for the reticles.

Data plate location
The identification plate (nameplate) is on the cover assembly.

Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Magnification</th>
<th>Field of view</th>
<th>Filter</th>
<th>Range, elev:</th>
<th>Max. line</th>
</tr>
</thead>
<tbody>
<tr>
<td>M90C</td>
<td>3X</td>
<td>15°, 20 min</td>
<td>none</td>
<td></td>
<td>2,000 yd</td>
</tr>
<tr>
<td>M90D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M90F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Performance

Max figure: 2,600 yd
Deflection: 0.000 in.

Equipment

Dural plate items:
M90D—See ORD T SNL C-71
M90F—See TM 9-1410-090-42

Instructional material

Storage and shipment data

Within Continental United States

Shipped 63 telescopes per shipping container:
Length: 2 ft, 4 in.
Width: 2 ft, 4 in.
Height: 5 ft, 6 in.
Volume: 7.165 cu ft
Gross weight: 190 lb
Ship tons: 0.13

Outside Continental United States

Shipped 60 telescopes per shipping container:
Length: 2 ft, 4 in.
Width: 2 ft, 4 in.
Height: 5 ft, 6 in.
Volume: 7.165 cu ft
Gross weight: 190 lb
Ship tons: 0.13

References: TM 9-1240-221-35P.
TELESCOPE: M93 (T153)

General

TELESCOPE: M93 (T153), is used with MOUNT, TELESCOPE: M96 to enable the laying of HOWITZER, SELF-PROPELLED, FULL-TRACKED: 155-mm, M4 in direct fire. It is a 4-power instrument with a 10° field of view. It consists essentially of a tube containing fixed-positioned optical elements and an elbow assembly with both optical elements and mechanical components. Cant correction is accomplished by means of a coupling which engages the drive shaft of the cant corrector on the mount to rotate the eyepiece assembly between 0° and 15° in either direction.

Differences among models

Data plate location

An identification plate (nameplate) is located on elbow of telescope.

Classification: Standard A.

CHCARACTERISTICS

Overall dimensions (max):

- Length: 41.75 in.
- Width: 17 in.
- Height: 4.75 in.

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-7004.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

- Length
- Width
- Height
- Volume
- Gross Weight
- Ship tons

Outside Continental United States

Shipped

- Length
- Width
- Height
- Volume
- Gross Weight
- Ship tons

References: TM 9-6929, TM 9-7504, TM 0 1240-221-35P.
TELESCOPE: M94 (T167)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M94 (T167)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General**

TELESCOPE: M94 (T167), is interchangeable with TELESCOPE: M90C (p. 14-66) on MOUNT, TELESCOPE: M8b.

Telescope M94 (T167) is used with RIFLE, 105 MILIMETER: M27A1.

**Differences among models**

Data plate location

**Classification:** Unclassified (OTCM 85345).

**CHARACTERISTICS**

- **Magnification:** 8X
- **Field of view:** 13°, 20 m/min
- **Reticle range:** 2,000 yd
- **Weight:** 1 lb, 14 oz

**PERFORMANCE**

* For characteristics and data, see item in section 18.

**EQUIPMENT**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Issue Items:</td>
<td></td>
</tr>
</tbody>
</table>

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States:

Shipped telescopes per box:

- **Length:**
- **Width:**
- **Height:**
- **Volume:**
- **Gross weight:**
- **Ship tons:**

Outside Continental United States:

Shipped telescopes per box:

- **Length:**
- **Width:**
- **Height:**
- **Volume:**
- **Gross weight:**
- **Ship tons:**

**References:**
TELESCOPE: M97 (T156), M97C (T156E1), M97D, M97F, M97G, AND M97H

Model   
M97 (T156)  
M97C (T156E1)  
M97D  
M97F  
M97G  
M97H

Line item No.  
1240-360-1593  
1240-344-4146  
1240-600-2326  
1240-766-0917  
1240-732-1470  
1240-732-1469

Federal stock No.  

General
TELESCOPE: M97 (T156), M97C (T156E1), M97D, M97F, M97G and M97H, is direct sighting straight tube telescopes. The M97 is used for direct fire with MOUNT, TELESCOPE: M92 (T178) in 76-mm gun tank M41 (T41E1) and with MOUNT, TELESCOPE: M92A1 (T178E1) in 76-mm gun tank M41A1 (T41E2). TELESCOPE: M97C (T156E1), is used with MOUNT, TELESCOPE: M108 (T108) as a member of the direct fire instrument group in 90-mm gun tank M48 series. LIGHT, INSTRUMENT: M36, is used to illuminate the reticle for night operation.

Differences among models
These telescopes are identical, except for reticle pattern and finish.

Data plate location
The identification plate (nameplate) is on the frame of the eyepiece.

Classification
M97  
M97C

CHARACTERISTICS
Magnification  
Field of view

Effective focal length (EFL):
Eyepiece  
Objective  
Diaphragm (one)  
Exit pupil diameter  
Diameter  
Length  
Weight

PERFORMANCE
EQUIPMENT

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped per
Length  
Width  
Height  
Volume  
Gross weight  
Ship tons

Outside Continental United States

Shipped per
Length  
Width  
Height  
Volume  
Gross weight  
Ship tons

TELESCOPE: M99 (T159) AND M99C (T159E1)

GENERAL

These telescopes are basically the same, differing in reticle pattern.

DATA PLATE LOCATION

The identification plate (nameplate) is on the body of the telescope.

CLASSIFICATION: Standard A.

CHARACTERISTICS

| Magnification | 4X |
| Field of view | 10 |
| Length (max overall) | 27 1/4 in |
| Height (max overall) | 10 1/4 in |
| Weight (net) | 35 lb |

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

| Shipped per |
| Length |
| Width |
| Height |
| Volume |
| Gross weight |
| Ship tons |

Outside Continental United States

| Shipped per |
| Length |
| Width |
| Height |
| Volume |
| Gross weight |
| Ship tons |

References: SNL F-897, TM 9-5032.
**TELESCOPE: M101 (T150E1)**

**Secondary Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M101</td>
<td>1240-300-6601</td>
<td></td>
</tr>
</tbody>
</table>

**General**

TELESCOPE: M101 (T150E1), is used with MOUNT. TELESCOPE: M100 with periscope M32. TELESCOPE: M101 is to enable the laying of HOWITZER, SELF-PROPELLED, FULL-TRACKED: 164-mm, M32 in direct fire. It is a 4-power instrument with a 10-degree field of view. The line-of-sight is adjustable from -10 to +63 degrees. It consists essentially of a tube with fixed-positioned optical elements, elbow assembly, and compensator assembly with both optical elements and mechanical components.

**Differences among models**

Data plate location

An identification plate (nameplate) is located on top of compensator assembly cover.

**Classification:** Standard A.

**CHARACTERISTICS**

Overall dimensions (max):

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Net weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.50 in</td>
<td>9.50 in</td>
<td>8.50 in</td>
<td>36.00 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: TM 9-6027, SNL F-374, TM 9-1284.
TELESCOPE, ARTICULATED: M102 (T172)

Model MI02
Secondary Item Line item No. Federal stock No.
1240,610-7767

General
TELESCOPE, ARTICULATED: M102 (T172) is a hermetically-sealed 8-power instrument used in direct firing of the 120-mm gun cannon in TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1. Attached to the eyepiece is an adjustable rubber headrest. An articulated joint provides the gunner with convenient use of the eyepiece throughout the range of gun travel. The telescope has two separate reticle patterns etched on separate reticle blanks for two different types of ammunition. Both patterns are of the ballistic type and include drift lines. A push-pull lever permits either reticle pattern to be translated along the optical axis and positioned in the focal plane of the objective system. The translating mechanism insures accurate boresight retention when the patterns are interchanged. This telescope uses LIGHT, INSTRUMENT: M50 for night operation.

Data plate location
Plates are located on the top of the housing and main assembly of the telescope.

Classification: Standard A.

CHARACTERISTICS
Weight (w/o hanger assembly) .............. 81 lb
Length .................................... 4 ft, 10 in.
Magnification ................................ 8 power
Field of view ................................ 7.5°
Exit pupil diameter ........................ 0.197 in. (4.8-mm)
Diopter adjustment ......................... ±4 diopters
Range reticle (AP-T116R5, HE-T16) ........ 4,800 yd
Range of articulation ................ 267 mils above horizontal boresight position
Effective focal length objective ............. 12 in.
Effective focal length objective .......... 1.6 in.

PERFORMANCE

DIFFERENCES AMONG MODELS

14-82
30 August 1963

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Skipped 1 telescope per shipping container</th>
<th>(ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>5 ft, 11½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 7½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 6½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>14.926 cu ft</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Skipped 1 telescope per shipping container

<table>
<thead>
<tr>
<th>(ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
</tbody>
</table>

Cross weight: 208.2 lb

Ship tons: 0.37

Differences among models

The only difference between the telescope M104 and M104C is in the reticle design. The telescope M104 is calibrated in yards while the telescope M104C uses the metric system.

Data plate location

The identification plate is located on the objective and reticle assembly housing body.

Classification:

M104: Standard B (OTCM 37696)
M104C: Standard A (OTCM 37695)

CHARACTERISTICS

Magnification (variable) ........................................ 4.1 to 8 power

Field of view:

At 4.1 power ........................................ 15 deg. 45 min
At 8 power ........................................ 7 deg. 50 min
Length:
At 6:1 power ........................................ 291\% in.
At 8 power ........................................ 30\% in.
Weight ........................................ 40 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-2350-213-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 telescope per shipping container.
Length ........................................ 8 ft

Outside Continental United States

Shipped 1 telescope per shipping container.

Length ........................................ 5 ft

Width ........................................ 1 ft, 3\% in.
Height ........................................ 1 ft, 3\% in.
Volume ........................................ 8.342 cu ft
Gross weight ................................ 109.50 lb
Ship tons ................................ 0.21

TELESCOPE, ARTICULATED: M105, M105C, and M105D

**General**

TELESCOPE: articulated, M105, M105C, M105D, is a sealed instrument for direct fire control of tank guns and is designed to be utilized as a secondary sighting device. It consists of four major assemblies: the objective tube and reticle assembly, the articulated joint assembly including the erecting assembly, the offset prism assembly, and the eyepiece assembly. When an object is sighted through the telescope, objective lens and collective lens in the objective tube from an inverted image of the object and superimposed on the object on the reticle. After passing through prisms in the articulated joint assembly, the inverted image of the object (superimposed on the reticle pattern) is erected by the erecting assembly and projected through two offset prisms to the eyepiece assembly. The offset prisms move the optical axis so the eyepiece assembly magnifies the image of the target and reticle. The external surfaces of all optical elements except the reticle block and the reflecting surfaces of the prisms are covered with a thin coating of magnesium fluoride, which increases light transmission and minimizes internal reflections.

The M105 telescope is used with TANK, COMBAT, FULL TRACKED: 90-mm gun, M4A3; the M105C with TANK COMBAT, FULL TRACKED: 105-mm gun, M60 and M60A1 (early production models), and the M105D with TANK, COMBAT, FULL TRACKED: 105-mm gun, M60A1 (later production models).

**Differences among models**

These telescopes are identical except for reticles, which are graduated for use with particular ammunition. One pattern for the M105 telescope contains AP-T318A ammunition data and the other pattern contains HEAT-T300E ammunition data. One pattern for the M105C telescope contains APDS-T-M392 ammunition data and the other contains HEP-T-M40G ammunition data. One pattern for the M105D telescope contains APDS-T-M392 and HEP-T-M40G ammunition data and the other pattern contains HEAT-T-M40G ammunition data.

**Data plate location**

Classification: M105  
M105C  
M105D  
(Data will be added at a later date)

AGD 5098A  
GL-5098A  
C 2, TM 9-500

**Secondary Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M105</td>
<td></td>
<td>1210-370-8669</td>
</tr>
<tr>
<td>M105C</td>
<td></td>
<td>1210-576-2178</td>
</tr>
<tr>
<td>M105D</td>
<td></td>
<td>1210-380-1745</td>
</tr>
</tbody>
</table>

*For characteristics and data, see item in section 23.*
CHARACTERISTICS

Length overall (max) ........................................... 3 ft, 16.6 in.
Width overall (max) ............................................... 7 in.
Weight ................................................................. 36 lb, 6 oz
Power ................................................................. 5 lb, 6 oz
Field of view .......................................................... 7.5 deg
Diameter of exit pupil ............................................. 0.17 in.
Dioptric scale ........................................................ -1 to +4 diopters

PERFORMANCE

Range of travel (mounted in vehicle) .......... 11 deg below to 2 deg above horizontal bore-sight position.

EQUIPMENT

Basic issue items: M103—See TM 9-1240-262-10.
M103C and M103D—See TM 9-1240-262-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 telescope per shipping container.
Length ................................................................. 5 ft
Width ................................................................. 1 ft, 3½ in.
Height ............................................................... 1 ft, 3½ in.
Volume ............................................................. 8.34 cu ft
Gross weight ...................................................... 109.50 lb
Ship tone ......................................................... 0.2t

Outside Continental United States

Shipped 1 telescope per shipping container.
Length ................................................................. 5 ft
Width ................................................................. 1 ft, 3½ in.
Height ............................................................... 1 ft, 3½ in.
Volume ............................................................. 8.342 cu ft
Gross weight ...................................................... 109.50 lb
Ship tone ......................................................... 0.2t


General
TELESCOPE, ELBOW: M16A1C, M16A1D, M16A1F, and M16A1G is used for direct sighting in elevation as a part of a two-man, two-man system. They are of the fixed-focus type without filters. The telescope is positioned in a telescope mount with the range lines of its reticle horizontal. The telescope mount is secured in the carriage of the weapon so that the telescope move with the weapon in elevation. The gunner aims the weapon with the range line of the reticle which represents the desired range. LIGHT, INSTRUMENT: M34, is used with these telescopes. These telescopes are used with telescope mounts and weapon mounts (in carriages) as follows:

<table>
<thead>
<tr>
<th>Model</th>
<th>Secondary Item</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M16A1C</td>
<td></td>
<td></td>
<td>1240-759-7580</td>
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<tr>
<td>M16A1D</td>
<td></td>
<td></td>
<td>1240-759-7581</td>
</tr>
<tr>
<td>M16A1F</td>
<td></td>
<td></td>
<td>1240-759-7582</td>
</tr>
<tr>
<td>M16A1G</td>
<td></td>
<td></td>
<td>1240-759-7583</td>
</tr>
</tbody>
</table>

Characteristics

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>Magnification</th>
<th>Field of view</th>
<th>Effective focal length (EFL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>.13' , 30 min</td>
<td>.4.128 in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.1.574 in.</td>
</tr>
</tbody>
</table>

Performance

Equipment

Basic Issue Items:
M16A1C - See ORD 7 SNL D-21
M16A1D - See ORD 7 SNL D-21
M16A1F - See ORD 7 SNL D-24
M16A1G - See ORD 7 SNL D-29

Instructional Material

Storage and Shipment Data

(M16A1C and M16A1D only):

Within Continental United States
Shipped 14 telescopes per shipping container

| Length     | .2 ft, 4% in. |
| Width      | .1 ft, 6 in.  |
| Height     | .1 ft, 6 in.  |
| Volume     | .4.6 cu ft    |
| Gross weight | 159.75 lb  |
| Ship tons  | .11          |

Outside Continental United States
Shipped 14 telescopes per shipping container

| Length     | .2 ft, 4% in. |
| Width      | .1 ft, 6 in.  |
| Height     | .1 ft, 6 in.  |
| Volume     | .4.6 cu ft    |
| Gross weight | 159.75 lb  |
| Ship tons  | .11          |

References: TM 0-1641, TM 0-1240-288-25P.
TELESCOPE, ELBOW: M24A1

General

The TELESCOPE, ELBOW: M24A1, is mounted in conjunction with TELESCOPE, ELBOW: M26A1*, in MOUNT, TELESCOPE: M28*, to form a two-sight, two-man system for direct fire with the CANNON, 90-MILLIMETER GUN: M1A3 on the MOUNT, GUN: 90-mm, M1A1*. It is also used with the MOUNT, GUN: 120-mm, M1A2*. The M24A1 consists of a fixed-focus instrument with soft rubber eyecup. It is fitted with reticle illumination windows and instrument light adapter.

Differences among models

Data plate location

An identification plate (nameplate) is located in the left cover of telescope body.

Classification: Standard A.

CHARACTERISTICS

PERFORMANCE

Field of view: 13°, 20 min. M24A1 rotates in azimuth with the gun.

* For characteristics and data, see items on pages 14-16, 14-77, and section 4.

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped number per box

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped

Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-225, TM 9-1884.
TELESCOPE, ELBOW: M26A1

General
TELESCOPE, ELBOW: M26A1, is mounted in conjunction with TELESCOPE, ELBOW: M24A1 in MOUNT, TELESCOPE: M54 to form a two-sight, two-man system for direct fire with the CANNON, 90 MILLIMETER GUN: M1A5 on the MOUNT, GUN: 90-mm, M1A1. The M26A1 consists of a fixed-focus instrument with soft rubber eyeshield, Model is fitted with reticle illumination windows and instrument light adapter.

Data plate location
An identification plate (nameplate) is located in left cover of telescope body.

Classification: Standard B.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
<th>Magnification</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 1/4 in</td>
<td>4 1/4 in</td>
<td>2 1/8 in</td>
<td>2.35 lb</td>
<td>3X</td>
</tr>
</tbody>
</table>

PERFORMANCE
Field of view: 13°, 20 min. M26A1 rotates in elevation as well as in azimuth with the gun.

EQUIPMENT
Basic issue items: See ORD 7 SNL D-28.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4 1/4 in</td>
<td>1 ft, 8 in</td>
<td>4.5 cu ft</td>
<td>179.75 lb</td>
<td>.11</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4 1/4 in</td>
<td>1 ft, 8 in</td>
<td>4.5 cu ft</td>
<td>179.75 lb</td>
<td>.11</td>
</tr>
</tbody>
</table>

References: SNL F-224, TM 9-1604.

General

TELESCOPE, ELBOW: M62, M62A1C, and M62A1D, is used as components of sight units of the M34-series for laying a weapon in azimuth and elevation for both direct and indirect fire. The weapon is aimed by means of the reticle, the desired elevation having been set in the telescope mount and the desired azimuth or deflection having been set in the mount of the adapter of the sight unit. ADAPTER, TELESCOPE: M8, is a component of SIGHT UNIT: M34 when supporting telescope M62 and a component of SIGHT UNIT: M34A1 when supporting telescope M62A1C. Sight unit M34 and M34A1 use MOUNT, TELESCOPE: M75 in an arrangement to that with sight unit M34A2.

Telescope Elbow, M62 as a component of Sight unit: M34 is used with: Launcher Rocket: Multiple 4.5-inch, M21.

Telescope Elbow, M62A1C as a component of Sight unit: M34A2 is used with: Mortar: 4.2-inch, M30.

Telescope Elbow, M62A1D as a component of Sight unit: M34A1 and M34A2 is used with:

Rifles: 7.62-mm, M20, T94E12.

Rifles: 106-mm, M67 and M72A1.

Telescope Elbow, M62A2F as a component of Sight unit: M34A2C is used with:

Launcher Rocket, 316-mm, XM51.

Launcher Rocket, M91 (T945).

LaGrasse Missile System.

Telescope Elbow, M62A2F is used with Signal Corps Tracker Radar Set MPQ-4.

Telescope Elbow, M62E2 is used with Tracker Radar, M4.

LIGHT, INSTRUMENT: M46 is used with these telescopes for night operation.

Differences among models

The models are practically identical for use, except the reticles.

Data plate location

The identification including name, model designation, and serial numbers are stamped on the data surface on the left side of the elbow of the telescope.

Characteristics

Mmagnification: 3X

Field of view: 12°, 12 min

Diaphragm of exit pupil: 8.15 in.

Effective focal length (EFL): 0.926 in.

Objective: 0.926 in.

Reticle scale: 0.784 in.

Performance

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 100 telescopes per shipping container

Length: 1 ft, 4\frac{3}{4} in.

Width: 10\frac{1}{2} in.

Height: 10 in.

Volume: 1.01 cu ft

Gross weight: 85 lb

Ship tons: 0.03

Outside Continental United States

Shipped 100 telescopes per shipping container

Length: 1 ft, 4\frac{3}{4} in.

Width: 10\frac{1}{2} in.

Height: 10 in.

Volume: 1.01 cu ft

Gross weight: 85 lb

Ship tons: 0.03

TELESCOPE, ELBOW: M92D

**General**

TELESCOPE, ELBOW: M92D, is of the fixed-focus, fixed-reticle type. It is used with MOUNT, TELESCOPE: M90 (T181), which in turn mounted on the rear bracket of RIFLE, 106 MILLIMETER: M40 (T1881) with MOUNT, 106 MILLIMETER RIFLE: M79, as a direct sight. The tapered end of the body fits the telescope mount. The level vial at elbow is used in conjunction with the cant mechanism of the mount to level the telescope. LIGHT, INSTRUMENT: M42, is used with this telescope for night operation. The lamp bracket of the instrument light is attached to the band assembly. This elbow telescope is also used with RIFLE, SELF-PROPELLED, FULL-TRACKED: multiple, 106-mm, M50.

**Differences among models**

**Data plate location**

The identification plate (nameplate) is on the elbow.

**Classification:** Standard A (OTCM 34859).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M92D</td>
<td></td>
<td>1540-864-6339</td>
</tr>
</tbody>
</table>

**Magnification**

... ... ... ... ... ... ... ... ... ... ... ... ... 8x

**Field of view**

... ... ... ... ... ... ... ... ... ... ... ... ... 12°, 12 min

**PERFORMANCE**

**EQUIPMENT**

***Basic Issue Items:*** See TM 9-2350-212-12.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 120 telescopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 6½ in</td>
<td>.69 ft</td>
<td>1 ft, 1 in</td>
<td>.457 cu ft</td>
<td>.194.24 lb</td>
<td>.011</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped 120 telescopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 6½ in</td>
<td>.69 ft</td>
<td>1 ft, 1 in</td>
<td>.457 cu ft</td>
<td>.194.24 lb</td>
<td>.011</td>
</tr>
</tbody>
</table>

**References:** SNL F-391, TM 9-6139, TM 9-2350-212-12.
TELESCOPE, ELBOW: XM107

Differences among models

Data plate location

The name, model designation, and serial number of the elbow-telescope are etched on the left side of the telescope.

Classification: Standardization pending.

CHARACTERISTICS

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XM107</td>
<td></td>
<td>1240-714-2137</td>
</tr>
</tbody>
</table>

General

TELESCOPE, ELBOW: XM107 is mounted on MOUNT, TELESCOPE: XM117 and attached to the weapon of Battle group weapon system XM28 and XM29, as a unit, by means of HOLDER, TELESCOPE MOUNT, XM6 or XM6.

The elbow telescope is a lightweight, hermetically sealed instrument. It is a a focusing type instrument which provides the optical line-of-sight by which the weapon is aimed in its azimuth and elevation planes. The telescope incorporates a cross-line mill-scale reticle which can be illuminated for night operation. The reticle pattern consists of two centerlines, one horizontal and one vertical. Graduations occur every 2 mils on both lines and are numbered at every 10 mils. The numbers run from 1 to 4 representing 10 to 40 mils.

Diopter scale graduation: 4.5 to -4.5 diopters

Length, overall: 8.5 in.
Width, overall: 1.49 in.
Height, overall: 2.75 in.
Weight: 6 oz.

PERFORMANCE EQUIPMENT

Basic issue items: See TM 9-1000-209-12.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 240 telescopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 101/2 in.</td>
<td>3 ft, 1 in.</td>
<td>1.125 ft</td>
<td>8.25 cu ft</td>
<td>100 lb</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 240 telescopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 101/2 in.</td>
<td>3 ft, 1 in.</td>
<td>1.125 ft</td>
<td>8.25 cu ft</td>
<td>100 lb</td>
<td>0.21</td>
</tr>
</tbody>
</table>

TELESCOPE, PANORAMIC: M1

General
TELESCOPE, PANORAMIC: M1 is used, with MOUNT, TELESCOPE: M1A1 on CARRIAGE, 75 MILLIMETER, HOWITZER: M3 for CANNON, 75 MILLIMETER, HOWITZER, PACK: M1A1. It is used for indirect fire and is mounted on a carriage. This telescope may be used for direct fire.

This telescope differs from the other panoramic telescopes in that it has a rotating elbow and an eyepiece slanted upward at an angle of 23 degrees. The azimuth scale is graduated in units and is attached to the base of the rotating head. The azimuth knob is attached directly to the azimuth micrometer. The azimuth worm throw-out lever is attached to the end of the worm opposite the micrometer.

Data plate location
The identification data (name) is stamped on the cover of the rotating head.

Classification: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field of vision</td>
<td>12 deg, 12 min</td>
</tr>
<tr>
<td>Magnification</td>
<td>3X</td>
</tr>
<tr>
<td>EFL</td>
<td>2.362 in</td>
</tr>
<tr>
<td>Objective</td>
<td>0.784 in</td>
</tr>
<tr>
<td>Eyepiece</td>
<td>0.784 in</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States

- 36 telescopes per shipping container
- Length: 2 ft, 5 in
- Width: 2 ft, 13/16 in
- Height: 2 ft, 9/16 in
- Weight: 184.5 lb
- Gross weight: 184.5 lb
- Ship tons: 0.18

Outside Continental United States

- 36 telescopes per shipping container
- Length: 2 ft, 5 in
- Width: 2 ft, 13/16 in
- Height: 2 ft, 9/16 in
- Weight: 184.5 lb
- Gross weight: 184.5 lb
- Ship tons: 0.18

TELESCOPE, PANORAMIC: M12, M12A2, M12A5, M12A7C, M12A7D, M12A7F, M12A7G, M12A7H, AND M12A7K (M12A7E4)

---

### General—Continued

<table>
<thead>
<tr>
<th>Telescope</th>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td></td>
<td>1210-757-9937</td>
</tr>
<tr>
<td>M12A2</td>
<td></td>
<td>1210-757-9938</td>
</tr>
<tr>
<td>M12A5</td>
<td></td>
<td>1210-757-9939</td>
</tr>
<tr>
<td>M12A7C</td>
<td></td>
<td>1210-757-9940</td>
</tr>
<tr>
<td>M12A7D</td>
<td></td>
<td>1210-757-9941</td>
</tr>
<tr>
<td>M12A7F</td>
<td></td>
<td>1210-757-9942</td>
</tr>
<tr>
<td>M12A7G</td>
<td></td>
<td>1210-757-9943</td>
</tr>
<tr>
<td>M12A7H</td>
<td></td>
<td>1210-757-9944</td>
</tr>
<tr>
<td>M12A7K</td>
<td></td>
<td>1210-757-9945</td>
</tr>
</tbody>
</table>

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### Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td>1210-757-9936</td>
<td></td>
</tr>
<tr>
<td>M12A2</td>
<td>1210-757-9937</td>
<td></td>
</tr>
<tr>
<td>M12A5</td>
<td>1210-757-9938</td>
<td></td>
</tr>
<tr>
<td>M12A7</td>
<td>1210-757-9939</td>
<td></td>
</tr>
<tr>
<td>M12A7D</td>
<td>1210-757-9940</td>
<td></td>
</tr>
<tr>
<td>M12A7F</td>
<td>1210-757-9941</td>
<td></td>
</tr>
<tr>
<td>M12A7G</td>
<td>1210-757-9942</td>
<td></td>
</tr>
<tr>
<td>M12A7H</td>
<td>1210-757-9943</td>
<td></td>
</tr>
<tr>
<td>M12A7K</td>
<td>1210-757-9944</td>
<td></td>
</tr>
</tbody>
</table>

---

**General**

TELESCOPE, PANORAMIC: M12 is used with telescope mounts in azimuth for indirect fire. The telescopes also may be used for direct fire. The line of sight of the panoramic telescopes may be traversed in either direction in a complete circle without changing the position of the observer.

These panoramic telescopes are used with telescope mounts and instrument lights as follows.

---

<table>
<thead>
<tr>
<th>Telescope</th>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12A2</td>
<td>M21A1</td>
<td>1210-757-9937</td>
</tr>
<tr>
<td>M12A5</td>
<td>M21A2</td>
<td>1210-757-9938</td>
</tr>
<tr>
<td>M12A7C</td>
<td>M21A3</td>
<td>1210-757-9939</td>
</tr>
<tr>
<td>M12A7D</td>
<td>M21A4</td>
<td>1210-757-9940</td>
</tr>
<tr>
<td>M12A7F</td>
<td>M21A5</td>
<td>1210-757-9941</td>
</tr>
<tr>
<td>M12A7G</td>
<td>M21A6</td>
<td>1210-757-9942</td>
</tr>
<tr>
<td>M12A7H</td>
<td>M21A7</td>
<td>1210-757-9943</td>
</tr>
<tr>
<td>M12A7K</td>
<td>M21A8</td>
<td>1210-757-9944</td>
</tr>
</tbody>
</table>

---

**Mounted Instrument Lights**

- M33
- M75
- M75
- M10
- M13
- M10
- M13
- M10
- M13
- M10
- M13
- M10
- M13
- M10
- M13
- M10
- M13
- M10
- M13
- M10
For weapons mounts or carriages and for the weapons with which these telescopes are used, refer to the general paragraph on the pertinent mount.

**Differences among models**

Telescopes of the M12 series are structurally identical with the exception of the reticles used. The azimuth scale of the M12A5 is adjusted so that when scales are zeroed the optical line-of-sight is parallel to the azimuth locating surfaces. In the M12 and the M12A2, the line-of-site is offset 45° from the locating surfaces at zero azimuth. The M12A7 series are identical with the exception of the reticle used and the positioning of the rotating head with respect to the collimating tang. The rotating heads are positioned so that when all azimuth scales and micrometers are zeroed, the rotating heads of the M12A7C, M12A7D, and M12A7K will be 45° to the left of the collimating tang. (The M12A7H will be included in the group when the M12A7D is modified to M12A7H.) The rotating head of the M12A7F will be parallel to the collimating tang and that of the M12A7G (M12A7E4) will be 45° to the right.

**Data plate location**

The identification plate (nameplate) is attached to the top of the rotating head.

**Characteristics**

| Magnification | 4X |
| Field of view | 10° |
| Height | 9% in. |
| Weight | 5½ lb |
| Azimuth range | 6,400 mils |
| Elevation range | 680 mils |
| Deflection scale | 20-0-20 mils |

**Performance**

**Equipment**


**Instructional Material**

**Storage and Shipment Data**

**Within Continental United States**

Shipped 12 telescopes per shipping container

| Length | 2 ft, 8½ in. |
| Width | 2 ft, 4½ in. |
| Height | 1 ft, 8½ in. |
| Gross weight | 158.5 lb |
| Gross weight | 0.22 |

**Outside Continental United States**

Shipped 12 telescopes per shipping container

| Length | 2 ft, 8½ in. |
| Width | 2 ft, 4½ in. |
| Height | 3 ft, 8½ in. |
| Gross weight | 8.65 cu ft |
| Gross weight | 186.6 lb |
| Gross weight | 0.22 |

**References:** SNL F-214, TM 9-6111 (M12, M12A2, M12A5), TM 9-6147 (M12A7 series).
TELESCOPE, PANORAMIC: M100 (T149E1) AND M100C (T149E2)

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M100</td>
<td></td>
<td>1240-344-6665</td>
</tr>
<tr>
<td>M100C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General

TELESCOPE, PANORAMIC: M100 (T149E1) or M100C (T149E2), used with MOUNT, TELESCOPE: M99 (T179) or MOUNT, TELESCOPE: M99A1 (T179E4), and is a component of HOWITZER, LIGHT, SELF-PROPELLED: 105-mm, M52 (T98E1), or M52A1 and a component of HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M56 (T108). This panoramic telescope is used for laying the weapon in indirect fire. Panoramic telescope M100C (T149E2) is used with LANDING VEHICLE, TRACKED: howitzer, model 6. The reticle is illuminated by four 3-volt lamps for night operation.

Differences among models

The differences between models are in the reticles and canting mechanism.

Data plate location

The identification plate (nameplate) is on the elbow housing cover.

Classification: Standard A (OTCM 36229).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M100</th>
<th>M100C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>34.75 in.</td>
<td>34.75 in.</td>
</tr>
<tr>
<td>Width</td>
<td>7.0 in.</td>
<td>7.0 in.</td>
</tr>
<tr>
<td>Height</td>
<td>10.0 in.</td>
<td>10.0 in.</td>
</tr>
<tr>
<td>Net weight</td>
<td>36.5 lb</td>
<td>36.5 lb</td>
</tr>
</tbody>
</table>

Power: 4X

Field of view: 10°

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 2 telescopes per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 8 in.</td>
<td>2 ft, 3 in.</td>
<td>1 ft, 1 in.</td>
<td>16.5 cu ft</td>
<td>366 lb</td>
<td>0.26</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 2 telescopes per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 8 in.</td>
<td>2 ft, 5 in.</td>
<td>1 ft, 1 in.</td>
<td>16.5 cu ft</td>
<td>366 lb</td>
<td>0.26</td>
</tr>
</tbody>
</table>

References: TM 9-6025, TM 9-1240-219-36P.
General

MOUNT, TELESCOPE: M110 mounts TELESCOPE: M103 on RIFLE. 90 MILLIMETER: M67.

The parts and mechanism are contained in a steel housing. A retaining ring which threads onto the outside of the telescope mount housing holds the mount to the front bracket assembly of the weapon. Four nylon pins in the ring grip the threads on the housing and prevent the rings from loosening.

A cylindrically-shaped flange on a gimbal tube fits snugly into the bore of telescope mount M110. The gimbal tube has three segments of a helical-pitch left-handed thread machined at one end of the internal bore, to engage mating threads on the telescope M103. A conically-shaped shoulder at the other end of the bore of the tube matches the shoulder on the telescope. Telescope mount M110 also features a device which enables bore sight adjustment.

Differences among models

Data plate location

Data are located on the retainer on one end of the mount.

Classification: Standard A (OTCM 37136).

CHARACTERISTICS

| Length    | 3 1/4 in. |
| Diameter  | 2 3/4 in. |
| Weight    | 16 oz    |

* For characteristics and data, see item in section 4.
MOUNT, TELESCOPE: M137 (T186E3)

General

MOUNT, TELESCOPE: M137 (T186E3) is used to support the indirect fire TELESCOPE, PANORAMIC: M115 (T166) on GUN, FIELD ARTILLERY, SELF-PROPELLED: 125-mm, M107 (T236E3)**, and HOWITZER, HEAVY, SELF-PROPELLED: 8-in., M142 (T236E1)**. It consists of the main housing, main mounting bracket, base assembly, telescope mounting bracket, quadrant seal assembly, clutch, elevation counter, correction counter, cross-level worm gearing: elevation, elevation correction, and cross-level correction knobs; cross-level correction vials; counter, indicator lamps; lamp bracket; fitting, rheostat, rheostat switch knob; electrical wiring and contacts. It incorporates the mechanisms and controls necessary for instrument elevation for cross and cross-level correction. A mechanical 5-digit decimal counter is used for registering elevation in place of the elevation scale and protractor used on previous telescope mounts. The correction knob allows correction factors to be incorporated into the elevation counter readings without changing the actual position of the telescope mount. The built-in instrument lighting system derives power from the vehicle's 24-volt system.

Differences among models

Data plates location

The identification plate is located on the mounting bracket.

Classification: Standard A (OTCM 37266).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Length</th>
<th>Width (with quadrant seal and bolts)</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 2(\frac{1}{2}) in.</td>
<td>9(\frac{1}{4}) in.</td>
<td>1 ft, 1 in.</td>
<td>38 lb</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item on page 14-104.
** For characteristics and data, see item in section 23.

PERFORMANCE

<table>
<thead>
<tr>
<th>Movement:</th>
<th>Elevation</th>
<th>Cross level (cont)</th>
<th>-89 to +1,388 mils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correction:</td>
<td>Azimuth</td>
<td>Elevation</td>
<td>-50 mils</td>
</tr>
<tr>
<td>Incremental winding (continues)</td>
<td>25 mils</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 3 mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 ft, 4(\frac{1}{2}) in.</td>
<td>1 ft, 9(\frac{3}{4}) in.</td>
<td>1 ft, 5 in.</td>
<td>12.70 cu ft</td>
<td>203 lb</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 3 mounts per box

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 ft, 3(\frac{1}{2}) in.</td>
<td>1 ft, 9(\frac{3}{4}) in.</td>
<td>1 ft, 5 in.</td>
<td>12.70 cu ft</td>
<td>263 lb</td>
<td>0.32</td>
</tr>
</tbody>
</table>

MOUNT, TELESCOPE: M138

General
MOUNT, TELESCOPE: M138 mounts on QUADRANT. FIRE CONTROL: elevation, M16 and holds TELESCOPE, ELBOW: M116 or M16C. The mount is used with GUN, FIELD ARTILLERY, SELF-PROPELLED: full tracked, 155-mm, M107* and HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M110. A lamp attached to a retractile lens provides illumination for the reticle pattern of the elbow telescope.

Differences among models
Data plate location
Data plate is located on left side of main bracket.
Classification: Standard A.

CHARACTERISTICS
Length ....... 2 ft. 10% in.
Width (including allowance for electrical cable) ..... 2 ft. 10% in.
Height ....... 1 ft. 10% in.
Weight ...... 4% lb

PERFORMANCE
* For characteristics and data, see item in section 23.
MOUNT, TELESCOPE: M146 (T206)

General

MOUNT, TELESCOPE: T206 forms an adjustable base to support TELESCOPE: M146 (T196E2) and M118 (T196E3) right-hand installation on barrel of HOWITZER, MEDIUM, SELF-PROPELLED, FULL-TRACKED, 155-MM; T196E1* and HOWITZER, LIGHT, SELF-PROPELLED, FULL-TRACKED, 105-MM; T195E1*, respectively.

Data sight knob assemblies are provided to facilitate both ballistic and bore-adjustment control for elevation and azimuth alignment by angularly transporting the entire telescope within the mount. The controls are automatically locked at any desired setting. Adjustable scales calibrated in terms of a mil simplify corrections required for factors peculiar to the individual weapon and/or its emplacement.

Cant correction is achieved by rotating the entire telescope between the telescope ball supported at the forward end, and the fixed telescope sleeve near the opposite end, and thereby erecting the reticle pattern. A single tapered kingpin secures the telescope in the mount in alternate mating holes and can be removed without the use of tools. A cable assembly is connected between the vehicle power supply and the telescope to illuminate the reticles and level vial.

Differences among models

Data plate location

Data plate is located on the left side of main bracket.

Classification: Standard A.

CHARACTERISTICS

Length: 19° 11/16 in.

* For characteristics and data, see item in section 23.

PERFORMANCE

Bore-sight elevation: ±10 mils
Bore-sight azimuth: ±10 mils

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 8⅜ in.</td>
<td>1 ft, 3⅝ in.</td>
<td>10⅞ in.</td>
<td>2.68 cu ft</td>
<td>16 lb</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 8¼ in.</td>
<td>1 ft, 3⅛ in.</td>
<td>10⅜ in.</td>
<td>2.68 cu ft</td>
<td>16 lb</td>
<td>0.08</td>
</tr>
</tbody>
</table>

MOUNT, TELESCOPE: T208

General
MOUNT, TELESCOPE: M146 (T208), mount, TELESCOPE, PANORAMIC; M117 (T177) used for HOWITZER, LIGHT, SELF-PROPELLED, FULL-TRACKED, 105-mm, T195E1, and HOWITZER, SELF-PROPELLED, FULL-TRACKED: 155-mm, T195E1. The mount is attached to a bracket on the trunnion support in the left side of the cab of the vehicle forward of the trunnion. Kept parallel to the weapon by means of a linkage system in the gun bar pivot, the basic reference within the mount, from which elevation and azimuth measurements and adjustments are made. Devices are provided for adjusting the mount in pitch and cross-level to keep the vertical axis of the panoramic telescope plumb. A mil counter aids in the making of elevation adjustments. The counter incorporates a gunner's aid (correction) counter system to simplify correction of elevation values for factors peculiar to the weapon and/or its emplacement. For making fine elevation adjustments with a gunner's quadrant, support assembly, integral with the mount, is provided. Illumination for level vials and counter windows is provided by built-in lighting system. Power is supplied from the 24-volt power source.

Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>21 in</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 23.

Performance

Movement, elevation: -50 to +1,33°

Equipment

Basic issue items: See TM 9-2350-217-10.

Instructional Material

Storage and Shipment Data

Within Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped per shipping container</td>
<td>21 in</td>
<td>71/2 in</td>
<td>2 ft 3 in</td>
<td>6 cu ft</td>
<td>155 lb</td>
<td>.16</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped per shipping container</td>
<td>21 in</td>
<td>71/2 in</td>
<td>2 ft 3 in</td>
<td>6 cu ft</td>
<td>155 lb</td>
<td>.16</td>
</tr>
</tbody>
</table>

PERISCOPE, TANK: M42 (XM42)

General

PERISCOPE, TANK: M42 (XM42) is used on the HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, T196E1.

The periscope is located on the center rotor and serves to deviate the line of sight to provide an unobstructed field of vision past the muzzle brake.

Differences among models:

Data plate location

The identification plate is located on the right side of the periscope.

Classification

CHARACTERISTICS

Height: 10′ 14″
Width: 8′ 2″
Depth: 6′ 5″
Weight: 8 lb

PERFORMANCE

* For characteristics and data, see item in section 23.
TELESCOPE: M103

**Performance**

**Equipment**

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>7 1/2 in.</td>
</tr>
<tr>
<td>Width</td>
<td>3 in.</td>
</tr>
<tr>
<td>Height</td>
<td>4 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>0.09 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>1.85 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>9 1/2 in.</td>
</tr>
<tr>
<td>Width</td>
<td>5 in.</td>
</tr>
<tr>
<td>Height</td>
<td>4 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>0.10 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>1.85 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.002</td>
</tr>
</tbody>
</table>

TELESCOPE: M118 (T176E3) AND M118C (T176E2)

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M118 (T176E3)</td>
<td></td>
<td>1240-819-4519</td>
</tr>
<tr>
<td>M118C (T176E2)</td>
<td></td>
<td>1240-819-6620</td>
</tr>
</tbody>
</table>

General

TELESCOPE: M118 (T176E3) or M118C (T176E2) is used for positioning HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm., T196E1 or HOWITZER, LIGHT, SELF-PROPELLED: 105-mm., T195E1, respectively, on targets visible from the weapon. The telescope is mounted in MOUNT, TELESCOPE: M146 (T206). The telescope is a fixed focus instrument. It contains two pre-collimated ballistics reticles that can be selectively placed in the field of view.

Controls for laying the howitzer on "line of sight" targets are the same as those utilized for indirect fire, since the telescope and mounts are bolted to the howitzer mounts. Correction for cant is achieved by rotating the telescope within its mounts, and thereby erecting the reticles with the aid of an illuminated crosslevel.

Differences among models

The difference between the M118 (T176E3) and M118C (T176E2) is in the reticle.

Data plate location

Plate is located on top of the worm assembly of the telescope.

Classification:

M118 (T176E3) Standard A
M118C (T176E2) Standard A

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M118 (T176E3)</th>
<th>M118C (T176E2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 3½ in.</td>
<td>3 ft, 3½ in.</td>
</tr>
<tr>
<td>Width (including eyepiece arm)</td>
<td>1 ft, 6½ in.</td>
<td>1 ft, 6½ in.</td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td>3 ft, 3½ in.</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td>44 lb</td>
</tr>
<tr>
<td>Magnification</td>
<td></td>
<td>4 power</td>
</tr>
<tr>
<td>Field of view</td>
<td></td>
<td>10 deg</td>
</tr>
<tr>
<td>Exit pupil diameter</td>
<td></td>
<td>0.236 in.</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 23 and on page 14-38.

PERFORMANCE

Axial cant correction ±0.5 deg
Minor, level +50 deg right and left, -100 deg
Eyepiece arm not adjustable

EQUIPMENT

Refer to section 23 and on page 14-38.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 2 per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 ft, ¾ in.</td>
<td>2 ft, 5½ in.</td>
<td>1 ft, 11 in.</td>
<td>16.2 cu ft</td>
<td>206 lb</td>
<td>.04</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 2 per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 ft, ¾ in.</td>
<td>2 ft, 5½ in.</td>
<td>1 ft, 11½ in.</td>
<td>16.3 cu ft</td>
<td>226 lb</td>
<td>.04</td>
</tr>
</tbody>
</table>

TELESCOPE, ELBOW: M116 AND M116C

General
TELESCOPE, ELBOW: M116 or M116C, is a simple, fixed focus, 3-power instrument. It is used in direct firing of the weapon. Illuminated reticle patterns are incorporated into the optical system of the telescope.

Telescope M110 is used with HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M118.* Telescope M116C is used with CANNON, FIELD ARTILLERY, SELF-PROPELLED: 176-mm, M107.*

Differences among models
The differences between M116 and M116C are in the reticles.

Data plate location
Plate is located on left side of the elbow.

Classification: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M116C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft 6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft 2 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>23.8 lb</td>
</tr>
<tr>
<td>Magnification</td>
<td>3X</td>
</tr>
<tr>
<td>Field of view</td>
<td>13 deg, 20 min</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 23.

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 48 telescopes per shipping container

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimension</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft 4 in.</td>
<td>179.76 lb</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft 6 in.</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>1 ft 3 in.</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>4.6 cu ft</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>179.76 lb</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.112</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 48 telescopes per shipping container

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimension</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft 4 in.</td>
<td>179.76 lb</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft 6 in.</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>1 ft 3 in.</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>4.6 cu ft</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>179.76 lb</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.112</td>
<td></td>
</tr>
</tbody>
</table>

TELESCOPE, PANORAMIC: M115 (T146)

ORD A1828

Characteristics

Classification: Standard A.

Data plate location

The data plate is located on the rotating head.

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M115 (T146)</td>
<td>1210-855-0186</td>
<td></td>
</tr>
</tbody>
</table>

General

TELESCOPE, PANORAMIC: M115 (T146) is used with MOUNT, TELESCOPE: M137 (T186E1)* for indirect fire, in self-propelled weapon fire control systems of GUN, FIELD ARTILLERY, SELF-PROPELLED: 175-mm, M107 (T235E1),** and HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M110 (T236E1).*** It is a 4-power, fixed-focus telescope, with a 10-degree field of view. It maintains an upright image regardless of whether the line of sight is directed forward, to the side, or to the rear of the observer.

A 60-degree prism is rotated with the head of the telescope through a complete azimuth circle of 6,400 mils. The prism may also be elevated and depressed through angles of 300 mils from the horizontal. The telescope has an azimuth mill counter mechanism in place of azimuth scales. The counter registers azimuth travel in quadrant-mil units. The horizontal eyepiece segment of the elbow assembly is extended so that a helmeted soldier is able to sight without interference from the counter assembly. The azimuth worm, used to rotate the head, contains only one knob, pinned on the right end of the worm shaft. The worm has no throwout provision for disengaging it from the worm wheel. Instead, the azimuth knob has a folding crank which may be swung out in an arc of 180 degrees for rapid turning of the rotating head. In the closed position, the crank does not interfere with normal use of the knob.

The reticle is illuminated by light entering a red glass window or by a reticle lamp. The horizontal centerline of the reticle is graduated into 5-mil increments. The surfaces of all optical elements except the reticle are coated to minimize reflections and to increase light transmission.

Storage and Shipment Data

Within Continental United States

Shipped 8 telescopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ft, 3½ in.</td>
<td>2 ft, 6 in.</td>
<td>2 ft, 3½ in.</td>
<td>16.05 cu ft</td>
<td>199 lb</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 8 telescopes per box

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ft, 3½ in.</td>
<td>2 ft, 6 in.</td>
<td>2 ft, 3½ in.</td>
<td>16.05 cu ft</td>
<td>199 lb</td>
<td>0.87</td>
</tr>
</tbody>
</table>

TELESCOPE, PANORAMIC: M117 (T177)

General
TELESCOPE, PANORAMIC: M117 (T177), is mounted directly on MOUNT, TELESCOPE: M115 (T361), with brackets. It is used for HOWITZER, LIGHT, SELF-PROPELLED, FULL-TRACKED: 105-mm, T199E1** and HOWITZER, MEDIUM, SELF-PROPELLED, FULL-TRACKED: 155-mm, T199EL**.

M117 is the basic instrument used in laying the weapon on azimuth for indirect fire. It is equipped with mechanical counter devices rather than the customary circular azimuth scales and a gunner's aid counter is integral with the instrument. The gunner's aid counter mechanism, which permits azimuth corrections for factors peculiar to the individual weapon and its emplacement, to be entered easily into the instrument, is an integral part of the counter mechanism.

Differences among models
Data plate Location
Plate is located on the left side lower housing.

Classification: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft, 6½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>.775 in.</td>
</tr>
<tr>
<td>Height</td>
<td>7 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>14.46 lb</td>
</tr>
<tr>
<td>Magnification</td>
<td>4 power</td>
</tr>
<tr>
<td>Field of view</td>
<td>.10 deg</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 23.

INSTRUCTIONAL MATERIAL

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 per shipping container
Length: 2 ft, 1 in.
Width: 1 ft, 7½ in.
Height: 1 ft, 1 in.
Volume: 2.95 cu ft
Gross weight: 23.50 lb
Ship tons: .07

Outside Continental United States

Shipped 1 per shipping container
Length: 2 ft, 4 in.
Width: 1 ft, 7½ in.
Height: 1 ft, 1 in.
Volume: 2.95 cu ft
Gross weight: 23.50 lb
Ship tons: .07

SECTION 15
FIRE-CONTROL DESIGNATING AND INDICATING EQUIPMENT
(CLASS 1260)
(Includes gunnery officer's console and azimuth indicators)

CONSOLE, GUNNERY OFFICERS: M1
(For data and characteristics, see FIRE CONTROL SYSTEM, FIELD ARTILLERY: M35 and M35C section 13.)

<table>
<thead>
<tr>
<th>Indicator, Azimuth, Mechanical:</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>M18</td>
<td>16-2</td>
</tr>
<tr>
<td>M19</td>
<td>16-3</td>
</tr>
<tr>
<td>M21</td>
<td>16-4</td>
</tr>
</tbody>
</table>
INDICATOR, AZIMUTH, MECHANICAL: M18

General

INDICATOR, AZIMUTH, MECHANICAL: M18, is used in tanks to lay off horizontal angles when laying the gun for indirect fire. It consists of a mounting bracket and gear housing, together with the necessary gears, dials, and pointers, arranged so that the tank turret ring gear drives the pointers through the gearing to indicate, by means of dials graduated in mils, the position of the gun in relation to a given aiming point. A third, nonadjustable pointer, indicates the position of the gun in relation to the longitudinal axis of the vehicle. Indirect lighting of the dials is provided by lighting system M21. A switch assembly, located on the side of the gear housing, controls the lamps. The pointers are tipped with luminous paint.

Differences among models

Data plate location

The identification plate is located on the side of the gear housing.

Classification:

CHARACTERISTICS

Dial graduations:
- 180-mil: 0-3,200-0-3,200 mils
- 1-mil: 0-100 mils

Numbers of pointers: 3

Height

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States:

Shipped azimuth indicator per box.

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States:

Shipped azimuth indicator per box.

Length

Width

Height

Volume

Gross weight

Ship tons

Reference: TM 9-1731D.
INDICATOR, AZIMUTH, MECHANICAL: M19

General

INDICATOR, AZIMUTH, MECHANICAL: M19, is used in tanks to lay off horizontal angles when laying the gun for indirect fire. It consists of a mounting bracket and gear housing, together with the necessary gears, dials and pointers, arranged so that the tank turret ring gear drives the pointers through the gearing to indicate, by means of dials graduated in mils, the position of the gun in relation to a given aiming point. A third, nonadjustable pointer, indicates the position of the gun in relation to the longitudinal axis of the vehicle. Indirect lighting of the dials is provided by lighting system M21. A switch assembly, located on the side of the gear housing, controls the lamps. The pointers are tipped with luminous paint.

Differences among models

Data plate location

The identification plate is located on the side of the gear housing.

Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Dial graduations:</th>
<th>100-mil</th>
<th>0-4,400 mils</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-mil</td>
<td></td>
<td>0-100 mils</td>
</tr>
<tr>
<td>Number of pointers</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Diameter

Weight

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped azimuth indicator per box.

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped azimuth indicator per box.

Length

Width

Height

Volume

Gross weight

Ship tons

Reference: TM 9-1721D.
INDICATOR, AZIMUTH, MECHANICAL: M21

General

INDICATOR, AZIMUTH, MECHANICAL: M21, is used in tanks to lay off horizontal angles when laying the gun for indirect fire. It consists of a mounting bracket and gear housing, together with the necessary gears, dials, and pointers, arranged so that the tank turret ring gear drives the pointers through the gearing to indicate, by means of dials graduated in mils, the position of the gun in relation to a given aiming point. A gunner's aid dial (third scale), and dust and moisture seals are provided. Indirect lighting of the dials is provided by lighting system M21. A switch, located on top of the battery case, controls the lamps. The pointers are tipped with luminous paint.

Differences among models

Data plate location

The identification plate is located on the side of the gear housing.

Classification:

CHARACTERISTICS

Dial graduations:
- 100-mil: 0-2,000-0-3,200 mils
- 1-mil: 0-100 mils
- Gunner's aid dial (1-mil): 0-50 mils R&L

Number of pointers: 2

Height:
- Overall: 9 1/2 in.
- Mounting bracket: 4 1/2 in.

Diameter: 7 in.
Weight: 19 lb

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped azimuth indicator per box</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped azimuth indicator per box</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-389, sections 1 and C1; TM 9-1731D
SECTION 16
FIRE CONTROL TRANSMITTING AND RECEIVING EQUIPMENT, EXCEPT AIRBORNE
(CLASS 1265)
(For additional superelevation transmitters, see section 17)

TRANSMITTER, SUPERELEVATION: M23 (T14) ................................. 16-2
TRANSMITTER, SUPERELEVATION: M23 (T14)

General
TRANSMITTER, SUPERELEVATION: M23 (T14), is used with TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1. The transmitter is electrically and mechanically operated. The transmitter housing is mounted to a bracket that is fastened to the turret ring. The transmitter arm is cam operated and pivots on a shaft through a limited arc whenever the 120-mm gun is depressed or elevated at any azimuth. The transmitter electrical system is connected to the ballistic computer and the elevation servo mechanism. Movement of the transmitter arm causes the two synchro motors, contained in the transmitter, to turn and supply a signal to the ballistic computer which subtracts the superelevation signal from the elevation signal. The resultant output is transmitted electrically to the elevation servo mechanism, which in turn positions the range finder.

Characters among models
Data plate location
The identification plate (nameplate) is located on the arm of the transmitter.
Classification: Standard A (OTCM 36540).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23</td>
<td></td>
<td>1262-622-4672</td>
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</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1265-200-36.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Skipped transmitters per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Skipped transmitters per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: TM 9-1265-200-36, TM 9-1265-200-35P.
SECTION 17
FIRE CONTROL RADAR EQUIPMENT, EXCEPT AIRBORNE
(CLASS 1285)

COMPUTER, BALLISTICS: M10 (T27E2)
For data and characteristics, see FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38, section 13.

TRACKER, RADAR: M4 (T9)
For data and characteristics, see FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38, section 13.

SELECTOR, TARGET: M5 (T1E2)
For data and characteristics, see FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38, section 13.
SECTION 18
MISCELLANEOUS FIRE CONTROL EQUIPMENT
(CLASS 1290)

( Includes aiming circles, aiming posts, antiaircraft gun, local and remote control systems, ballistic
drives, fire control quadrants, fuze amplifier and motor drive, fuze setters, mechanical azimuth
indicator, remote control systems, sight mount and front sight, superelevation transmitter, and
telescope, periscope and quadrant mounts)

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AIMING CIRCLE: M2 and M2A1 ..................................... 18-4
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CABLE SYSTEM, FIRE CONTROL: M36 (T31E1)
(For characteristics and data, see FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 in section 13.)

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(For characteristics and data, see item in section 14.)
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POST, AIMING: M6 18-57
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(For characteristics and data, see FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 in section 13.)
AIMING CIRCLE: MI

General

AIMING CIRCLE: MI, is used in measuring angles in azimuth and elevation, and for general topographic work. The reticle scale provides the only means for measuring vertical angles and is also used for determining small horizontal angles. Usually, the azimuths are measured on the azimuth scale. A magnetic needle provides initial orienting direction for the instrument. The needle is observed through a magnifier and is centered between the lines in a magnetic needle reticle. The line of sight can be elevated or depressed 8° above or below the normal. The reticle and scales of the aiming circle are illuminated for night operation by an instrument light.

Differences among models:

Data plate location

Classification: Standard C (OTCM 7708A).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>4 power</td>
</tr>
<tr>
<td>Reticle elevation scale</td>
<td>60-0.25 mils</td>
</tr>
<tr>
<td>Reticle azimuth scale</td>
<td>66.0-0.01 mils</td>
</tr>
<tr>
<td>Field of view</td>
<td>10°</td>
</tr>
<tr>
<td>Elevation (max) of telescope</td>
<td>90°</td>
</tr>
<tr>
<td>Depression (max) of telescope</td>
<td>90°</td>
</tr>
<tr>
<td>Azimuth scales</td>
<td>0 to 360° mils, 0 to 80° mils</td>
</tr>
</tbody>
</table>

AMT 5716A

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-1280-201-12P.

INSTRUCTIONAL MATERIAL

For graphic training aids and devices, see DA Pam 310-3.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 2 aiming circles (w/equipment) per box.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>16 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.8 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>82 lb</td>
</tr>
<tr>
<td>Ship tone</td>
<td>0.12 lb</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 2 aiming circles (w/equipment) per box.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tone</td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-146, TM 3-675, TM 8-1530, TM 9-1280-201-12P.
AIMING CIRCLE: M2 (T3)

General

AIMING CIRCLE: M2 is used to measure the azimuth and elevation bearing angles of a ground or aerial target with respect to a preselected baseline. The aiming circle has many of the characteristics of a surveyor's transit. Basically, it consists of a telescope mounted on a mechanism which permits unlimited azimuth and limited elevation movement. By rotating two adjusting knobs, zero azimuth and elevation with respect to magnetic north or any other selected compass bearing can be established. The azimuth orienting control knobs can be disengaged for rapid movement by exerting an outward pressure on the knobs. The mechanisms are spring-loaded and will reengage when outward pressure is removed. A locking device secures the compass after the orienting adjustment has been made.

Differences among models

*Previously listed model M2A1 was discontinued by AMCTC item 2187.
### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped 1 aiming circle (w/equipment) per shipping container</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>8 ft, 3 in.</td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 4 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>9 9/16 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>3.61 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>65 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.09</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped 1 aiming circle (w/equipment) per shipping container</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>8 ft, 3 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 4 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>9 9/16 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>3.61 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>65 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.09</td>
</tr>
</tbody>
</table>

AMPLIFIER: MIA2 AND DRIVE, MOTOR: M2A2

General
AMPLIFIER: MIA2 and DRIVE, MOTOR: M2A2, together comprise the standard servo mechanism, which is used to control the combination fuze setter-rammer M20, which sets mechanical time fuses on rounds of ammunition that it feeds into 30-mm guns M2, M2A1, and M2A2 on antiaircraft gun mount M2A1. The amplifier and the motor drive provide both automatic and manual means for control of the fuze setter-rammer. For automatic control, the amplifier and motor drive function as part of the closed-looped servo system that keeps the input data shaft of the fuze setter-rammer continuously positioned at the proper value of fuze number. For manual control, the input data shaft is positioned by means of a handwheel assembly. A lagmeter on the amplifier indicates any error in the fuse setting, and the handwheel is rotated accordingly.

Data Plate Location
Classification
Amplifier: MIA2
Standard B (OTCM 3844)
Drive, motor: M2A2
Standard A

CHARACTERISTICS
Amplifier MIA2:
- Weight: 148 lb
- Height: 3 ft, 2½ in.
- Width: 1 ft, 11½ in.
- Depth: 10½ in.
- Gain of preamplifier w/input from 0.06 to 0.10 volts (approx 200)
- Output voltage limit: 60
- Grid signal voltage for current cutoff: 50
- Voltage across detector filler circuits: 100 ± 25
- Oil chamber transformer voltages:
  - Amplifier power supply tube: 680 v
  - Heater filaments: 6 v
  - Heater filaments, electronic amplifier tubes: 6.3 v

Motor drive M2A2:
- Weight: 170 lb
- Height: 3 ft, 3½ in.
- Width: 1 ft, 3½ in.
- Depth: 6½ in.
- Gear ratio:
  - Between motor and output shaft: 10:1
  - Between worm and worm gear: 100:1
  - Between motor and rotor: 1000:1

Performance
- Transformer, synchronous, 1-phase, 90-volt, 60-cycles
- Output voltage limit: 60
- Motor speed range: 0 to 6,000 rpm
- Fusing setting indicator calibration: 0 to 30 sec
- Motor: 50 v dc
- Transient voltage: (approx) 3,000 v

Equipment
- Basic issue items: See ORD 7 SNL D-28

Instructional Material

Storage and Shipment Data
Amplifier MIA2:
- Within Continental United States
- Outside Continental United States

Motor drive M2A2:
- Within Continental United States
- Outside Continental United States

References: SNL P-214, TM 9-6085.
CABLE SYSTEM, FIRE CONTROL: M1A1 AND M1A2

CABLE SYSTEM, FIRE CONTROL: M1A1

CABLE SYSTEM, FIRE CONTROL: M1A2

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1A1</td>
<td>4-43186-01</td>
<td>1290-686-5032</td>
</tr>
<tr>
<td>M1A2</td>
<td>4-43186-03</td>
<td>1290-611-7727</td>
</tr>
</tbody>
</table>

General

CABLE SYSTEM, FIRE CONTROL: M1A1 and M1A2, is used with MOUNT, GUN: 90-mm, M1A1 and MOUNT, GUN: 90-mm, M1A2, respectively. The cable system is used to transmit power from the generating unit and data signals from FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M33C or M33BIC to the gun mount. The cable system serves a battery of four guns or less.

The M1A1 cable system consists of a main junction box, one 3-conductor cable assembly, four 20-conductor cable assemblies, eight 26-conductor cable assemblies, and six 37-conductor cable assemblies.

The M1A2 cable system consists of a main junction box, two 3-conductor cable assemblies, and ten 37-conductor cable assemblies.

The 3-conductor cable assembly is equipped with a 3-pole receptacle and plug. The 20-conductor cable assemblies are equipped with 19-pole receptacles and plugs. The 26-conductor cable assemblies are equipped with 28-pole receptacles and plugs, and the 37-conductor cable assemblies are equipped with 38-pole receptacles and plugs.

Differences among models:

The main junction box of the M1A1 cable system is square and has 1 male and 10 female receptacles. The main junction box of the M1A2 cable system is rectangular and has 1 male and 6 female receptacles.

Data plate location:

The data are located on the cover of the main junction box.

Classification:

M1A1 Standard B (OTCM 36841)
M1A2 Standard B

CABLE SYSTEM, FIRE CONTROL: M1A1

Number of cables:

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-conductor</td>
<td>2</td>
</tr>
<tr>
<td>20-conductor</td>
<td>4</td>
</tr>
<tr>
<td>26-conductor</td>
<td>8</td>
</tr>
<tr>
<td>37-conductor</td>
<td>8</td>
</tr>
</tbody>
</table>

Length of cables:

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-conductor</td>
<td>160 ft</td>
</tr>
<tr>
<td>20-conductor</td>
<td>285 ft</td>
</tr>
<tr>
<td>26-conductor</td>
<td>155 ft</td>
</tr>
<tr>
<td>37-conductor</td>
<td>250 ft</td>
</tr>
</tbody>
</table>

CABLE SYSTEM, FIRE CONTROL: M1A2

Number of cables:

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-conductor</td>
<td>1</td>
</tr>
<tr>
<td>27-conductor</td>
<td>10</td>
</tr>
</tbody>
</table>

Length of cables:

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-conductor</td>
<td>160 ft</td>
</tr>
<tr>
<td>27-conductor</td>
<td>250 ft</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped cable systems per:

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2</td>
</tr>
<tr>
<td>Width</td>
<td>4</td>
</tr>
<tr>
<td>Height</td>
<td>8</td>
</tr>
<tr>
<td>Volume</td>
<td>8</td>
</tr>
<tr>
<td>Gross weight</td>
<td>8</td>
</tr>
<tr>
<td>Ship tons</td>
<td>8</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped cable systems per:

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2</td>
</tr>
<tr>
<td>Width</td>
<td>4</td>
</tr>
<tr>
<td>Height</td>
<td>8</td>
</tr>
<tr>
<td>Volume</td>
<td>8</td>
</tr>
<tr>
<td>Gross weight</td>
<td>8</td>
</tr>
<tr>
<td>Ship tons</td>
<td>8</td>
</tr>
</tbody>
</table>

References: SNL F-207, Vol. 1 (M1A1); SNL F-204 (M1A2); TM 9-549.
The CLINOMETER, MACHINEGUN, M1917 is a leveling instrument used when elevating or depressing the weapon to measure the elevation or depression angle. These instruments are serial numbered from 33,459 to 61,050. All others having serial numbers above or below these numbers have been disposed of. The clinometer is used in the same capacity for the machinegun as the gunner's quadrant is used for the artillery weapon. However, the clinometer differs from the gunner's quadrant in that its coarse and fine scales are graduated in 20-mil and 1-mil intervals respectively, compared to the 10-mil and 0.2-mil intervals of the gunner's quadrant. Also, the scale readings of the clinometer are identical when viewed from either side of the instrument.

**Characteristics**

- Graduations of instrument (20-mil steps): 
  -160 to +840 mil
- Graduations of leveling arm (1-mil intervals): 0 to +50 mil

**Limits of operation**

- Elevation: 
  -160 mil
- Depression: 
  +840 mil

- +160 mil

**References:** SNL F-15, TM 9-576, TM 9-1287.
COMPASS, MAGNETIC, UNMOUNTED: M2, W/E

General
COMPASS, MAGNETIC, UNMOUNTED: M2, W/E, is a multiple purpose instrument applicable to obtaining clinometer, angle of site, and azimuth readings. The body of the compass is dustproof and moisture proof, and is made of nonmagnetic material except for the magnetic needle and its pivot. When the cover is closed, the magnetic needle is automatically lifted from its pivot to protect the pivot point and jewel bearing. The jewel bearing is acute. The compass is provided with an angle of site scale and an azimuth scale. The azimuth scale may be rotated approximately 1,800 mils. The compass is equipped with circular and tubular levels.

The compass employs front and rear leaf sights in conjunction with a mirror in the cover for sighting and reading the angles. This instrument has an azimuth scale adjuster for orienting the azimuth scale to the local magnetic declination, so that grid or Y azimuth may be read direct.

Differences among models
Data plate location
Plate is located on cover.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

- Angle of site scale
- Azimuth scale
- Dimensions closed
- Weights

1,200-0-1,200 mils
0 to 6,400 mils
1 5/8 in. x 1 1/8 in.
8 oz

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-6606-200-12P.

INSTRUCTIONAL MATERIAL

For graphic training aids and devices, see DA Pam 310-6.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 100 compasses (w/equipment) per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4 in.</td>
<td>1 ft, 6 3/4 in.</td>
<td>1 ft, 3 in.</td>
<td>3.8 cu ft</td>
<td>175 lb</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 100 compasses (w/equipment) per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4 in.</td>
<td>1 ft, 6 3/4 in.</td>
<td>1 ft, 3 in.</td>
<td>3.6 cu ft</td>
<td>126 lb</td>
<td>0.10</td>
</tr>
</tbody>
</table>

References: SNL F-219, TM 9-575, TM 9-1530, TM 9-6606-200-12P.
DRIVE, BALLISTICS: M3 (T23E1)

General
DRIVE, BALLISTICS: M3 (T23E1), is a differential mechanical device which receives angular motion from a parallelogram linkage attached to a gun trunnion. It receives super elevation data from a ballistic computer and transmits the angular value received from the position of the gun, plus super elevation data to a gunner’s periscope, thereby compensating for the ballistics of the projectile. It also provides synchronization to the range finder. The length of the offset connector to gun linkage is adjustable to provide synchronized movement of all instruments and the gun. A level vial is provided for initial alignment at zero elevation. A lamp assembly allows for use of the 24-volt vehicle power source or power from LIGHT INSTRUMENT: M30. A range knob rotates the range scale displacing the sights the proper distance.

The ballistic drive M3 (T23E1) is used with the TANK, COMBAT, FULL TRACKED: 90-mm gun, M47.

Differences among models

Data plate location
Plate is located on left side of ballistics box.

Classification Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3 (T23E1)</td>
<td></td>
<td>1290-764-9131</td>
<td>2 ft, 6% in.</td>
<td>40 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic issue Items: See ORD 7 SNL G-262.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 3 ballistic drives per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 9 in.</td>
<td>1 ft, 8% in.</td>
<td>1 ft, 7% in.</td>
<td>7.725 cu ft</td>
<td>150 lb</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Outside Continental United States
Shipped 3 ballistic drives per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 9 in.</td>
<td>1 ft, 8% in.</td>
<td>1 ft, 7% in.</td>
<td>7.725 cu ft</td>
<td>195 lb</td>
<td>0.19</td>
</tr>
</tbody>
</table>

References: SNL F-305, Section 1; TM 9-5065.
DRIVE, BALLISTICS: MS (T24E2) AND M5A1 (T24E5)

**General**

DRIVE, BALLISTICS: M5 (T24E2) or M5A1 (T24E5), consists of a super-elevation box assembly, ballistic drive link assembly, junction link assembly, junction box assembly, level vial, link assembly and linkage that connects the ballistics unit in the gun and the head assembly of PERISCOPE: M5 (T24E2) or M5A1: RANGE: WINNER, FIR: CONTROL: M13 (T24E1) or M5A1 (T24E5); and COMPUTER, BALLISTICS: M12 (T24E1) or M13 (T24E5). Super-elevation motion from the ballistics computer is introduced into the ballistics drive through the computer output shaft, depression of the line of sight of the elevation and range finder. The ballistic drive M5 (T24E2) is mounted on the turret roof by two supports and by a flange on the junction box and is located in front of the range finder M13.

The ballistic drive M5A1 (T24E5) is mounted on the turret roof by two supports and by a flange on the junction box and is located in front of the range finder M5A1 (T24E5).

The ballistic drive M5 (T24E2) is a component of the fire control system of TANK, COMBAT, FULL TRACKED: 106-mm gun, M4H, M5A1, and M4H. The ballistic drive M5A1 is a component of the fire control system of TANK, COMBAT, FULL TRACKED: 90-mm gun, M5A2.

**Differences among models**

The ballistic drive M5A1 differs from M5 by a longer and modified ballistic drive link assembly, modified junction box assembly, and has the level vial on opposite side of the trunnion connecting link arm.

**Data plate location**

The identification plate is located on the housing box cover.

**Classification:** Standard A.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5 (T24E2)</td>
<td>.3 ft, .5 in.</td>
<td>.4 ft, .5 in.</td>
<td>.135 lb</td>
<td></td>
</tr>
<tr>
<td>M5A1 (T24E5)</td>
<td></td>
<td></td>
<td>.04 in.</td>
<td>.135 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped ballistic drives per box</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped ballistic drives per box</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:** SNL F-380, Section 2; SNL F-401; TM 9-6163; TM 9-4191.
DRIVE MOUNT, PERISCOPE: M9 (T36)

General
DRIVE MOUNT, PERISCOPE: M9 (T36), is a combination ballistic drive and periscope mount and is used with TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1 (T43E2). The drive mount is a differential drive that depresses the line-of-sight of PERISCOPE: M29 in accordance with super-elevation data received from the ballistic computer by means of a variable drive shaft. The drive mount is also linked by a link assembly bar to the gun trunnion. This link assembly forms a parallelogram that acts as a solid linkage to transmit elevation or depression motion from the gun trunnion to the periscope drive mount.

Differences among models

Identification plate location
The identification plate (nameplate) is located at the rear of the drive mount.

Classification: Standard A (OTCM 36540).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Item</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive arm length</td>
<td>1 ft, 2 in</td>
</tr>
<tr>
<td>Gun trunnion length</td>
<td>1 ft, 2 in</td>
</tr>
<tr>
<td>Arm link length</td>
<td>3 ft, 11 1/2 in</td>
</tr>
<tr>
<td>Weight</td>
<td>161 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M9</td>
<td></td>
<td>1290-0-1444</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped drive mounts per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped drive mounts per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: TM 9-1290-276-35, TM 9-1290-276-35P.
FUZE SETTER: M13A1

<table>
<thead>
<tr>
<th>Secondary Item</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Line item No.</td>
</tr>
<tr>
<td>M13A1</td>
<td>1230-335-5046</td>
</tr>
</tbody>
</table>

**General:**

FUZE SETTER: M13A1 is a manually-operated device, used with 90-mm antiaircraft materiel, for setting time fuzes in accordance with electrically transmitted fuse time data received from the antiaircraft director. The fuze setter is mounted on 90-mm antiaircraft gun mounts M1A1 and M2 used with FIRE CONTROL SYSTEM: antiaircraft, T33C.

**Characteristics:**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length overall</td>
<td>1 ft, 9 3/4 in.</td>
</tr>
<tr>
<td>Width overall</td>
<td>1 ft, 7 1/2 in.</td>
</tr>
<tr>
<td>Height overall</td>
<td>1 ft, 8 1/2 in.</td>
</tr>
<tr>
<td>Weight (lb)</td>
<td>14 lb</td>
</tr>
<tr>
<td>Fuse time scale (sec)</td>
<td>0 to 30</td>
</tr>
</tbody>
</table>

**Performance:**

**Equipment**

**INSTRUCTIONAL MATERIAL**

**Storage and Shipment Data**

*Within Continental United States*

Shipped fuze setters per box:

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

*Outside Continental United States*

Shipped fuze setters per box:

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

**References:** SNL F-311, TM 9-1641.
FUZE SETTER: M14

General
FUZE SETTER: M14 is essentially a hand wrench intended for use until hand-type fuze setters are issued for the weapon in use. It is used for all artillery ammunition using the M41, M51, or M52 time and super-quick fuze and the M67 mechanical time fuze. After the fuze safety pin has been removed, the wrench is placed on the fuze with the tapered side of the hole fitting the fuze. The key engages the slot in the fuze and the handle is turned to set the fuse as required. It is a substitute for the fuze setter M27.

Differences among models

Data plate location
The identification data are stamped on the handle.

Classification: Standard A (OTCM 36941).

CHARACTERISTICS

| Length | 2 ft, 4 in. |
| Width  | 23 ½ in.   |
| Depth  | ½ in.      |
| Weight | 0.47 lb    |

INSTRUCTIONAL MATERIAL

References: SNL F-245, TM 9-1590.
FUZE SETTER: M22

**Model**
M22

**Line Item No.**
1290-757-410

**Federal stock No.**

**Secondary Item**

**Length**
0.7 in.

**Width**
21/4 in.

**Height**
2 lb, 8 oz

**Performance**

**Equipment**

**Instructional material**

**Storage and shipment data**

**Within Continental United States**

- Shipped 20 fuze setters per shipping container
- Length: 1 ft, 5 3/4 in.
- Width: 1 ft, 4 1/4 in.
- Height: 1 ft, 2 in.
- Gross weight: 135 lb
- Ship tons: 0.08

**Outside Continental United States**

- Shipped 20 fuze setters per shipping container
- Length: 1 ft, 9 3/4 in.
- Width: 1 ft, 4 1/4 in.
- Height: 1 ft, 2 in.
- Gross weight: 135 lb
- Ship tons: 0.08

**References**

SML F-293, TM 9-2550-210-22, TM-1590.
FUZE SETTER: M23

Model
M23

Length
.75 in.

Width
.64 in.

Height
.25/1 in.

Weight
4 lb. 8 oz.

General

FUZE SETTER: M23 is a hand operated dialing instrument for setting the mechanical time fuze of a projectile in order to detonate it at some pre-determined time after the projectile leaves the cannon. The fuze setter is contoured to fit over the point of the fuze and a pawl of the fuze setter engages the setting ring on the fuze. A time scale and time corrector scale with corresponding indexes record the desired setting; the scales are locked with two clamping screws to insure against slipping of the setting and to limit the rotation of the fuse ring to the desired angle. The fuze setter consists of the setting handle assembly used in operating the fuze setter, the fuze setter body assembly, the time scale assembly, the time corrector scale assembly, and the stop pawl ring assembly.

The fuze setter M23 is used with fuses of the MT M67 series, fuze MTSQ M500, and MTSQ M601.

Differences among models

Data plate location
The identification data are stamped on the scale assembly.

Classification: Standard B (OTCM 5691).

CHARACTERISTICS

Time scale:
Graduations
0 to 72 sec

Intervals
0.3 sec

Time corrector scale:
Graduations
0 to 60 points

Intervals
1 point

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-505-310-12

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 20 fuse setters per shipping container

Length
1 ft. 7½ in.

Width
1 ft. 4½ in.

Height
1 ft. 3 in.

Volume
5 cu ft.

Gross weight
185 lb

Ship tons
.08

Outside Continental United States

Shipped 20 fuse setters per shipping container

Length
1 ft. 9½ in.

Width
1 ft. 4½ in.

Height
1 ft. 3 in.

Volume
9 cu ft.

Gross weight
185 lb

Ship tons
.08

FUZE SETTER: M24

General
FUZE SETTER: M24 is a manually operated, hand held wrench-type fuze setter used with antiaircraft fire control equipment for presetting a quantity of 90-mm ammunition to the exact safe position before the round is inserted in the SETTER-RAMMER: fuze, combination, M20.
The fuze setter M24 is used with the GUN: 90-mm, M2 and the MOUNT, GUN: 90-mm, antiaircraft, M2.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped fuse setters per box
Length
Width
Height
Volume
Cross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Reference: SNL F-345.
FUZE SETTER: M25 (T42)

30 August 1963

FUZE SETTER: M25 (T42) is a manually operated, hand held pressed steel one-piece wrench-type fuze setter which consists of a handle that widens out at one end and has a circular hole cut into it, with a series of six regularly spaced notches cut into the inside rim of the hole which fit the ribs on the time fuse. The fuze setter M25 has no scales or graduations, the setting of the fuse depending upon the reading of the scale engraved on the surface of the fuse.

The fuze setter M25 is used for setting FUZE, TIME: M154 (T78) on the SHELL, ILLUMINATING: M301 for the MORTAR: 81-mm. on MOUNT: MORTAR: 81-mm. M1 and M4.

Differences among models

Dope plate location

The identification data are stamped on the handle.

Classifications: Standard A (OTCM 36841).

CHARACTERISTICS

PERFORMANCE

The fuze setter M25 is unlimited for times that can be set.

EQUIPMENT

Basic Issue Items: See TM 9-5071-1

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 160 fuze setters per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 6½ in.</td>
<td>1 ft, 6½ in.</td>
<td>11½ in.</td>
<td>2.18 cu ft</td>
<td>.5 lb</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 160 fuze setters per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 6½ in.</td>
<td>1 ft, 6½ in.</td>
<td>11½ in.</td>
<td>2.18 cu ft</td>
<td>.5 lb</td>
<td>0.06</td>
</tr>
</tbody>
</table>

FUZE SETTER: M26 (T41)

General

FUZE SETTER: M26 (T41) is a hand-operated dialled instrument used for setting counterclockwise time fuses in antiaircraft fire control equipment. It consists of the setting handle assembly which controls the setting of the instrument to a specific time value, the dial pointer, the dial time scales; the body assembly which contains a stop block for the fuze setter, and the lamp assembly which illuminates the dial scales when a push button in the setting handle is activated.

The fuze setter M26 (T41) is designed for counterclockwise setting of FUSE, MTSQ M610 and M611, but can also be used to set FUZE, M54, M55, and M7 series on various guns, including GUN, FIELD ARTILLERY, SELF-PROPELLED: 155-mm, M58 (T97).

Differences among models

Data plate location

The identification data are stamped on the side of the dial scale.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Scales (counterclockwise):

| Outer Scales (counterclockwise): | 0 to 75 sec (0.01 sec intervals) |
| Inner Scales (counterclockwise): | 0 to 23 sec (0.01 sec intervals) |

Length: 6 1/2 in.
Width: 6 1/4 in.
Height: 6 1/2 in.
Weight: 6.8 lb.

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 20 fuse setters per shipping container:
Length: 1 ft, 5 1/4 in.
Width: 1 ft, 4 1/2 in.
Height: 1 ft, 2 in.
Volume: 2.9 cu ft
Gross weight: 155 lb
Ship tons: 0.07

Shipped 15 fuse setters, w/carrying case, per shipping container:
Length: 2 ft, 5 1/4 in.
Width: 1 ft, 9 3/4 in.
Height: 1 ft, 1 1/2 in.
Volume: 4.9 cu ft
Gross weight: 185 lb
Ship tons: 0.12

Outside Continental United States

Shipped 20 fuse setters per shipping container:
Length: 1 ft, 9 1/2 in.
Width: 1 ft, 4 1/2 in.
Height: 1 ft, 2 in.
Volume: 2.9 cu ft
Gross weight: 160 lb
Ship tons: 0.07

Shipped 15 fuse setters, w/carrying case, per shipping container:
Length: 2 ft, 5 1/4 in.
Width: 1 ft, 5 1/2 in.
Height: 1 ft, 1 1/2 in.
Volume: 4.9 cu ft
Gross weight: 185 lb
Ship tons: 0.12

References: SNL F-346, TM 9-6133.
**FUZE SETTER: M27 (T40)**

**General**

FUZE SETTER: M27 (T40) is a hand wrench-type instrument with a flat crosswise handle for two-handed operation and with a cone-shaped portion which consists of a bronze casting with a steel catch that is dovetailed and pinned to the casting opposite the center of the handle. The fuze setter M27 (T40) has no scale, the desired setting being obtained by reference to an index and time scale engraved on the fuze. The fuze setter M27 (T40) is used for setting time fuses, it is placed in position upon the fuse to receive the fuse in its cone shaped opening, the steel catch is pushed firmly into the fuse setting groove, and the fuze setter is rotated to the desired setting.

The fuze setter M27 (T40) is a substitute fuze setter for all field artillery weapons utilizing FUZE, TSQ: M54; M54 series: FUZE, TSQ: M77; FUZE, MT: M67 series; and FUZE, MT: M500 and M501, and is used with various gun carriages: self-propelled guns; tracked armored landing vehicles; howitzer carriages; self-propelled howitzers; tank recovery vehicles; GUN, ANTITANK, SELF-PROPELLED: 80-mm, M56; and GUN, FIELD ARTILLERY, SELF-PROPELLED: 155-mm, M55 (T97); and is standard for use with all tank material.

**Differences among models**

**Data plate location**

The identification data are cast on the crosswise handle.

**Classification:** Standard A.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 in.</td>
<td>1 ft, 10 in.</td>
<td>1 ft, 6 in.</td>
<td>2 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-500-21530.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

Shipped 10 fuze setters per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 in.</td>
<td>1 ft, 10 in.</td>
<td>1 ft, 6 in.</td>
<td>4.5 cu ft</td>
<td>120 lb</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 50 fuze setters per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 in.</td>
<td>1 ft, 10 in.</td>
<td>1 ft, 6 in.</td>
<td>4.5 cu ft</td>
<td>120 lb</td>
<td>0.11</td>
</tr>
</tbody>
</table>

**References:** SNL F-357, TM 9-1090.
FUZE SETTER: M28 (T46)

**General**

FUZE SETTER: M28 (T46) is a hand-operated dial instrument used for setting clockwise time fuses in antiaircraft fire control equipment. It consists of the setting handle assembly which controls the setting of the instrument to a specific time value, the dial pointer, the dial time scales, the body assembly contoured to fit the nose of the fuze and containing the setting pawl which engages the setting groove of the fuse being set, the base plate assembly which serves to stop the fuse setter automatically when the correct fuse setting has been achieved, and the lamp assembly which illuminates the dial scales when a push button in the setting handle is activated. The thumb screw, when tightened, locks the dial scale at the desired setting.

The fuse setter M28 (T46) is designed for clockwise setting of FUZE, MTSQ: T197, T250, and T259, and FUZE, PROXIMITY, ARTILLERY: M513 and M514, associated with various gun carriages, including MORTAR, SELF-PROPELLED, HALF TRACKED: 81-mm, M4, M4A1, and M21.

**Differences among models**

Data plate location

The identification data are stamped on the side of the dial scale.

Class/Standard: Standard B.

**CHARACTERISTICS**

Scales (clockwise):

- Outer
- Inner
- Handle folded: 0 to 100 sec (0.1-sec intervals)
- Length: 7.5 in.
- Width: 4.5 in.
- Height: 2.5 in.
- Weight: 6.8 lb

**PERFORMANCE**

INDICATOR, AZIMUTH: M24 (T23)

General

INDICATOR, AZIMUTH: M24 (T23) gives azimuth deflection in mils in order to permit adjustment of observed fire. It consists of a cast metal housing with an internal frame supporting four counter groups. The upper windows in the cover display right and left azimuth readings. The lower windows display right and left deflection correction settings (gunner's aid). Shutter levers control shutters which blank out counters not in use. An instrument light is provided for night operation.

The azimuth indicator M24 (T23) is used on MOUNT INDICATOR: ORD No. 694893 with the LOCAL CONTROL SYSTEM, ANTI-AIRCRAFT GUN: M19A1, on the GUN, ANTI-AIRCRAFT ARTILLERY, SELF-PROPELLED: twin, 40-mm, M19A1.

Differences among models

The identification plate is located on the side of the housing.

Classification: Standard A.

CHARACTERISTICS

Counters:

Azimuth:

Right ........................................ 0 to 9,990 mils
Left ......................................... 9 to 9,990 mils

Deflection correction:

Right ........................................ 0 to 900 mils
Left ......................................... 9 to 990 mils

Length ........................................ 7 in.
Width ........................................ 1½ in.

References: SNL F-388, TM 9-1426.
INDICATOR, AZIMUTH, MECHANICAL: M27

Model
M27

Secondary Item

Federal stock No.
1290-335-5062

General

INDICATOR, AZIMUTH, MECHANICAL: M27 consists of a mounting bracket and gear housing together with the necessary gears, dials, and pointers. The tank turret ring gear drives the pointers through the gearing to indicate, by means of dials graduated in mils, the position of the gun in relation to a given point.

LIGHT, INSTRUMENT: ORD No. 7983714 is used with this indicator.

This indicator is used with GUN, SELF-PROPELLED, FULL TRACKED: 40-mm, twin M42 and M42A1.

DIFFERENCES AMONG MODELS

Data plate location

The identification plate (nameplate) is located on the bearing housing.

Classification: Standard A (OTCM 35012).

CHARACTERISTICS

Dial graduations (100-mil) 0 to 6,400 mils, numbered every 200 mils.

Dial graduations (1-mil) 0 to 100 mils, numbered every 6 mils.

Gunner’s aid dial graduations 0 to 50 mils, right and left, numbered every 5 mils.

DIMENSIONS

Height 1 ft
Diameter 7 in.
Weight 10 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-7218.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped Indicators per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped Indicators per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

INDICATOR, AZIMUTH, MECHANICAL: M28 (T28) AND M28A1 (T28E1)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M28 (T28)</td>
<td>1290-755-4342</td>
<td>1290-755-4542</td>
</tr>
<tr>
<td>M28A1 (T28E1)</td>
<td>1290-346-8847</td>
<td>1290-346-8847</td>
</tr>
</tbody>
</table>

General

The azimuth indicator M28 (T28) or M28A1 (T28E1) is used in tanks to lay off horizontal angles when laying the gun for indirect fire. It consists of a mounting bracket and gear housing, together with the necessary gears, dials, and pointers, arranged so that the tank turret ring gears drive the pointers through the gearing to indicate, by means of dials graduated in miles, the position of the gun in relation to a given aiming point. Indirect lighting of the dials is provided by instrument light. A switch, located on top of the battery case, controls the lamps.

The azimuth indicator M28 (T28) is used with TANK, COMBAT, FULL TRACKED: 90-mm gun, M48 and M48C. The azimuth indicator M28A1 (T28E1) is used with TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A1 and M48A2.

Differences among models

The major differences between the M28 (T28) and M28A1 (T28E1) are in the internal gearing.

Data plate location

The identification plate is located on the side of the gear housing.

Classification: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Number of pointers</th>
<th>Height</th>
<th>Diameter</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>12 in.</td>
<td>7 in.</td>
<td>19 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped azimuth indicators per box:

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped azimuth indicators per box:

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL F-889, section 2; TM 9-1290-305-34.
INDICATOR, AZIMUTH, MECHANICAL: M30 (T25)

General

INDICATOR, AZIMUTH, MECHANICAL: M30 (T25) is used in tanks to lay off horizontal angles when laying the gun for indirect fire. It consists of a mounting bracket and gear housing together with the necessary gears, dials and pointers, arranged so that the tank turret ring gear drives the pointers through the gearing to indicate, by means of dials graduated in mils, the position of the gun in relation to a given aiming point. Indirect lighting of the dials is provided by instrument light. A switch, located on top of the battery case, controls the lamps.

The azimuth indicator M30 (T25) is used with TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 (T43E1).

Differences among models

Data plate location

The identification plate is located on the side of the gear housing.

Classification: Standard B (OTCM 34117).

CHARACTERISTICS

Dial graduations:

- 100-mil: 0-3,200,0-3,200 miles
- 1-mil: 0-100 miles
- Gunner's aid dial (1-mil): 0-50 miles R&L

Number of pointers: 3

Height

Diameter

Weight

Performance

EQUIPMENT

Basic issue items: See TM 9-2300-206-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped azimuth indicators per box:

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped azimuth indicators per box:

Length

Width

Height

Volume

Gross weight

Ship tons

Reference: SNL F-389, Section 2.
INDICATOR, AZIMUTH, MECHANICAL: M31 (T24)

General

INDICATOR, AZIMUTH, MECHANICAL: M31 consists of a mounting bracket and gear housing together with the necessary gears, dials, and pointers. The tank turret ring gear drives the pointer through the gearing to indicate, by means of dials graduated in mils, the position of the gun in relation to a given point. The position of the gun in relation to the longitudinal axis of the vehicle is also indicated at this time. LIGHT, INSTRUMENT: 6578454, is used with these azimuth indicators.

The M31 azimuth indicator is used with TANK, COMBAT, FULL TRACKED: 76-mm gun, M41 and M41A1; TANK, COMBAT, FULL TRACKED: 85-mm gun, M47; and COMBAT ENGINEER VEHICLE, FULL TRACKED: 105-mm gun, M102.

Differences among models

Data plate location

The identification plate (nameplate) is located on the bearing housing.

Classification: Standard A (OTCM 35258).

CHARACTERISTICS

Dial graduations (100-mil) .................................. 0-3,200, 0-3,200 miles
Dial graduations (1-mil) .................................. 0-100 miles
Gunner's aid dial graduation ................................ 0-50 miles right and left
Height .............................................................. 1 ft

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-8380-281-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped indicators per

Length ..........................................................
Width ..........................................................
Height ..........................................................
Volume ..........................................................
Gross weight ..................................................
Ship tons ......................................................

Outside Continental United States

Shipped indicators per

Length ..........................................................
Width ..........................................................
Height ..........................................................
Volume ..........................................................
Gross weight ..................................................
Ship tons ......................................................


Secondary Item

Model  Line Item No.  Federal stock No.
M31  .......................................................... 1250-784-7555

Diameter ...................................................... 7 in.
Weight ........................................................ 19 lb

Length ......................................................
Width ..........................................................
Height ..........................................................
Volume ..........................................................
Gross weight ..................................................
Ship tons ......................................................

18-25
### INDICATOR, AZIMUTH, MECHANICAL: T27

**Model**

<table>
<thead>
<tr>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T27</td>
<td>1290-039-5832</td>
</tr>
</tbody>
</table>

**General**

INDICATOR, AZIMUTH, MECHANICAL: T27 consists of a mounting bracket and gear housing together with the necessary gears, dials, and pointers. The tank turret ring gear drives the pointers through the gearing to indicate, by means of dials graduated in mils, the position of the gun in relation to a given point. The position of the gun in relation to the longitudinal axis of the vehicle is also indicated at this time. LIGHT, INSTRUMENT: 6578464 is used with this azimuth indicator.

This indicator is used with GUN, SELF-PROPELLED, FULL TRACKED: 155-mm, M53 and HOWITZER, SELF-PROPELLED, FULL TRACKED: 8-inch, M88.

**Differences among models**

- **Data plate location**
  - The identification plate (nameplate) is located on the bearing housing.
- **Classification**: Standard A.

**CHARACTERISTICS**

- **Dial graduations (100-mils)**: 0 to 8,000, 0 to 3,200 mils
- **Dial graduations (1-mil)**: 0 to 100
- **Gunner's aid dial graduations**: 0 to 60, right and left

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-2350-210-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped indicators per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped indicators per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
</tbody>
</table>

Reference: SNL F-389.
INVERTER (ORD No. 7633698)

General
INVERTER, ORD No. 7633698, is used on TANK, COMBAT, FULL TRACKED: 90-mm gun, M47. It converts the 24-volt direct current power supply in the vehicle to 116-volt, 400 cycle alternating current required for operation of the transmitter in the super-elevation transmitter and the receiver in the range finder.

Differences among models
Data plate location
The identification plate (nameplate) is located on the left side of the inverter.

Classification: Standard A.

CHARACTERISTICS
PERFORMANCE
EQUIPMENT

Basic issue items: See ORD 7 SNL G-262

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 6 inverters per shipping container

| Length   | 2 ft, 9% in. |
| Width    | 2 ft, 4 in.  |
| Height   | 1 ft, 6½ in. |
| Volume   | 10.12 cu ft  |
| Gross weight | 199 lb      |
| Ship tons | 0.33          |

Outside Continental United States

Shipped 6 inverters per shipping container

| Length   | 2 ft, 9% in. |
| Width    | 2 ft, 4 in.  |
| Height   | 1 ft, 6½ in. |
| Volume   | 10.12 cu ft  |
| Gross weight | 199 lb      |
| Ship tons | 0.33          |

References: SNL F-565, TM 9-7011.
INVERTER, ASSEMBLY: (ORD No. 8603214)

General
INVERTER, ASSEMBLY: ORD No. 8603214 is used with TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1. The inverter assembly changes direct current input into a multiple phase alternating current output.

Differences among models
Data plate location
Plate is located on main housing.

Classifications: Standard A.

CHARACTERISTICS
Length
Width
Height

PERFORMANCE
Input rating
Output rating

INSTRUCTIONAL MATERIAL

EQUIPMENT
Basic Issue Items: See TM 9-2366-214-10

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 4 inverter assemblies per shipping container
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States
Shipped 4 inverter assemblies per shipping container
Length
Width
Height
Volume
Gross weight
Ship tons

Reference: TM 9-1290-321-35P.
LOCAL CONTROL SYSTEM, ANTIAIRCRAFT GUN: M16A1 AND M16A1E1

(Includes system components listed below)

<table>
<thead>
<tr>
<th>Component</th>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEAR, OIL: M6AI</td>
<td>M16A1</td>
<td>18-30</td>
<td>1290-760-7907</td>
</tr>
<tr>
<td>CONTROLLER, DRIVE: M12</td>
<td>M16A1E1</td>
<td>18-31</td>
<td>1290-766-5876</td>
</tr>
</tbody>
</table>

Differences among models

M16A1 has both azimuth and elevation switch assemblies used with the azimuth and elevation oil gears, and two lighting device assemblies (right and left) for the purpose of casting the reticle pattern on SIGHT, REFLEX: M12 and M6A1, and it has a 4,100 rpm oil gear drive motor. M16A1E1 has only the elevation switch assembly, serving as a master switch for starting the elevation and azimuth oil gear motors and the inverter dc motor, it has one lighting device used to illuminate the reticle of SIGHT, REFLEX: M12, and has a 4,100 rpm oil gear drive motor.

Characteristics

<table>
<thead>
<tr>
<th>Synchro system:</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>110 volt ac</td>
<td>60 cycles</td>
<td>1.5</td>
<td></td>
</tr>
</tbody>
</table>

Oil gear drive motors:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Horsepower</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1500 hp</td>
<td>4,500 rpm</td>
</tr>
<tr>
<td>2</td>
<td>4,200 rpm</td>
<td>24-volt dc</td>
</tr>
</tbody>
</table>

Power supply:

<table>
<thead>
<tr>
<th>Supply</th>
<th>Operating:</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-volt dc</td>
<td>Oil gear drive motors</td>
</tr>
</tbody>
</table>

Performance:

<table>
<thead>
<tr>
<th>Limits of gun travel:</th>
<th>Azimuth</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>no limit</td>
<td>-90 deg to +90 deg</td>
<td></td>
</tr>
</tbody>
</table>

Gun travel speeds:

<table>
<thead>
<tr>
<th>Azimuth</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 deg/sec</td>
<td>26 deg/sec</td>
</tr>
</tbody>
</table>

Equipment:

| Basic Issue Items: | See ORD 1 SNL F-316, TM 9-6088, TM 9-6089, TM 3-1290-766-5876 |

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped per container</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>Width</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>


18-29
GEAR, OIL: M6A1 AND M6A1E1

**Electric drive motor—Continued**

<table>
<thead>
<tr>
<th>Model</th>
<th>Speed</th>
<th>Horsepower</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>4,600 rpm</td>
<td>1⅞</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>4,350 rpm</td>
<td>1⅞</td>
</tr>
</tbody>
</table>

**Hydraulic transmission pump**

<table>
<thead>
<tr>
<th>Model</th>
<th>Speed</th>
<th>Horsepower</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>3,600 rpm</td>
<td>1½</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>(approx) 3,000 rpm</td>
<td>1⅞</td>
</tr>
</tbody>
</table>

**Transmission operating pressure**

<table>
<thead>
<tr>
<th>Model</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>1,800 psi</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>1,600 psi</td>
</tr>
</tbody>
</table>

**Synchronous system**

<table>
<thead>
<tr>
<th>Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>116-230, 1-phase, 60-cycle</td>
</tr>
</tbody>
</table>

**Length**

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>21% in.</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>20⅞ in.</td>
</tr>
</tbody>
</table>

**Width**

<table>
<thead>
<tr>
<th>Model</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>10⅞ in.</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>11 in.</td>
</tr>
</tbody>
</table>

**Height**

<table>
<thead>
<tr>
<th>Model</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>21% in.</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>28 in.</td>
</tr>
</tbody>
</table>

**Weight**

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>260 lb</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>299 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**Limits of gun travel:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>no limit</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>-5° to +85°</td>
</tr>
</tbody>
</table>

**Gun travel speed:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>40°/sec</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>25°/sec</td>
</tr>
</tbody>
</table>

**Equipment**

<table>
<thead>
<tr>
<th>Model</th>
<th>Shipper</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>Within Continental United States</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>Outside Continental United States</td>
</tr>
</tbody>
</table>

**Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>6.6 cu ft</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>5.2 cu ft</td>
</tr>
</tbody>
</table>

**Shipper:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6A1</td>
<td>910 lb</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>810 lb</td>
</tr>
<tr>
<td>M6A1</td>
<td>299 lb</td>
</tr>
<tr>
<td>M6A1E1</td>
<td>298 lb</td>
</tr>
</tbody>
</table>

**References:**

- SNL P-319, TM 9-5087, TM 9-5989, TM 9-1290-241-35P.
CONTROLLER, DRIVE: M12 AND M12E2

CONTROLLER, DRIVE: M12 or M12E2, consists of a turret assembly with left and right grip assemblies, gears, cams, two variable speed drive assemblies, powered by a common electric motor; and two transmitters with spider assemblies (mechanical differentials) splined to the rotors of the synchro-type torque transmitters. The cam, drive assemblies, and transmitter with spider assemblies can be divided into two identically functioning systems, the right side azimuth system and the left side elevation system. The turret assembly consists of a turret and movable left and right grip assemblies, and is manually controlled by the gunner. When the grip assemblies are displaced from their neutral position, or the turret assembly is rotated, the drive controller M12 or M12E2 causes an immediate angular displacement of the rotors of the synchro-type torque transmitters. A trigger switch assembly is provided in each grip assembly for firing the dual gun electrically. The drive controller M12 or M12E2 functions to provide aided, one man tracking in both azimuth and elevation. It receives from the gunner manual signals indicating the desired gun mount travel or position, and transforms them into corresponding synchrocommutator electrical signals which are transmitted to the azimuth and the elevation GEAR, OIL: M6A1 or M6A1E1, which, in turn, hydraulically position the gun on target, in both azimuth and elevation.

The drive controller M12 or M12E2 is a component of LOCAL CONTROL SYSTEM, ANTIAIRCRAFT GUN: M16A1 and M42A1, used with GUN, SELF-PROPELLED, FULL-TRACKED; TWIN, 40-mm, M19A1 and M42 or M42A1, respectively.

Differences among models

The drive controller M12E2 has improved grip assemblies with hand grips shaped to receive the contour of the fingers. There are minor design differences in the shape of components.

Data plate location

The identification plate (nameplate) is located on the side of the turret assembly.

Classification

M12: Standard C
M12E2: Standard A

CHARACTERISTICS

Motor

Motor—Continued

<table>
<thead>
<tr>
<th>Motor</th>
<th>Speed</th>
<th>Torque transmitters</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td>1,800 rpm</td>
<td>2 x 116-ae, 1-phase, 60-cycle</td>
</tr>
<tr>
<td>M12E2</td>
<td>1,725 rpm</td>
<td>2 x 116-ae, 1-phase, 60-cycle</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped 1 drive controller per box

INSTRUCTIONAL MATERIAL

Shipped 1 drive controller per box
SET, WIRING: M10A1 AND M10A1E1

General

SET, WIRING: M10A1 or M10A1E1 consists of the slipring assembly which serves to pick up the 24-volt dc vehicle supply, while allowing the top carriage to be turned in azimuth, the inverter box assembly which converts 24-volt dc into 115-volt, 60-cycle ac; the distribution box assembly, which houses terminal blocks and relays; two driving solenoids, energized simultaneously, which actuate the firing plungers of the twin guns, and the cable assembly. The wiring set M10A1 or M10A1E1 distributes the 24-volt dc from the gun motor carriage supply to the various components of the fire control system, provides for converting the 24-volt dc power supply to 115-volt, 60-cycle, single-phase ac for use by the synchronous system, conducts the interphone circuits from the gun motor carriage to the top carriage, and feeds the 24-volt dc to the electric drive motor of each GEAR, OIL: M6A1 or M6A1E1 and to the firing solenoids.

The function of the wiring set M10A1 or M10A1E1 is to receive, regulate, and distribute electrical power to operate and control the mechanical and hydraulic components of the LOCAL CONTROL SYSTEM, ANTIAIRCRAFT GUN: M19A1 and M16A1E1, used with the GUN, SELF-PROPELLED, FULL-TRACKED; TWIN, 40-mm, M19A1 and M42 or M42A1, respectively.

Differences among models

The wiring set M10A1 has both azimuth and elevation switch assemblies of the GEAR, OIL: M6A1, and a right side and left side lighting device assembly, which cast the reticle patterns on the SIGHT, REFLEX: M23 and M24. Model M10A1E1 has only the elevation switch assembly, which serves as an electrical master switch starting. Both the elevation and azimuth 24-volt dc motors of GEAR, OIL: M6A1E1 and the inverter dc motor, and mechanically and hydraulically connect the gun mount to power operation M10A1E1 has one lighting device assembly which illuminates the reticle of the SIGHT, REFLEX: M24C.

Data plate location

Classification

M10A1 ............................................. Standard C
M10A1E1 ........................................ Standard A

CHARACTERISTICS

Inverter:

Speed ........................................ 3,600 rpm
Voltage:
Input ..................................... 24-volta dc
Output ...................................... 115-volta ac, 1-phase, 60-cycle

Synchro system:
Voltage ........................................ 115-volta ac
Phase ........................................... single
Frequency ...................................... 60-cycle

PERFORMANCE

EQUIPMENT

Basic issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPTMENT DATA

M10A1

Within Continental United States

Shipped: 1 wiring set per box
Length ...........................................
Width .........................................
Height .........................................
Volume ...........................................
Gross weight ...................................
Ship tons ......................................

Outside Continental United States

Shipped: 1 wiring set per box
Length ...........................................
Width .........................................
Height .........................................
Volume ...........................................
Gross weight ...................................
Ship tons ......................................

M10A1E1

Within Continental United States

Shipped: 1 wiring set per box
Length ...........................................
Width .........................................
Height .........................................
Volume ...........................................
Gross weight ...................................
Ship tons ......................................

Outside Continental United States

Shipped: 1 wiring set per box
Length ...........................................
Width .........................................
Height .........................................
Volume ...........................................
Gross weight ...................................
Ship tons ......................................

MOUNT, PERISCOPE: M88 (T176)

General

MOUNT, PERISCOPE: M88 (T176) consists of a bracket, guard with headrest, and gun-ready signal light assembly. It is located at the gunner' s station of the 90-mm gun tank M47. The mount, which is attached to the roof, is used to support the periscope M20. A guard assembly, with attached full headrest, is provided at the rear of the mount to protect the observer if the periscope head is hit. Two guard knobs secure the guard assembly to the mount. The signal light extends below the bracket to which it is mounted.

Differences among models

Date plate location

The identification plate is located on the bracket assembly.

Classification: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 lb</td>
<td>1 ft, 2 in.</td>
<td>11 in.</td>
<td>1 ft, 1% in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: Sec ORD 7 SNL G-542

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 6 periscope mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4% in.</td>
<td>2 ft, 3 in.</td>
<td>2 ft, 3% in.</td>
<td>11.76 cu ft</td>
<td>182 lb</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 6 periscope mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4% in.</td>
<td>2 ft, 3 in.</td>
<td>2 ft, 3% in.</td>
<td>11.76 cu ft</td>
<td>182 lb</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Reference: SNL F-G15, TM 9-4000.
MOUNT, PERISCOPE: M89 (T177)

Secondary Item

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M89 (T177)</td>
<td></td>
<td>1290-765-2069</td>
</tr>
</tbody>
</table>

General

MOUNT, PERISCOPE: M89 (T177), located at the commander's station of the 90-mm gun tank M47, consists of a bracket, guard with headrest, and gun-ready signal light assembly. Linkage on the left side of the bracket provides coupling to the ballistic drive M3. The mount, which is attached to the turret roof, is used to support the periscope M20. A guard assembly, with attached right-side half headrest, is provided at the rear of the mount to protect the observer if the periscope head is hit. Two guard knobs secure the guard assembly to the mount. The signal light is mounted within the bracket.

Differences among models

Data plate location

The identification plate is located on the bracket assembly.

Classification: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>34 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft, 7 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 8 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 7% in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL G-262

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 4 periscope mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 9½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 8½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 3% in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.25 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>187.5 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 4 periscope mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 9½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 8½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 3% in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.25 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>187.5 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.11</td>
</tr>
</tbody>
</table>

References: SNL F-354, TM 8-6055.
Deleted by C 2.
MOUNT, QUADRANT: M1

General

MOUNT, QUADRANT: M1, is used in conjunction with the QUADRANT, FIRE CONTROL: M1 for laying the gun in elevation. The bracket of the quadrant mount M1 is firmly attached to the right-hand trunnion. Two shoes on the mount form the mounting surface for the foot of the gunner's quadrant. A cross-level knob and worm gear segment provide means of cross-leveling the mount until the bubble in the cross-leveling vial is centered, insuring that elevation and depression angles will be measured in a true vertical plane. The LIGHT, INSTRUMENT: M12, furnished as equipment for the mount, provides illumination of the level bubble for night operation and also includes a hand light for general use around the mount. A standard flashlight battery, type BA-30, supplies power for the lamps at 1.5 volts.

The quadrant mount M1 is used with the following: Gun, 155-mm, M2A1; Carriage, gun, 155-mm, M1; Howitzer, 8-inch, M1; Carriage, howitzer, 8-inch, M1; and Launcher, 762-mm rocket, truck mounted, M3B9.

Characteristics

Weight ........................................ 18.3 lb
Length ........................................... 93 in.

Width ........................................ 2 ft, 13/4 in.
Height .......................................... 1 ft, 1 in.
Volume ......................................... 4 cu ft
Gross weight .................................. 136 lb
Ship tone ....................................... 0.10

PerformancE

Equipment

Basic Issue Items: See TM 9-1086-206-10

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped 6 quadrant mounts per shipping container

Length ........................................ 2 ft, 13/4 in.
Width ........................................... 3 ft, 9 1/4 in.
Height .......................................... 1 ft, 1 in.
Volume ......................................... 4 cu ft
Gross weight .................................. 136 lb
Ship tone ....................................... 0.10

Outside Continental United States

Shipped 6 quadrant mounts per shipping container

Length ........................................ 2 ft, 13/4 in.
Width ........................................... 1 ft, 8 1/2 in.
Height .......................................... 1 ft, 1 in.
Volume ......................................... 4 cu ft
Gross weight .................................. 136 lb
Ship tone ....................................... 0.10

References: SNL P-180, TM 9-101B.
MOUNT, SIGHT: M86 (T155)

General

MOUNT, SIGHT: M86 (T155), consists of a bracket, a 45° dovetailed support for mounting the MOUNT, TELESCOPE: M79, and a cross leveling knob. The dovetailed support pivots from the top of the sight mount bracket and can be varied in cross level by the cross leveling knob.

Sight mount M86 (T155) is used with the RIFLE, 105-MILLIMETER: M27A1.

Differences among models

Data plate location

The identification plate is located on the side of the bracket.

Classification: Limited Standard C (OTCM 35410).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL C-77.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped sight mounts per box

Length ____________________________
Width ____________________________
Height ____________________________
Volume ____________________________
Gross weight _______________________  
Ship tons __________________________

Outside Continental United States

Shipped sight mount per box

Length ____________________________
Width ____________________________
Height ____________________________
Volume ____________________________
Gross weight _______________________  
Ship tons __________________________

MOUNT, TELESCOPE: M3 AND M3A1

Characteristics:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td></td>
<td>12260-156-7735</td>
</tr>
<tr>
<td>M3A1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General**

The mounts are identical except that the elevating mechanism of the M3A1 provides for an elevation up to 1,200 mils instead of 800 mils, and the range drum has been eliminated. The elevation scale of the M3 is to be converted to the M3A1 and the M3 will thereafter become obsolete.

**Data plate location**

The identification plate is located on the retainer plate.

**Classification**

- M3: Standard C (OTCM 32265)
- M3A1: Standard A

**Elevation scale**

- M3: 0 to 800 mils
- M3A1: 0 to 1,200 mils

**Angle of site scale**

- M3: 0 to 800 mils
- M3A1: 0 to 1,200 mils

**Performance**

**Equipment**

**Basic Issue Items**

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States

- Shipped: 6 mounts per box (w/equipment)

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M3A1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

- Shipped: mounts per box (w/equipment)

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M3A1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:**


---

18-38
MOUNT, TELESCOPE: M16A1

General
MOUNT, TELESCOPE: M16A1, is of the azimuth compensating type, automatically correcting the error when the piece is elevated with the trunnions out of level. The telescope is elevated or depressed by means of the elevating mechanism within the telescope mount housing. The elevating worm meshes with the gear teeth on the outside of the cross level worm housing and, as the worm is revolved, it rotates the housing to elevate or depress the telescope. Rotation of the cross-level knob tilts the mount about the support pivot. The mount bracket is pinned to the support which is positioned on the gun cradle. Instrument lights illuminate the telescope and mount.

The telescope mount M16A1 is used to support TELESCOPE, PANORAMIC, M1 or TELESCOPE, ELBOW, M08 for aiming the howitzer in azimuth.

Differences among models

Data plate location
The identification plate is located on the angle of site level assembly plate.

Classification: Standard C (OTCM 37107).

CHARACTERISTICS

Elevation scale ........................................... 0 to 1,200 mils

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Within Continental United States

Shipped per

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped per

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-169, TM 9-1546.
MOUNT, TELESCOPE: M18A1

General

MOUNT, TELESCOPE: M18A1 is used with TELESCOPE, PANORAMIC: M12A7C on CARRIAGE, 155-MM GUN: M1, for CANNON, 155-MILLIMETER GUN: M2 and M2A1, and on CARRIAGE, 8-INCH HOWITZER: M1, for CANNON, 8-INCH HOWITZER: M2 or M2A1. This mount, consists of a socket which supports the panoramic telescope, a longitudinal leveling mechanism, a cross leveling mechanism, and an azimuth compensating mechanism, which automatically corrects azimuth error caused when the weapon is elevated with trunnions out of level. The longitudinal mechanism actuates a rocker that is keyed to an actuating arm assembly which is geared to the body of the mount. Movement of the mount is recorded on the longitudinal and cross level vials. There is no angle of site mechanism. There are no scales or micrometers on this mount for setting azimuth or elevation angles. LIGHT INSTRUMENT: M19 is used with the mount for night operation.

Differences among models

Data plate location
The identification plate (nameplate) is on the housing.

Classification: Standard.

CHARACTERISTICS

Limit of operation:
Elevation .................................................. 1137.12 mils of arc
Cross level ................................................. 132.40 mils of arc

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-3004

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount per wood box

Length ......................................................
Width ......................................................
Height ....................................................
Volume ....................................................
Cross weight ............................................
Ship tons ................................................

Outside Continental United States

Shipped 1 mount per wood box

Length ......................................................
Width ......................................................
Height ....................................................
Volume ....................................................
Cross weight ............................................
Ship tons ................................................

References: TM 9-5100, TM 9-1545, TM 9-1290-254-46P.
MOUNT, TELESCOPE: M23

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 24 mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4 in.</td>
<td>1 ft, 9% in.</td>
<td>1 ft, 8% in.</td>
<td>4.58 cu ft</td>
<td>195.55 lb</td>
<td>0.12</td>
<td></td>
</tr>
</tbody>
</table>

Shipped 20 mounts, w/instrument light M36, per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 6 in.</td>
<td>1 ft, 6% in.</td>
<td>1 ft, 8% in.</td>
<td>4.68 cu ft</td>
<td>196.55 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 24 mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 6 in.</td>
<td>1 ft, 6% in.</td>
<td>1 ft, 8% in.</td>
<td>4.68 cu ft</td>
<td>200 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Shipped 20 mounts, w/instrument light M36, per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 6 in.</td>
<td>1 ft, 6% in.</td>
<td>1 ft, 8% in.</td>
<td>4.68 cu ft</td>
<td>196.55 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

References: SNL F-197, section 2; TM 9-500; TM 9-1645.
MOUNT, TELESCOPE: M25 (T29)

**Secondary Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M25 (T29)</td>
<td></td>
<td>1290-757-8429</td>
</tr>
</tbody>
</table>

**General**

MOUNT, TELESCOPE: M25 (T29) is used with TELESCOPE, PANORAMIC: M12A7C, or M12A7G on CARRIAGE, 155 MILLI-METER HOWITZER: M1A1 or M1A2 for CANNON, 155 MILLI-METER HOWITZER: M1 or M1A1. This mount is used for laying the weapon in elevation for direct or indirect fire. It is of the azimuth compensating type. It consists of a cross leveling mechanism, an elevating mechanism, an actuating arm with bracket, and a socket for the panoramic telescope. The mount tilts about the pivot in the mount actuating arm when the cross leveling knob is rotated. The elevating mechanism is actuated by the elevating worm (longitudinal leveling worm). The actuating arm bracket supports the pivot for the cross-leveling mechanism. An alining bracket is provided for use of a gunner's quadrant in checking elevation. The mount has cross-leveling and elevation scales. It has no angle of site mechanism. LIGHT, INSTRUMENT: M34 is used with the mount for night operation.

**Classification:** Standard.

**Data plate location**

The identification plate (nameplate) is on the rocker at a point below the longitudinal leveling worm knob.

**Charactersitics**

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 7 7/8 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft</td>
</tr>
<tr>
<td>Height</td>
<td>11 3/4 in.</td>
</tr>
</tbody>
</table>

**Performance**

**Equipment**

**Storage and Shipment Data**

Within Continental United States

Shipped 1 mount per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 7 7/8 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 2 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 2 3/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.38 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>83 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 mount per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 7 7/8 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 2 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 2 3/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.38 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>83 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.05</td>
</tr>
</tbody>
</table>

**References:** SNL F-261, TM 9-6103, TM 9-1546.
MOUNT, TELESCOPE: M42

---

**EQUIPMENT**

Basic Issue Items:

---

**INSTRUCTIONAL MATERIAL**

---

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped mount per wood box

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**Outside Continental United States**

Shipped mount per wood box

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL F-256, TM 9-6101.

---

**CHARACTERISTICS**

- Length
- Width
- Height
- Weight

---

**PERFORMANCE**

---

**General**

MOUNT, TELESCOPE: M42, is used with TELESCOPE, ELBOW: M16A1C QUADRANT, FIRE CONTROL: range, M4 or M4A1, is threaded to the mount so that it positions the elbow telescope between the quadrant and the howitzer. This prevents interference with the line of sight by part of the antiaircraft machinegun mount. This telescope mount is used for laying the howitzer in elevation for direct fire. LIGHT, INSTRUMENT: M36, is used with this mount for night operation.

**Differences among models**

Data plate location

The identification plate (nameplate) is on the telescope holder adjusting bracket.

Classification: Standard (OTCM 22792).
MOUNT, TELESCOPE: M44A1

General

MOUNT, TELESCOPE: M44A1, is used with TELESCOPE, PANORAMIC: M12A7F. This mount traverses with the howitzer carriage. A link assembly transmits motion of the howitzer in elevation to the telescope mount. For indirect laying, angle of elevation is set on the elevation scale. Angle of site is added or subtracted on the angle of site scale, or quadrat elevation, including angle of site, is set on the elevation scale. Laying in azimuth and determining lead in direction are achieved with the panoramic telescope scales in conjunction with the reticle graduations. This mount has a micrometer on the elevating mechanism; it does not have a range drum. LIGHT, INSTRUMENT: M31 is used with this mount for night operation.

Differences among models

Data plate location

The identification plate (nameplate) is on the body of the mount.

Classification: Standard (OTCM 27467).

Characteristics

Limit of operation—Continued

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevation</td>
<td>0 to 700 miles</td>
</tr>
<tr>
<td>Angle of site</td>
<td>0 to 600 miles</td>
</tr>
<tr>
<td>Cross level</td>
<td>0 to 600 miles</td>
</tr>
</tbody>
</table>

Performance

Equipment

Instructional material

Storage and Shipment Data

Within Continental United States

Shipped mount per wood box

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped mount per wood box

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-271, TM 9-6103.
Deleted by C 1.
MOUNT, TELESCOPE: M71

General

MOUNT, TELESCOPE: M71 is used with TELESCOPE, ELBOW: M16A1 on CARRIAGE, 165-MILLIMETER GUN: M1 for CANNON, 165-MILLIMETER GUN: M2 or M2A1 and with TELESCOPE, ELBOW: M16A1 on CARRIAGE, 8-INCH HOWITZER: M1 for CANNON, 8-INCH HOWITZER: M2 or M2A1 for laying the gun in elevation. The telescope mount M71 is attached to the rear of the right gun trunnion, and moves with the gun. The mount supports the elbow telescope on locating surfaces, and secures it in position with a clamp and associated eyebolt. Provision is made for rotating the elbow telescope about its objective axis in order to level the reticle pattern. Vertical and lateral adjusting mechanisms are provided for making the boresighting adjustments. There are no scales for recording the adjustments. An instrument light clamp which is secured to the mounting bracket of the mount holds the instrument light for illuminating the telescope reticle. LIGHT, INSTRUMENT: M36 is used with this mount for night operation.

Differences among models

Data plate location

The identification plate (nameplate) is on the side of the mounting bracket.

Classification: Standard A (OTCM 27994).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M71</td>
<td></td>
<td>1296-150-7741</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: Ref. TM 9-2026.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Domestic Pack

<table>
<thead>
<tr>
<th>Shipped mount per wood box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped mount per wood box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SNL 5-376, TM 9-6191.
MOUNT. TELESCOPE: M76 (T140)

General
MOUNT, TELESCOPE: M76 (T140), is used with TELESCOPE, PANORAMIC: M12A7 on HOWITZER, LIGHT SELF-PROPELLED: 106-mm, M57. Telescope mount M76 is an azimuth compensating mount. It is attached to the shield on the left side of the howitzer carriage, and connected to the left howitzer trunnion by a linkage. Keeping the mount cross leveled during operation insures the correct measuring of azimuth angles when the howitzer is elevated with the trunnions out of level. There are no scales or micrometer on this mount, azimuth being measured on the azimuth scale and micrometer of the panoramic telescope. The telescope socket which supports the panoramic telescope has a locking mechanism to lock the position of the retaining shaft and thereby holds the telescope securely in place. LIGHT, INSTRUMENT: M19, is used with this mount for night operation.

Differences among models
Data plate location
The identification plate (nameplate) is on the actuating shaft bracket.
Classification: Standard A.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped mount per wood box
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States
Shipped mount per wood box
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-197, TM 9-4103.
MOUNT, TELESCOPE: M77 (T95)

General
MOUNT, TELESCOPE: M77 (T95), is used with TELESCOPE: M76G on HOWITZER, LIGHT, SELF-PROPELLED: 105-mm, M37. The telescope mount is attached to the left side of the howitzer mount and moves with the howitzer in azimuth and elevation. Vertical and lateral adjusting mechanisms are provided for boresighting. Azimuth and elevation deflections are determined by aiming with the required graduation of the telescope reticle. Front and rear locating surfaces support the telescope, and a slot to receive a lug on the rear telescope collar positions the telescope in the mount. A spring loaded plunger, and a telescope clamp with associated eyebolt secure the telescope in position. A lamp bracket with two clamps and associated eyebolts secure the instrument light. LIGHT, INSTRUMENT: M33, is used with this mount for night operation.

Differences among models
Data plate location
The identification plate (nameplate) is on the mounting bracket.
Classification: Standard A.

CHARACTERISTICS
Length
Width
Height
Weight

Vertical scale (approx mile) EL 50-0-20 DEP
Lateral scale (approx mile) R 20-0-20 L

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped mount per wood box
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped mount per wood box
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-294, TM 9-6099.
MOUNT, TELESCOPE: M78 (T103)

General

MOUNT, TELESCOPE: M78 (T103), is used with TELESCOPE: M5C, on RIFLE, ANTITANK, 75 MILLIMETER: M20 and M21E1, for direct fire. The mount is secured to a sight mount bracket on the left side of the rifle, and moves with the rifle. A dovetail slot in the mount engages the telescope. Vertical and lateral adjusting mechanisms are provided for boresighting the instrument. LIGHT, INSTRUMENT: M36, is used with this mount for night operation.

Differences among models

Data plate location

The identification plate (nameplate) is the telescope holder bracket.

Classifications: Limited Standard (OTCM 28547).

Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>61/2 in</td>
<td>41/2 in</td>
<td>4 in</td>
<td>3.23 lb</td>
</tr>
</tbody>
</table>

Limits of Operation:

Elevation: No limit

Azimuth: No limit

Performance

Equipment

Basic Issue Items: See ORD 7 SNL C-74

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped 32 mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft</td>
<td>1 ft, 7 1/4 in</td>
<td>1 ft, 5 in</td>
<td>4.2 cu ft</td>
<td>145 lb</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 32 mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft</td>
<td>1 ft, 7 1/4 in</td>
<td>1 ft, 5 in</td>
<td>4.2 cu ft</td>
<td>145 lb</td>
<td>No limit</td>
</tr>
</tbody>
</table>

References: SNL F-310, TM 9-1546-4.
### General

**MOUNT, TELESCOPE: M79 (T148)**, as a component of **SIGHTUNIT: M34 or M34A1**, is used with **MORTAR, INFANTRY, 4.2-INCH: M30**, and **RIFLE, 105 MILLIMETER: M57 or M37A1**. As a component of **SIGHTUNIT: M34A2**, this mount is used with **MORTAR, INFANTRY, 81 MILLIMETER: M29**; with **MORTAR, 4.2-INCH, SP, full-tracked, M8**; with **LAUNCHER, ROCKET: multiple, 4.5-inch, M21**; and with **RIFLE, 75 MILLIMETER: M20**. As a component of **SIGHTUNIT: M34A2C**, this mount is used with **LAUNCHER, ROCKET: 318-mm, XM84**. The mount has an elevating mechanism, scale and micrometer for measuring and registering angles. A cross level is provided for indicating when the mount is cross level and a longitudinal level indicates when the weapon is elevated to the height indicated on the elevation scale. **LIGHT, INSTRUMENT: M42**, is used with this mount for night operation.

### Differences among models

**Data plate location**

- The identification plate (nameplate) is on the left side of the mount.

**Classification**: Limited standard (OTCM 37284).

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>18-50</td>
</tr>
<tr>
<td>Weight</td>
<td>Elevation scale: -200 to +600 mils</td>
</tr>
</tbody>
</table>

### PERFORMANCE

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>mount per wood box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1290-795-7745</td>
</tr>
<tr>
<td>Width</td>
<td>1290-795-7745</td>
</tr>
<tr>
<td>Height</td>
<td>1290-795-7745</td>
</tr>
<tr>
<td>Volume</td>
<td>-200 to +600 mils</td>
</tr>
<tr>
<td>Gross weight</td>
<td>-200 to +600 mils</td>
</tr>
<tr>
<td>Ship tons</td>
<td>-200 to +600 mils</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>mount per wood box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1290-795-7745</td>
</tr>
<tr>
<td>Width</td>
<td>1290-795-7745</td>
</tr>
<tr>
<td>Height</td>
<td>1290-795-7745</td>
</tr>
<tr>
<td>Volume</td>
<td>-200 to +600 mils</td>
</tr>
<tr>
<td>Gross weight</td>
<td>-200 to +600 mils</td>
</tr>
<tr>
<td>Ship tons</td>
<td>-200 to +600 mils</td>
</tr>
</tbody>
</table>

### References:

- SNL F-323, TM 9-1546-4, TM 9-1290-204-35P
- TM 9-1240-298-35
**MOUNT, TELESCOPE: M85 (T158)**

**General**

MOUNT, TELESCOPE: M85 (T158), consists of the mounting bracket or cylindrical clamp which engages the barrel of the rifle and is provided with clamping screws; a cross leveling mechanism provided with a cross leveling knob and level vial; boresighting adjustment consisting of an elevation worm and an azimuth worm; telescope holder with a dovetailed slot to receive the dovetail on the telescope and with a clamping lever; instrument light clamp to hold instrument light M36; and a handle assembly to actuate the firing mechanism of the gun.

Telescope mount M85 (T158) clamps on the barrel of RIFLE, 106 MILLIMETER: M7A1 and supports TELESCOPE: M00C, M00D, or M80F* or TELESCOPE: M94 (T167)* in its holder.

**Differences among models**

**Data plate location**

The identification plate is located on the side of the bracket.

**Classification:** Standard C (OTCM 37119).

### CHARACTERISTICS

**PERFORMANCE**

* For characteristics and data, see item in section 14.

---

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>telescope mount per box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>telescope mount per box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**References:** SNL F-353, TM 9-329, TM 9-1614.
MOUNT, TELESCOPE: M95 (T190)

**General**

MOUNT, TELESCOPE: M95 (T190), is used with TELESCOPE, PANORAMIC: M12A7K, on HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, M44, for laying direct or indirect fire. This mount is of the azimuth compensating type (compensation for trunnion cant). The mount is attached to the right trunnion hub of the howitzer. The mount is verticalized by turning the cross leveling knob and the elevation knob until the level bubbles are centralized. LIGHT, INSTRUMENT: MB4 is used with this mount for night operation.

**Data plate location**

- The identification plate (nameplate) is on the rocker.

**Classification:** Standard A (OTCM (35083)).

**Characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft, 6% in.</td>
</tr>
<tr>
<td>Width</td>
<td>9% in.</td>
</tr>
<tr>
<td>Height</td>
<td>9% in.</td>
</tr>
<tr>
<td>Weight</td>
<td>26.8 lb</td>
</tr>
<tr>
<td>Elevation Scale:</td>
<td></td>
</tr>
<tr>
<td>Smallest graduated interval</td>
<td>100 mils</td>
</tr>
<tr>
<td>Angular range of scale</td>
<td>0 to 1,100 mils</td>
</tr>
<tr>
<td>Micrometer:</td>
<td></td>
</tr>
<tr>
<td>Smallest graduated interval</td>
<td>.1 mil</td>
</tr>
</tbody>
</table>

**Angle of mount body subtended for revolution of micrometer**

100 mils

**Cross leveling knob: Rotation between limits**

9% turns

**Performance**

**Equipment**

Basic issue items: See TM 9-7004.

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States

- Shipped 1 mount per shipping container
  - Length: 2 ft, 2% in.
  - Height: 1 ft, 3% in.
  - Width: 1 ft, 2% in.
  - Volume: 2.7 cu ft
  - Gross weight: 96 lb
  - Ship tons: 0.07

Outside Continental United States

- Shipped 1 mount per shipping container
  - Length: 2 ft, 4% in.
  - Height: 1 ft, 3% in.
  - Width: 1 ft, 4% in.
  - Volume: 2.7 cu ft
  - Gross weight: 96 lb
  - Ship tons: 0.07

References: SNL F-214, TM 9-5143.
MOUNT, TELESCOPE: M103 (T191)

Model
M103

General
MOUNT, TELESCOPE: M103 (T191), is used with TELESCOPE: M97 C on TANK, COMBAT, FULL TRACKED: 90-mm gun, M48, M48A1, and M48C. It is mounted on the right side, parallel to the line of sight of the 90-mm gun and used in direct fire operation of that weapon. The mount consists of a holder assembly containing a spherical mounting surface which clamps and positions the telescope. The mount also contains a clamp assembly that supports the instrument light M36, which illuminates the reticle of the telescope M97C. An azimuth adjusting knob and an elevation adjusting knob graduated to one-quarter mil provide 4 mils of azimuth and elevation adjustments. Azimuth and elevation locking levers clamp the adjusting knobs in any position. These levers are properly labeled "AZIMUTH" and "ELEVATION."

Differences among models

Data plate location
The identification plate (nameplate) is on the azimuth and elevation housing.

Classification: Standard A.

CHARACTERISTICS

| Length | 11 3/4 in. |
| Width  | 8 5/16 in. |
| Height | 10 1/16 in. |
| Weight | 25± lb |

Azimuth adjustment ............................ 4.0 mils
Elevation adjustment ........................... 4.0 mils

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-7022.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped: mount per wood box

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped: mount per wood box

Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-385, TM 9-6161.
MOUNT, TELESCOPE: M107 (T209)

General
MOUNT, TELESCOPE: M107, is used with TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1. It consists of a case steel mount assembly attached to MOUNT, GUN: 120-mm, M89A1. This assembly includes a boresighting mechanism bolted and dowelled to the mount. The telescope mount rigidly holds the forward section of TELESCOPE: M102 with respect to the 120-mm gun. Provision is made for precise telescope boresight adjustment in elevation and deflection (azimuth).

Differences among models

Data plate location

Classification: Standard A.

CHARACTERISTICS

Length ........................................ 2 ft, 3 in.
Width ........................................... 1 ft, 3 in.
Height .......................................... 8 in.
Weight ......................................... 76 lb

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped mounts per

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped mounts per

Length
Width
Height
Volume
Gross weight
Ship tons

References: TM 9-1230-278-34, TM 9-1230-278-35P.
POST, AIMING: M1, M1A1, AND M1A2

POST, AIMING: M141 COVER: M401 SHOWN.

POST, AIMING: M1 AND COVER, M401 OR M1A1 AND COVER, M401 SHOWN.

MODEL

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td></td>
<td>1290-622-4818</td>
</tr>
<tr>
<td>M1A1</td>
<td></td>
<td>1290-622-4814</td>
</tr>
<tr>
<td>M1A2</td>
<td></td>
<td>1290-622-4817</td>
</tr>
</tbody>
</table>

**General**

POST, AIMING: M1, M1A1, and M1A2, consists of two tubular metal sections, the upper section being provided with a fitting to mate with the lower section which has the embedding point. These aiming posts are used with most field artillery weapons to provide a suitable reference or zero point when laying the weapon during indirect fire operation. The aiming post tube is painted with alternate white and red stripes 4 inches long. LIGHT, AIMING POST: M41 is used with these aiming posts. The cloth COVER: M401 serves as a carrying case for the disassembled aiming post.

**Differences among models**

In the method of mating the upper section with the lower section, the M1A2 has the embedding point on both sections.

**Data plate location**

The identification plate is located on the tube.

**Classification:**

- M1: Limited standard (OTCM 36536).
- M1A1: Substitute standard (OTCM 36536).
- M1A2: Standard A.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Length, overall:</th>
<th>M1</th>
<th>8 ft</th>
<th>M1A1</th>
<th>8 ft</th>
<th>M1A2</th>
<th>8 ft, 8 3/4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter, tube:</td>
<td>M1</td>
<td>1 3/4 in.</td>
<td>M1A1</td>
<td>2 1/4 in.</td>
<td>M1A2</td>
<td>2 1/4 in.</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic issue items; See TM 9-3064.

**INSTRUCTIONAL MATERIAL**

For graphic training aids and devices, see DA Pam 810-5.

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped 24 aiming posts M1 per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipped 30 sets (2 per set) aiming post M1A2 per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped 24 aiming posts M1 per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipped 30 sets (2 per set) aiming post M1A2 per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

**References:** SNL F-55.
POST, AIMING: M4

Data plate location
The identification plate is located on the tube.

Classification: Limited standard.

Differences among models
POST, AIMING: M4 consists of metal tubing with a metal embedding point and is used for pack transport only. It provides a suitable reference or zero point when laying 81-mm mortars during indirect fire operation. LIGHT, AIMING POST: M4 is used with the aiming post for night operations.

Length
Diameter, tube

PERFORMANCE
Basic issue items: See ORD 7 SNL A-33.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Length (ft)</th>
<th>Width (in)</th>
<th>Height (in)</th>
<th>Volume (cu ft)</th>
<th>Gross weight (lb)</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft, 3% in.</td>
<td>7 1/4 in.</td>
<td>7 1/4 in.</td>
<td>1.6 cu ft</td>
<td>58 lb</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Length (ft)</th>
<th>Width (in)</th>
<th>Height (in)</th>
<th>Volume (cu ft)</th>
<th>Gross weight (lb)</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft, 3% in.</td>
<td>7 1/4 in.</td>
<td>7 1/4 in.</td>
<td>1.6 cu ft</td>
<td>58 lb</td>
<td>0.04</td>
</tr>
</tbody>
</table>

References: SNL T-35.
POST, AIMING: M6

General
POST, AIMING: M6 consists of metal tubing with a metal embedding point. It provides a suitable reference or zero point when laying 81-mm mortars during indirect fire operation. LIGHT AIMING POST: M41 is used with the aiming post for night operations.

Differences among models:

Data plate location:
The identification plate is located on the tube.

Classification: Standard A.

CHARACTERISTICS
Length ........................................ 6 ft
Diameter, tube ................................... 1 3/4 in.

PERFORMANCE

EQUIPMENT
Basic Issue Items: See TM 9-3064.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 20 aiming posts per shipping container
Length ........................................ 6 ft, 8 in.
Width ........................................... 1 ft, 1/4 in.
Height ........................................... 10 3/4 in.
Volume ......................................... 5.96 cu ft
Gross weight .................................. 180 lb
Ship tons .................................. 0.15

Outside Continental United States
Shipped 20 aiming posts per shipping container
Length ........................................ 6 ft, 8 in.
Width ........................................... 1 ft, 1/4 in.
Height ........................................... 10 3/4 in.
Volume ......................................... 5.96 cu ft
Gross weight .................................. 180 lb
Ship tons .................................. 0.15

References: SNL F-35, TM 9-3064.
**POST, AIMING: M7**

### General
POST, AIMING: M7, is a wooden stake with metal embedding point. It provides a suitable reference or zero point when laying 60-mm and 81-mm mortars during indirect fire operation. LIGHT, AIMING POST: M41 is used with the aiming post for night operation.

### Differences among models

### Data plate location

### Classification: Limited standard.

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft</td>
</tr>
<tr>
<td>Diameter</td>
<td>1¼ in</td>
</tr>
</tbody>
</table>

### PERFORMANCE

### EQUIPMENT

**Secondary Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M7</td>
<td></td>
<td>1290-667-0618</td>
</tr>
</tbody>
</table>

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped posts per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped posts per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SNL F-65.
POST, AIMING: M8

General
POST, AIMING: M8, is a wooden stake with metal embedding point. It provides a suitable reference or zero point when laying 81-mm mortars during indirect fire operation. LIGHT, AIMING POST: M41 is used with the aiming post for night operation.

Differences among models

Data plate location

Classification: Limited Standard.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6 ft</td>
</tr>
<tr>
<td>Diameter</td>
<td>1 ¼ in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped posts per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped posts per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL F-36.
POST, AIMING: M9

**Characteristics**

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>M9</td>
<td>4 ft 2 in.</td>
<td>1 3/4 in.</td>
</tr>
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</table>

**Equipment**

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Posts per</th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Posts per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-36.
POST, AIMING: M10

POST, AIMING: M10, consists of a metal rod with a metal embedding point and a crosspiece alidade and is used when laying 60-mm and 81-mm mortars during indirect fire operation. It provides a suitable reference or zero point when laying the weapon. The alidade is graduated from 100 mils to 0 to 100 mils and can be rotated 90 degrees out of position. LIGHT, AIMING POST: M41 is used with the aiming post for night operation.

DIFFERENCES AMONG MODELS

DATA PLATE LOCATION

The identification plate is located on the tube.

CLASSIFICATION

Limited standard.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft, 1½ in.</td>
</tr>
<tr>
<td>Width, alidade folded</td>
<td>1 ft, 1½ in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

REFERENCES: SNL F-35.
GENERAL

PROJECTION-SYSTEM: (ORD No. 7597856) consists of two reflectors (mirrors), upper and lower, strategically located on the turret of TANK, COMBAT, FULL TRACKED: 76-mm gun, M4 or M41A1 and the gunner's PERISCOPE: M20, M20A1, or M20A3 to allow the gunner to view the setting of the ballistic range scale without changing position from the periscope.

DIFFERENCES AMONG MODELS

Data plate location

Classification: Standard B.

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-2350-201-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>projection-systems per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>projection-systems per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: SNL P 968.
QUADRANT, FIRE CONTROL: ELEVATION, M1A1

General

QUADRANT, FIRE CONTROL: elevation, M1A1, is used for laying a weapon in elevation for indirect fire. The desired elevation is set on the quadrant and then the weapon is elevated until the level vials are centered. The elevation quadrant is attached to the adapter on the right gun trunnion. Elevations are indicated on an elevation scale. A longitudinal level indicates when the actual elevation of the gun is the same as that shown on the scale and micrometer. The cross leveling mechanism is provided for keeping the mount cross leveled. Illumination is provided from the main power source of the weapon.

The elevation fire control quadrant M1A1 is used with CARRIAGE, 8-INCH GUN: M2; CARRIAGE, 155-MILLIMETER GUN: M11; GUN, FIELD, ARTILLERY, SELF-PROPELLED: 155-mm, M53 (T67); GUN, ANTI-AIRCRAFT, ARTILLERY, SELF-PROPELLED: twin, 30-mm, M1A1; and GUN, ANTI-AIRCRAFT, ARTILLERY, SELF-PROPELLED: twin, 40-mm, M42 and M42A1; GUN, HEAVY, MOTORIZED: 280-mm, M65 and GUN ANTI-TANK, SELF-PROPELLED: 90-mm, M56.

Data plate location

The identification plate is located on the case cover.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevation scale</td>
<td>+50 to +1,200 miles</td>
</tr>
<tr>
<td>Length</td>
<td>1 ft. 3/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 3/4 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>75 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE EQUIPMENT

Associated:

ADAPTER, QUADRANT: M10 (as part of 8-inch gun carriage M2).
COVER, QUADRANT: M42.

Basic Issue Items: See TM 9-2350-213-10.

INSTRUCTIONAL MATERIAL

For graphic training aids and devices, see DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 30 quadrants w/case carrying, M82 per shipping container.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft. 3/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 3/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.37 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>150 lb</td>
</tr>
<tr>
<td>Ship tonnage</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 30 quadrants w/case carrying, M82 per shipping container.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft. 3/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 3/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.37 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>150 lb</td>
</tr>
<tr>
<td>Ship tonnage</td>
<td>0.10</td>
</tr>
</tbody>
</table>

QUADRANT, FIRE CONTROL: ELEVATION, M12

General

QUADRANT, FIRE CONTROL: elevation, M12, is manually operated and is used to lay a 105-mm howitzer in elevation for indirect fire. It is mounted on the right-hand side of the howitzer mount. The quadrant includes a cross leveling mechanism and a cross level vial. Elevating mechanisms are provided for setting the elevation angle and the angle of site. The longitudinal level indicates when the weapon is elevated to the angle registered on the scale. An instrument light provides illumination of the scales, micrometer, and level vials for night operation.

Data plate location

The identification plate (nameplate) is attached to the revolving worm housing front plate.

Classification: Limited Standard (OTCM 37255).

CHARACTERISTICS

Angle of site scale .................................................. 0 to 600 mils
Elevation scale ....................................................... 0 to 800 mils
Length ................................................................. 42 1/4 in.
Height ................................................................. 8 1/4 in.
Width ................................................................. 8 1/4 in.

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL G-238.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped quadrants per

Length .................................................................
Height .................................................................
Volume ............................................................... Gross weight ............................................................... Ship tons .............................................................

Outside Continental United States

Shipped quadrants per

Length .................................................................
Height .................................................................
Volume ............................................................... Gross weight ............................................................... Ship tons .............................................................

References: SNL F-160, TM 9-697.
QUADRANT, FIRE CONTROL: ELEVATION, M13(T21), M13A1, M13A3 (M13A2E1) and M13B1

Secondary Item: elevation M13(T21), M13A1, M13A3 (M13A2E1), or M13B1 is a unit of the indirect fire control system of a tank. It is used with the ballistics drive to set the desired elevation on the gun. It consists of an elevation knob and worm, elevation micrometer, level vial, reflector, and elevation scale. The elevation scale is graduated in 100-mil intervals from minus 200 to plus 600 mils. An elevation knob, with an attached micrometer, is provided to "set in" elevation or depression angles. The micrometer scale is graduated in 1-mil intervals from 0 to 100 mils on two scales, reading in opposite directions, elevation angles being read on the inner scale and depression angles on the outer scale. Turning the elevation knob in setting an elevation or depression angle, will rotate the housing on which the scale index and level vial are mounted, and will displace the bubble from center. When the weapon is elevated or depressed sufficiently to return the bubble to center, it is aimed to the elevation or depression set on the scale, movement of the weapon being transmitted through linkage to the ballistics drive or the gun recoil guide on which the quadrant is mounted. A reflector, set at a 45-degree angle over the level vial tube (except M13A3) allows for easy viewing of the level vial, which is above eye level of tank personnel.

Light, instrument: M30 is used as a source of illumination for the M13A1 (M60 tank).

The M13 quadrant is used with DRIVE, BALLISTICS: M6 on TANK, COMBAT, FULL TRACKED: 90-mm gun, M47, and DRIVE, BALLISTICS: M6 on TANK, COMBAT, FULL TRACKED: 105-mm, M60.

The M13A1 quadrant is used with DRIVE, BALLISTICS: M5* on TANK, COMBAT, FULL TRACKED: 90-mm gun, M48, and M48A1* and M48A2* with DRIVE, BALLISTICS: M5A1* and M5A2* on TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A2*, and M48A2C* respectively; and with DRIVE, BALLISTICS: M105 on TANK, COMBAT, FULL TRACKED: 105-mm gun, M60.*

The M13A3 quadrant is used with DRIVE, BALLISTICS: M10A4 on TANK, COMBAT, FULL TRACKED: 105-mm gun, M60A1.

The M13B1 quadrant is used with DRIVE, BALLISTICS: M10A1 on TANK, COMBAT, FULL TRACKED: 90-mm, M48A2.

For characteristics and data, see item in sections 12 and 23 and on page 18-9.

AGO 5093A 18-65
Differences among models

The models are identical with the exception of minor details in the design. The M13A1 differs from the M13 in that it has an additional level vial eccentric and ring, and its elevating worm shaft has a ball bearing in place of a bearing consisting of a single ball, ball socket, and ball cup.

The M13A3 does not have a reflector.

The M13B1

Data plate location

The identification plates is located on the worm gear housing.

Classification:

<table>
<thead>
<tr>
<th>Model</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>M13</td>
<td>Standard B (OTCM 9-2119)</td>
</tr>
<tr>
<td>M13A1</td>
<td>Standard A (OTCM 9-2119)</td>
</tr>
<tr>
<td>M13A3</td>
<td></td>
</tr>
<tr>
<td>M13B1</td>
<td></td>
</tr>
</tbody>
</table>

**Characteristics**

Scales:

- **Elevation**: 0 to 600 mils
- **Depression**: 200 to 0 mils

Micrometer:

- **Elevation**: 0 to 100 mils
- **Depression**: 0 to 100 mils
- **Length**: 4½ in.
- **Width**: 4½ in.
- **Height**: 2½ in.
- **Weight**: 1 lb

**Performance Equipment**


**Storage and Shipment Data**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>21 in.</td>
</tr>
<tr>
<td>Width</td>
<td>20½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1½ in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>110 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.10</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>21 in.</td>
</tr>
<tr>
<td>Width</td>
<td>20½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1½ in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>110 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.10</td>
</tr>
</tbody>
</table>

**References:** TM 9-6055, TM 9-1290-232-30, TM 9-1290-232-30P.
QUADRANT, FIRE CONTROL: GUNNER'S, M1 AND M1A1

General

QUADRANT, FIRE CONTROL: gunner's M1 or M1A1, is a portable precision leveling instrument used for laying artillery weapons in elevation, for measuring their angles of elevation and for checking the adjustments of elevating mechanisms on sighting and fire control equipment. It consists of a sector-shaped frame to which is pivoted a leveling radial arm carrying a level vial tube assembly. Four frame shoes, arranged in pairs, provide two reference surfaces at right angles to each other for seating the instrument when taking readings. Machined teeth on the inside arc of the frame, engaging with a spring-loaded plunger in the radial arm, permit rapid setting of the arm in coarse 10-mil steps, as read on elevation scales provided on each side of the frame. The left scale is used for elevations from 0 to 800 mils, and the right scale is used for elevations from 800 to 1,600 mils. The leveling radial arm has a micrometer graduated in 0.2 mil steps which provides fine adjustment. By the use of the coarse and fine motions, the level can be set to the required angle. When the level bubble is centered, elevation is read as the sum of the coarse and fine scale readings. An arrow with instructions “LINE OF FIRE” is scribed on the frame to indicate the direction the instrument is to be faced and the correct reference surface for the scale in use. The gunner's fire control quadrant M1 or M1A1 is used with various rifles, guns, gun carriages, self-propelled guns, gun motor carriages, antiaircraft gun mounts, cannons, cannon and carriage transport vehicles, combat tanks, tracked armored landing vehicles, multiple rocket launchers.

Differences among models

The models differ in the design of the radial arm plunger plate. The gunner's fire control quadrant M1A1 differs from M1 in that it has a micrometer mask and a micrometer mask key on the leveling radial arm.

Data plate location

The identification plate is located on the upper frame side surface.

Classification: Standard A (OTCM 30841).

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td></td>
<td>1240-674-0631</td>
</tr>
<tr>
<td>M1A1</td>
<td></td>
<td>1260-719-756</td>
</tr>
</tbody>
</table>

CHARACTERISTICS

Elevation scales:

Upper 800 to 1,600 mils

Limits of Operation:

Elevation 1,600 mils

Depression 0

Length 6% in.

Width 11% in.

Weight 1.8 lb

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

For graphic training aids and device, see DA Pam 310-6.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 12 fire control quadrants per box

Length 2 ft, 6 in.

Width 1 ft, 1 in.

Height 11 in.

Volume 2.3 cu ft

Gross weight 58 lb

Ship tons 0.6

Outside Continental United States

Shipped per

Length

Width

Height

Volume

Gross weight

Ship tons

References: TM 9-575, TM 9-1527, TM 9-1290-200-35P.
QUADRANT, FIRE CONTROL: RANGE, M4A1

General

QUADRANT, FIRE CONTROL: range, M4A1 is a manually operated elevation indicating instrument used for laying howitzers and cannons in elevation for indirect fire. The quadrant is so mounted that any movement of the howitzer in elevation is imparted to the quadrant. It consists of the battery bracket assembly, the longitudinal and cross level vial tube assemblies, cross leveling mechanism assembly, the range elevating mechanism, the angle-of-site mechanism, and a built-in illuminating system which provides illumination of the instrument for night operation.

When laying the piece, the required angle of elevation is set on the elevation scale and the longitudinal level vial is tilted, and the howitzer is elevated until the level bubble is centered, thus indicating that the piece is laid to the desired elevation.

The range fire control quadrant M4A1 is used with CANNON, 105-MILLIMETER HOWITZER: M2A2 and CANNON, 76 MILLIMETER GUN: automatic, M35(T83E7) and T83E6.

Differences among models

Data plate location

The identification plate is located on the elevating worm gear assembly housing.

Classification: Standard A (OTCM 27467).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle of site scale</td>
<td>0-300-600 mils</td>
</tr>
<tr>
<td>Adjustable scale</td>
<td>100 mil increments</td>
</tr>
<tr>
<td>Worm micrometer</td>
<td>100 L-mil spaces</td>
</tr>
<tr>
<td>Elevation scale</td>
<td>0-1,200 mils</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>1</td>
<td>fire control quadrant per box</td>
</tr>
<tr>
<td>Length</td>
<td>20 in.</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>13 in.</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>17 in.</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>2.6 cu ft</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>65 lb</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.07</td>
<td></td>
</tr>
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Outside Continental United States

<table>
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<td>fire control quadrant per box</td>
</tr>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMOTE CONTROL SYSTEM: M2A1

CHARACTERISTICS

General
REMOTE CONTROL SYSTEM: M2A1, used with the 90-mm antiaircraft gun mount MIA2, is a combination of mechanical, electrical, and hydraulic units used to position an antiaircraft gun continuously in accordance with data furnished by the antiaircraft fire control system M33C, and transmitted to the gun through a cable system. This remote control system is fully automatic, with provision made for emergency manual operation of the gun by means of the azimuth and elevating handwheels. The remote control system also provides for intrabattery communication and also for command control of firing of guns. The remote control system M2A1 consists of two major components: the indicator system M4A1 and the power control M4A1. Cables and conduits connecting the components of the systems are either independent assemblies or part of one of the interconnected major component assemblies.

Components:
INDICATOR SYSTEM: M4A1
CONTROL, POWER: M4A1
Differences among models
Data plate location
Classification: Standard B (OTCM 368).

Charac teristics
Hydraulic System:
Operating pressures:
- Replenisher pump: 75 psi plus or minus 5 psi
- Power limit cylinder (azimuth):
  - Minimum: 150 psi
  - Maximum: 1,200 psi
- Power limit cylinder (elevation):
  - Minimum: 550 psi
  - Maximum: 1,200 psi
- Relief valve: 1,400 psi
System capacity: motor with pump assembly and auxiliaries—2% gal.

Electrical System:
Induction motor:
- Operating speed: 3,450 rpm
- Power supply: 115v ±10%, 60c, 3-phase
- Output continuous: 1 hp
- Output, maximum intermittent overload: 2.6 hp
Dither motor:
- Operating speed: 1,725 rpm
- Power supply: 115v, 60c, 3-phase
Stroke motor:
- Operating speed, maximum: 1,600 rpm
- Filled-field supply voltage: 20v
- Amplifier-controlled field voltage: 20 v max

Electrical System—Continued
Stroke generator:
- Field: Permanent magnet
- Output voltage, maximum: 12.1v dc

Performance
Operating limits:
- Azimuth: no limit (360° continuous)
- Elevation: 0 to +1422 mils (0 to +80 degrees)
Maximum operating rates:
- Traversing: 356 mils (20 degrees) per sec
- Elevating: 213 MilS (12 degrees) per sec
Input power, maximum, continuous:
- Single-phase and three-phase (approx) 115v, 60c, 1,100 watts, 8.6 amps
- Single-phase (approx) 115v, 60c, 160 watts, 1.2 amp

Equipment
Basic issue items: Sec ORD 7 SNL D-28.

Instructional Material
Storage and Shipment Data
Within Continental United States
Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-207, TM 9-5077.
INDICATOR SYSTEM: M4A1

General

INDICATOR SYSTEM: M4A1 is a major component of the remote control system M2A1. This indicator system is considered the input network of the remote control system. The indicator system receives the data signals at the gun and converts these signals to equivalent electrical impulses for transmission to the power control system M4A1. The indicator system is composed of the following components.

Off-carriage junction box. Houses the amber "Ready" light, warning horn, slewing bell, and a telephone jack.

Contact ring. Provides continuous contact for incoming power and data circuits while permitting free rotation of the gun without twisting cables.

Terminal box. Provides a junction point for the lead wires from the spindle of the contact ring.

Gun junction box. Provides the main junction point, including the main power switch, for all electrical circuits of the remote control system (Part of the power control).

Indicator regulator M1A1. Two electro-mechanical indicator regulators are used; one for elevation and one for azimuth. The indicator regulators indicate synchronism of the antiaircraft fire control system and the gun in azimuth and elevation.

Lagmeter amplifier. Receives the signal outputs of the indicator regulators and amplifies the signal for driving the lagmeter in the appropriate indicator regulator.

Signal-light box. Receives the signal "FIRE" light and the signal "CEASE FIRE" light.

Firing lock. The handle of the firing lock permits manual override of the lock at time of emergency.

Recoil switch. The recoil switch is actuated when it is desired to trigger automatic radar tracking of a projectile to obtain average velocity data.

Fuse junction box. Houses terminal strips for wiring connections from the gun junction box to the breech light and the fuse setter.

Breech light. Provides light at the gun breech during night operations.

Classification: Standard B (OTCM 34046).
CHARACTERISTICS

Box, fuse junction, assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8(\frac{1}{4}) in.</td>
<td>10(\frac{1}{4}) in.</td>
<td>4(\frac{1}{2}) in.</td>
<td>17 lb</td>
</tr>
</tbody>
</table>

Box, gun junction, assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>11(\frac{1}{4}) in.</td>
<td>18(\frac{1}{2}) in.</td>
<td>11(\frac{1}{2}) in.</td>
<td>125 lb</td>
</tr>
</tbody>
</table>

Box, off-carriage junction:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 in.</td>
<td>9(\frac{1}{4}) in.</td>
<td>11(\frac{1}{2}) in.</td>
<td>55 lb</td>
</tr>
</tbody>
</table>

Box, signal light, assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 in.</td>
<td>8(\frac{1}{4}) in.</td>
<td>9(\frac{1}{4}) in.</td>
<td>56 lb</td>
</tr>
</tbody>
</table>

Box, terminal, assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>10(\frac{1}{4}) in.</td>
<td>4 in.</td>
<td>10(\frac{1}{2}) in.</td>
<td>31 lb</td>
</tr>
</tbody>
</table>

Indicator-regulator, assy, M1A1 (2 units):
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>11(\frac{1}{4}) in.</td>
<td>12 in.</td>
<td>15(\frac{1}{2}) in.</td>
<td>16(\frac{1}{2}) lb</td>
</tr>
</tbody>
</table>

Light, breech assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>6(\frac{1}{2}) in.</td>
<td>9(\frac{1}{4}) in.</td>
<td>9(\frac{1}{4}) in.</td>
<td>12 lb</td>
</tr>
</tbody>
</table>

Lock, firing, assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>7(\frac{1}{4}) in.</td>
<td>6(\frac{1}{4}) in.</td>
<td>10 in.</td>
<td>28 lb</td>
</tr>
</tbody>
</table>

Ring, contact, assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>10(\frac{1}{2}) in.</td>
<td>14(\frac{1}{4}) in.</td>
<td>147 lb</td>
<td></td>
</tr>
</tbody>
</table>

Switch, recoil, assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8(\frac{1}{4}) in.</td>
<td>9(\frac{1}{2}) in.</td>
<td>2(\frac{1}{2}) in.</td>
<td>3 lb</td>
</tr>
</tbody>
</table>

Amplifier, logmeter, assy:
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>18(\frac{3}{4}) in.</td>
<td>9(\frac{1}{2}) in.</td>
<td>7(\frac{1}{2}) in.</td>
<td>36 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped Length Width Height

Outside Continental United States

Shipped Length Width Height

References: SNL F-207, TM 9-5077.
CONTROL, POWER: M4A1

General

CONTROL, POWER: M4A1 is a major component of the remote control system M2A1. This power control system is considered as the output network of the remote control system. The power control receives the directional electrical signal from the indicator system M4A1, amplifies the signal, and converts the signal into a controlled mechanical and hydraulic movement. The controlled movement points the gun in elevation and azimuth in accordance with the data received from the antiaircraft fire control system, M33C, by the indicator system, M4A1, of the remote control system M2A1. The power control M4A1 is composed of the following components:

- **Power amplifier:** Provides balanced electron tube amplification of the control signals.
- **Motor with pump assembly:** Converts electrical data signals into hydraulic and mechanical movements. It contains mechanisms for pumping oil to the hydraulic drive motor in response to pilot movements.
- **Transfer valve assembly:** One for azimuth and one for elevation are included in the hydraulic lines to enable manual or automatic operation of the system.
- **Transfer switch:** Mounted and operates in conjunction with the transfer valves.
- **Hydraulic motor, B-end:** One for azimuth and one for elevation receive oil under varying pressure from the motor with pump assembly, and converts the hydraulic power to mechanical power.
- **Elevation limit valve:** Reduces the speed of the gun drive mechanism so that the upper and lower limits of the preset mechanical stops are approached more slowly.

**Differences among models**

**Data plate location**

Classification: Standard B (OTCM 34466).

**CHARACTERISTICS**

- **Amplifier, size:**
  - Length: 16 in.
  - Width: 10 in.
  - Height: 15% in.
  - Weight: 47 lb
### CHARACTERISTICS—Continued

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor, w/pumps, assy:</td>
<td>Length: 19 1/2 in.</td>
<td>180 lb</td>
</tr>
<tr>
<td></td>
<td>Width: 20 1/2 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Height: 14 1/2 in.</td>
<td></td>
</tr>
<tr>
<td>Motor, hydraulic, assy (2 units):</td>
<td>Length: 5 1/2 in.</td>
<td>8.5 lb</td>
</tr>
<tr>
<td></td>
<td>Width: 2 1/2 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Height: 8 1/2 in.</td>
<td></td>
</tr>
<tr>
<td>Switch, transfer (2 units):</td>
<td>Length: 2 3/4 in.</td>
<td>1.5 lb</td>
</tr>
<tr>
<td></td>
<td>Width: 1 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Height: 1 1/2 in.</td>
<td></td>
</tr>
<tr>
<td>Valve, limit, assy:</td>
<td>Length: 8 in.</td>
<td>8 lb</td>
</tr>
<tr>
<td></td>
<td>Width: 2 3/4 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Height: 8 1/2 in.</td>
<td></td>
</tr>
<tr>
<td>Valve, transfer, assy (2 units):</td>
<td>Length: 3 in.</td>
<td>12 lb</td>
</tr>
<tr>
<td></td>
<td>Width: 2 3/4 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Height: 8 1/2 in.</td>
<td></td>
</tr>
</tbody>
</table>

### PERFORMANCE

#### EQUIPMENT

#### INSTRUCTIONAL MATERIAL

#### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipped Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipped Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume (crated)</td>
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<td></td>
</tr>
<tr>
<td>Gross weight (crated)</td>
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<td></td>
</tr>
<tr>
<td>Ship tons</td>
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<td></td>
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</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Shipped Length</td>
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</tr>
<tr>
<td>Shipped Width</td>
<td></td>
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</tr>
<tr>
<td>Shipped Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-207, TM 9-6077.
REMOTE CONTROL SYSTEM: M12A1
The REMOTE CONTROL SYSTEM: M12A1 is used on the 90-mm antiaircraft gun mount M2A1 for positioning the 90-mm anti-aircraft gun M2A1 or M2A2 by means of electrical signals received from the fire control system M33C through the cable system M1A1. The positioning of the 90-mm gun M2A1 or M2A2 includes electrical, electronic, hydraulic, and mechanical action in the remote control system M12A1. The remote control system M12A1 consists of an INDICATOR SYSTEM M5A1 and a POWER CONTROL M3A1.

**Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATOR SYSTEM: M5A1</td>
<td>18-75</td>
</tr>
<tr>
<td>POWER CONTROL: M3A1</td>
<td>18-77</td>
</tr>
</tbody>
</table>

**Differences among models**

**Data plate location**

**Classification:** Standard A.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
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<tbody>
<tr>
<td>Voltage</td>
<td>115 ± 5 percent</td>
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<tr>
<td>Cycles</td>
<td>60</td>
</tr>
<tr>
<td>Phase</td>
<td>3</td>
</tr>
<tr>
<td>Current</td>
<td>AC</td>
</tr>
<tr>
<td>Hydraulic system:</td>
<td>7 qt</td>
</tr>
<tr>
<td>Capacity (azimuth or elevation)</td>
<td>7 qt</td>
</tr>
<tr>
<td>Maximum hydraulic pressure</td>
<td>1400 psi</td>
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</table>

**EQUIPMENT**

**Basic Issue Items:**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
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<tr>
<td>Height</td>
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<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
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**Outside Continental United States**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
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<tr>
<td>Volume</td>
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</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**References:** TM 9-3028, TM 9-6083, TM 9-1290-221-35P, SNL F-207.
INDICATOR SYSTEM M6A1, a component of the REMOTE CONTROL SYSTEM M12A1, consists of five (electrical) box assemblies, two indicator regulators MIA1, one contact ring assembly, one breech light assembly, one recoil switch assembly, and electrical wiring consisting of conduits and cables. The indicator system M6A1 receives electrical signals from the fire control system M33C through the cable system MIA1, converts and transmits the converted signals to the POWER CONTROL MIA1 which positions the 90-mm ANTIAIRCRAFT GUN M2A1 or M2A2.

**DIFFERENCES AMONG MODELS**

**Data plate location**

**Classification:** Standard A.

**CHARACTERISTICS**

**Box assembly, gun distribution:**
- **Size:** 11\(\frac{1}{4}\) x 7\(\frac{1}{2}\) x 4\(\frac{1}{2}\) in.
- **Weight:** 28 lb
- **ORD NO.:** 7692474

**Box assembly, gun junction:**
- **Size:** 8 x 4 \\(\frac{3}{4}\) in.
- **Weight:** 100 lb
- **ORD NO.:** 7692316

**Box assembly, signal:**
- **Size:** 4\(\frac{1}{4}\) x 3\(\frac{3}{4}\) in.
- **Weight:** 5 lb
- **ORD NO.:** 7692300

**Box assembly, starter:**
- **Size:** 4% x 2\(\frac{1}{4}\) x 2 in.
- **Weight:** 38 lb
- **ORD NO.:** 7692364

**Box assembly, switch:**
- **Size:** 2\(\frac{1}{4}\) x 2\(\frac{1}{2}\) x 6 in.
- **Weight:** 8 lb
- **ORD NO.:** 7692306

**Indicator-regulator assembly MIA1 (two):**
- **Size (each):** 14\(\frac{1}{4}\) x 13\(\frac{1}{2}\) x 13\(\frac{1}{2}\) in.
- **Weight:** 75 lb
- **ORD NO. (each):** 7692380

**Light assembly, breech:**
- **Size:** 8\(\frac{3}{4}\) x 4\(\frac{1}{2}\) x 2\(\frac{1}{2}\) in.
- **Weight:** 4 lb
- **ORD NO.:** 6674566

**Ring assembly, contact (w/o cables):**
- **Size:** 14\(\frac{1}{4}\) x 6\(\frac{1}{2}\) (dia) in.
- **Weight:** 89 lb
- **ORD NO.:** 7694317

**Switch assembly, recoil:**
- **Size:** 4\(\frac{1}{4}\) x 3\(\frac{1}{4}\) x 2 in.
- **Weight:** 3 lb
- **ORD NO.:** 7692352
- **DWG NO.:** F7692472

**PERFORMANCE**

**EQUIPMENT**

**REFERENCES:**
- TM 9-3028
- TM 9-6829
- TM 9-129F-207-86P
- SNL F-207, Sec. 1.
POWER CONTROL: M3A1 (M3E1)

General
POWER CONTROL: M3A1 (M3E1), a component of the REMOTE CONTROL SYSTEM M2A1, consists of an azimuth power control assembly M3A1 (ORD NO. 7652412) and an elevation power control assembly M3A1 (ORD NO. 7662418). The azimuth power control assembly consists of an azimuth drive controller assembly M7A1 and a hydraulic drive assembly M1. The elevation power control assembly consists of an elevation drive controller assembly M8A1 and a hydraulic drive assembly M1. A drive controller assembly (M7A1 or M8A1) receives directional signals from an indicator-regulator assembly MIA1 (elevation or azimuth) which is amplified and modified to provide initial mechanical motion of low power to control the applicable (elevation or azimuth) hydraulic control pump, hydraulic motor, hydraulic fluid, and gears for the positioning of the 90-mm GUN M2A1 or M2A2.

Differences among models
Data plate location
Immediately above transfer lever of drive controller assembly M7A1 or M8A1.
Classification: Standard B (OTCM 33550).

CHARACTERISTICS
Controller assembly M7A1, drive azimuth:
Size: 21 1/2 x 13 x 16% in.
ORD NO. 7652412
Weight: 149 lb

Controller assembly M8A1, drive, elevation:
Size: 21 1/2 x 13 x 16% in.
ORD NO. 7662419
Weight: 164 lb

Drive assembly M1 (azimuth or elevation):
Size: 12% x 10% x 11% in.
ORD NO. 6852691
Weight: 216 lb

Induction motor:
Continuous output: 1 hp
Maximum overload: 2 1/2 hp
Speed: 1,450 rpm

Induction motor—Continued
Phase: 3
Cycles: 60
Voltage: 110 ± 5 percent
Current: AC
Hydraulic pump speed: 3,460 rpm
Replenisher pump speed: 2,688 rpm
Dither eccentric shaft speed: 2,688 rpm
Hydraulic system capacity (elevation or azimuth): 7 qt

Hydraulic operating pressures:
Back pressure on high pressure tubes: 86 psi
Servo cylinder: 86 psi
Power limit cylinder (operated at): 710 psi
Maximum high pressure (tubes to hydraulic motor): 1400 psi

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped per Length per Width per Height Volume</td>
<td>Shipped per Length per Width per Height</td>
</tr>
</tbody>
</table>

SERVOMECHANISM, ELEVATION, M1 (T1)

Model Line item No. Federal stock No.
--- --- ---
M1 1296-0022-4025

General
SERVOMECHANISM, ELEVATION, M1 (T1), is a component of the direct primary fire-control system of TANK, COMBAT, FULL-TRACKED: 120-mm gun, M103A1. The servomechanism is a positive-type, two-speed position servo that is connected directly to RANGE FINDER, FIRE CONTROL: M15 (T25) by means of the coupling clamp on the output to elevate and/or depress the range finder in response to an electrical signal received from TRANSMITTER, SUPERELEVATION: M23 (T14). The range finder is linked to the 120-mm gun cannon by the servo system, and movement of the cannon to place the line of sight of PERISCOPE M29 (T93E1) on target automatically places the range finder's line of sight on target also. The servomechanism provides a degree of accuracy not practically obtainable by means of a mechanical linkage and gear drives. The two-speed designation is derived from the use of coarse-gearred and fine-gearred synthesis. The fine synchro increases the amount of voltage available when the system is near zero position, thus increasing the sensitivity of the system.

Differences among models
Data plate location
Classification: Standard A (OTCU 35045).

CHARACTERISTICS

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<th>Value</th>
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<td>Width</td>
<td>12 in.</td>
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<tr>
<td>Height</td>
<td>8 in.</td>
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Weight: 54 lb
Power: 115 v, 400 c. ac; 24 v, dc

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<td>Ship volume</td>
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<tr>
<td>Cross weight</td>
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Outside Continental United States
servomechanisms per

TRANSMITTER, SUPERELEVATION: M22 (TIS)

### General

The superelevation transmitter M22 (TIS) automatically elevates or depresses the gun as the gunner moves the range knob of the range finder. It consists of a synchro-torque receiver, a multiple-contact switch, a servo motor, and a geared coupling drive. The synchro-torque receiver is electrically synchronized with the synchro-torque transmitter in the range finder. Any movement of the rotor of the transmitter resulting in like movement in the receiver. A six-pole receptacle assembly is used to connect the superelevation transmitter M22 (TIS) by a cable to a receptacle at the rear of the range finder. An arm assembly connected to the power source is attached directly to the rotor of the synchro receiver, so the movement of the rotor will swing the arm assembly points into contact with the points of the switch. The switch applies voltage to the servo motor which, through gearing, drives the coupling which is linked to the hydraulic system for positioning the gun to the required superelevation. The unit is mounted on the oil gear power unit and is used in conjunction with the range finder to set superelevation on the gun.

The superelevation transmitter M22 (TIS) serves as a component of the fire control system of the TANK, COMBAT, FULL TRACKED: 90-mm gun, M47 in conjunction with FINDER, RANGE: M12 (T41E3), and as a member of the fire control system of the TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 (T43E1) in conjunction with FINDER, RANGE: M14 (T42E1).

### Differences among models

- Data plate location: The identification plate is located on the housing.
- Classification: Standard A (OTCM 36841)

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M22 (TIS)</td>
<td>1290-765-3162</td>
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### Operation:

- Voltage: 115-volt
- Frequency: 60 cycle ac

### PERFORMANCE EQUIPMENT

### STORAGE AND SHIPMENT DATA

**Within Continental United States**

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<tr>
<td>Volume</td>
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<tr>
<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
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**Outside Continental United States**

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<td>Width</td>
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<td>Volume</td>
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</tr>
<tr>
<td>Gross weight</td>
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</tr>
<tr>
<td>Ship tons</td>
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</tr>
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### INSTRUCTIONAL MATERIAL

- Instructional Material: INSTRUCTIONAL MATERIAL.

### Associated:

- FINDER, RANGE: M12 (T41E3)
- FINDER, RANGE: M14 (T42E1)

### Basic Issue Items

- Instructional Material: INSTRUCTIONAL MATERIAL.

### References:

- SNL F-366, TM 9-507.
- For characteristics and data, see item in section 14.

---

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<tr>
<td>8.14 in.</td>
<td>5 lb.</td>
<td>4.75 in.</td>
<td>6.99 lb.</td>
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18-79
PLOTTING SET, SOUND RANGING: M53

(INSTRUCTIONAL MATERIAL)

Storage and Shipment Data

Within Continental United States

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<tbody>
<tr>
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</tr>
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<td>Volume</td>
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<tr>
<td>Gross weight</td>
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</tr>
<tr>
<td>Ship tons</td>
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Outside Continental United States

<table>
<thead>
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<th>per</th>
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</thead>
<tbody>
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<td>Volume</td>
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</tr>
<tr>
<td>Gross weight</td>
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</tr>
<tr>
<td>Ship tons</td>
<td></td>
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</tbody>
</table>

References:

* For characteristics and data, see items in section 12.

Model    Line item No.    Federal stock No.
M53      4-30864-10

General

PLOTTING SET, SOUND RANGING: M53 (formerly PLOTTING KIT, SOUND RANGING: T43) is used to enable accurate determination of the location of artillery weapons. It is composed of a PLOTTING BOARD, FLASH RANGING, FIRE CONTROL: M18,* WIND CORRECTOR, SOUND RANGING, M1A1,* with various NOMOGRAPHS, TEMPLATES, PROTRACTORS, and other components.

Differences among models

Data plate location

Classification: Standard A (OTCM 37763).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

30 August 1963
QUADRANT, FIRE CONTROL: ELEVATION, M15 (T23E2)

General
QUADRANT, FIRE CONTROL: elevation, M15 (T23E2), is used with HOWITZER, LIGHT, SELF-PROPELLED: full-tracked, 105-mm. TI95EI. HOWITZER, MEDIUM, SELF-PROPELLED: full-tracked, 155-mm. TI96EI. GUN, FIELD ARTILLERY, SELF-PROPELLED: full-tracked, 175-mm. MI07 (T235EI) and HOWITZER, HEAVY, SELF-PROPELLED: full-tracked: 8-inch, M119 (T236EI). The quadrant incorporates the mechanisms and controls necessary for instrument elevation and cant (cross-level) movement. A mechanical counter is used in registering elevation. A correction counter assembly is used for incorporating relatively constant elevation corrections so that the elevation counter registers actual firing table elevation readings. The quadrant contains a built-in instrument lighting system with an integral power supply. The quadrant is the measuring device for laying the weapon in elevation for indirect firing.

INSTRUCTIONAL MATERIAL

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 1 quadrant per shipping container

<table>
<thead>
<tr>
<th>Length</th>
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<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
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<td>11 in.</td>
<td>.93 cu ft</td>
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</table>

Outside Continental United States

Shipped per

<table>
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<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft</td>
<td>2 1/4 in.</td>
<td>11 in.</td>
<td>.93 cu ft</td>
<td>29.75 lb</td>
<td>.02</td>
</tr>
</tbody>
</table>

REFLECTOR, AIMING POST: M1 (CLEAR) AND M2 (RED)

M2 (reflecting red light) is attached to the near aiming post.

Differences among models
Aiming post reflector M2 is identical to the M1 except that a red optical glass filter is cemented to the outside surface of the tetrahedral prism.

Data plate location
The identification decal is located on the side of the housing.

Classification: Standard A (OTCM 37349).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Model M1</th>
<th>Model M2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 1/8 in.</td>
<td>3 1/8 in.</td>
</tr>
</tbody>
</table>

For characteristics and data, see items in section 2d.

PERFORMANCE


equipment

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 per shipping container.

<table>
<thead>
<tr>
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<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Volume</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 1/2 in.</td>
<td>2 3/8 in.</td>
<td>3 1/8 in.</td>
<td>1.38 lb</td>
<td>0.04 cu ft</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Volume</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 1/2 in.</td>
<td>2 3/8 in.</td>
<td>3 1/8 in.</td>
<td>1.38 lb</td>
<td>0.04 cu ft</td>
<td>0.001</td>
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</table>

References: TM 9-1290-334-35P.
SECTION 19
GUIDED MISSILE SYSTEMS
(CLASSES 1410 through 1450, and 4935)
(Includes missiles and rockets incorporating mechanisms capable of altering normal flight paths)

<table>
<thead>
<tr>
<th>Guided Missile System</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR DEFENSE GUIDED MISSILE SYSTEM—HAWK</td>
<td>19-2</td>
</tr>
<tr>
<td>AIR DEFENSE GUIDED MISSILE SYSTEM—NIKE-AJAX</td>
<td>19-20</td>
</tr>
<tr>
<td>AIR DEFENSE GUIDED MISSILE SYSTEM—NIKE-HERCULES</td>
<td>19-76</td>
</tr>
<tr>
<td>ANTITANK GUIDED MISSILE SYSTEM—SS-10</td>
<td>19-123</td>
</tr>
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<td>ANTITANK GUIDED MISSILE SYSTEM—SS-11</td>
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<td>ARTILLERY GUIDED MISSILE SYSTEM—CORPORAL</td>
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</tr>
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<td>ARTILLERY GUIDED MISSILE SYSTEM—LACROSSE</td>
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</tr>
<tr>
<td>ARTILLERY GUIDED MISSILE SYSTEM—REDSTONE</td>
<td>19-192</td>
</tr>
<tr>
<td>HONEST JOHN ROCKET SYSTEM</td>
<td>19-223</td>
</tr>
<tr>
<td>LITTLE JOHN ROCKET SYSTEM</td>
<td>19-233</td>
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</table>

Page 19-1
AIR DEFENSE GUIDED MISSILE SYSTEM—HAWK

(Includes missile, ground guidance, control, handling, and servicing equipment)

AIR DEFENSE GUIDED MISSILE: M3 (XM3E1), XM3, and exercise ........................................ 19-3

CONSOLE, ASSAULT FIRE COMMAND: w/e ........................................................................... 19-4

GUIDED MISSILE BATTERY CONTROL CENTRAL: AN/TSW-2, AN/TSW-XO-2,
AN/TSW-2-XO-3, w/e ........................................................................................................ 19-5

INTERCONNECTING GROUP: OA-2511(XO-1)G, w/e ................................................................. 19-6

LAUNCHER, ZERO LENGTH, GUIDED MISSILE: XM78, XM78E2, and XM78E3, w/e ................ 19-7

LOADER-TRANSPORTER, GUIDED MISSILE: XM501, XM501E1, and XM501E2, w/e .............. 19-8

RADAR SET, CW, ACQUISITION, TRAILER MOUNTED: AN/MPQ-34(XO-1), AN/MPQ-34(XO-3),
and AN/MPQ-34(XO-4), w/e .................................................................................................. 19-9

RADAR SET, CW, ILLUMINATOR, TRAILER MOUNTED: AN/MPQ-33(XO-1), AN/MPQ-33(XO-2),
and AN/MPQ-33(XO), w/e ..................................................................................................... 19-10

RADAR SET, PULSE ACQUISITION, TRAILER MOUNTED: AN/MPQ-35, AN/MPQ-35(XO-3),
and AN/MPQ-35(XO-4), w/e ................................................................................................. 19-11

SHOP EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM, ORGANIZATIONAL
MAINTENANCE: w/e ................................................................................................................ 19-12

SHOP EQUIPMENT, GUIDED MISSILE, ORGANIZATIONAL MAINTENANCE (MISSILE TEST
SHOP: AN/MSM-43(XO), TRAILER MOUNTED, w/e ................................................................ 19-13

The equipment listed below is required to complete the system in the maintenance of the above missile

and associated ground handling, servicing, and firing equipment.

PALLEI, LOADING AND STORAGE, GUIDED MISSILE: XM1 .................................................. 19-14

GENERATOR SET: HF45D ........................................................................................................ 19-15
AIR DEFENSE GUIDED MISSILE: M3 (XM3E1), XM3, AND EXERCISE

SHOWN:
AIR DEFENSE GUIDED MISSILE: M3 (XM3E1)

SHOWN:
CONTAINER, SHIPPING AND STORAGE, GUIDED MISSILE;
ORD A1405

General
AIR DEFENSE GUIDED MISSILE: M3 (XM3E1) is a surface-to-air missile whose purpose is to destroy aircraft identified and designated as targets. The missile XM3E1 makes use of a semiactive-homing guidance system, an automatic detonation system, and a solid fuel propulsion system. The missile body consists of the front-body section (guidance section, access cover band, and radome) and rear-body section (warhead, rocket motor, elevon actuator sections, and tailcone). The missile containers are transported by a 2 1/4-ton truck M36.

Differences among models
Data plate location
Classification: Limited Production (OTCM 37034).

CHARACTERISTICS

Missile—Continued
Warhead:
Weight
110 lb
Diameter
1 ft, 1 in.
Height
1 ft, 1 in.

PERFORMANCE
 Classified.

EQUIPMENT
Basic Issue Items: TM 9-1410-600-12

INSTRUCTIONAL MATERIAL
GUIDED MISSILE, AIR DEFENSE: M16
GUIDED MISSILE TRAINING: dummy

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 1 missile per metal container
Length
18 ft
Width
3 ft, 6 1/2 in.
Height
2 ft, 4 in.
Volume
3,100 lb
Ship tons

Outside Continental United States
Shipped 1 missile per metal container
Length
18 ft
Width
3 ft, 6 1/2 in.
Height
2 ft, 4 1/2 in.
Volume
3,100 lb
Ship tons

CONSOLE, ASSAULT FIRE COMMAND: W/E

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/E</td>
<td>4-10460-01</td>
<td>1430-624-4583</td>
</tr>
</tbody>
</table>

General

CONSOLE, ASSAULT FIRE COMMAND: w/e, is a rectangular, insulated cabinet which is divided into six compartments and six panels. The compartments house the various chassis which are used to operate the assault firing unit. During normal operation, the assault firing unit rests on three folding legs and the open cover compartment supports the shelter. Accessory equipment includes the shelter, folding stool, viewing hood, headset, and two telephone sets.

Differences among models

Data plate location

Classification: Limited Production (OTCM 37240).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: TM 9-1430-505-12/1

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped 1 console per crate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: TM 9-1430-505-12/1, TM 9-1430-505-35.

### Differences among models

**Data plate location**

The identification plate is located on the entrance door.

**Classification**: Limited Production (OTCM 37240).

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN/TSW-2</td>
<td>4-16560-01</td>
</tr>
<tr>
<td>AN/TSW-2-XO-2</td>
<td>4-16560-02</td>
</tr>
<tr>
<td>AN/TSW-2-XO-3</td>
<td>4-16560-03</td>
</tr>
</tbody>
</table>

### EQUIPMENT

Basic issue items: TM 9-1430-501-12.

### INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

FSN 1430-714-3316

**Outside Continental United States**

Shipped

- Length: 16 ft, 11 1/2 in.
- Width: 7 ft, 3 in.
- Height: 8 ft, 6 in.
- Volume: 1155.6 cu ft
- Gross weight: 7310 lb
- Ship tons: 28.8

FSN 1430-624-4582

**Within Continental United States**

Shipped

- Length: 15 ft, 8 in.
- Width: 6 ft, 10 in.
- Height: 6 ft, 9 in.
- Volume: 731 cu ft
- Gross weight: 5450 lb
- Ship tons: 19.2

FSN 1430-708-2896

**Outside Continental United States**

Shipped

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

FSN 1430-714-3316

**Within Continental United States**

Shipped

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

INTERCONNECTING GROUP: OA-2511(XO-1)/G, W/E

General

INTERCONNECTING GROUP: OA-2511(XO-1)/G, w/e, consisting of an electrical cable assembly set and two interconnecting boxes (crew chief junction boxes), provides conductor paths for the HAWK mobile battery and the means of electronically connecting from one to three launchers to one cw illuminator. The power cables (12 ea) are connected from the generators to the launchers, radars, and the battery control central (one cable is a spare). The data cables (15 ea) connect the radars, battery control central, crew chief junction boxes, and launchers. Both types of cables are placed on cable reels for truck and air transportation. The crew chief junction box receives command signals from the battery control central and the illuminator, and distributes these signals to three launchers. During launcher maintenance, or missile loading conditions, the crew chief junction box may be used to interrupt control of the launcher by the battery control central.

Differences among models

Data plate location

Classification:

CHARACTERISTICS

- Power cables:
  - Weight: 176 lb
  - Weight (with cable reel): 256 lb
  - Conductors: 4 No. 8 AWG
  - Length: 375 ft

- Data cables:
  - Weight: 140 lb
  - Weight (with cable reel)

Conductors: 40 No. 20 AWG and 2 73-ohm coaxial

Length: 375 ft

Interconnecting box (crew chief junction box):
- Weight: 60 lb
- Length: 1 ft, 6\% in.
- Width: 1 ft, 1\% in.
- Height: 1 ft, 3\% in.

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

Outside Continental United States

Shipped
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

TM 9-1400-500-10, TM 9-7440-500-12/1
LAUNCHER, ZERO LENGTH, GUIDED MISSILE: XM78, XM78E2, AND XM78E3, W/E

CHARACTERISTICS

**General**
LAUNCHER, ZERO LENGTH, GUIDED MISSILE: XM78, XM78E2, AND XM78E3, w/e, positions from one to three missiles in a ready-to-fire attitude. The launcher points the missile in the proper firing direction and provides the physical support from which the missiles are fired. The launcher consists of the base assembly, boom support assembly, and missile boom.

**Differences among models**

**Data plate location**

**Classification:** Limited Production (OTCM 37259).

**XM78E2:**

**Weight:**
- Less missiles: 4,326 lb
- With missiles: 8,226 lb

**Length overall (less missiles):**
- March order: 14 ft, 4 in.
- Emplaced: 12 ft, 8 in.

**Width overall (less missiles):**
- March order: 8 ft
- Emplaced: 15 ft, 4 in.

**Height (less missiles):**
- March order: 7 ft, 8 in.
- Full elevation: 12 ft

**Height (with missiles):**
- March order: 9 ft, 8 in.
- With missile: 19 ft, 6 in.

**Elevation limits:** 72 ± 10 to ± 1240 ± 10 mils

**Azimuth travel:** 6,400 mils continuous

**Forcing depth (max):** 2 ft, 6 in.

**Tires:**
- Size: 900 x 20
- Pressure:
  - Highway: 40 psi
  - Rough terrain: 25 psi

**Base hydraulic system:**
- Reservoir: 1.62 gal.
- Pressure: 3,000 psi
- External power requirements: 13.5 kw, 416 vac, 400 cpa, 3 phase

**Main hydraulic system reservoir:** 2,200 gal.

**Performance**

<table>
<thead>
<tr>
<th>Operating angle</th>
<th>10 deg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main hydraulic system</td>
<td>...</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>2,500 psi minimum</td>
</tr>
<tr>
<td>Accumulator pressure</td>
<td>1,500 psi ± 10 psi</td>
</tr>
<tr>
<td>Towing speed:</td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td>60 mph</td>
</tr>
<tr>
<td>Rough terrain</td>
<td>20 mph</td>
</tr>
</tbody>
</table>

**Equipment**

**Basic issue items:** TM 9-1440-624-12/1

**Instructional material**

**Primer mover**

**Truck cargo:** 2½-ton, 6 x 6, M36

**Storage and shipment data**

<table>
<thead>
<tr>
<th>FSN 1440-624-4585</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Outside Continental United States</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FSN 1440-714-3317</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Outside Continental United States</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FSN 1440-714-3318</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Outside Continental United States</td>
</tr>
</tbody>
</table>

Reference: TM 9-1440-500 12/1

For characteristics and data, see item in section 21.

*19-7*
LOADER-TRANSPORTER, GUIDED MISSILE: XM501, XM501E1, AND XM501E2, W/E

CHARACTERISTICS

Basic Issue Items:

**STORAGE AND SHIPMENT DATA**

FSN 1450-479-5556

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Continental United States</td>
<td>14 ft, 10 in.</td>
<td>6 ft, 3 in.</td>
<td>7 ft, 7 in.</td>
<td>301.8 cu ft</td>
<td>6,300 lb</td>
<td>17.66</td>
</tr>
<tr>
<td>Outside Continental United States</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

FSN 1450-646-3180

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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Continental United States</td>
<td>14 ft, 10 in.</td>
<td>6 ft, 3 in.</td>
<td>7 ft, 7 in.</td>
<td>301.8 cu ft</td>
<td>5,800 lb</td>
<td>17.65</td>
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<tr>
<td>Outside Continental United States</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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FSN 1450-745-7046

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Continental United States</td>
<td>14 ft, 10 in.</td>
<td>6 ft, 3 in.</td>
<td>7 ft, 7 in.</td>
<td>301.8 cu ft</td>
<td>6,300 lb</td>
<td>17.66</td>
</tr>
<tr>
<td>Outside Continental United States</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PERFORMANCE**

Speed (maximum when loaded with three missiles) 10 mph

Operating slope (for missile transfer operation) 10 deg
Radar Set, CW, Acquisition, Trailer Mounted:
AN/MPQ-34(XO-1), AN/MPQ-34(XO-3), and AN/MPQ-34(XO-4), W/E

EQUIPMENT


INSTRUCTIONAL MATERIAL

Prime Mover

Truck Cargo: 2½-ton, 6 x 6 M35 or M36.*

Storage and Shipment Data

FSN 1430-824-4588

Within Continental United States

Shipped

Length 16 ft
Width 8 ft, 4 in.
Height 10 ft, 4 in.
Volume 1,474 cu ft
Gross weight 4,790 lb
Ship tons 36.85

Outside Continental United States

Shipped

Length 16 ft
Width 8 ft, 11 in.
Height 10 ft, 4 in.
Volume 1,474 cu ft
Gross weight 4,790 lb
Ship tons 36.85

FSN 1430-714-3314

Within Continental United States

Shipped

Length 14 ft, 4 in.
Width 6 ft, 4 in.
Height 6 ft, 1 in.
Volume 734 cu ft
Gross weight 3,900 lb
Ship tons 18.6

Outside Continental United States

Shipped

Length 14 ft, 4 in.
Width 6 ft, 4 in.
Height 6 ft, 1 in.
Volume 734 cu ft
Gross weight 3,900 lb
Ship tons 18.6

FSN 1430-708-2888

Within Continental United States

Shipped

Length 14 ft, 4 in.
Width 6 ft, 11 in.
Height 6 ft, 1 in.
Volume 734 cu ft
Gross weight 3,900 lb
Ship tons 18.6

Outside Continental United States

Shipped

Length 14 ft, 4 in.
Width 6 ft, 11 in.
Height 6 ft, 1 in.
Volume 734 cu ft
Gross weight 3,900 lb
Ship tons 18.6

FSN 1430-714-3314

Within Continental United States

Shipped

Length 14 ft, 4 in.
Width 6 ft, 11 in.
Height 6 ft, 1 in.
Volume 734 cu ft
Gross weight 3,900 lb
Ship tons 18.6

Outside Continental United States

Shipped

Length 14 ft, 4 in.
Width 6 ft, 11 in.
Height 6 ft, 1 in.
Volume 734 cu ft
Gross weight 3,900 lb
Ship tons 18.6


CHARACTERISTICS

Weight 4,340 lb
Length 14 ft, 2 in.
Width 7 ft, 8 in.
Height Upright position 16 ft
Slewed position 7 ft, 7 in.
Tires: Size 9.00 x 22
Pressure 45 lb
Breaks air over hydraulic
Slope emplacement (max) 10 deg
Circle of emplacement (dia) 16 ft, 2 in.

PERFORMANCE

* Characteristics and data will be added in pertinent section at a later date.
** For characteristics and data, see item in section 21.
RADAR SET, CW ILLUMINATOR, TRAILER MOUNTED: AN/MPQ-33(XO-1), AN/MPQ-33(XO-2), AND AN/MPQ-33(XO), W/E

WEIGHT

- 5,250 lb

DIMENSIONS

- Length, overall (travel condition): 14 ft, 3 in.
- Width, overall (travel condition): 7 ft, 10 in.
- Height, overall (travel condition): 9 ft, 10 in.
- Height, overall (antenna tilted for air travel): 7 ft, 3½ in.
- Clearance, overhead (travel condition): 10 ft, 4 in.
- Tire size: 9.00 x 20
- Tire air pressure: 45 lb

SLOPE EMPLACEMENT (MAX)

- 10 deg

CIRCLE OF EMPLACEMENT (Dia.)

- 16 ft, 2 in.

DIAMETER OF ANTENNA:

- Transmitting: 4 ft
- Receiving: 4 ft

** Classified.

PERFORMANCE

** Equipment

- Basic Issue Items: See TM 9-1430-504-12.

** Instructional Material

PRIME MOVER

- TRUCK, CARGO: 2½-ton, 6 x 6, M38 or M38A2

STORAGE AND SHIPMENT DATA

FSN 1430-624-4579

WITHIN CONTINENTAL UNITED STATES

- Shipped Length: 16 ft
- Width: 8 ft, 11 in.
- Height: 9 ft, 10 in.
- Volume: 1,450 cu ft
- Gross weight: 4,880 lb
- Ship tons: 35.6

OUTSIDE CONTINENTAL UNITED STATES

- Shipped Length: 16 ft
- Width: 8 ft, 11 in.
- Height: 9 ft, 10 in.
- Volume: 1,450 cu ft
- Gross weight: 4,880 lb
- Ship tons: 35.6

FSN 1430-768-2189

WITHIN CONTINENTAL UNITED STATES

- Shipped Length: 14 ft, 3 in.
- Width: 8 ft, 11 in.
- Height: 7 ft, 3½ in.
- Volume: 926 cu ft
- Gross weight: 5,250 lb
- Ship tons: 23.15

OUTSIDE CONTINENTAL UNITED STATES

- Shipped Length: 14 ft, 3 in.
- Width: 8 ft, 11 in.
- Height: 7 ft, 3½ in.
- Volume: 926 cu ft
- Gross weight: 5,250 lb
- Ship tons: 23.15

** References: TM 9-1430-504-12, TM 9-1430-504-35.

PROVIDES DATA NECESSARY FOR THE AIR DEFENSE GUIDED MISSILE: XM360 TO EFFECTIVELY ENGAGE ALL HOSTILE TARGETS BY MEANS OF AIR-SEARCH RADAR WHICH GENERATES AND RADIATES PULSES OF RADIO FREQUENCY (RF) ENERGY AND WHICH RECEIVES RF ENERGY REFLECTED FROM TARGETS WITHIN THE RADIATED PATTERN. THE RECEIVED RF ENERGY IS ULTIMATELY PRESENTED ON EITHER THE PULSE ACQUISITION RADAR (PAR) OR THE BATTERY CONTROL CENTRAL (BCC) PLAN POSITION INDICATORS (PPI'S), WHICH DISPLAY THE RANGE AND AZIMUTH OF THE ACQUIRED TARGETS. AN ASSOCIATED IDENTIFICATION FRIEND OR FOE (IFF) SYSTEM, LOCATED ON THE PAR, IDENTIFIES THE TARGETS DISPLAYED ON THE INDICATORS. THE RADAR SETS AN/MPQ-35 AND AN/MPQ-35(XO-3) EACH CONSISTS OF A RADAR SET GROUP, HIGH-VOLTAGE POWER SUPPLY, ANTENNA GROUP, RECEIVER TRANSMITTER GROUP, ELECTRONIC EQUIPMENT COOLER AND CCM AMPLIFIER GROUP, PALLET ASSEMBLY, CHASSIS TRAILER: 2-TON, 2-WHEEL, XM390*, AND TRAILER JACKS.

DIFFERENCES AMONG MODELS

DATA PLATE LOCATION

CLASSIFICATION: LIMITED PRODUCTION (OTCM 37240).

CHARACTERISTICS

PAR DETACHED FROM 2-WHEEL TRAILER XM390—Continued

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAR detached from 2-wheel trailer XM390, antenna reflector and feed horn</td>
<td>4,980 lb</td>
<td>11 ft, 1 in.</td>
<td>22 in.</td>
<td>12 ft</td>
</tr>
<tr>
<td>PAR detached from 2-wheel trailer XM390, antenna reflector and feed horn</td>
<td>6,930 lb</td>
<td>11 ft, 1 in.</td>
<td>22 in.</td>
<td>12 ft</td>
</tr>
</tbody>
</table>

*characteristics and data will be added at a later date.
CHARACTERISTICS—Continued

Antenna pedestal (equipped):
- Weight: 800 lb
- Height: 8 ft, 1 in.

Pallet:
- Weight: 450 lb
- Length: 16 ft, 11 1/2 in.
- Width: 8 ft, 1 1/2 in.
- Height: 2 ft, 3 1/2 in.

Chassis trailer: 2-ton, 2-wheel, XM390 (overall dimensions).*
- Weight: 3,130 lb
- Length: 16 ft, 2 in.
- Width: 8 ft, 2 1/2 in.
- Height:
  - Loaded: 3 ft, 8 in.
  - Floor height (loaded): 2 ft, 10 1/2 in.
  - Ground clearance: 1 ft, 5 in.

PERFORMANCE

Classified.

EQUIPMENT


INSTRUCTIONAL MATERIAL

PRIME MOVER: TRUCK, CARGO: 2 1/2-ton, 6 x 6, M36 or M38.*

STORAGE AND SHIPMENT DATA

FSN 1430-714-3315

Carloading and marine transportation:

Radar mounted on trailer:
- Exterior:
  - Length: 16 ft, 4 1/4 in.
  - Width: 8 ft, 1 1/2 in.
  - Height: 7 ft, 8 in.
  - Gross weight: 8,375 lb
  - Cubic feet: 1,020
- Case, antenna reflector (right):
  - Exterior:
    - Length: 5 ft, 7 in.
    - Width: 4 ft, 10 1/2 in.
    - Height: 6 ft, 5 1/2 in.
    - Gross weight: 235 lb
    - Cubic feet: 148
- Case, antenna reflector (left):
  - Exterior:
    - Length: 5 ft, 7 in.
    - Width: 4 ft, 10 1/2 in.
    - Height: 5 ft, 7 in.
    - Gross weight: 190 lb
    - Cubic feet: 148
- Case, antenna reflector (center):
  - Exterior:
    - Length: 5 ft, 9 in.
    - Width: 5 ft, 7 in.
    - Height: 2 ft, 8 in.
    - Gross weight: 110 lb
    - Cubic feet: 86.3
- Case, pallet jacks (right):
  - Exterior:
    - Length: 2 ft, 5 1/4 in.
    - Width: 1 ft, 11 3/4 in.
    - Height: 1 ft, 7 in.
    - Gross weight: 140 lb
    - Cubic feet: 7.6
- Case, pallet jacks (left):
  - Exterior:
    - Length: 2 ft, 5 1/4 in.
    - Width: 1 ft, 11 3/4 in.
    - Height: 1 ft, 7 in.
    - Gross weight: 140 lb
    - Cubic feet: 7.6

Charter, pallet jack support:
- Exterior:
  - Length: 9 ft, 8 in.
  - Width: 4 ft, 4 in.
  - Height: 3 ft, 11 1/2 in.
  - Gross weight: 400 lb
  - Cubic feet: 165

FSN 1430-708-2895

Carloading and marine transportation:

Radar mounted on trailer:
- Exterior:
  - Length: 16 ft, 4 in.
  - Width: 8 ft, 1 in.
  - Height: 8 ft, 6 in.
  - Gross weight: 7,582 lb
  - Cubic feet: 1,122
- Reflector carrying case:
  - Exterior:
    - Length: 6 ft, 4 in.
    - Width: 5 ft, 1 in.
    - Height: 3 ft, 10 in.
    - Gross weight: 78 lb
    - Cubic feet: 125

* Characteristics and data to be added at a later date.
** For characteristics and data, see item in section 21

19-12
### STORAGE AND SHIPMENT DATA—Continued

**FSN 1430-708-2965**

**Carloading and marine transportation—Continued**

#### Center section crate:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 7 in.</td>
<td>4 ft, 6 in.</td>
<td>3 ft, 1 in.</td>
<td>164 lb</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Right intermediate:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 7 in.</td>
<td>4 ft, 6 in.</td>
<td>3 ft, 1 in.</td>
<td>151 lb</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Left Intermediate:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 7 in.</td>
<td>4 ft, 5 in.</td>
<td>3 ft, 1 in.</td>
<td>161 lb</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Right pallet jacks:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 11 in.</td>
<td>1 ft, 8 in.</td>
<td>1 ft, 10 in.</td>
<td>128 lb</td>
<td>9.5</td>
</tr>
</tbody>
</table>

#### Left pallet jacks:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 11 in.</td>
<td>1 ft, 8 in.</td>
<td>1 ft, 10 in.</td>
<td>128 lb</td>
<td>9.5</td>
</tr>
</tbody>
</table>

#### Aircraft transportation:

**Radar mounted on trailer:**

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16 ft, 4 in.</td>
<td>8 ft, 1 in.</td>
<td>7 ft, 7½ in.</td>
<td>7,519 lb</td>
<td>1,067</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 ft</td>
<td>3 ft, 8 in.</td>
<td>2 ft, 1½ in.</td>
<td>183 lb</td>
<td>39</td>
</tr>
</tbody>
</table>

#### Reflector support removed:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 ft</td>
<td>3 ft, 8 in.</td>
<td>2 ft, 1½ in.</td>
<td>183 lb</td>
<td>39</td>
</tr>
</tbody>
</table>

#### Reflector carrying case:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 3 in.</td>
<td>5 ft</td>
<td>3 ft, 10½ in.</td>
<td>7½ lb</td>
<td>125</td>
</tr>
</tbody>
</table>

#### Center section crate:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 7 in.</td>
<td>4 ft, 6 in.</td>
<td>3 ft, 1 in.</td>
<td>164 lb</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Right intermediate:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 7 in.</td>
<td>4 ft, 6 in.</td>
<td>3 ft, 1 in.</td>
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<td>90</td>
</tr>
</tbody>
</table>

#### Left intermediate:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
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<th>Gross weight</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 7 in.</td>
<td>4 ft, 6 in.</td>
<td>3 ft, 1 in.</td>
<td>151 lb</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Right pallet jacks:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 11 in.</td>
<td>1 ft, 8 in.</td>
<td>1 ft, 10½ in.</td>
<td>128 lb</td>
<td>9.5</td>
</tr>
</tbody>
</table>

#### Left pallet jacks:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 11 in.</td>
<td>1 ft, 8 in.</td>
<td>1 ft, 10½ in.</td>
<td>128 lb</td>
<td>9.5</td>
</tr>
</tbody>
</table>

**FSN 1430-624-4581**

**Carloading and marine transportation:**

**Radar mounted on trailer:**

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16 ft, 4 in.</td>
<td>8 ft, 1 in.</td>
<td>7 ft, 7½ in.</td>
<td>7,581 lb</td>
<td>1,122</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 ft</td>
<td>3 ft, 8 in.</td>
<td>2 ft, 1½ in.</td>
<td>183 lb</td>
<td>39</td>
</tr>
</tbody>
</table>

#### Reflector carrying case:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 4 in.</td>
<td>5 ft</td>
<td>3 ft, 1½ in.</td>
<td>78 lb</td>
<td>128</td>
</tr>
</tbody>
</table>

#### Center section crate:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 ft, 7 in.</td>
<td>4 ft, 6 in.</td>
<td>3 ft, 1 in.</td>
<td>164 lb</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Right intermediate:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
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<tbody>
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<td>90</td>
</tr>
</tbody>
</table>

#### Left intermediate:

<table>
<thead>
<tr>
<th>Exterior</th>
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<th>Height</th>
<th>Gross weight</th>
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</tr>
</thead>
<tbody>
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<td>6 ft, 7 in.</td>
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<td>3 ft, 1 in.</td>
<td>151 lb</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Right pallet jacks:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Cubic feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 11 in.</td>
<td>1 ft, 8 in.</td>
<td>1 ft, 10½ in.</td>
<td>128 lb</td>
<td>9.5</td>
</tr>
</tbody>
</table>

#### Left pallet jacks:

<table>
<thead>
<tr>
<th>Exterior</th>
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<th>Width</th>
<th>Height</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 11 in.</td>
<td>1 ft, 8 in.</td>
<td>1 ft, 10½ in.</td>
<td>128 lb</td>
<td>9.5</td>
</tr>
</tbody>
</table>

---

19–13
<table>
<thead>
<tr>
<th>Description</th>
<th>Exterior</th>
<th>Cubic feet</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carloading and marine transport - continued</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left pallet jacks - continued</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>128 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cubic feet</td>
<td>9.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircraft transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radar mounted on trailer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td>16 ft, 4 in.</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>8 ft, 1 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>7 ft, 1 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>7 ft, 1 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflector support removed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td>7 ft, 1 in.</td>
<td>1.035</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>3 ft, 8 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 1% in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>2 ft, 1% in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflector carrying case</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td>6 ft, 4 in.</td>
<td>390</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>5 ft, 1 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 1% in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>3 ft, 1% in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center section crate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td>6 ft, 7 in.</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>4 ft, 5 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 1% in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>644 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cubic feet</td>
<td>9.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircraft transportation - continued</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center section crate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>3 ft, 1 in.</td>
<td>164 lb</td>
<td></td>
</tr>
<tr>
<td>Cubic feet</td>
<td>9.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right intermediate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td>6 ft, 7 in.</td>
<td>161 lb</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>4 ft, 5 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 1 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>183 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cubic feet</td>
<td>390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left intermediate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>161 lb</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>4 ft, 5 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 1 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>125 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cubic feet</td>
<td>390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right pallet jacks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td>2 ft, 11 in.</td>
<td>125 lb</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>1 ft, 10% in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 11 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>9.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cubic feet</td>
<td>125 lb</td>
<td></td>
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<td>Left pallet jacks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>2 ft, 11 in.</td>
<td>125 lb</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>1 ft, 10% in.</td>
<td></td>
<td></td>
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<tr>
<td>Width</td>
<td>2 ft, 11 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>9.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SHOP EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM,
ORGANIZATIONAL MAINTENANCE: W/E

General
SHOP EQUIPMENT, GUIDED MISSILE REMOTE CONTROL SYSTEM, ORGANIZATIONAL MAINTENANCE: w/e, contains the ground test equipment needed to check out the ground-based items which, with the missile, comprise the complete HAWK missile system. The ground equipment test shop is used to perform periodic checks of the ground equipment and detect malfunctions. There are 12 test sets which make up the ground equipment test shop—six of these test sets are common items and six are peculiar to the HAWK air defense guided missile system. The six common test sets are RF voltmeter AN/USM/68, RF generator AN/URM/64, multimeter TS-352/U, echo box TS-172A/UP, oscilloscope TS-239/UP, and VTUM TS-375/U. The six test sets peculiar to the HAWK system are radar target simulator, launcher test set, missile simulator, receiver test set, signal generator, and transmitter test set. All this equipment is strapped on a pallet for air or ground transportation. On the ground, this equipment is transported by a 2½-ton truck M36 or M35.

Differences among models
Data plate location
Classification: Limited production (OTCM 37240).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Pallet empty</th>
<th>106 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pallet loaded</td>
<td>1,000 lb</td>
</tr>
</tbody>
</table>

Emplaced:
Length: 6 ft, 7 in.
Width: 4 ft, 2 in.
Height: 1 ft, 11¾ in.

March order:
Length: 6 ft, 7 in.
Width: 4 ft, 2 in.
Height: 1 ft, 11¾ in.

PERFORMANCE

EQUIPMENT
Basic Issue Items: See TM 9-4935-501-12/1

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
FSN 4935-690-5962
Within Continental United States

Shipped
Length: 7 ft, 2¼ in.
Width: 4 ft, 8½ in.
Height: 4 ft, 1½ in.
Volume: 138 cu ft
Gross weight: 1,808 lb
Ship tons: 3.45

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

SHOP EQUIPMENT, GUIDED MISSILE, ORGANIZATIONAL MAINTENANCE  
(Missile Test Shop): AN/MSM-43(XO), TRAILER MOUNTED, W/E

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trailer-Mounted (1957)</td>
<td>4-40120-01</td>
<td>4935-624-4587</td>
</tr>
<tr>
<td>(1968 configuration)</td>
<td>4-40120-02</td>
<td>4935-708-3260</td>
</tr>
<tr>
<td>AN/MSM-43 (XO)</td>
<td>4-40120-03</td>
<td>4935-714-3318</td>
</tr>
</tbody>
</table>

General  
SHOP EQUIPMENT, GUIDED MISSILE, ORGANIZATIONAL MAINTENANCE (Missile Test Shop): AN/MSM-43(XO), TRAILER MOUNTED, w/e, provide the facilities necessary to determine the operational readiness of the missile XM3El. The missile test shop consists of a guided missile maintenance kit, guided missile test set group, and a chassis trailer: 1-ton, 2-wheel, XM389 (modified)*. Four systems in the missile test shop (RF hydraulic, test control and monitor, and compressed air) control and monitor the generation and response of simulated signals from the missile test shop which are programmed through the missile XM3EI. These signals simulate those which the missile XM3EI normally receives from the cw illuminator radar and from the target in the form of reflected energy.

Differences among models  
Data plate location  
Classification: Limited production (OTCM 37240).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emplaced:</td>
<td>6.163 lb</td>
<td>14 ft. 10 in.</td>
<td>8 ft. 10 in.</td>
<td>7 ft. 1% in.</td>
</tr>
<tr>
<td>March order:</td>
<td></td>
<td>14 ft. 4½ in.</td>
<td>7 ft. 19½ in.</td>
<td>7 ft. 1% in.</td>
</tr>
<tr>
<td>Guided missile test set group:</td>
<td></td>
<td>14 ft. 4½ in.</td>
<td>7 ft. 19½ in.</td>
<td>7 ft. 1% in.</td>
</tr>
</tbody>
</table>

**Guided missile test set group—Continued**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric equipment cabinet:</td>
<td>300 lb</td>
<td>7 ft. 8½ in.</td>
<td>5 ft. 8½ in.</td>
<td>1 ft. 5½ in.</td>
</tr>
<tr>
<td>Work and storage cabinet:</td>
<td>140 lb</td>
<td>7 ft. 10% in.</td>
<td>5 ft. 10% in.</td>
<td>3 ft. 8 in.</td>
</tr>
<tr>
<td>Chassis trailer: 1-ton 2-wheel, XM389EI**:</td>
<td>2,162 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic issue items: TM 9-4935-500-12.

**INSTRUCTIONAL MATERIAL**

**PRIME MOVER**

Truck cargo: 2½-ton, 6 x 6, M36 or M38*

**STORAGE AND SHIPMENT DATA**

FSN 4935-714-3318

**Shipped**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>14 ft. 4½ in.</td>
<td>7 ft. 10% in.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Characteristics and data will be added at a later date.
** For characteristics and data, see item in section 21.
## Storage and Shipment Data—Continued

FSN 4935-714-3318

### Within Continental United States—Continued

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Height</th>
<th>7 ft, 1(\frac{3}{8}) in.</th>
<th>Volume</th>
<th>865.4 cu ft</th>
<th>Gross weight</th>
<th>5,007 lb</th>
<th>Ship tons</th>
<th>20.13</th>
</tr>
</thead>
</table>

### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>14 ft, 4(\frac{1}{2}) in.</th>
<th>Width</th>
<th>7 ft, 10(\frac{1}{2}) in.</th>
<th>Height</th>
<th>7 ft, 2(\frac{1}{2}) in.</th>
<th>Volume</th>
<th>800.4 cu ft</th>
<th>Gross weight</th>
<th>5,007 lb</th>
<th>Ship tons</th>
<th>9.13</th>
</tr>
</thead>
</table>

FSN 4935-624-487

### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>14 ft, 4 in.</th>
<th>Width</th>
<th>6 ft, 4 in.</th>
<th>Height</th>
<th>7 ft, 2 in.</th>
<th>Volume</th>
<th>660 cu ft</th>
<th>Gross weight</th>
<th>4,600 lb</th>
<th>Ship tons</th>
<th>20.13</th>
</tr>
</thead>
</table>

### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>14 ft, 4 in.</th>
</tr>
</thead>
</table>

**References:** TM 9-4935-500-12, TM 9-1400-500-10.
PALLET, LOADING AND STORAGE, GUIDED MISSILE: XMI

Differences among models

Data plate location

Classification: Limited production (OTCM 37240).

### CHARACTERISTICS

**Weight:**
- Empty: 944 lb
- Missiles (3) aboard: 4,828 lb
- Length (w/o missiles): 96% in.
- Width (w/o missiles): 65% in.
- Height (w/o missiles): 40% in.

### PERFORMANCE

### EQUIPMENT

### INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

**FSN 1450-428-4586 and FSN 1450-465-5157**

**Within Continental United States**

- Shipped
  - Length
  - Width
  - Height
  - Gross weight
  - Ship tons

**Outside Continental United States**

- Shipped
  - Length
  - Width
  - Height
  - Gross weight
  - Ship tons

**FSN 1450-768-7045**

- Shipped
  - Length
  - Width
  - Height
  - Gross weight
  - Ship tons

**Within Continental United States**

- Shipped 1 pallet crated
  - Length: 7 ft, 8% in.
  - Width: 8 in.
  - Height: 5 ft, 8% in.
  - Gross weight: 1,420 lb
  - Ship Tons: 6.60

- Out,side Continental United States
  - Shipped 1 pallet crated
    - Length: 10 ft, 8% in.
    - Width: 8 in.
    - Height: 5 ft, 8% in.
    - Gross weight: 1,420 lb
    - Ship Tons: 6.60

---

General

PALLET, LOADING AND STORAGE, GUIDED MISSILE: XMI, and, is designed to hold three ready-to-fire missiles which can be quickly transferred by loader to a launcher. It can be used either trailer-mounted, truck-mounted, or detached. Index fittings provide attachment points so that a pallet may be picked up and moved by the loader. Loaded trailer or truck-mounted pallets may be used in movements relocating the battery in the field.

**GENERATOR SET: HF45D**
(Data to be published at a later date.)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Differences among models</td>
<td></td>
</tr>
<tr>
<td>Data plate location</td>
<td></td>
</tr>
<tr>
<td>Classification</td>
<td></td>
</tr>
</tbody>
</table>

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**
AIR DEFENSE GUIDED MISSILE SYSTEM NIKE-AJAX
(Includes specially designed components of guided missile remote control systems; nonairborne guided missile launchers; specially designed trucks for use in transporting guided missiles; specially designed hoisting beams; checkout equipment and test equipment specially designed for use with guided missiles and guided missile remote control systems.)
BATTERY CONTROL AREA
A—ANTENNA-MAST GROUP: OA-739/MSW-1
B—ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING, TRAILER MOUNTED: OA-654/MPA-4 through OA-654G/MPA-4
C—ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION: OA-658/MS
D—ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING, TRAILER MOUNTED: OA-655/MPA-4 through OA-655G/MPA-4
E—DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MSA-7, AN/MSA-7A, AN/MSA-17, AN/MSA-17A
F—TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MPA-4 and AN/MPA-4A
G—TEST SET, RADAR: TS-947 MSW-I and TS-947A/MSW-I
LAUNCHING AREA
H—CONTROL INDICATOR: C-1488/MSE-2
J—GUIDED MISSILE, AIR DEFENSE: M1
K—LAUNCHER, GUIDED MISSILE: M22, M22A1, M22A2, and M22A3
L—SIMULATOR STATION, RADAR SIGNAL, GUIDED MISSILE SYSTEM, TRAILER MOUNTED: AN/MPQ-36 (15D2)
ASSEMBLY AND SERVICE EQUIPMENT
M—BEAM, HOISTING, GUIDED MISSILE
N—BEAM, ASSEMBLY, BOOSTER
P—BEAM, ASSEMBLY, WARHEAD
Q—TRUCK, GUIDED MISSILE ROCKET MOTOR: M251
R—TRUCK, GUIDED MISSILE BODY SECTION: M285
S—SERVICER, ACID, GUIDED MISSILE: M2
T—SERVICER, FUEL, GUIDED MISSILE: M3 and M3A1
U—CARRIAGE, MISSILE HANDLING: M28
V—DRAINING KIT, FUEL, GUIDED MISSILE: M54
W—DRAINING KIT, OXIDIZER, GUIDED MISSILE: M53
X—RACK, BATTERY: MT-1498/G
Y—STAND, TEST, HYDRAULIC SYSTEM, MISSILE: M14
Z—TEST SET, GUIDED MISSILE: AN/DSM-12, AN/DSM-12A, and AN/DSM-12B
AA—TRUCK, INERT GUIDED MISSILE: M257
BB—TRUCK, INERT GUIDED MISSILE: M256
CC—SIDE TRUSS, LOADING RACK, GUIDED MISSILE
DD—END TRUSS, LOADING RACK, GUIDED Missile
EE—DRAWBAR, TRUCK, BRACKET, HAND
FF—RAIL, LAUNCHING AND HANDLING: M1, M1A1, and M1A2
The equipment required to complete the system, which includes maintenance, repair, and checkout equipment especially designed for use with guided missiles and guided missile control systems, will be added at a later date.
ANTENNA-MAST GROUP: OA–739/MSW–1, W/E

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th>Box #1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Continental United States</strong></td>
<td></td>
</tr>
<tr>
<td>Shipped 1 mast per 10 boxes</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>10 ft, 3½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft</td>
</tr>
<tr>
<td>Height</td>
<td>11½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>19.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>300 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.4875</td>
</tr>
</tbody>
</table>

| **Outside Continental United States** |  |
| Shipped |  |
| Length |  |
| Width |  |
| Height |  |
| Volume |  |
| Gross weight |  |
| Ship tons |  |

**CHARACTERISTICS**

| Length | 140 ft |
| Width | 140 ft |
| Height of mast above ground level | 61 ft, 8 in. |
| Length of boom | 20 ft, 6 in. |

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL Y4-7.
<table>
<thead>
<tr>
<th>Box #</th>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2 &amp; #3</td>
<td>Shipped 1 mast per 10 boxes</td>
<td>Shipped 1 mast per 10 boxes</td>
</tr>
<tr>
<td>Length</td>
<td>2 ft, 11 in.</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 10 in.</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 2 in.</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>9.75 cu ft</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>172 lb</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.244</td>
<td>Ship tons</td>
</tr>
<tr>
<td>#4</td>
<td>Shipped 1 mast per 10 boxes</td>
<td>Shipped 1 mast per 10 boxes</td>
</tr>
<tr>
<td>Length</td>
<td>6 ft, 4 1/4 in.</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 7 in.</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 6 in.</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>24.6 cu ft</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>226 lb</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.916</td>
<td>Ship tons</td>
</tr>
<tr>
<td>#5</td>
<td>Shipped 1 mast per 10 boxes</td>
<td>Shipped 1 mast per 10 boxes</td>
</tr>
<tr>
<td>Length</td>
<td>9 ft, 5 in.</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 4 1/2 in.</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>2 ft, 2 3/8 in.</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>54.10 cu ft</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lb</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>1.3525</td>
<td>Ship tons</td>
</tr>
<tr>
<td>#6</td>
<td>Shipped 1 mast per 10 boxes</td>
<td>Shipped 1 mast per 10 boxes</td>
</tr>
<tr>
<td>Length</td>
<td>9 ft, 7 in.</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 1 1/4 in.</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 11 1/2 in.</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>32.7 cu ft</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lb</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.8175</td>
<td>Ship tons</td>
</tr>
<tr>
<td>#7</td>
<td>Shipped 1 mast per 10 boxes</td>
<td>Shipped 1 mast per 10 boxes</td>
</tr>
<tr>
<td>Length</td>
<td>3 ft, 6 in.</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 10 1/2 in.</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 4 in.</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>5.6 cu ft</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>178 lb</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.14</td>
<td>Ship tons</td>
</tr>
<tr>
<td>#8</td>
<td>Shipped 1 mast per 10 boxes</td>
<td>Shipped 1 mast per 10 boxes</td>
</tr>
<tr>
<td>Length</td>
<td>8 ft, 5 1/2 in.</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 6 1/2 in.</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 9 1/2 in.</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>53.7 cu ft</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>360 lb</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>1.348</td>
<td>Ship tons</td>
</tr>
<tr>
<td>#9</td>
<td>Shipped 1 mast per 10 boxes</td>
<td>Shipped 1 mast per 10 boxes</td>
</tr>
<tr>
<td>Length</td>
<td>9 ft, 4 in.</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 6 in.</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>11 1/2 in.</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>14 cu ft</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lb</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.53</td>
<td>Ship tons</td>
</tr>
<tr>
<td>#10</td>
<td>Shipped 1 mast per 10 boxes</td>
<td>Shipped 1 mast per 10 boxes</td>
</tr>
<tr>
<td>Length</td>
<td>9 ft, 4 in.</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 6 in.</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>11 1/2 in.</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>14 cu ft</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>200 lb</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.53</td>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SNL Y4-7, SM 9-5-1480, 40, 50.
ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION: OA–653/MS, W/E

Model
OA–653/MS
Line item No.
4–00207–00
Federal stock No.
1430–698–2114

General

Differences among models

Data plate location

Classification: Standard B (OTCM 38841)

CHARACTERISTICS

Weight
2,843 lb
Length
16 ft.
Width
16 ft.
Height
16 ft.

Clearance between ground level and bottom of acquisition antenna
8 ft, 6 in.

Turning diameter of antenna
16 ft.

PERFORMANCE

EQUIPMENT

Basic issue items: See ORD 7 SNL Y4–5

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 antenna group per crate and 4 boxes

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped

Length

Width

Height

Volume

Gross weight

Ship tons

ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING,
TRAILER MOUNTED: OA-654/MPA-4, OA-654A/MPA-4, OA-654B/MPA-4,

General
Similarly, OA-654A/MPA-4 consists of OA-858A/MPA-4 and M260; OA-654B/MPA-4 consists of OA-858B/MPA-4 and M260; OA-654C/MPA-4 consists of OA-858C/MPA-4 and M260A; OA-654D/MPA-4 consists of OA-858D/MPA-4 and M260A; OA-654E/MPA-4 consists of OA-858E/MPA-4 and M260A; OA-654F/MPA-4 consists of OA-858F/MPA-4 and M260A; and OA-654G/MPA-4 consists of OA-858G/MPA-4 and M260A.

Differences among models
Data plate location
Classification
OA-654/MPA-4 : Standard B (OTCM 55441)
Other models: No type classification

CHARACTERISTICS
Trailer-mounted missile track antenna-receiver-transmitter group:
Weight: 10,980 lb

PERFORMANCE
EQUIPMENT
Basic Issue Items: See ORD 7 SNL Y-4, Section 1.

STORAGE AND SHIPMENT DATA
OA-654/MPA-4:
Within Continental United States:
Shipped
Length: 28 ft
Width: 8 ft
Height: 14 ft
Volume: 3,136 cu ft
Gross weight: 10,980 lb
Ship tons: 78.4

Outside Continental United States:
Shipped
Length: 28 ft
Width: 8 ft
Height: 14 ft
Volume: 3,136 cu ft
Gross weight: 10,980 lb
Ship tons: 78.4

OA-654A/MPA-4 to OA-654G/MPA-4 inclusive:
Within Continental United States:
Shipped
Length: 21 ft, 3½ in.
Width: 7 ft, 11½ in.
Height: 8 ft, 11 in.
Volume: 1,535 cu ft
Gross weight: 9,906.0 lb
Ship tons: 38.375

Outside Continental United States:
Shipped
Length: 21 ft, 3½ in.
Width: 7 ft, 11½ in.
Height: 8 ft, 11 in.
Volume: 1,535 cu ft
Gross weight: 9,906.0 lb
Ship tons: 38.375

References: TM 9-5010-2-1, SM 9-5-1430, 40, 50; SNL Y-4, Section 1.

*For data and characteristics, see item in section 22.

Continued Width 8 ft Height 10 ft, 9 in.

Target track antenna-receiver-transmitter group:

- Weight: 5,950 lb
- Length: 13 ft
- Width: 10 ft, 6 in.
- Height: 14 ft

Track antenna and lens mounting:

- Weight: 166 lb
- Length: 8 ft, 4 in.
- Width: 6 ft, 9 in.
- Height: 6 ft, 9 in.

Turning diameter of track antenna: 10 ft

PERFORMANCE

EQUIPMENT

Basic issue Items: See ORD 7 SNL Y4-9.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

OA-655/MPA-4, OA-655A/MPA-4 to OA-655G/MPA-4 inclusive:

- **Within Continental United States**
  - Length: 21 ft, 3½ in.
  - Width: 7 ft, 11¼ in.
  - Height: 8 ft, 11 in.
  - Volume: 1964.0 cu ft
  - Gross weight: 9,906.0 lb
  - Ship tons: 38.375

- **Outside Continental United States**
  - Length: 28 ft
  - Width: 8 ft
  - Height: 8 ft
  - Volume: 3136.9 lb
  - Gross weight: 10,940.0 lb
  - Ship tons: 78.4

- **Total Weight**: 10,950.0 lb
- **Total Length**: 28 ft
- **Total Width**: 8 ft
- **Total Height**: 8 ft
- **Total Volume**: 3136.9 cu ft

**Classification**: OA-655/MPA-4

*For characteristics and data, see item in section 22.
BEAM, HOISTING, GUIDED MISSILE:

General
BEAM, HOISTING, GUIDED MISSILE: is used in conjunction with the inert guided missile truck* or a mobile crane to lift either the missile body or the entire round. The beam is welded steel, with two lift points and four hoist-link assemblies which attach to the missile handling ring segments. A safety ball-lock pin is attached by chain to each hoist-link. Either of the two lift points can be used, depending on the load to be lifted.

Differences among models
Data plate location
A metal identification plate is attached on the side of the hoisting beam.

Classification:

CHARACTERISTICS

Weight ...................................................... 75 lb
Height, overall ........................................ 1 ft, 1½ in.
Length (front to rear) ......................... 7 ft, 6 in.
Width, total ............................................. 7 in.

PERFORMANCE

Capacity, rated load ................................ 1,400 lb

* For characteristics and data, see item in pages 19-72 and 19-73.
BEAM ASSEMBLY, BOOSTER

General

BEAM ASSEMBLY, BOOSTER, is used in conjunction with the inert guided missile truck or a mobile crane, to place the booster on the launching and handling rail during assembly of the complete round, and during the installation of the booster on the guided missile rocket motor truck. The beam is welded steel to which two slings are attached by sling pins. When the beam is in use, the forward sling fits around the body of the booster just aft of the head; the rear sling fits just forward of the booster throat.

Differences among models

Data plate location

The identification plate is attached to the main section of the booster beam assembly.

Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Height, overall</th>
<th>Length (front to rear)</th>
<th>Width, total</th>
</tr>
</thead>
<tbody>
<tr>
<td>68 lb</td>
<td>1 ft, 2 in.</td>
<td>8 ft, 2 in.</td>
<td>8 in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

Capacity, rated load: 1,900 lb

* For characteristics and data, see item on page 19-71.

EQUIPMENT

Basic Issue Items: See ORD 7 SNL J-738, Sec. 36

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 ft, 3 in.</td>
<td>1 ft</td>
<td>3 in.</td>
<td>2.06 cu ft</td>
<td>150 lb</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: TM 9-9002-3.
BEAM ASSEMBLY, WARHEAD

General

BEAM ASSEMBLY, WARHEAD, is used with the inert guided missile truck* or a mobile crane to lift the center and aft warheads of the missile during installation and removal. The warhead beam assembly is a steel beam with a center link for hoisting and a hook for attaching to warheads on each end. A handle assembly is provided to enable two men to lift the warheads when a truck or crane is not available.

Differences among models

Data plate location

Classification:

**CHARACTERISTICS**

- Weight: 3 lb
- Height, overall: 6 in.
- Length (front to rear): 1 ft, 9 in.
- Width, total: 2 in.

**PERFORMANCE**

- Capacity, rated load: 240 lb

For characteristics and data, see item in pages 19-72 and 19-73.

---

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL J-788, Sec. 37.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

- Shipped
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

*Outside Continental United States*

- Shipped
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

Reference: TM 9-5002-3
CARRIAGE, MISSILE HANDLING: M28

General

MISSILE HANDLING CARRIAGE M28 is stored in the storage compartment under the flat bed trailer. The carriage supports the missile during the defueling operation, and enables the missile to be elevated and lowered, and rolled about its longitudinal axis in the handling rings. The carriage is composed of speed handles, axle locks, brackets, elevation indicator, elevating gear, and clamps.

Differences among models

Data plate location

The identification plate appears on a crossbar located near the rear end of the handling carriage.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Weight ........................................ 66 lb
Length ........................................ 8 ft, 6 in.
Width ........................................ 3 ft, 3½ in.
Height (folded) ................................. 10½ in.
Height (elevated) .............................. 6 ft, 3 in.

PERFORMANCE

Elevation (max) ................................ +15 deg
Depression (max) ............................. -3 deg
CONTROL INDICATOR: C-1488/MSE-2

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>3 ft, 7¼ in.</th>
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<tbody>
<tr>
<td>Width</td>
<td>2 ft, 7¼ in.</td>
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<tr>
<td>Height</td>
<td>2 ft, 7⅜ in.</td>
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<tr>
<td>Volume</td>
<td>23.9 cu ft</td>
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<tr>
<td>Gross weight</td>
<td>388 lb</td>
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<tr>
<td>Ship tons</td>
<td>0.59</td>
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Outside Continental United States

Shipped

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<td>Volume</td>
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<tr>
<td>Gross weight</td>
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<td>Ship tons</td>
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CONTROL INDICATOR: C-1487/MSE-2

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</tr>
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<tbody>
<tr>
<td>C-1487/MSE-2</td>
<td>1440-688-4923</td>
<td></td>
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</table>

General
CONTROL INDICATOR: C-1487/MSE-2 is used to operate the launcher and to transfer control of the launcher to the section operating control indicator C-1488/MSE-2 mounted on the simulator group. It is used for testing the missiles while they are positioned on the launcher or on the loading rack. It also serves as one of the stations in the technical phone loop. As an indicator, it indicates the amount of current drawn from the 28-volt dc power supply while testing the missile. It indicates either the external dc voltage or the voltage of the battery located in the missile being tested.

Characteristics

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<thead>
<tr>
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<th>Value</th>
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<tr>
<td>Weight</td>
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<tr>
<td>Length</td>
<td>1 ft, 8½ in.</td>
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<tr>
<td>Height</td>
<td>1 ft, 2½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>8½ in.</td>
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Performance

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
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<th>Gross weight</th>
<th>Ship tons</th>
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</thead>
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<tr>
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Outside Continental United States

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<thead>
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<th>Height</th>
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DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED:
AN/MSA-7, AN/MSA-7A, AN/MSA-17, AND AN/MSA-17A

STORAGE AND SHIPMENT DATA

---

INSTRUCTIONAL MATERIAL

*For characteristics and data, see item in section 22.*
DRAINING KIT, FUEL, GUIDED MISSILE: M54

General
DRAINING KIT, FUEL, GUIDED MISSILE: M54, is a three-drawer metal box, the door of which is labeled FUEL. The fuel draining kit stores the fuel draining and UDMH draining equipment. The fuel draining operation is accomplished in the service and joining area.

Differences among models

Data plate location
The identification plate for fuel draining kit M54 is located in the upper left corner on one of the carrying sides.

Classification: Standard B (OTCM 38841)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
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<td>M54</td>
<td>1-12521-18</td>
<td>1450-542-508</td>
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General

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
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<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 ft, 3(\frac{3}{4}) in.</td>
<td>1 ft, 10(\frac{1}{4}) in.</td>
<td>2 ft, 9(\frac{3}{4}) in.</td>
<td>8.8 cu ft</td>
<td>114 lb</td>
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Outside Continental United States

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<th>Volume</th>
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<tbody>
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</tbody>
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PERFORMANCE

References: TM 9-9502-4, SM 9-5-1450, 40, 50.
DRAINING KIT, OXIDIZER, GUIDED MISSILE: M53

General

DRAINING KIT, OXIDIZER, GUIDED MISSILE: M53, is a three-drawer metal box, the door of which is labeled OXIDIZER. The oxidizer draining kit contains the oxidizer draining equipment.

Differences among models

Data plate location

The identification plate for oxidizer draining kit M53 is located in the upper-left corner on one of the carrying sides.

Classification: Standard B (OTCM 36841)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
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<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M53</td>
<td>4-12683-10</td>
<td>1450-342-5122</td>
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</tbody>
</table>

- **Weight**: 71.6 lb
- **Height (overall)**: 1 ft, 8\(\frac{1}{2}\) in.
- **Width**: 2 ft, 7\(\frac{3}{4}\) in.
- **Depth**: 1 ft, 6\(\frac{1}{2}\) in.

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

- **Length**: 
- **Width**: 
- **Height**: 
- **Volume**: 10.00 cu ft
- **Gross weight**: 126 lb
- **Ship tons**: 0.25

Outside Continental United States

Shipped

- **Length**: 
- **Width**: 
- **Height**: 
- **Volume**: 
- **Gross weight**: 
- **Ship tons**: 

References: TM 9-9002-4.
DRAWBAR, TRUCK, BRACKET, HAND:

General
DRAWBAR, TRUCK, BRACKET, HAND: can be attached to either the inert guided missile truck M256* or the guided missile rocket motor truck M254. It is used for moving the trucks and is constructed of steel tubing. The attaching end of the drawbar is locked in place with two ball-lock pins which are secured with chains near each end of the bar when it is mounted on the towing lugs on the trucks.

Differences among models
Data plate location
A metal identification plate is attached to the triangular joining member of the hand bracket truck drawbar.

Classification:

CHARACTERISTICS
Weight
14 1/2 lb
Length (front to rear)
4 ft. 10 in.
Width
2 ft.
Height
1 1/2 in.

PERFORMANCE

* For characteristics and data, see item on page 19-71.

References: ORD 7 SNL J-738, Sec. 34.
ELECTRICAL EQUIPMENT INSTALLATION, LAUNCHER-LOADER: (ORD NO. 8001527)
(Data to be published at a later date.)

Model
(ORD NO. 8001527)

General
Differences among models
Data plate location

Classification:

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD Y SNL Y-5.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Reference: SNL Y-5.
ELECTRONIC SHOP, TRAILER MOUNTED: M304 AND M304A1, W/E

General


Differences among models

FSN 1430-474-5770 is the same as the M304A1 except it is less the M16 Electronic Shop Group Equipment.

Data plate location

Classification: Standard B (OTCM 36841)

CHARACTERISTICS

Weight: 11,950 lb
Length: 19 ft, 8 in.
Width: 8 ft
Height: 10 ft, 9 in.

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y4-6.

INSTRUCTIONAL MATERIAL

*For characteristics and data, see item in section 22.
GUIDED MISSILE AIR DEFENSE: M1 is a 2-stage, surface-to-air missile which consists of antenna, storage battery, missile body M2 or XM2, delay lines, explosive harness assembly, control and stabilizer fins, rocket motor, nitric acid, propellant mixture, rocket motor, safety and arming device, starting mixture (UDMH), and guides missile warheads M2, M3, and M4. The missile is initially accelerated by a solid propellant jato unit which separates from the missile after burnout. A pressure-fed liquid propellant sustainer motor is activated upon separation of the jato unit and provides the missile with sustaining thrust. An electronic guidance section within the missile body provides the beacon signal necessary for ground-based radar tracking of the missile. The guidance section also receives, demodulates, and amplifies incoming signals. These amplified signals are used to activate hydraulically operated ailerons and fins which establish and maintain proper altitude and path control of the missile. The destructive power of the missile is provided by simultaneous detonation of three high-explosive fragmentation-type warheads within the missile body.

Differences among models

Data plate location

Classification: Standard B (OTC 36841)

**CHARACTERISTICS**

**Missile:**
- **Weight:** 2,369 (gross), 450.0 lb (empty)
- **Length:** 34 ft, 1 in.
- **Antennas:**
  - **Chord:** 10 3/8 in.
  - **Height:** 3 in.
- **Control fins (4):**
  - **Chord:** 20 3/4 in.
  - **Circular span:** 24 3/4 in.
- **Stabilizer fins (4):**
  - **Chord (max):** 6 ft
  - **Diameter (max), including tunnels:** 1 ft, 2 3/4 in.
- **Jato Unit:**
  - **Fins (4):**
    - **Chord:** 3 ft, 11/2 in.
    - **Circular span:** 7 ft, 8 1/2 in.
    - **Weight (each):** 21 5/8 lb
    - **Length, including thrust structure:** 18 ft, 2 in.
    - **Length, without thrust structure:** 11 ft, 4 in.
    - **Diameter (max):** 1 ft, 4 1/2 in.
  - **Weight:**
    - **Loaded:** 1,028.05 lb
    - **Empty:** 457.00 lb
- **Safety and Arming Device:**
  - **Weight:** 1 lb
  - **Height:** 3 1/2 in.
  - **Diameter:** 2 1/2 in.
  - **Quantity per complete round:** 2

**Explosive Harness Assembly:**
- **Load Length**
  - No. 1 8 3/4 ft
  - No. 2 6 ft, 10 in.
  - No. 3 2 ft, 3 1/4 in.
  - No. 4 12 ft, 8 3/8 in.
  - No. 6 1 ft, 3 5/8 in.
- **Warhead M2:**
  - **Weight:** 12 lb
  - **Height:** 6 1/2 ft
  - **Diameter:** 8 3/4 in.
- **Warhead M3:**
  - **Weight:** 107.75 lb
  - **Length (overall):** 1 ft, 11 in.
  - **Explosive filler:** 32 lb
  - **Diameter (max):** 11 1/2 in.
- **Warhead M4:**
  - **Weight:** 121.25 lb
  - **Length (overall):** 1 ft, 9 1/2 in.
  - **Explosive filler:** 55 lb
  - **Diameter (max):** 11 1/2 in.
- **Electric Jato Igniter: M24**
  - **Weight:** 9 lb
  - **Height:** 2 1/2 in.
  - **Diameter:** 6 3/4 in.
- **Propellant grain:**
  - **Weight:** 176.76 lb
  - **Length (multiperforated):** 8 ft, 6 in.
  - **Diameter:** 1 ft, 4 in.
- **Delay lines:**
  - GS 16666 series:
    - **Weight (disk):** 1 lb
    - **Diameter (metal disks):** 8 in.
    - **Thickness:** 5 1/2 in.
  - GS 17194 series:
    - **Weight (disk):** 1.2 lb
    - **Diameter (fiberglass disks):** 5 6 in.
    - **Thickness:** 9/16 in.
- **Jato thrust structure M2:**
  - **Weight:** 31.5 lb
  - **Length:** 2 ft, 1 1/2 in.
  - **Diameter:** 1 ft, 7 in.
- **Starting mixture (UDMH):**
  - **Weight (liquid):** 8.64 lb/gal. at 60°F
  - **Boiling point:** 160°F
  - **Freezing point:** -72°F
  - **Specific gravity:** 0.795 at 60°F
- **Nitric acid:**
  - **Freezing point:** -68°F
  - **Boiling point:** 183°F
  - **Melting point:** -60°F
  - **Specific gravity:** 1.663 ± 0.007 at 68°F

**PERFORMANCE**

**Equipment**

**Basic Issue Items:** See SNL Y-2.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- **Antennas:** GS 19746-L1, L2, L3, L4, and L6:
  - **Shipped 18 antennas per wooden box**
    - **Length:** 8 ft, 8 1/4 in.
    - **Width:** 9 1/2 in.
    - **Height:** 1 ft, 6 1/4 in.
    - **Volume:** 8.9 cu ft
    - **Gross weight:** 81 lb
    - **Ship tons:** 0.0976

- **Guided missile body M2 and XM2:**
  - **Shipped 1 missile body per metal container**
    - **Length:** 22 ft, 2 1/2 in.
    - **Width:** 8 3/4 ft
    - **Height:** 8 ft, 6 in.
    - **Volume:** 240.4 cu ft
    - **Gross weight:** 2,495 lb
    - **Ship tons:** 6.01
### Storage and Shipment Data—Continued

### Control Surface Kit:
- Shipped 1 kit per plywood box
  - Length: 6 ft, 3\(\frac{1}{2}\) in.
  - Width: 1 ft, 9 in.
  - Height: 2 ft, 2 in.
  - Volume: 23.9 cu ft
  - Gross weight: 216 lb
  - Ship tons: 0.5975

### Delay Line: GS 15666
- Shipped 10 lines per wooden box
  - Length: 1 ft, 7 in.
  - Width: 1 ft, 9 in.
  - Height: 8 in.
  - Volume: 1 cu ft
  - Gross weight: 78 lb
  - Ship tons: 0.625

### Delay Line: GS 17194
- Shipped 10 lines per wooden box
  - Length: 1 ft, 6 in.
  - Width: 1 ft, 3 in.
  - Height: 8 in.
  - Volume: 0.6 cu ft
  - Gross weight: 14 lb
  - Ship tons: 0.03

### Safety and Arming Device M27:
- Shipped 25 devices per wooden box
  - Length: 2 ft, 2\(\frac{1}{2}\) in.
  - Width: 2 ft, 2\(\frac{1}{2}\) in.
  - Height: 9 in.
  - Volume: 3.4 cu ft
  - Gross weight: 81 lb
  - Ship tons: 0.085

### Safety and Arming Device M30A1:
- Shipped 20 devices per wooden box
  - Length: 1 ft, 6\(\frac{1}{2}\) in.
  - Width: 2 ft, 3\(\frac{1}{2}\) in.
  - Height: 11\(\frac{1}{2}\) in.
  - Volume: 0.64 cu ft
  - Gross weight: 43.6 lb
  - Ship tons: 0.016

### Explosive Harness Assembly M24:
- Shipped 10 assemblies per wooden box
  - Length: 2 ft, 2\(\frac{1}{2}\) in.
  - Width: 1 ft, 3\(\frac{1}{2}\) in.
  - Height: 9 in.
  - Volume: 2.34 cu ft
  - Gross weight: 38 lb
  - Ship tons: 0.0686

### Warhead M2:
- Shipped 1 warhead per wooden box
  - Length: 1 ft, 2\(\frac{1}{2}\) in.
  - Width: 8\(\frac{1}{2}\) in.
  - Height: 8\(\frac{1}{2}\) in.
  - Volume: 0.67 cu ft
  - Gross weight: 26 lb
  - Ship tons: 0.01675

### Warhead M3:
- Shipped 1 warhead per wooden box
  - Length: 2 ft, 4 in.
  - Width: 1 ft, 9 in.
  - Height: 7 in.
  - Volume: 3.6 cu ft
  - Gross weight: 212 lb
  - Ship tons: 0.09

### Warhead M4:
- Shipped 1 warhead per wooden box
  - Length: 2 ft, 2\(\frac{1}{2}\) in.
  - Width: 1 ft, 4 in.
  - Height: 1 in.
  - Volume: 3.16 cu ft
  - Gross weight: 163 lb
  - Ship tons: 0.079

### Jato Unit M6:
- Shipped 1 Jato unit per wooden box
  - Length: 14 ft, 9 in.
  - Width: 2 ft, 1\(\frac{1}{2}\) in.
  - Height: 2 ft, 7\(\frac{1}{2}\) in.
  - Volume: 81.48 cu ft
  - Gross weight: 1,883 lb
  - Ship tons: 2.37

### References:
HYDRAULIC EQUIPMENT INSTALLATION, LAUNCHER-LOADER: (ORD NO. 8166528)
(Data to be published at a later date.)

<table>
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<tr>
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<tbody>
<tr>
<td>General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differences among models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data plate location</td>
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</tr>
<tr>
<td>Classification</td>
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</table>

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basel Issue Items: See ORD 7 SNL Y-5

INSTRUCTIONAL MATERIAL

<table>
<thead>
<tr>
<th>STORAGE AND SHIPMENT DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Continental United States</td>
</tr>
<tr>
<td>Shipper Length</td>
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<tr>
<td>Outside Continental United States</td>
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<tr>
<td>Shipper Length</td>
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</table>

References: SNL Y-2.
INSULATION BLANKET, THERMAL: (ORD No. 8166016)
(Data to be published at a later date.)

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**General**

THE THERMAL INSULATION BLANKET: (ORD NO. 8166016) consists of discount strap lock pin, separation assembly, main disconnect strap, blanket thermal sections A, B, C, D, D-2, and E, guided missile thermal blanket, and electrical power cable assembly. One thermal insulation blanket is required for each NIKE-AJ AX missile booster combination. Heating blankets must be applied where the temperature may be expected to fall below the low firing temperature limit specification.

**Differences among models**

**Data plate location**

**Classification**

**CHARACTERISTICS**

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL Y-5.

---

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

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<th>Shipped</th>
<th>Length</th>
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**Outside Continental United States**

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<tr>
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<th>Width</th>
<th>Height</th>
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<th>Ship tons</th>
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**References**: SNL Y-5, SB 9-160.
**KIT WINTERIZATION, GUIDED MISSILE LAUNCHER:**
(Data to be published at a later date.)

<table>
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<th>Model</th>
<th>Secondary item</th>
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<tr>
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**General**

KIT, WINTERIZATION, GUIDED MISSILE LAUNCHER: consists of electrical bushing, special purpose cable assembly, special purpose electrical cable assembly, cable grip, interconnecting boxes, conduit electrical locknut, modification installation manual, strap assembly, and wiring harness. The winterization kit is used on NIKE-AJAX launcher loaders M26, M26A1, M26A2, and M26A3. At above ground sites, one kit per launcher-loader is required. This application will support four missile-booster-combinations, one on the launcher and one at each of the three test stations. At underground sites, one kit is required for each elevator-mounted launcher, and one for the satellite launchers.

**Differences among models**

**Data plate location**

**Classification**

**CHARACTERISTICS**

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL Y-5.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

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<th>Ship tons</th>
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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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**Outside Continental United States**

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<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
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<th>Ship tons</th>
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References: SNL Y-5, SB 9-169.
LAUNCHER-LOADER, GUIDED MISSILE: M26, M26A1, M26A2, AND M26A3, W/E

<table>
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<td>1449-568-5159</td>
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<td>M26A1</td>
<td>4-20717-20</td>
<td>1449-568-5161</td>
</tr>
<tr>
<td>M26A2</td>
<td>4-20767-31</td>
<td>1449-509-9879</td>
</tr>
<tr>
<td>M26A3</td>
<td>4-20767-40</td>
<td>1449-521-9845</td>
</tr>
</tbody>
</table>

**General**

**Differences among models**

The various current models of the launcher-loader are generated from two basic launcher-loaders: M26 which includes launchers 1961 through 1969; and M26A1, which includes launchers 1961 and subsequent.

Launcher M22A2, with loading and storage racks and hydraulic and electrical accessories, forms launcher-loader M26A2 when used on surface installations.

Launcher M22A3, with loading and storage racks and hydraulic and electrical accessories, forms launcher-loader M26A3 when used on surface installations.

**Data plate location**

**Classification:** Standard B (OTCM 36841).

**CHARACTERISTICS**

- **Weight** (complete) 6,049 lb
- **Weight** (emplaced) 2,745 lb
- **Length** (emplaced) 23 ft
- **Width** (emplaced) 13 ft, 8 in.
- **Height** (emplaced, adjustable) 2 ft, 10 in. to 4 ft, 4 in.

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

- **Shipped**
  - Length: 18 ft
  - Width or Diameter: 4 ft, 5/8 in.
  - Height: 4 ft, 4 1/2 in.
  - Volume: 362 cu ft
  - Gross weight: 4,600 lb
  - Ship tons: 9.05

*Outside Continental United States*

- **Shipped**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**References:** TM 9-5019-2-2, TM 9-5017-5, SM 9-5-1430, 49, 50.
LAUNCHER, GUIDED MISSILE: M22, M22A1, M22A2, AND M22A3

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M22</td>
<td>4-20765-01</td>
<td>1440-609-4072</td>
</tr>
<tr>
<td>M22A1</td>
<td>4-20766-02</td>
<td>1440-609-4073</td>
</tr>
<tr>
<td>M22A2</td>
<td>4-20765-03</td>
<td>1440-609-4074</td>
</tr>
<tr>
<td>M22A3</td>
<td>4-20766-04</td>
<td>1440-609-4076</td>
</tr>
</tbody>
</table>

Differences among models

Current models of the launchers are generated from two basic launchers: M22 includes launchers 1001 through 1960; and M22A1 includes launchers 1961 and subsequent. M22A2 has an oil cooler located in the launcher base structure and the running gear for transporting the launcher is equipped with electrically operated brakes. M22A3 does not incorporate an air cooler and the running gear for transporting the launcher is equipped with air-hydraulic brakes.

Data plate location

Classification: Standard B (OTCM 37272).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic issue items: See ORD 7 SNL Y-5.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>20 ft 3 in.</td>
<td>13 ft 8 in.</td>
<td>2 ft 11 in.</td>
<td>807.19 cu ft</td>
<td>3,900 lb</td>
<td>20.17</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

LAUNCHER, MONORAIL, GUIDED MISSILE: M28A2 AND M28A3

CHARACTERISTICS

Performance

Equipment

Basic Issue Items: See ORD 7 SNL Y-5.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 ft, 8 in.</td>
<td>13 ft, 8 in.</td>
<td>2 ft, 11 in.</td>
<td>897.19 cu ft</td>
<td>3,900 lb</td>
<td>20.17</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>


19-48
LAUNCHER, MONORAIL, GUIDED MISSILE: M29A2 AND M29A3

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

M29A2 and M29A3

Shipped

<table>
<thead>
<tr>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M29A2</td>
<td>1440-678-8020</td>
</tr>
<tr>
<td>M29A3</td>
<td>1440-678-8019</td>
</tr>
</tbody>
</table>

General

Differences among models

Launcher M29A2 with the application of field change FC-1193 which provides for modification of equipment for underground installation becomes launcher M29A2 when utilized as launcher No. 2 or 3 in the underground installation.

Launcher M29A3 with the application of the above field change FC-1193 becomes launcher M29A3 when utilized as launcher No. 2 or 3 in the underground installation.

Data plate location:

Classification:

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-5.


Federal stock No.

M29A2 1440-678-8020

M29A3 1440-678-8019

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

M29A2 and M29A3

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th></th>
<th>20 ft, 3 in.</th>
<th>18 ft, 8 in.</th>
<th>3,900 lb</th>
<th>20.17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Width</td>
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</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>807.19 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
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</table>

Outside Continental United States

Shipped

<p>| | | | | |</p>
<table>
<thead>
<tr>
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<tbody>
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<td>Height</td>
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</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


M429K and rear trailer dolly M430K). LAUNCHING CONTROL GROUP, TRAILER MOUNTED: OA–867A/MSE–2 consists of launching control group OA–868/MSE–2 and TRAILER VAN: launching control M262* (front trailer dolly M429A1K and rear trailer dolly M429A1K). The launching control group is the central control station in the launching area. It contains the necessary controls, indicators, and communication equipment for control of the launching sections, and supplies tactical launching area information to the guidance and control area.

Differences among models
Data plate location
Classification: Standard B (OTCM 36841).

CHARACTERISTICS
Launching Control Group 867/MSE–2

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
</table>

General
LAUNCHING CONTROL GROUP, TRAILER MOUNTED: OA–867/MSE–2 consists of launching control group OA–868/MSE–2 and TRAILER VAN: launching control M262* (front trailer dolly

PERFORMANCE
EQUIPMENT
Basic Issue Items: See ORD 7 SNL Y6–1

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Launching Control Group: OA–867/MSE–2 and OA–867A/MSE–2

Within Continental United States

Shipped
Length 18 ft. 9 in.
Width 7 ft. 10½ in.
Height 6 ft. 6 in.
Volume 1,622 cu ft
Gross weight 12,000 lb
Ship tons 40.55

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons


* For characteristics and data, see item in section 22.
MODIFICATION KIT, GUIDED MISSILE LAUNCHING SECTION:
(Data to be published at a later date.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Secondary Item</th>
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<tbody>
<tr>
<td></td>
<td>9-43438 (Temp.)</td>
<td>1440-724-7728</td>
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</tr>
</tbody>
</table>

General

Differences among models

Data plate location

Classification:

**CHARACTERISTICS**

**PERFORMANCE**

**EQUIPMENT**

Basic issue items: See ORD 7 SNL Y-6.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>300 cu ft</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,200 lb</td>
<td>7.5</td>
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</table>

*Outside Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

References: SNL Y-6, SM 9-5-1-280, 40, 55.
RACK, BATTERY: MT-1498/G

Characteristics

Classification: Standard B (OTCM 36841).

General:
RACK, BATTERY: MT-1498/G is designed for use in the assembly and service area. It consists of a table-type structure, a battery-support superstructure, a main control panel, 52 individual battery control panels, and the necessary circuit breakers, voltmeters, ammeters, and switches to operate the rack. The rack receives power from an external 120-volt, 60 cps, single-phase, ac source. Two battery chargers, PP-775/U, are used with the rack to provide charging voltages but are not components of the battery rack.

Differences among models

Data plate location
An identification appears on the right end of the battery rack table-type structure.

Classification: Standard B (OTCM 36841).

Characteristics

Battery charging rack:
Weight (net) 384 lb
Length 9 ft
Width 4 ft, 4 in.
Height 2 ft, 5 in.
Capacity 1 to 52 batteries
Input-power source: 120-volt, 60 cps, single-phase, ac

Table-type structure:
Length 9 ft
Width 3 ft, 4 in.
Height 2 ft, 8½ in.

Battery support superstructure:
Length 7 ft, 8½ in.
Width 1 ft, 11 in.

Main control panel:
Width 1 ft
Height 1 ft, 3 in.

Performance

Equipment
Basic issue items: See ORD 7 SNL Y 9.

Instructional material

Storage and shipment data

Within Continental United States

Shipped
Length 9 ft, 4½ in.
Width 3 ft, 8¼ in.
Height 3 ft, 1 in.
Volume 105 cu ft
Gross weight 709 lb
Ship tons 2.65

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References: TM 9-9502-5, SM 9-5-4885.
**RUNNING GEAR, LAUNCHER**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-36720-01</td>
<td>1440-560-5518</td>
</tr>
<tr>
<td></td>
<td>4-36720-02</td>
<td>1440-560-5519</td>
</tr>
</tbody>
</table>

**General**

RUNNING GEAR, LAUNCHER is composed of electric brakes or air-hydraulic brakes.

**Differences among models**

**Data plate location**

**Classification:**

**CHARACTERISTICS**

| Weight | 698 lb |

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL Y-5.

**STORAGE AND SHIPMENT DATA**

FSN 1440-560-5518 and 1440-560-5519

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Box</th>
<th>Crate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>3 ft, 11 1/4 in.</td>
<td>7 ft, 8 1/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 8 in.</td>
<td>2 ft, 3 3/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 11 1/4 in.</td>
<td>1 ft, 11 1/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>15 cu ft</td>
<td>34.4 cu ft</td>
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<tr>
<td>Gross weight</td>
<td>310 lb</td>
<td>650 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.375</td>
<td>0.86</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Box</th>
<th>Crate</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:** SNL Y-5, TM 9-5010-2 2, SN 9-5-1430, 40, 50.
RAIL, LAUNCHING AND HANDLING: M1, MIA1, AND MIA2, W/E

General

RAIL, LAUNCHING AND HANDLING: M1, MIA1, and MIA2, provides mechanical guidance for the initial upward movement of guided missile M1 after firing. The launching and handling rail MIA2 is the supporting and handling unit for the joined missile body and JATO. Hydraulic and electrical systems are provided in the rail for testing operations.

Differences among models

Replacement of existing screw-type hydraulic disconnect fittings on the flexible hydraulic lines with one male and one female snap-type fitting, and modification of the electric plug and dummy receptacle for quick attachment changed the model number of the rail from M1 to MIA1.

The installation of a more durable bearing and axle bolt in the outrigger wheel assemblies to withstand shock loads changed the model number of the rail from MIA1 to MIA2 and the ordnance part number from 8166500 to 8530775.

Data plate location

Classification: Standard B (OTCM 36841)

CHARACTERISTICS

Launching and Handling rail MIA2:

- Height (overall): 1 ft
- Length: 22 ft, 4 in.
- Width: 3 ft, 4 in.
- Weight: 732 lb

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

M1

Within Continental United States

Shipped
- Length: 22 ft, 10% in.
- Width: 3 ft, 9½ in.
- Height: 4 ft, 7% in.
- Volume: 494 cu ft
- Gross weight: 5,160 lb
- Ship tons: 10.1

Outside Continental United States

Shipped
- Length: 22 ft, 11 in.
- Width: 3 ft, 9 in.
- Height: 1 ft, 9½ in.
- Volume: 156 cu ft
- Gross weight: 1,250 lb
- Ship tons: 3.9

MIA1

Within Continental United States

Shipped
- Length: 22 ft, 10% in.
- Width: 3 ft, 9½ in.
- Height: 4 ft, 7% in.
- Volume: 494 cu ft
- Gross weight: 1,250 lb
- Ship tons: 3.9

Outside Continental United States

Shipped
- Length: 22 ft, 11 in.
- Width: 3 ft, 9 in.
- Height: 1 ft, 9½ in.
- Volume: 156 cu ft
- Gross weight: 1,250 lb
- Ship tons: 3.9

MIA2

Within Continental United States

Shipped
- Length: 23 ft
- Width: 6 ft, 3 in.
- Height: 4 ft, 7½ in.
- Volume: 221 cu ft
- Gross weight: 7,115 lb
- Ship tons: 5.525

Outside Continental United States

Shipped
- Length: 22 ft, 11 in.
- Width: 3 ft, 9 in.
- Height: 1 ft, 9½ in.
- Volume: 156 cu ft
- Gross weight: 1,250 lb
- Ship tons: 3.9

SERVICER, ACID, GUIDED MISSILE: M2, W/E

General

SERVICER, ACID, GUIDED MISSILE: M2, is utilized during the fuel filling of the missile. The acid servicer is composed of oxidizer lifter 8166700 or 8019825, oxidizing drum, and oxidizer aspirator bottle. The oxidizer lifter incorporates the design into which is installed a drum of oxidizer. By elevating the harness of the lifter, gravity flow can be utilized for oxidizer filling of the missile. A safety device prevents the harness and oxidizer drum from falling if the cable breaks or if the winch fails. The oxidizer aspiration kit is used in removing by aspiration any excess oxidizer in the oxidizer tank of the missile body after filling. The oxidizer operations are performed in the joining and service area with the missile on the missile flat bed trailer.

Oxidizer lifter ORD NO. 8166700 is equipped with two stationary wheels at the front and two wheels of a handle assembly at the rear by which direction and movement at the lifter can be controlled. This oxidizer lifter incorporates two hinges and a safety device.

Oxidizer lifter ORD NO. 8019825 is equipped with two stationary wheels at the front and two wheels which swivel at the rear. The right rear wheel of this lifter is mounted in the bottom of a steerer assembly which permits control of lifter movement in any direction. This oxidizer lifter incorporates two self-locking hinges and a safety device to prevent the fuel drum platform from falling during the servicing of the missile.

Differences among models

Data plate location:
The oxidizer servicer M2 nameplate is installed at the left of the winch lifter 8166700 and on the left side of the base frame on oxidizer lifter 8019825. The part number 8001950 shown on oxidizer servicer M2 nameplate is the number for the complete oxidizer filling equipment.

Classification: Standard B (OTCM 52441).

CHARACTERISTICS

Oxidizer lifter ORD NO. 8019825:

| Weight | 910 lb |
| Height, overall | 13 ft, 11 in. |
| Height at hinges | 6 ft, 9 in. |
| Height of oxidizer drum harness or cradle above ground level: |
| High | 11 ft, 8 in. |
| Low | 1 ft, 1½ in. |
CHARACTERISTICS—Continued

Oxidizer lifter ORD No. 8019825—Continued
Length ........................................... 4 ft, 4\(\frac{1}{2}\) in.
Width ........................................... 4 ft, 4 in.
Oxidizer lifter 8166700:
Weight ........................................... 910 lb
Height, overall ................................... 13 ft, 11 in.
Height at hinges ................................... 5 ft, 9 in.
Height of oxidizer drum harness or cradle above ground level:
High ........................................... 15 ft
Low ........................................... 4 ft, 4\(\frac{1}{2}\) in.
Length ........................................... 4 ft, 4\(\frac{1}{2}\) in.
Width ........................................... 4 ft, 4 in.
Oxidizer drum:
Weight ........................................... 0.5 lb
Height, overall ................................... 2 ft, 3 in.
Oxidizer aspirator bottle:
Height, overall ................................... 11 in.
Width ........................................... 4\(\frac{1}{2}\) in.

PERFORMANCE

Oxidizer lifter (ORD No. 8019825), capacity, load ................................... 500 lb
Oxidizer lifter (ORD No. 8166700), capacity, load ................................... 500 lb
Oxidizer drum, capacity, load ................................... 242 ± 2 lb
Oxidizer aspirator bottle, capacity, load ................................... 2 qt

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-17.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length ........................................... 8 ft, 5 in.
Width ........................................... 4 ft, 11 in.
Height ........................................... 5 ft, 3 in.
Volume ........................................... 210 cu ft
Gross weight ................................... 1,350 lb
Ship tons ........................................ 5.25

Outside Continental United States

Shipped
Length ........................................... 8 ft, 5 in.
Width ........................................... 4 ft, 11 in.
Height ........................................... 5 ft, 3 in.
Volume ........................................... 210 cu ft
Gross weight ................................... 1,350 lb
Ship tons ........................................ 5.25

SERVICER, FUEL, GUIDED MISSILE: M3A1, W/E

General

SERVICER, FUEL, GUIDED MISSILE: M3A1, is utilized during the fuel filling of the missile. It is composed of fuel lifter (ORD No. 8529161) or fuel lifter (ORD No. 8529160), fuel drum, fuel aspirator bottle, and UDMH fuel bottle. The fuel lifter incorporates a fuel drum platform upon which a drum of M3 may be placed. The platform is elevated so that gravity flow can be utilized in fueling the missile. The fuel aspirator kit is used for removing, by aspiration, any excess fuel in the fuel tank of the missile body immediately after filling. The fuel operations are performed in the joining and service area with the missile on the missile flat bed trailer.

Both fuel lifters (ORD No. 8529160) and 8529161 are very similar in construction and operation.

Fuel lifter (ORD No. 8529160) is equipped with two stationary wheels at the front and two wheels of a handle assembly at the rear by which direction and movement at the lifter can be controlled.

Fuel lifter (ORD No. 8529161) is equipped with two stationary wheels at the front and two wheels which swivel at the rear. The right rear wheel of this lifter is mounted in the bottom of a steerer assembly which permits control of lifter movement in any direction.

Fuel lifter (ORD No. 8529161) incorporates two hingelike fuel lifter 8529161 incorporates two self-locking hinges.

Fuel lifter (ORD No. 8529161) utilizes a lock brake for a stabilizer.

Fuel lifter (ORD No. 8529161) incorporates a safety device to prevent the fuel drum platform from falling during propellant servicing of the missile, but fuel lifter (ORD No. 8529160) does not incorporate a safety device.

Data plate location

The guided missile fuel servicer M3 identification plate is installed at the left of the winch on the base frame on fuel lifter (ORD No. 8529160), and above the lock brake on the base frame on fuel lifter (ORD No. 8529161).

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Fuel lifter (ORD No. 8529161):

Height overall ........................................ 13 ft, 10 in
Height at hinges ......................................... 5 ft, 9 in

19-57
CHARACTERISTICS—Continued

Fuel lifter (ORD No. 8529161):—Continued

Height of platform above ground level:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Height (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>12 ft</td>
</tr>
<tr>
<td>Low</td>
<td>6 in.</td>
</tr>
</tbody>
</table>

Length: 4 ft, 2½ in.
Width: 3 ft
Weight (total): 820 lb

Fuel lifter (ORD No. 8529160):

Height, overall: 13 ft, 8 in.
Height at hinges: 5 ft, 9 in.
Height of platform above ground level:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Height (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>12 ft</td>
</tr>
<tr>
<td>Low</td>
<td>6 in.</td>
</tr>
</tbody>
</table>

Length: 4 ft, 8½ in.
Width: 3 ft
Weight (total): 810 lb

Fuel drum:

Height: 12 in.
Diameter: 20 in.
Weight (total): 49 lb

Fuel aspirator bottle:

Height: 9 in.
Width: 8½ in.
Weight (total): 5 lb

PERFORMANCE

Fuel lifter (ORD No. 8529161):

Capacity: 500 lb

Fuel lifter (ORD No. 8529160):

Capacity: 500 lb

Fuel drum:

Capacity: 48.8 to 49 lb

Fuel aspirator bottle:

Capacity: 1 qt

UDMH fill bottle:

Capacity: correct amount for one missile fill

EQUIPMENT

Basic issue items: See ORD 7 SNL Y-17.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

M3

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length (feet)</th>
<th>Width (inches)</th>
<th>Height (feet)</th>
<th>Volume (cu ft)</th>
<th>Gross weight (lb)</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 ft, 1½ in.</td>
<td>8 ft, 5 in.</td>
<td>8 ft, 10 in.</td>
<td>188.5</td>
<td>1,449 lb</td>
<td>5.84</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length (feet)</th>
<th>Width (inches)</th>
<th>Height (feet)</th>
<th>Volume (cu ft)</th>
<th>Gross weight (lb)</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 ft, 6 in.</td>
<td>8 ft, 10 in.</td>
<td>156.5</td>
<td>1,449 lb</td>
<td>5.84</td>
<td></td>
</tr>
</tbody>
</table>

M3A1

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length (feet)</th>
<th>Width (inches)</th>
<th>Height (feet)</th>
<th>Volume (cu ft)</th>
<th>Gross weight (lb)</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 ft, 1½ in.</td>
<td>8 ft, 5 in.</td>
<td>8 ft, 10 in.</td>
<td>188.5</td>
<td>1,449 lb</td>
<td>5.84</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length (feet)</th>
<th>Width (inches)</th>
<th>Height (feet)</th>
<th>Volume (cu ft)</th>
<th>Gross weight (lb)</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 ft, 6 in.</td>
<td>8 ft, 10 in.</td>
<td>156.5</td>
<td>1,449 lb</td>
<td>5.84</td>
<td></td>
</tr>
</tbody>
</table>

**SHIELD, GUIDED MISSILE LAUNCHER: M1**
(Data to be published at a later date.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>9-46382 (Temp.)</td>
<td>1440-774-8176</td>
</tr>
</tbody>
</table>

**General**

**Differences among models**

**Data plate location**

**Classification**

**CHARACTERISTICS**

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL Y-5.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>344.30 cu ft</td>
<td>3,300 lb</td>
<td>8.60</td>
</tr>
</tbody>
</table>

*Outside Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SIMULATOR STATION, RADAR SIGNAL, GUIDED MISSILE SYSTEM
TRAILER MOUNTED: AN/MPQ-36 (15D2)

Target simulation—Continued

<table>
<thead>
<tr>
<th>Size (width)</th>
<th>...</th>
<th>1 to 3 degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velocity</td>
<td>0 to 2,000 knots/h.</td>
<td></td>
</tr>
<tr>
<td>Heading</td>
<td>0 to 6,400 mils</td>
<td></td>
</tr>
<tr>
<td>Turn rate</td>
<td>0 to 20 deg/sec</td>
<td></td>
</tr>
<tr>
<td>Climb rate</td>
<td>0 to 40,000 fpm</td>
<td></td>
</tr>
<tr>
<td>Dive rate</td>
<td>0 to 80,000 fpm</td>
<td></td>
</tr>
<tr>
<td>Altitude</td>
<td>0 to 80,000 fpm</td>
<td></td>
</tr>
</tbody>
</table>

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

<table>
<thead>
<tr>
<th>Length</th>
<th>...</th>
<th>26 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>...</td>
<td>8 ft</td>
</tr>
<tr>
<td>Height</td>
<td>...</td>
<td>10 ft, 6 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>...</td>
<td>2,244 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>...</td>
<td>16,050 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>...</td>
<td>55.8%</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Length</th>
<th>...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>...</td>
</tr>
<tr>
<td>Height</td>
<td>...</td>
</tr>
<tr>
<td>Volume</td>
<td>...</td>
</tr>
<tr>
<td>Gross weight</td>
<td>...</td>
</tr>
<tr>
<td>Ship tons</td>
<td>...</td>
</tr>
</tbody>
</table>


* Data and characteristics will be added at a later date.
SIMULATOR GROUP: OA-758/MSE-2

Model
OA-758/MSE-2

Major item

Line item No.
4-41037-10

Federal stock No.
4933-568-8184

General

SIMULATOR GROUP: OA-758/MSE-2 is used to test the missile tracking radar equipment by simulating the guidance set of a missile in flight and providing proper test responses.

Differences among models

Data plate location

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Weight 240 lb

Width 2 ft, 11 1/2 in.

Depth 1 ft, 10 in.

Height 2 ft, 3 1/2 in.

PERFORMANCE

EQUIPMENT

Basic issue items: See ORD 7 SNL Y-8.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped

Length

Width

Height

Volume

Gross weight

Ship tons

STAND, TEST, HYDRAULIC SYSTEM, MISSILE: M14

General
STAND, TEST, HYDRAULIC SYSTEM, MISSILE: M14 consists of a vane-type pump, a 6-bhp electric motor, a system relief valve, a safety relief valve, a bypass valve, three check valves, three filters, a solenoid valve, a system pressure gage, a motor switch box, and a 55-gallon reservoir. The reservoir contains hydraulic fluid for the operational test of the missile hydraulic system. The entire unit is enclosed in a cabinet with two fixed and two swivel caster wheels, held in position with a foot lock brake. Ventilation is provided by two vents in the back of the test stand. Eight depressions in the test stand top are provided for the placement of additional test equipment.

Differences among models
The identification plate is located on the front side of the hydraulic test stand cabinet.

Data plate location
The identification plate is located on the front side of the hydraulic test stand cabinet.

Classification:

CHARACTERISTICS—Continued

Accumulator:
- Weight: 18.6 lb
- Length: 1 ft. 7 in.
- Diameter: 5 in.

Safety relief valve:
- Weight: 1.6 lb
- Rating: 1,700 to 1,950 psi
- 1 port: 1/2 in.
- 3 ports: 1/2 in.

System relief valve:
- Size: 1/2 in.
- Rating: 2.200 to 2.350 psi

Power supply cable:
- Diameter: 1/4 in.
- Length: 50 ft
- Rating: 4 conductors

Hydraulic hose (2):
- Diameter: 1/2 in.
- Length: 17 ft, 10 in.
- Rating: 3,000 psi

Hydraulic hose and electrical cable booms, length: 5 ft

Hydraulic pressure gage:
- Rating: 0 to 3,000 psi
- Diameter: 4 in.
- Pipe connection: 3/4 in.

Air pressure gage:
- Rating: 0 to 3,000 psi
- Diameter: 2 in.
- Pipe connection: 3/4 in.

Hydraulic filters (2):
- Weight: 4.7 lb
- Length: 4 in.
- Width: 4 in.
- Height: 7 in.
- Rating: 500 to 3,000 psi

PERFORMANCE

Safety relief valve, operating range: 1,760 to 1,950 psi
System relief valve, operating range: 2,260 to 2,360 psi
Hydraulic pressure gage, operating range: 0 to 3,000 psi
Air pressure gage, operating range: 0 to 3,000 psi
Hydraulic filter (2), operating range: 500 to 3,000 psi

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-20

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped:
- Length: 6 ft. 11 in.
- Width: 3 ft, 11/4 in.
- Height: 3 ft, 11/4 in.
- Volume: 71.45 cu ft
- Gross weight: 1,468 lb
- Ship tons: 1,786

Outside Continental United States

Shipped:
- Length: 6 ft, 11 in.
- Width: 3 ft, 11/4 in.
- Height: 3 ft, 11/4 in.
- Volume: 71.45 cu ft
- Gross weight: 1,468 lb
- Ship tons: 1,786

STOWAGE SET ASSEMBLY, LAUNCHER:
(Data to be published at a later date.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1440-098-5853</td>
</tr>
</tbody>
</table>

General
Differences among models
Data plate location
Classification:

CHARACTERISTICS
Stowage box
Weight: 180 lb
Length: 7 ft, 4½ in.
Height: 2 ft
Width (at base): 1 ft, 2 in.

EQUIPMENT
Basic Issue Items: See ORD 7 SNL Y-6.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

# TEST SET, GUIDED MISSILE: AN/DSM-12, AN/DSM-12A, AND AN/DSM-12B

---

## CHARACTERISTICS

### Guided missile test set AN/DSM-12

1. **Portable electrical test set** — ORD No. 9005329
   - Weight: 462 lb
   - Length: 3 ft, 10½ in.
   - Width: 2 ft, 4½ in.
   - Height: 3 ft, 4 in.

2. **Antenna coupler CU-426 DSM-12**
   - Weight: 35 lb
   - Weight with case: 75 lb

---

## PERFORMANCE

### EQUIPMENT

### STORAGE AND SHIPMENT DATA

**AN/DSM-12, AN/DSM-12A, AN/DSM-12B**

Within Continental United States

- Shipped 1 set per 2 boxes

### References:

- SNL Y-19
- SNL 9-1985
- DD 9-122
TEST SET, ELECTRIC CIRCUIT: TS-1053/G

TEST SET, ELECTRIC CIRCUIT: TS-1053/G, is used to determine technical service responsibility of the elevator-mounted launcher when a malfunction is found. The test set consists of a waterproof aluminum case and panel containing the batteries, switches, wiring, and indicator light. The test set is inserted between the elevator interlock cable and receptacle J9A on the interconnecting box.

Differences among models

Data plate location
Classification

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-5.

### General

**TEST SET, ELECTRIC CIRCUIT:** TS-1053/G, is used to determine technical service responsibility of the elevator-mounted launcher when a malfunction is found. The test set consists of a waterproof aluminum case and panel containing the batteries, switches, wiring, and indicator light. The test set is inserted between the elevator interlock cable and receptacle J9A on the interconnecting box.

### Differences among models

- **Data plate location**
- **Classification**

### STORAGE AND SHIPMENT DATA

#### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

#### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

### References

- SNL Y-5, TM 9-5017-5.
TEST SET, RADAR: TS-847/MSW-1 AND TS-847A/MSW-1

General

The test set, TS-847/MSW-1 or TS-847A/MSW-1 and the antenna and mast group provide means for testing the overall radio frequency performance of both the target tracking antenna-receiver-transmitter group and the missile tracking antenna-receiver-transmitter group of the NIKE-AJAX antiaircraft guided missile system. During operation, the radar test set generates a test signal which is transmitted from an antenna atop the mast assembly. This signal is received by the radar and is used to check the radar receiver and the azimuth and elevation pointing. The radar test set consists of two major units, the electrical equipment cabinet and the equipment drawer.

Differences among models

Classification: TS-847/MSW-1—Standard A (OTCM 36841) TS-847A/MSW-1—Standard B (OTCM 36841)

Data plate location

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS-847</td>
<td>4-60510-18</td>
<td>1430-568-8232</td>
</tr>
<tr>
<td>TS-847A</td>
<td>4-60510-20</td>
<td>1430-568-8233</td>
</tr>
</tbody>
</table>

Electronic Data—Continued

- Oscillators (target and missile) each employs a K26 reflex oscillator coupled to waveguide.
- Fuse complement (total no.) 4
- Electron tube complement (total no.) 26

Performance

Equipment

Basic issue items: See ORD 7 SNL Y4-4.

Storage and shipment data

TS-847A: Within Continental United States

Shipped 1 test set per 2 wooden boxes

<table>
<thead>
<tr>
<th>Box #1</th>
<th>Box #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft, 7 in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 13% in.</td>
</tr>
<tr>
<td>Height</td>
<td>2 ft, 2% in.</td>
</tr>
<tr>
<td>Volume</td>
<td>12.2 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>221 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.305</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Box #1</th>
<th>Box #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-5021-5, SNL Y4-4, SM 9-5-1436, 40, 50.
TEST SET, RADAR: AN/MPM-28, AN/MPM-28A, AND AN/MPM-28B

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AN/MPM-28</td>
<td>4-00000-10</td>
<td>1430-368-8236</td>
<td>4-41062-02</td>
<td>1430-368-8238</td>
</tr>
<tr>
<td>AN/MPM-28A</td>
<td>4-41062-01</td>
<td>1430-607-0248</td>
<td>4-41062-01</td>
<td>1430-607-0248</td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Differences among models
Data plate location
Classification: Standard A (OTCM 36841)

CHARACTERISTICS:

PERFORMANCE

EQUIPMENT

Basic issue items: See ORD 7 SNL Y-6, Sec 2.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Reference: SNL Y-6-2.
TEST SET GROUP, GUIDED MISSILE: OA-767B/DSM

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length ....................................................
Width .....................................................
Height ...................................................
Volume ...................................................
Gross weight ............................................
Ship tons ................................................

Outside Continental United States

Shipped
Length ....................................................
Width .....................................................
Height ...................................................
Volume ...................................................
Gross weight ............................................
Ship tons ................................................


CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-18.
TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED:
AN/MPA-4 AND AN/MPA-4A

General
TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MPA-4 and AN/MPA-4A consist of tracking station group OA-866/MPA-4 and TRAILER VAN: radar tracking central M258.* and TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MPA-4A consist of tracking station group OA-866/MPA-4 and radar tracking central van trailer M258A.*

Differences among models

Data plate location

Classification: Standard B (OTCM 26841)

CHARACTERISTICS

Trailer mounted tracking station: AN/MPA-4:

Weight:
- (AN/MPA-4) 11,850 lb
- (AN/MPA-4A) 12,370 lb

Length
Width
Height

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL V4-3.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

AN/MPA-4:

Within Continental United States

Shipped
Length 21 ft, 6 in.
Width 8 ft
Height 10 ft, 9 in.
Volume 1,847 cu ft
Gross weight 11,850 lb
Ship tons 46.22

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

AN/MPA-4A:

Within Continental United States

Shipped
Length 21 ft, 7 in.
Width 8 ft
Height 10 ft, 6 in.
Volume 1,812.4 cu ft
Gross weight 12,150 lb
Ship tons 45.31

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons


* For characteristics and data, see item in section 22.
TRUCK, GUIDED MISSILE BODY SECTION: M255

**General**

TRUCK, GUIDED MISSILE BODY SECTION: M255, holds the missile guidance set during test and assembly operations, and is used for transporting the guidance set within the assembly area. A dummy missile body section is bolted to the truck when not in use. Two handwheel truck brakes are provided on the truck to prevent rolling or pivoting while the missile guidance set is being tested.

**Differences among models**

Data plate location

A metal identification plate is attached on the side of the guided missile body section truck.

Classification: Standard B (OTCM 36841).

**CHARACTERISTICS**

| Height, overall | 3 ft 2 in. with rings in position |
| Height, overall | 4 ft 2 in. if lowered |
| Height, overall | 4 ft 4 in. if raised |
| Length (front to rear) | 8 ft 10 3/4 in. |
| Width (total) | 4 ft 8 3/4 in. |
| Weight | 369 lb |

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

- **Shipped**
  - Length: 6 ft 4 1/2 in.
  - Width: 4 ft 4 1/2 in.
  - Height: 3 ft 8 3/4 in.
  - Volume: 102 cu ft
  - Gross weight: 471.5 lb
  - Ship tons: 2.55

*Outside Continental United States*

- **Shipped**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**References:** TM 9-9602-3, SM 9-6-1430, 40, 50.
TRUCK, GUIDED MISSILE ROCKET MOTOR: M254

TRUCK, GUIDED MISSILE ROCKET MOTOR: M254, is used to transport the JATO from the JATO assembly and storage areas to the joining area. The truck is composed of a welded steel rectangular bed mounted on swivel casters; clamps and eyebolts are incorporated on the upright supports of each end. Towing lugs, welded to the forward end of the truck, hold a hand bracket truck drawbar for towing the missile.

Differences among models

Data plate location

A metal identification plate is attached at the forward end of the rocket motor truck M254.

Classification: Standard B (OTCM 36841)

CHARACTERISTICS

Height, overall ........................................ 1 ft, 11¾ in.
Length (front to rear) .................................... 8 ft, 7 in.
Width ....................................................... 3 ft, 9½ in.
Weight ..................................................... 299 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>10 ft</td>
<td>8 ft</td>
<td>2 ft 6 in.</td>
<td>108 cu ft</td>
<td>557 lb</td>
<td>2.7</td>
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Outside Continental United States

<table>
<thead>
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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, INERT GUIDED MISSILE: M256

Basic Issue Items:

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>11 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>4 ft, 2 in.</td>
</tr>
<tr>
<td></td>
<td>Height</td>
<td>2 ft, 9½ in.</td>
</tr>
<tr>
<td></td>
<td>Volume</td>
<td>127 cu ft</td>
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<tr>
<td></td>
<td>Gross weight</td>
<td>681 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons</td>
<td>3.175</td>
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Outside Continental United States

Shipped

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<th>Height</th>
<th>Volume</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
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TRUCK, INERT GUIDED MISSILE: M257

Model
M257

Line item No.
4-60985-10

Federal stock No.
1450-568-8246

Rated load capacity
Extended

2,000 lb
1,500 lb

General
TRUCK, INERT GUIDED MISSILE: M257, is used during the uncrating of the missile body and JATO, during the joining of missile body and JATO on the RAIL LAUNCHING AND HANDLING MINE and during the installation of warheads in the missile body. The truck is constructed of welded tube and sheet metal; a manually operated, geared winch assembly is mounted on one leg. Two foot-operated truck locks, located on the lower struts of the truck structure, act as brakes for the truck.

Differences among models

Data plate location

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Height, overall
10 ft. 8 in.

Length (front to rear)
8 ft. 6 in.

Width:

Normal
5 ft

Extended
10 ft

Weight:
802 lb

Rated load capacity

2,000 lb

1,500 lb

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Length
12 ft. 8 in.

Width
3 ft. 11 in.

Height
4 ft. 2 in.

Volume
206 cu ft

Gross weight
1,195 lb

Ship tons
6.15

Outside Continental United States

Length

Width

Height

Volume

Gross weight

Ship tons


* For characteristics and data, see item on page 19-54.
END TRUSS, LOADING RACK, GUIDED MISSILE:

General
Differences among models
Data plate location
Classification: Standard B

CHARACTERISTICS
Number required: 5
Length: 7 ft, 2½ in.
Height (adjustable): 2 ft, 3 in. to 3 ft, 10 in.
Weight (each): 160 lb
Weight (total): 800 lb

PERFORMANCE
EQUIPMENT
Basic Issue Items: See ORD 7 SNL Y-5.

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped
Length: 7 ft, 6 in.
Width: 2 ft, 10 in.
Height: 2 ft, 6 in.
Volume: 53.2 cu ft
Gross weight: 670 lb
Ship tons: 1.33

Outside Continental United States
Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

SIDE TRUSS, LOADING RACK, GUIDED MISSILE:

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

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<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>10 ft, 3 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>2 ft, 2 in.</td>
</tr>
<tr>
<td></td>
<td>Height</td>
<td>2 ft, 1 in.</td>
</tr>
<tr>
<td></td>
<td>Volume</td>
<td>1,520 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons</td>
<td>1,69</td>
</tr>
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</table>

**Outside Continental United States**

<table>
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<th>Shipped</th>
<th>Length</th>
<th>10 ft, 3 in.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>2 ft, 2 in.</td>
</tr>
<tr>
<td></td>
<td>Height</td>
<td>2 ft, 1 in.</td>
</tr>
<tr>
<td></td>
<td>Volume</td>
<td>1,520 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons</td>
<td>1,69</td>
</tr>
</tbody>
</table>

**REFERENCES:** SNL Y-5, TM 9-5010-2-2, SM 9-4-1450, 40, 50.

**CHARACTERISTICS**

- Number required: 10
- Length: 10 ft, 3 in.
- Height: 1 ft, 7 in.
- Weight (each): 133 lb
- Weight (total): 1,520 lb

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL Y-5.
AIR DEFENSE MISSILE SYSTEM—NIKE-HERCULES

(Includes specially designed components of guided missile remote control systems; non-airborne guided missile launchers; specially designed trucks for use in transporting guided missiles; specially designed hoisting beams; a special purpose trailer; checkout equipment and test equipment specially designed for use with guided missiles and guided missile remote control systems; and an engine generator set.)
BATTERY CONTROL AREA
A—ANTENNA-MAST GROUP, COLLIMATION: OA-1600/T
B—ELECTRONIC SHOP, TRAILER MOUNTED:
C—TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MPA-5
D—GENERATOR SET, DIESEL ENGINE:
E—ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING, TRAILER MOUNTED: OA-1340/MPA
F—ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION:
G—DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MSA-19
H—FIRE UNIT INTEGRATED FACILITY (FUIF) TRUCK
J—ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING, TRAILER MOUNTED: OA-1487/MSA

LAUNCHING AREA
K—TEST SET, GUIDED MISSILE: AN/DSM-33
L—TRUCK, GUIDED MISSILE TEST SET: M451
M—SIMULATOR, GUIDED MISSILE, FLIGHT: OA-1643/M
N—CONTROL INDICATOR: C-2629/TSW
P—SIMULATOR GROUP: OA-2660/MSW-4
Q—LAUNCHER, MONORAIL, GUIDED MISSILE: M36
R—GUIDED MISSILE, AIR DEFENSE: XM6
S—CONTROL INDICATOR: C-2699/TSW
T—RAIL, LAUNCHING-HANDLING, GUIDED MISSILE: M3
U—LAUNCHING CONTROL GROUP, GUIDED MISSILE, TRAILER MOUNTED: AN/MSW-4

ASSEMBLY AND SERVICE EQUIPMENT
V—TRUCK, GUIDED MISSILE BODY SECTION: XM473
W—RING, HANDLING, GUIDED MISSILE:
X—TRUCK, GUIDED MISSILE, NOSE SECTION: M489
Y—BEAM, HOISTING, GUIDED MISSILE, SOLID MOTOR: XM12
Z—HOISTING UNIT, PORTABLE, GUIDED MISSILE, MISSILE AND JATO UNIT JOINING: XM38E1
AA—RACK, BATTERY: MT-1498/C
BB—TEST SET, GUIDED MISSILE: (ORD NO. 9025326)
CC—TRAILER, FLATBED, GUIDED MISSILE: M261A1
DD—BEAM, HOISTING, GUIDED MISSILE: XM13
EE—TEST STAND, HYDRAULIC SYSTEM COMPONENTS:
FF—TRUCK, GUIDED MISSILE, ROCKET MOTOR: M442, W/E
GG—ADAPTER, ADJUSTABLE, TRAILER TO GUIDED MISSILE COMPONENT: M36, W/E
HH—BEAM, HOISTING, GUIDED MISSILE; BOOSTER CLUSTER, M13
JJ—BEAM, HOISTING, GUIDED MISSILE; COMPLETE MISSILE, XM14
KK—BEAM, HOISTING, GUIDED MISSILE, WARHEAD SECTION: M7E1
LL—FILLER, HYDRAULIC SYSTEM, GUIDED MISSILE:
MM—SIDE TRUSS, LOADING RACK, GUIDED MISSILE, LAUNCHER, TRACK ASSEMBLY LOADING RACK: M1
NN—RACK, LOADING, GUIDED MISSILE, SUPPORT ASSEMBLY LOADING RACK: M10
The equipment required to complete the SYSTEM, which includes maintenance, repair and checkout equipment especially designed for use with guided missiles and guided missile control systems, will be added at a later date.
**ADAPTER, ADJUSTABLE, TRAILER TO GUIDED MISSILE COMPONENT: M36, W/E**

<table>
<thead>
<tr>
<th>Model</th>
<th>Major item Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M36</td>
<td>4-00012-01</td>
<td>1460-586-5016</td>
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</tbody>
</table>

**General**

ADAPTER, ADJUSTABLE, TRAILER TO GUIDED MISSILE COMPONENT: M36, w/e, is used to store a rear body section or a rocket motor cluster on a storage rack, or to transport a missile body or rocket motor cluster over rough terrain on a flatbed trailer M261A1. The adapter M36 is secured to the flatbed trailer, rocket motor cluster truck, or handling rack group with four locking devices. Two band assemblies and two clamps on the adapter M36 secure the rear body section to the adapter. Four of the eight supports on the adapter M36 secure the rocket motor cluster to the adapter.

**Differences among models**

Data plate location

Classification: Standard A (OTCM 36933)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight</th>
<th>550 lb</th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td>14 ft, 11 in.</td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 10 in.</td>
</tr>
<tr>
<td>Height</td>
<td>2 ft, 9 in.</td>
</tr>
<tr>
<td>Capacity</td>
<td>6,000 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

<table>
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<th>Shipped</th>
<th>Length</th>
<th>16 ft, 7 3/4 in.</th>
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<td></td>
<td>Width</td>
<td>4 ft, 3 3/8 in.</td>
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<tr>
<td></td>
<td>Height</td>
<td>3 ft, 6 in.</td>
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<tr>
<td></td>
<td>Volume</td>
<td>251.76 cu ft</td>
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<tr>
<td></td>
<td>Gross weight</td>
<td>1,200 lb</td>
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<td>Ship tons</td>
<td>5.78</td>
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*Outside Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ANTENNA-MAST GROUP, COLLIMATION: OA-1600/T, W/E

**CHARACTERISTICS**

- **Weight**
- **Length**
- **Width**
- **Height**: 60 ft

**PERFORMANCE**

**EQUIPMENT**

Basic issue items: See TM 9-1430-250-10.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th>Case #1</th>
<th>Within Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>10 ft, 6¼ in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 10 in.</td>
</tr>
<tr>
<td>Height</td>
<td>11½ ft</td>
</tr>
<tr>
<td>Volume</td>
<td>18.9 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>370 lb</td>
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<tr>
<td>Ship ton</td>
<td>0.46</td>
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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td>14 ft, 6¾ in.</td>
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<tr>
<td>Width</td>
<td>1 ft, 10 in.</td>
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</table>

For characteristics and data, see item on page 19-66.
### Storage and Shipment Data—Continued

<table>
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<tbody>
<tr>
<td>shipped—Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>6 ft, 6% in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>2 ft, 1 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 9 in.</td>
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<tr>
<td>volume</td>
<td>10.8 cu ft</td>
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<tr>
<td>gross weight</td>
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<td>ship tons</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>9 ft, 1 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>2 ft, 5% in.</td>
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<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 8% in.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>volume</td>
<td>19.0 cu ft</td>
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<td></td>
</tr>
<tr>
<td>gross weight</td>
<td>284 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.47</td>
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<table>
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<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>6 ft, 6% in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>1 ft, 9 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 9 in.</td>
<td></td>
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<tr>
<td>volume</td>
<td>19.0 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gross weight</td>
<td>284 lb</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.47</td>
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<table>
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<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>9 ft, 7% in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>2 ft, 5% in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 8% in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>volume</td>
<td>19.0 cu ft</td>
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<tr>
<td>gross weight</td>
<td>284 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.47</td>
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<tr>
<td>length</td>
<td>9 ft, 7% in.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>2 ft, 5% in.</td>
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</tr>
<tr>
<td>height</td>
<td>1 ft, 8% in.</td>
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</tr>
<tr>
<td>volume</td>
<td>19.0 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gross weight</td>
<td>284 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.47</td>
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<table>
<thead>
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<tbody>
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<td>shipped—Continued</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>9 ft, 1 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>1 ft, 10 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 8% in.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>volume</td>
<td>20.0 cu ft</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>gross weight</td>
<td>318 lb</td>
<td></td>
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</tr>
<tr>
<td>ship tons</td>
<td>0.65</td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Case #7 Outside Continental United States</th>
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<td></td>
<td></td>
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</tr>
<tr>
<td>length</td>
<td>9 ft, 8 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>2 ft, 1 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 10 in.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>volume</td>
<td>42.0 cu ft</td>
<td></td>
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</tr>
<tr>
<td>gross weight</td>
<td>535 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case #8 Outside Continental United States</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>shipped—Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>9 ft, 9% in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>2 ft, 1 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 9% in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>volume</td>
<td>20.0 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gross weight</td>
<td>318 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.65</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Case #9 Outside Continental United States</th>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>shipped—Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>9 ft, 8 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>1 ft, 10 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 8% in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>volume</td>
<td>42.0 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gross weight</td>
<td>535 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case #10 Outside Continental United States</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>shipped—Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>9 ft, 8 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>2 ft, 1 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 10 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>volume</td>
<td>20.0 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gross weight</td>
<td>318 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case #11 Outside Continental United States</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>shipped—Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>9 ft, 8 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>2 ft, 1 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height</td>
<td>1 ft, 10 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>volume</td>
<td>20.0 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gross weight</td>
<td>318 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ship tons</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19–81.
### Case #9—Continued
**Outside Continental United States—Continued**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 9 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 3 1/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>8.2 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>257 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.2</td>
</tr>
</tbody>
</table>

### Case #10
**Within Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>9 ft, 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft</td>
</tr>
</tbody>
</table>

**Shipped—Continued**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>14.0 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>280 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.35</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>9 ft, 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft</td>
</tr>
<tr>
<td>Volume</td>
<td>14.0 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>280 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.35</td>
</tr>
</tbody>
</table>

ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION: OA-1596/T AND OA-1601/T, W/E

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA-1596/T</td>
<td>4-00206-92</td>
<td>1409-586-4420</td>
</tr>
<tr>
<td>OA-1601/T</td>
<td>4-00206-91</td>
<td>1409-586-4501</td>
</tr>
</tbody>
</table>

**General**

ANTENNA-RECEIVER-TRANSMITTER GROUP, ACQUISITION: OA-1596/T and OA-1601/T, w/e, is a search type radar providing continuous surveillance of the defense area so that an enemy aircraft may be detected and designated as a target before it comes within range of the missile.

**Differences among models**

Data plate location

Classification:

- OA-1596/T Standard A
- OA-1601/T Standard A (OTCM 37119)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th></th>
<th>OA-1596/T</th>
<th>OA-1601/T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight:</strong></td>
<td>2,500 lb</td>
<td>2,332 lb</td>
</tr>
<tr>
<td><strong>Length:</strong></td>
<td>15 ft, 6 in.</td>
<td>15 ft, 6 in.</td>
</tr>
<tr>
<td><strong>Width:</strong></td>
<td>13 ft, 5 in.</td>
<td>13 ft, 5 in.</td>
</tr>
<tr>
<td><strong>Height:</strong></td>
<td>13 ft, 5 in.</td>
<td>13 ft, 5 in.</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Item: See TM 9-1436-250-10.

**INSTRUCTIONAL MATERIAL**

STORE AND SHIPMENT DATA

FSN 1430-586-5001

Within Continental United States per crate No. 1

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
<td>8 ft, 11 in.</td>
<td>4 ft, 4 1/2 in.</td>
<td>4 ft, 4 1/2 in.</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td>3 ft, 6 1/2 in.</td>
<td>3 ft, 6 1/2 in.</td>
<td>3 ft, 6 1/2 in.</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>9 ft, 3 1/2 in.</td>
<td>9 ft, 3 1/2 in.</td>
<td>9 ft, 3 1/2 in.</td>
</tr>
<tr>
<td><strong>Volume</strong></td>
<td>757.0 cu ft</td>
<td>757.0 cu ft</td>
<td>757.0 cu ft</td>
</tr>
<tr>
<td><strong>Gross weight</strong></td>
<td>3,900.0 lb</td>
<td>3,900.0 lb</td>
<td>3,900.0 lb</td>
</tr>
<tr>
<td><strong>Ship tons</strong></td>
<td>18.83</td>
<td>18.83</td>
<td>18.83</td>
</tr>
</tbody>
</table>

**Overseas Pack**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
<td>15 ft, 6 in.</td>
<td>8 ft, 11 in.</td>
<td>8 ft, 11 in.</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td>6 ft, 9 1/2 in.</td>
<td>8 ft, 9 1/2 in.</td>
<td>8 ft, 9 1/2 in.</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>7 ft, 8 in.</td>
<td>7 ft, 8 in.</td>
<td>7 ft, 8 in.</td>
</tr>
<tr>
<td><strong>Volume</strong></td>
<td>757.0 cu ft</td>
<td>757.0 cu ft</td>
<td>757.0 cu ft</td>
</tr>
<tr>
<td><strong>Gross weight</strong></td>
<td>3,900.0 lb</td>
<td>3,900.0 lb</td>
<td>3,900.0 lb</td>
</tr>
<tr>
<td><strong>Ship tons</strong></td>
<td>18.83</td>
<td>18.83</td>
<td>18.83</td>
</tr>
</tbody>
</table>

19-83
### Overseas Pack—Continued

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Ship tons</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 2</td>
<td>2.9</td>
<td>4 ft, 4¼ in.</td>
<td>1 ft, 8½ in.</td>
<td>3 ft, 5½ in.</td>
<td>26 cu ft</td>
<td>860 lb</td>
<td></td>
</tr>
<tr>
<td>No. 3</td>
<td></td>
<td>4 ft, 4¼ in.</td>
<td>1 ft, 8½ in.</td>
<td>3 ft, 5½ in.</td>
<td>26 cu ft</td>
<td>860 lb</td>
<td>0.65</td>
</tr>
<tr>
<td>No. 4</td>
<td></td>
<td>4 ft, 5¼ in.</td>
<td>4 ft, 2½ in.</td>
<td>4 ft, 7 in.</td>
<td>86 cu ft</td>
<td>910 lb</td>
<td>2.15</td>
</tr>
<tr>
<td>No. 5</td>
<td></td>
<td>4 ft, 9½ in.</td>
<td>4 ft, 4½ in.</td>
<td>3 ft, 3½ in.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FSN 1430-595-9479**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 unit in 5 boxes</td>
<td></td>
<td></td>
<td></td>
<td>1,073 cu ft</td>
<td>5,649 lb</td>
<td>26.8</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 unit in 5 boxes</td>
<td></td>
<td></td>
<td></td>
<td>1,073 cu ft</td>
<td>5,649 lb</td>
<td>26.8</td>
</tr>
</tbody>
</table>

ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING,
TRAILER MOUNTED: OA-1340/MPA, W/E

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
<td>OA-1340/MPA</td>
<td>4-90212-00</td>
<td>1430-596-4995</td>
</tr>
</tbody>
</table>

General
ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING, TRAILER MOUNTED: OA-1340/MPA, W/E, consists of ANTENNA-RECEIVER-TRANSMITTER GROUP, MISSILE TRACKING: OA-1485/MPA and TRAILER, ANTENNA: M406. Antenna-receiver-transmitter group, missile tracking, OA-1340/MPA functions with other equipment to supply continuous missile position information to the computer and to transmit commands from the computer to the missile.

Differences among models

Data plate location

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

Weight 12,720 lb
Length 28 ft, 2 in.
Width 8 ft
Height 11 ft, 2 in.

PERFORMANCE

Classified

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mounted trailer with reels and cables
Length 21 ft, 6 in.
Width 8 ft
Height 11 ft, 2 in.
Volume 1,965.6 cu ft
Gross weight 12,720 lb
Ship tons 49.1

Outside Continental United States

Shipped 1 mounted trailer with reels and cables
Length 21 ft, 6 in.
Width 8 ft
Height 11 ft, 2 in.
Volume 1,965.6 cu ft
Gross weight 12,720 lb
Ship tons 49.1


* Characteristics and data will be added at a later date.

19–85
ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING, TRAILER MOUNTED: OA-1487/MPA AND OA-1487A/MPA

(IMPROVED NIKE HERCULES)

Model
OA-1487/MPA, w/e
OA-1487A/MPA

Major Item
4-00217-01
9-40026

Federal stock No.
1430-586-5000
1430-775-0266

General
ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING, TRAILER MOUNTED: OA-1487/MPA, w/e, consists of ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING: OA-1488/MPA and TRAILER, ANTENNA: M406. The major function of the target tracking, antenna-receiver-transmitter group OA-1487/MPA is to supply continuous target position information to the computer group of DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MSA-19. The antenna trailer M406 provides mobility when required; however, the target tracking antenna-receiver-transmitter group OA-1488/MPA may be emplaced with or without the trailer.

Differences among models

Data plate location

OA-1487/MPA Standard A (OTCM 37119)
OA-1487A/MPA Limited production (OTCM 37548)

CHARACTERISTICS

Weight:
OA-1487/MPA 12,720 lb
OA-1487A/MPA 12,720 lb

Length:
OA-1487/MPA 28 ft, 2 in.
OA-1487A/MPA 28 ft, 2 in.

Width:
OA-1487/MPA 8 ft
OA-1487A/MPA 8 ft

Height:
OA-1487/MPA 11 ft, 2 in.
OA-1487A/MPA 11 ft, 2 in.

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

FSN 1430-586-5000

Within Continental United States

Length 21 ft, 6 in.
Width 8 ft
Height 11 ft, 2 in.
Volume 1,865 cu ft
Gross weight 12,720 lb
Ship tons 49.1

Outside Continental United States

Length 21 ft, 6 in.
Width 8 ft
Height 11 ft, 2 in.
Volume 1,865 cu ft
Gross weight 12,720 lb
Ship tons 49.1


* Characteristics and data will be added at a later date.
BEAM, HOISTING, GUIDED MISSILE, BOOSTER CLUSTER: M8

General

BEAM, HOISTING, GUIDED MISSILE, BOOSTER CLUSTER: M8, is used to lift the missile booster from the missile booster truck to TRAILER, FLAT BED, GUIDED MISSILE: M261A1* or the RAIL, LAUNCHING-HANDLING, GUIDED MISSILE: XM3*.

Differences among models

Data plate location

Classification: Standard A (OTCM 36833).

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

1 beam per box

Length 9 ft, 4 in.

Width 1 ft, 9 1/2 in.

Height 1 ft, 3 3/4 in.

Volume 22.25 cu ft

Gross weight 253 lb

Ship tons 0.56

Outside Continental United States

Shipped

Length

Width

Height

Volume

Gross weight

Ship tons


CHARACTERISTICS

Weight 101 lb

Length 8 ft, 10 1/2 in.

Width 1 ft, 5 1/2 in.

Height 1 ft

Capacity 5,600 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items:

* For characteristics and data, see item on pages 19-109 and 19-118.
BEAM, HOISTING, GUIDED MISSILE: BOOSTER CLUSTER, M13

**General**

Beam, hoisting, guided missile, booster cluster: M13 is used to lift the missile booster from the missile booster truck to trailer, flat bed: guided missile: M261A1* or the rail, launching-handling, guided missile: M3. Beam, ORD NO. 8166439, is constructed of welded steel, while beam, ORD NO. 9032536, is constructed of riveted aluminum.

**Differences among models**

Data plate location

Classification: Standard A (OTCM 37119).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
<td>M13</td>
<td>4-81119-05</td>
<td>1450-648-2101</td>
</tr>
</tbody>
</table>

**EQUIPMENT**

**Basic Issue Items:**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped

Length: 12 ft. 4 in.
Width: 1 ft. 9 in.
Height: 1 ft. 1 in.
Volume: 22.26 cu ft
Gross weight: 254.0 lb
Ship tons: 9.56

**Outside Continental United States**

Shipped

Length
Width
Height
Volume
Gross weight
Ship tons

**REFERENCES:**


* For characteristic and data, see item in section 22 and on page 19-109.
BEAM, HOISTING, GUIDED MISSILE: COMPLETE MISSILE, M14

General
BEAM, HOISTING, GUIDED MISSILE: COMPLETE MISSILE, M14, is used with the missile booster hoisting unit or TRUCK, WRECKER: M62* to lift the complete missile assembly from the missile truck onto the TRAILER, FLAT BED: GUIDED MISSILE M261A1* or the RAIL, LAUNCHING-HANDLING, GUIDED MISSILE: DAC 1877-10 M3.

Differences among models
Data plate location
Classification: Standard A (OTCM 37119).

CHARACTERISTICS

| Weight | 68 lb |
| Length | 8 ft, 2 ½ in. |
| Width | 1 ft, 11 ¾ in. |
| Height | 7 ¼ in. |
| Capacity | 6.279 lb |

PERFORMANCE

INSTRUCTIONAL MATERIAL

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

| Length | 8 ft, 6 ½ in. |
| Width | 1 ft, 2 ½ in. |
| Height | 2 ft, 8 ¾ in. |
| Volume | 13.2 cu ft |
| Gross weight | 168 lb |
| Ship tons | .83 |

Outside Continental United States

Shipped

| Length | 8 ft, 6 ½ in. |
| Width | 1 ft, 11 ¾ in. |
| Height | 2 ft, 9 ¾ in. |
| Volume | 13.33 cu ft |
| Gross weight | 168 lb |
| Ship tons | .83 |


* For characteristic and data, see item in section 22 and on page 19-100.
BEAM, HOISTING, GUIDED MISSILE: M12

General
BEAM, HOISTING, GUIDED MISSILE: M12, is used with a TRUCK, WRECKER: M62* or hoisting unit for transferring the main body (aft body section and forward body section).

Differences among models

Data plate location
The identification plate is located to the right of the supporting bracket.

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Line item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>M12</td>
<td>4-0114-02</td>
<td>1450-593-9474</td>
<td>4-0114-02</td>
</tr>
</tbody>
</table>

Within Continental United States

Shipped 1 beam per box

<table>
<thead>
<tr>
<th>Length</th>
<th>4 ft 4½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>11¾ in.</td>
</tr>
<tr>
<td>Height</td>
<td>7½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.50 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>56 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.0625</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>4 ft 4½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>11¾ in.</td>
</tr>
<tr>
<td>Height</td>
<td>7½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.50 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>56 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.0625</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1450-250-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA


*Characteristics and data will be added at a later date.
BEAM, HOISTING, GUIDED MISSILE, SOLID MOTOR: XM11

General

BEAM, HOISTING, GUIDED MISSILE, SOLID MOTOR: XM11, is used to remove the missile motor from the shipping container and place it inside the missile assembly.

Differences among models

Data plate location

Classification: Standard A (OTCM 37719).

CHARACTERISTICS

Weight
Length
Width
Height
Capacity

376 lb
5 ft, 8\(\frac{3}{4}\) in.
4 ft, 11\(\frac{1}{4}\) in.
9\(\frac{1}{2}\) in.
3,000 lb

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-1450-250-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Capacity

1 beam per box
6 ft, 3\(\frac{1}{2}\) in.
5 ft, 2\(\frac{1}{2}\) in.
3 ft, 3\(\frac{1}{4}\) in.
3,000 lb

Outside Continental United States

Shipped
Length
Width
Height

- 1.06

**BEAM, HOISTING, GUIDED MISSILE, WARHEAD SECTION: M7**

**General**

BEAM, HOISTING, GUIDED MISSILE, WARHEAD SECTION: M7 is used to support and position the warhead body section during installation in the missile assembly.

**Differences among models**

The identification plate is located to the right of the supporting bracket.

**Classification:** Standard A (OTCM 37119)

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- **Length**
  - 5 ft, 9 1/4 in.
- **Width**
  - 1 ft, 2 3/4 in.
- **Height**
  - 7 3/4 in.
- **Volume**
  - 4.38 cu ft
- **Gross weight**
  - 73 lb
- **Ship tons**
  - 0.1095

**Outside Continental United States**

- **Length**
  - 5 ft, 9 1/4 in.
- **Width**
  - 1 ft, 2 3/4 in.
- **Height**
  - 7 3/4 in.
- **Volume**
  - 4.38 cu ft
- **Gross weight**
  - 73 lb
- **Ship tons**
  - 0.1095

**References:** SNL J-75-1, SM 9-9-1450-48-50, TM 9-1450-250-12,
TM 9-1450-250-19, TM 9-1450-250-20P/4, TM 9-1450-250 35P/4,
SB 9-199.
CONTROL INDICATOR: C-2620/TSW (ORD NO. 8027936 AND ORD NO. 8036022), W/E

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-2620/TSW (ORD No. 8027936)</td>
<td>4-10833-01</td>
<td>1440-586-5000</td>
</tr>
<tr>
<td>(ORD No. 8036022)</td>
<td>4-10833-03</td>
<td>1440-765-4305</td>
</tr>
</tbody>
</table>

General

CONTROL INDICATOR: C-2620/TSW (ORD NO. 8027936 or ORD NO. 8036022), w/e, is mounted on top of section launcher simulator group and connected by cable to each CONTROL INDICATOR: C-2699/TSW* in launching section and to LAUNCHER CONTROL GROUP, GUIDED MISSILE, TRAILER MOUNTED: AN/MSW-4.* The control panel of control indicator C-2620/TSW contains all controls and indicators required by the operator for preparation of the missile for firing.

Differences among models

Data plate location

Classification

C-2620/TSW (ORD No. 8027936) Standard A (OTCM 36913)
(ORD No. 8036022) Standard A (OTCM 37119)

CHARACTERISTICS

Weight:
FSN 1440-586-5009 ........................................ 300 lb
FSN 1440-765-4305

Length:
FSN 1440-586-5009 ........................................ 2 ft, 2 in.
FSN 1440-765-4305

Width:
FSN 1440-586-5009 ........................................ 2 ft, 9 in.
FSN 1440-765-4305

Height:
FSN 1440-586-5009 ........................................ 2 ft, 4 in.
FSN 1440-765-4305

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-1440-250-10

* For characteristics and data, see item on pages 19-94 and 19-106.
CONTROL INDICATOR: C-2699/TSW (ORD NO. 9032238)

General

CONTROL INDICATOR: C-2699/TSW (ORD NO. 9032238) is connected by cable to LAUNCHER, MONORAIL, GUIDED MISSILE: M36, to the equipment in the section control shelter or section control room, and to the missile test stations on the loading racks. The control indicator has two functions, missile testing and missile monitoring. The control indicator is housed in a skid-mounted metal cabinet.

Differences among models

Data plate location

Classification:

CHARACTERISTICS

Weight ........................................... 567 lb
Length .......................................... 4 ft, 8 in.
Width ........................................... 3 ft, 8 in.
Height .......................................... 2 ft, 3½ in.

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length .......................................... 5 ft, 2½ in.
Width ........................................... 3 ft, 8¾ in.
Height .......................................... 2 ft, 10¾ in.
Volume .......................................... 56.6 cu ft
Gross weight .................................. 867 lb
Ship tons ...................................... 1.40

Outside Continental United States

Shipped
Length .......................................... 5 ft, 2½ in.
Width ........................................... 3 ft, 8¾ in.
Height .......................................... 2 ft, 10¾ in.
Volume .......................................... 56.6 cu ft
Gross weight .................................. 867 lb
Ship tons ...................................... 1.40


* For characteristics and data, see item on page 19-102.

19-94
DIRECTOR STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MSA-19, W/E

**Characteristics and data will be added at a later date.**
ELECTRONIC SHOP, TRAILER MOUNTED: M304 AND M304A1, W/E

General

ELECTRONIC SHOP, TRAILER MOUNTED: M304 AND M304A1, w/e, provides workspace and facilities for organizational maintenance activities and storage space for all authorized tools and repair parts. Facilities for organizational maintenance activities and parts cabinets for storage of tools and repair parts are provided in an interconnecting corridor at permanent sites.

Differences among models

Data plate location

The identification plate is located on the rear end in the lower right-hand corner.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Weight
Length
Width
Height

PERFORMANCE

EQUIPMENT

Basic Issue Item: See ORD 7 SNL Y4-6.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

FSN 1430-568-8176

Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

FSN 1430-568-8177

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL Y4-6, SB 9-128.
**GENERATOR SET, DIESEL ENGINE:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>6119-635-8776</td>
</tr>
</tbody>
</table>

**General**

GENERATOR SET, DIESEL ENGINE: consists of a mounted electrical generator and a prime mover. The prime mover is a type that is liquid cooled (radiator type) and is cranked by an electric motor.

**Differences among models**

Data plate location

The identification plate is located at the rear end near the top.

**Classification:**

**CHARACTERISTICS**

- **Generator:**
  - Cycles: 600
  - Line-to-line voltage: 240 Volts or 416 Volts
  - Line-to-neutral voltage: 120 Volts or 240 Volts
  - Phase: 1
  - Power factor: 0.8

**PERFORMANCE**

- Generator rating: 65kW

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>1 generator per crate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>10 ft, 6 in.</td>
</tr>
<tr>
<td>Width</td>
<td>8 ft, 5 in.</td>
</tr>
<tr>
<td>Height</td>
<td>5 ft, 11 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>247 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>4,514 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>6.191</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

**References:**

- TM 5-5232-1, TB 5-6409-1, TM 5-6329-1, TB 5-6329-1, TM 5-6325-1.
FILLER, HYDRAULIC SYSTEM, GUIDED MISSILE: M5

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 filler box

Length 3 ft, 9 3/4 in.
Width 2 ft, 6 3/4 in.
Height 1 ft, 11 1/2 in.
Volume 20.6 cu ft
Gross weight 142.0 lb
Ship tons 0.516

Outside Continental United States

Shipped 1 filler box

Length 3 ft, 9 3/4 in.
Width 2 ft, 6 3/4 in.
Height 1 ft, 11 1/2 in.
Volume 20.6 cu ft
Gross weight 142.0 lb
Ship tons 0.516


---

Major item

Model: M5

Federal stock No.: 1460-472-5270

General

FILLER, HYDRAULIC SYSTEM, GUIDED MISSILE: M5, is used for filling auxiliary power supply unit in missile with ethylene oxide.

Differences among models

Data plate location

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

Weight 73 lb
Length 3 ft, 4 in.
Width 2 ft, 3 in.
Height 1 ft, 5 3/4 in.
Capacity 400 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items:

19-98
FIRE UNIT INTEGRATED FACILITY (FUIF) TRUCK
(Data to be published at a later date.)

Model

<table>
<thead>
<tr>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Differences among models</td>
<td></td>
</tr>
<tr>
<td>Data plate location</td>
<td></td>
</tr>
<tr>
<td>Classification</td>
<td></td>
</tr>
</tbody>
</table>

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic issue items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References:

19-99
TRUCK, GUIDED MISSILE TEST SET: M451, W/E

General
TRUCK, GUIDED MISSILE TEST SET: M451, w/e, is used to transport the launching area Hercules missile test set and the antenna coupler within the launching area. Straps on the truck secure the test set and coupler to the truck. The truck is equipped with a parking brake on the rear wheels.

Differences among models
The identification plate is located on the left side of the frame above the seat assembly.

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M451</td>
<td>4-60956-01</td>
<td>4935-586-5017</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Line item No.</td>
</tr>
<tr>
<td>M451</td>
<td>4-60956-01</td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic Issue Items: See TM 9-1460-250-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 ft, 6 in.</td>
<td>4 ft, 5 in.</td>
<td>1 ft, 7 1/2 in.</td>
<td>66 cu ft</td>
<td>810.0 lb</td>
<td>1.625 tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HOISTING UNIT, PORTABLE, GUIDED MISSILE, MISSILE AND JATO UNIT JOINING: M26

General
HOISTING UNIT, PORTABLE, GUIDED MISSILE, MISSILE AND JATO UNIT JOINING: M26, is used for joining missile and rocket motor on launching unit.

Differences among models
Data plate location
Classification: Standard A (OTCM 37119).

CHARACTERISTICS
Weight ........................................... 2,365 lb
Length ........................................... 14 ft, 2 in.
Width ........................................... 5 ft, 11 in.
Height ........................................... 3 ft, 5½ in.
Capacity ........................................ 6,700 lb

PERFORMANCE
EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped ...........................................1 hoisting unit per crate
Length ........................................... 15 ft, 2½ in.
Width ........................................... 4 ft, ½ in.
Height ........................................... 6 ft, 7½ in.
Volume ........................................... 416.0 cu ft
Gross weight ................................... 3,163 lb
Ship tons ....................................... 10.4

Outside Continental United States
Shipped ...........................................1 hoisting unit per crate
Length ........................................... 15 ft, 2½ in.
Width ........................................... 4 ft, ½ in.
Height ........................................... 6 ft, 7½ in.
Volume ........................................... 416.0 cu ft
Gross weight ................................... 3,163 lb
Ship tons ....................................... 10.4

LAUNCHER, MONORAIL, GUIDED MISSILE: M36, W/E

General

LAUNCHER, MONORAIL, GUIDED MISSILE: M36, W/E, is one of four Hercules monorail launchers and their associated equipment which are arranged in an in-line configuration. The monorail launcher M36 is of box-type, steel construction. The erecting beam is erected and lowered by means of a hydraulic system. The monorail functions as a firing platform for the NIKE-AJAX or NIKE-HERCULES missile. The launcher M36 serves as a test station for the missile positioned on it. The launcher M36 can be transported from one area to another by use of the launcher transport MODIFICATION KIT, GUIDED MISSILE LAUNCHER, FIELD MAINTENANCE: M93.

Differences among models

Data plate location

Classification: Standard A (OTCM 38853).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>11,941 lb</td>
</tr>
<tr>
<td>Length</td>
<td>21 ft, 9 in.</td>
</tr>
<tr>
<td>Width</td>
<td>7 ft, 4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>3 ft, 8 in.</td>
</tr>
<tr>
<td>Power requirement (100)</td>
<td>3-phase, 120/208-volt, 600- cps</td>
</tr>
<tr>
<td>One launcher operation</td>
<td>31.4 kw</td>
</tr>
<tr>
<td>Two launcher operation</td>
<td>26.8 kw</td>
</tr>
</tbody>
</table>

Power surge (max):

<table>
<thead>
<tr>
<th>Operation</th>
<th>Power Surge</th>
</tr>
</thead>
<tbody>
<tr>
<td>One launcher operation</td>
<td>22.7 kw</td>
</tr>
<tr>
<td>Two launcher operation</td>
<td>36.0 kw</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Describe</th>
<th>Dimensions</th>
<th>Weight</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 monorail launcher per crate</td>
<td></td>
<td>23 ft, 8 in.</td>
<td>14,900 lb</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Describe</th>
<th>Dimensions</th>
<th>Weight</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 monorail launcher per crate</td>
<td></td>
<td>23 ft, 8 in.</td>
<td>14,900 lb</td>
<td></td>
</tr>
</tbody>
</table>

References:

GUIDED MISSILE, AIR DEFENSE: M6

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Differences among models: Classified.

Data plate location

Classification: Standard A (OTCM 36833).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of missile M6</td>
<td>10,876 lb</td>
</tr>
<tr>
<td>Length</td>
<td>41 ft, 6 in.</td>
</tr>
<tr>
<td>Diameter of missile body, less fins (approx)</td>
<td>2 ft, 7 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>277.0 cu ft</td>
</tr>
<tr>
<td>Weight of warhead M17 (T45)</td>
<td>1,106 lb</td>
</tr>
<tr>
<td>Width of rocket motor cluster, less fins</td>
<td>2 ft, 10 1/2 in.</td>
</tr>
<tr>
<td>Height of rocket motor cluster, less fins</td>
<td>2 ft, 10 1/2 in.</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**


<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 warhead assembly/metal container</td>
<td>8 ft, 3 3/4 in.</td>
<td>4 ft, 6 3/4 in.</td>
<td>6 ft, 1 3/8 in.</td>
<td>198.08 cu ft</td>
<td>3470.0 lb</td>
<td>4.8</td>
</tr>
</tbody>
</table>

WARHEAD ASSEMBLY, GUIDED MISSILE, HIGH EXPLOSIVE:

(ORD NO. 5952022). Used on missile No. 10, 601–10, 205 inclusive. (FSN 1336-592-5199)

<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 warhead assembly/metal container</td>
<td>8 ft, 3 3/4 in.</td>
<td>4 ft, 6 3/4 in.</td>
<td>6 ft, 1 3/8 in.</td>
<td>198.08 cu ft</td>
<td>3470.0 lb</td>
<td>4.8</td>
</tr>
</tbody>
</table>

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 warhead assembly/metal container</td>
<td>8 ft, 3 3/4 in.</td>
<td>4 ft, 6 3/4 in.</td>
<td>6 ft, 1 3/8 in.</td>
<td>198.08 cu ft</td>
<td>3470.0 lb</td>
<td>4.8</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 warhead assembly/metal container</td>
<td>8 ft, 3 3/4 in.</td>
<td>4 ft, 6 3/4 in.</td>
<td>6 ft, 1 3/8 in.</td>
<td>198.08 cu ft</td>
<td>3470.0 lb</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Federal dock No. Line item No. Model M6

General Differences among models: Classified.

Data plate location

Classification: Standard A (OTCM 36833).

**DATA PLATE LOCATION**

**CLASSIFICATION**

Standard A (OTCM 36833).
### Storage and Shipment Data—Continued

**WARHEAD ASSEMBLY, GUIDED MISSILE, HIGH EXPLOSIVE:**

- **ORD No.: 1925021.** Used on missile No. 10206 and subsequent. (FSN 1336-677-0776)

#### Warhead Assembly/Metal Container

- **Warhead assembly**
  - **Length:** 6 ft, 8 in.
  - **Width:** 6 ft, 1¾ in.
  - **Height:** 6 ft, 1¾ in.
  - **Volume:** 152.00 cu ft
  - **Gross weight:** 3170.0 lb
  - **Ship tons:** 4.8

#### Rocket Motor: M30 (FSN 1336-621-1784)

- **Rocket motor w/gas generator and 3 Initiators/rod bx.**
  - **Length:** 8 ft, 9 in.
  - **Width:** 8 ft, 7½ in.
  - **Height:** 3 ft, 12½ in.
  - **Volume:** 124.96 cu ft
  - **Gross weight:** 3,864.0 lb
  - **Ship tons:** 3.12

#### Rocket Motor: M42 (XM422S) w/IGNITER M24

- **Rocket motor w/igniter w/dn crate**
  - **Length:** 16 ft
  - **Width:** 8 ft, 7 in.
  - **Height:** 7 ft, 6¼ in.
  - **Volume:** 248.3 cu ft
  - **Gross weight:** 5,529.8 lb
  - **Ship tons:** 4.07

#### Rocket Motor: M31, w/IGNITER, W/O THRUST STRUCTURE, PIN SPAR BRACKETS, AND SHROUD

- **Rocket motor w/igniter/rod bx.**
  - **Length:** 14 ft, 9 in.
  - **Width:** 2 ft, 1½ in.
  - **Height:** 8 ft, 1½ in.
  - **Volume:** 81.48 cu ft
  - **Gross weight:** 1,803.0 lb
  - **Ship tons:** 2.04

---

**Storage and Shipment Data—Continued**

**ROCKET MOTOR:**

- **ROCKET MOTOR:**
  - **Length:**
  - **Width:**
  - **Height:**
  - **Volume:**
  - **Gross weight:**
  - **Ship tons:**

- **Main body section:**
  - **Length:**
  - **Width:**
  - **Height:**
  - **Volume:**
  - **Gross weight:**
  - **Ship tons:**

- **Fore and aft main fins:**
  - **Length:**
  - **Width:**
  - **Height:**
  - **Volume:**
  - **Gross weight:**
  - **Ship tons:**

- **Jato cluster fins:**
  - **Length:**
  - **Width:**
  - **Height:**
  - **Volume:**
  - **Gross weight:**
  - **Ship tons:**

- **Storage battery BB-481/U:**
  - **Length:**
  - **Width:**
  - **Height:**
  - **Volume:**
  - **Gross weight:**
  - **Ship tons:**
<table>
<thead>
<tr>
<th>Storage and Shipment Data—Continued</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Storage battery BB-401/U—Continued</strong></td>
</tr>
<tr>
<td><strong>Outside Continental United States</strong></td>
</tr>
<tr>
<td><strong>Shipped</strong></td>
</tr>
<tr>
<td><strong>Length</strong></td>
</tr>
<tr>
<td><strong>Width</strong></td>
</tr>
<tr>
<td><strong>Height</strong></td>
</tr>
<tr>
<td><strong>Volume</strong></td>
</tr>
<tr>
<td><strong>Gross weight</strong></td>
</tr>
<tr>
<td><strong>Ship tons</strong></td>
</tr>
<tr>
<td><strong>Ethylene oxide:</strong></td>
</tr>
<tr>
<td><strong>Within Continental United States</strong></td>
</tr>
<tr>
<td><strong>Shipped</strong></td>
</tr>
<tr>
<td><strong>Length</strong></td>
</tr>
</tbody>
</table>

**References:** SM 9-5-1336, TM 9-1970-6.
LAUNCHING CONTROL GROUP, GUIDED MISSILE, TRAILER MOUNTED:
AN/MSW-4, W/E

**General**
LAUNCHING CONTROL GROUP, GUIDED MISSILE, TRAILER MOUNTED: AN/MSW-4, w/e, consists of LAUNCHING CONTROL GROUP, GUIDED MISSILE: OA-868/MSE-2 and TRAILER, LAUNCHING CONTROL STATION, GUIDED MISSILE: M262AIC. The launching control group AN/MSW-4 functions as a control center for the launching area.

**Differences among models**

**Data plate location**

**Classification:** Standard A (OTCM 37119).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN/MSW-4</td>
<td>4-21910-01</td>
<td>1440-586-5024</td>
</tr>
</tbody>
</table>

Weight .................................................. 10,380 lb
Length .................................................. 23 ft, 11 in.
Width .................................................. 8 ft, 1 in.
Height .................................................. 10 ft, 4 in.

Power requirements:
- Total power consumption 1.84 kw
- Maximum power surge 1.84 kw

**PERFORMANCE**

**EQUIPMENT**

Basic issue items: See TM 9-1440-250-10.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Length .................................................. 20 ft, 7 in.
- Width .................................................. 8 ft, 1 in.
- Height .................................................. 10 ft, 4 in.
- Volume .................................................. 1719 cu ft
- Gross weight ......................................... 10,380 lb
- Ship tons ............................................ 42.1

**Outside Continental United States**

- Length .................................................. 20 ft, 7 in.
- Width .................................................. 8 ft, 1 in.
- Height .................................................. 10 ft, 4 in.
- Volume .................................................. 1719 cu ft
- Gross weight ......................................... 10,380 lb
- Ship tons ............................................ 42.1

RACK. BATTERY: MT-1498/G, W/E

**Characteristics**

- **Weight**: 367 lb
- **Length**: 9 ft
- **Width**: 3 ft 4 in.
- **Height**: 3 ft 4 in.
- **Capacity (batteries)**: 5

**Performance**

**Equipment**

**Storage and Shipment Data**

<table>
<thead>
<tr>
<th>Item Type</th>
<th>Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>1 battery rack per crate</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>9 ft 4½ in.</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>3 ft 8¼ in.</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>3 ft 1 in.</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>160.0 cu ft</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>700.0 lb</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>2.65</td>
<td></td>
</tr>
</tbody>
</table>

**INSTRUCTIONAL MATERIAL**

**References**: SNL Y9, TM 9-1450-250-19, SM 9-6-4935.
TM 9–500

RACK, LOADING, GUIDED MISSILE, SUPPORT ASSEMBLY LOADING RACK: M10, W/E

General
RACK, LOADING, GUIDED MISSILE, SUPPORT ASSEMBLY, LOADING RACK: M10, w/e, is used for joining side trusses.

Differences among models

Data plate location
Classification: Standard A (OTCM 36833).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>178½ lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>7 ft, 8½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 10½ in.</td>
</tr>
<tr>
<td>Height (adjustable):</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>2 ft, 4 in.</td>
</tr>
<tr>
<td>Maximum</td>
<td>3 ft, 4 in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 8 ft, 1½ in.
Width: 3 ft, 2½ in.
Height: 2 ft, 6 in.
Volume: 65.0 cu ft
Gross weight: 1230.0 lb
Ship tons: 1.62

Outside Continental United States

Shipped
Length: 8 ft, 1½ in.
Width: 3 ft, 2½ in.
Height: 2 ft, 6 in.
Volume: 65.0 cu ft
Gross weight: 1230.0 lb
Ship tons: 1.62

**RAIL, LAUNCHING-HANDLING, GUIDED MISSILE: M2 AND M3, W/E**

### Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td>4-33666-01</td>
<td>1450-593-9471</td>
</tr>
<tr>
<td>M2</td>
<td>4-33666-02</td>
<td>1450-529-2568</td>
</tr>
</tbody>
</table>

### General

RAIL, LAUNCHING-HANDLING, GUIDED MISSILE: M2 and M3, w/e, is approximately 26½ feet long, 40 inches wide. The NIKE-HERCULES missile-booster are joined on the rail assembly. The launching-handling rail M3 is required for launching missile-booster combination.

### Differences among models

### Data plate location

<table>
<thead>
<tr>
<th>Classification</th>
<th>M2</th>
<th>M3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard A (OTCM 36833).</td>
<td></td>
</tr>
</tbody>
</table>

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>2,892 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>26 ft, 9½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>12 ft, 6 in.</td>
</tr>
</tbody>
</table>

### PERFORMANCE

**EQUIPMENT**

Basic Issue Items: See TM 9-1450-250-12.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

FSN 1450-529-2568

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27 ft, 5½ in.</td>
<td>4 ft, 1½ in.</td>
<td></td>
</tr>
</tbody>
</table>
RING, HANDLING, GUIDED MISSILE: (ORD NO. 8166435)

**Characteristics**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20% lb</td>
<td>3 ft, 1 in.</td>
<td>1 ft, 1/2 in.</td>
<td>4-1/2 in.</td>
<td>2,000 lb</td>
</tr>
</tbody>
</table>

**Performance**

**Equipment**


**Instructional Material**

Storage and Shipment Data

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>1 segment per box (4 segments per ring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 4-5/8 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 11/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>5-7/8 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>1.88 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>52.0 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>1 segment per box (4 segments per ring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 ft, 4-5/8 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 11/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>5-7/8 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>1.83 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>52.3 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.47</td>
</tr>
</tbody>
</table>

SIDE TRUSS, LOADING RACK, GUIDED MISSILE, LAUNCHER, TRACK ASSEMBLY, LOADING RACK: M1

**General**
SIDE TRUSS, LOADING RACK, GUIDED MISSILE, LAUNCHER, TRACK ASSEMBLY, LOADING RACK: M1, is one of two side sections of RACK, LOADING, GUIDED MISSILE, SUPPORT ASSEMBLY, LOADING RACK: M10. T-section rails are welded to the top and extend the length of the launcher loader which is used for storing, testing, and handling missiles.

**Differences among models**

**Data plate location**

Classification: Standard A (OTCM 36833).

**Characteristics**

<table>
<thead>
<tr>
<th>Weight</th>
<th>323 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>10 ft, 3 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 3(\frac{1}{4}) in.</td>
</tr>
<tr>
<td>Height (adjustable):</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>2 ft, 4 in.</td>
</tr>
<tr>
<td>Maximum</td>
<td>3 ft, 4 in.</td>
</tr>
</tbody>
</table>

**Performance**

---

* For characteristics and data, see item on page 19-109.
SIMULATOR GROUP: OA-2060/MSW-4, W/E
(SIMULATOR GROUP: OA-2010/MSW-4 AND SIMULATOR GROUP: OA-2060/MSW-4)

Major items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No</th>
<th>Federal item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA-2010/MSW-4</td>
<td>4-41039-9</td>
<td>415-413-1-007</td>
</tr>
<tr>
<td>OA-2060/MSW-4</td>
<td>9-41768 (TVP)</td>
<td>415-411-1-005</td>
</tr>
</tbody>
</table>

General

SIMULATOR GROUP: OA-2060/MSW-4, W/E SIMULATOR GROUP: OA-2010/MSW-4 AND SIMULATOR GROUP: OA-2060/MSW-4 serves as a base for section manually controlled and provides power requirements for simulators equipped.

Differences among models

Data plate location

OA-2010/MSW-4

OA-2060/MSW-4

Characteristics

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>267 lb</td>
</tr>
<tr>
<td>Length</td>
<td>8 ft</td>
</tr>
<tr>
<td>Width</td>
<td>5 ft 3 in.</td>
</tr>
<tr>
<td>Height</td>
<td>2 ft 8 in.</td>
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</table>

Performance

Equipment

Basic issue Items: See TM 9-1440-200-10.

InstructiOnal material

Storage and shipment data

<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>1 unit per box</td>
</tr>
<tr>
<td>Length</td>
<td>3 ft 8% in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft 10% in.</td>
</tr>
<tr>
<td>Height</td>
<td>2 ft 1% in.</td>
</tr>
<tr>
<td>Volume</td>
<td>33.0 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>367 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.82</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outside Continental United States</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>1 unit per box</td>
</tr>
<tr>
<td>Length</td>
<td>3 ft 8% in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft 10% in.</td>
</tr>
<tr>
<td>Height</td>
<td>2 ft 1% in.</td>
</tr>
<tr>
<td>Volume</td>
<td>33.0 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>367 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.82</td>
</tr>
</tbody>
</table>

SIMULATOR, GUIDED MISSILE, FLIGHT: OA-1643/M

General

SIMULATOR, GUIDED MISSILE, FLIGHT: OA-1643/M, is hoisted during operation to the top of a 30-foot mast attached to the LAUNCHER CONTROL GROUP, GUIDED MISSILE, TRAILER MOUNTED: AN/MSW-4 (p. 19-106) and is used for periodic checks of the missile tracking radar system. The sight simulator OA-1643/M consists of a slightly tapered two-section cylindrical housing, a simulator test set mounted inside the housing, and four identical antennas mounted 90° apart around the upper end of the housing.

Differences among models

Data plate location

Classification: Standard A (OTCM 47115).

- CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Major item</th>
<th>Federal stock No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Line item No.</td>
<td>OA-1643/M</td>
<td>4-1060-0</td>
</tr>
<tr>
<td>OA-1643B/M</td>
<td>4086-021-5192</td>
<td>4936-724-3296</td>
<td></td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 simulator per box</td>
<td>3 ft, 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td>3 ft</td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td>3 ft, 1 in.</td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td>31 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td>214 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td>0.77</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 simulator per box</td>
<td>3 ft, 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td>3 ft</td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td>3 ft, 1 in.</td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td>21 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td>214 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td>0.77</td>
</tr>
</tbody>
</table>

References: TM 9-199, TM 9-1410-256-12/1, TM 9-1410-256-28/2.
TEST SET, GUIDED MISSILE: (ORD NO. 9025326)

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missile electrical test set</td>
<td>180 lb</td>
<td>1 ft, 10 in.</td>
<td>1 ft, 6 in.</td>
<td>2 ft, 1 in.</td>
<td>3 ft</td>
<td>1½ in.</td>
<td></td>
</tr>
<tr>
<td>Missile electrical test set case assembly (ORD NO. 9025326)</td>
<td>133 lb</td>
<td>2 ft, 6 in.</td>
<td>2 ft</td>
<td>2 ft</td>
<td>3 ft</td>
<td>1½ in.</td>
<td></td>
</tr>
<tr>
<td>Missile RF test set group (ORD NO. 9025326)</td>
<td>160 lb</td>
<td>1 ft, 10 in.</td>
<td>1 ft, 6 in.</td>
<td>2 ft, 1 in.</td>
<td>2 ft, 3 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missile RF test set case (ORD NO. 9025326)</td>
<td>104 lb</td>
<td>2 ft, 6 in.</td>
<td>2 ft</td>
<td>1 ft, 6 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missile RF test set group (ORD NO. 9025326)</td>
<td>180 lb</td>
<td>1 ft, 10 in.</td>
<td>1 ft, 6 in.</td>
<td>2 ft, 1 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missile electrical test set</td>
<td>180 lb</td>
<td>1 ft, 10 in.</td>
<td>1 ft, 6 in.</td>
<td>2 ft, 1 in.</td>
<td>3 ft</td>
<td>1½ in.</td>
<td></td>
</tr>
<tr>
<td>Missile electrical test set case assembly per crate</td>
<td>133 lb</td>
<td>2 ft, 6 in.</td>
<td>2 ft</td>
<td>2 ft</td>
<td>3 ft</td>
<td>1½ in.</td>
<td></td>
</tr>
<tr>
<td>Missile RF test set group</td>
<td>160 lb</td>
<td>1 ft, 10 in.</td>
<td>1 ft, 6 in.</td>
<td>2 ft, 1 in.</td>
<td>2 ft, 3 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missile RF test case</td>
<td>104 lb</td>
<td>2 ft, 6 in.</td>
<td>2 ft</td>
<td>1 ft, 6 in.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TEST SET, GUIDED MISSILE: AN/DSM-33, W/E

**General**

TEST SET, GUIDED MISSILE: AN/DSM-33, w/e, is used to perform operational checks on the guidance set of the missile and on the SIMULATOR, GUIDED MISSILE, FLIGHT OA-1643/M (p. 19-113) which is attached to the mast on the LAUNCHER CONTROL GROUP, GUIDED MISSILE, TRAILER MOUNTED: AN/MSW-4 (p. 19-111).

**Differences among models**

Data plate location

- **Classification**
  - AN/DSM-33 (FSN 4935-630-9721) Standard
  - AN/DSM-33 (FSN 4935-664-3622) Secondary

**Charateristics**

- **Weight**
- **Length**
- **Width**
- **Height**

**Performance**

**Equipment**

**Instructional Material**

**Storage and shipment data**

Within Continental United States

FSN 4935-630-9721

- **Box No. 1**
  - Shipped
    - Length
    - Width
    - Height
    - Volume
    - Gross weight
    - Ship tons

- **Box No. 2**
  - Shipped
    - Length
    - Width
    - Height
    - Volume
    - Gross weight
    - Ship tons

Outside Continental United States

FSN 4935-664-3622

- **Box No. 1**
  - Shipped
    - Length
    - Width
    - Height
    - Volume
    - Gross weight
    - Ship tons

- **Box No. 2**
  - Shipped
    - Length
    - Width
    - Height
    - Volume
    - Gross weight
    - Ship tons

References: TM 9-500-152-12, SB 9-199, SM 9-5-4935, SNL Y165.
TEST STAND HYDRAULIC SYSTEM COMPONENTS: (ORD NO. 8027962), W/E

Secondary item

Model
(ORD NO. 8027962) 4-61060-06
Federal stock No.
4955-589-8254

General
TEST STAND, HYDRAULIC SYSTEM COMPONENTS: (ORD No. 8027962), w/e, consists of hydraulic test stand M14 (ORD No. 8001840) and equipment. The test stand, in conjunction with the assembly area oil fill valve assembly, is used to fill and bleed the accessory power supply of the NIKE-HERCULES missile body. The test stand is equipped with an electrical cable boom and a hydraulic hose boom.

Differences among models

Data plate location...

Classification:

CHARACTERISTICS

Weight 649 lb
Length 5 ft, 1 in.
Width 2 ft, 9 in.
Height (without booms) 3 ft 11½ in.
Capacity 55 gal

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y20.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 test stand per crate
Length 5 ft, 11 in.
Width 3 ft, 1½ in.
Height 3 ft, 11½ in.
Volume 71.46 cu ft
Gross weight 1,448.0 lb
Ship tons 1.785

Outside Continental United States

Shipped Length 5 ft, 11 in.
Width 3 ft, 1½ in.
Height 3 ft, 11½ in.
Volume 71.46 cu ft
Gross weight 1,448.0 lb
Ship tons 1.785

References: SNL Y20, TM 9-1450-250-10.
TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MPA-5, W/E

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN/MPA-5</td>
<td>4-58845-01</td>
<td>1430-586-4993</td>
</tr>
</tbody>
</table>

General

TRACKING STATION, GUIDED MISSILE, TRAILER MOUNTED: AN/MPA-5, w/e, consists of TRACKING STATION GROUP, GUIDED MISSILE: OA-1595/MPA-5; TRAILER, GUIDED MISSILE, TRACKING STATION: M428; DOLLY, TRAILER, FRONT: M429A1D; and DOLLY, TRAILER, FRONT: M430A1D. The tracking station AN/MPA-5 provides housing for missile-tracking radar equipment and target-tracking radar equipment.

Differences among models

Classification: Standard A (OTCM 37119).

Data plate location

**CHARACTERISTICS**

- Weight
- Length
- Width
- Height

**PERFORMANCE**

**EQUIPMENT**


**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 mounted trailer with reels and cables

- Length: 21 ft, 6 in.
- Width: 7 ft, 11 in.
- Height: 10 ft, 8 in.
- Volume: 1801.0 cu ft
- Gross weight: 12,850.0 lb
- Ship tons: 45

**Outside Continental United States**

Shipped 1 mounted trailer with reels and cables

- Length: 21 ft, 6 in.
- Width: 7 ft, 11 in.
- Height: 10 ft, 8 in.
- Volume: 1801.0 cu ft
- Gross weight: 12,850.0 lb
- Ship tons: 45

**REFERENCES**

TRUCK, GUIDED MISSILE BODY SECTION: M473, W/E

General

TRUCK, GUIDED MISSILE BODY SECTION: M473, w/e, is used to transport a rear body section or a missile body. The truck M473 is equipped with a rotary ring to support the rear end of the missile body or the rear end of a rear body section.

Differences among models

Data plate location

Classification:

CHARACTERISTICS

Weight .................................................. 1,832 lb
Length .................................................. 16 ft, 4 in.
Width .................................................. 7 ft, 1 in.
Height .................................................. 4 ft, 9 in.
Capacity ................................................ 6,000 lb
Grade angle (max) ..................................... 16° (28 percent)

PERFORMANCE

Speed, towing, max (10 deg bank curve) .................. 10 mph

EQUIPMENT

Basic Issue Items: See TM 9-1450-250-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length .................................................. 13 ft, 2½ in.
Width .................................................. 4 ft, 2¼ in.
Height .................................................. 3 ft, 7½ in.
Volume .................................................. 200 cu ft
Gross weight .......................................... 2,285.0 lb
Ship tons ............................................. 6

Outside Continental United States

Shipped
Length .................................................. 13 ft, 2½ in.
Width .................................................. 4 ft, 2¼ in.
Height .................................................. 3 ft, 7½ in.
Volume .................................................. 200 cu ft
Gross weight .......................................... 2,285.0 lb
Ship tons ............................................. 6

References: TM 9-1450-250-12, TM 9-1450-290-10, TM 9-1450-250-
TRUCK, GUIDED MISSILE, NOSE SECTION: M489, W/E

General
TRUCK, GUIDED MISSILE, NOSE SECTION: M489, w/e, is used for storage of missile nose section. It consists of four caster wheels, angle iron frame, two supporting ring segments, and a door brake.

Classifications: Standard A (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M489</td>
<td>4-50068-01</td>
<td>1450-004-0694</td>
</tr>
</tbody>
</table>

- Weight: 196 lb
- Length: 4 ft, 8 in.
- Width: 3 ft, 1 in.
- Height: 3 ft, 3 in.
- Capacity: 500 lb

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-1450-250-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement</th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>414.0 lb</td>
</tr>
<tr>
<td>Length</td>
<td>5 ft, 2 in.</td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 5½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>3 ft, 6½ in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>63.9 cu ft</td>
</tr>
<tr>
<td>Ship tons</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>414.0 lb</td>
</tr>
<tr>
<td>Length</td>
<td>6 ft, 4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>3 ft, 5½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>3 ft, 6½ in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>63.9 cu ft</td>
</tr>
<tr>
<td>Ship tons</td>
<td>1.8</td>
</tr>
</tbody>
</table>

TRUCK, GUIDED MISSILE, ROCKET MOTOR: M442, W/E

General
TRUCK, GUIDED MISSILE, ROCKET MOTOR: M442, w/e, is used to transport a rocket motor cluster. The truck M442 may also be used to transport a launching-handling rail, a missile body, or a rocket motor cluster transporter adapter. Fin storage rack assemblies, inside the truck, are used to store the rocket motor cluster fin assemblies. The rear wheels of the truck are equipped with parking brakes. A tow bar permits the truck to be towed.

Differences among models

Classification: Standard A (OTCM 36833).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M442</td>
<td></td>
<td>4-50955-0</td>
</tr>
</tbody>
</table>

Weight: 1,165 lb
Length: 10 ft, 8 in.
Width: 5 ft, 3 in.
Height: 3 ft, 1 in.
Capacity: 5,600 lb

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

MODIFICATION KIT, GUIDED MISSILE LAUNCHER, FIELD
INSTALLATION: M94, W/E
(Data to be published at a later date.)

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M94</td>
<td>4-23416-</td>
<td>1440-020-9288</td>
</tr>
</tbody>
</table>

General

Differences among models

Data plate location

Classification: Standard A (OTCM 36883).

CHARACTERISTICS

Weight
Length
Width
Height

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 kit per 12 boxes

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped

Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL Y025, SNL Y75-6, SB 9-122.
MODIFICATION KIT, GUIDED MISSILE LAUNCHER, FIELD INSTALLATION: M197
(Data to be published at a later date.)

CHARACTERISTICS

Model  Line item No.  Federal stock No.

General

Differences among models

Data plate location

Classification:

CHARACTERISTICS

Weight

Length

Width

Height

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped

Length

Width

Height

Volume

Gross weight

Ship tons

References:
**ANTITANK GUIDED MISSILE SYSTEM: SS-10**
(Includes missile, missile ground guidance, control handling, and testing equipment)

![Diagram of SS-10 system components](image)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS-10, ground mounted, w/e</td>
<td></td>
<td>RSA-10021918</td>
<td>19-124</td>
</tr>
<tr>
<td>SS-10, truck mounted, w/e</td>
<td></td>
<td>RSA-10021908</td>
<td>19-125</td>
</tr>
</tbody>
</table>

**General**

ANTITANK GUIDED MISSILE SYSTEM: SS-10 is intended for use against ground targets. The system may be ground emplaced or adapted for either tank, truck, or light aircraft launching.

- BINOCULAR: Gunner's, Guided Missile, with Tripod
  - For characteristics and data, see item in section 27
- CABLE GROUP AND REELS:
- CONTROL STICK: Type A
- FIRE CONTROL CHECK BOX:
- MISSILE BATTERY CHECK BOX:
- MISSILE CONTAINER:
- MISSILE SELECTION BOX:
- SIGNAL GENERATOR: T4F
- TELEPHONE HANDSET:

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19-127
19-128
19-129
19-130
19-131
19-132
19-133
ANTITANK GUIDED MISSILE: SS-10, W/LAUNCHER

Shown: MISSILE CONTAINER WITH FRONT AND REAR COVER REMOVED AND ASSEMBLED TO MISSILE BODY FOR LAUNCHING FROM CONTAINER.

ANTITANK GUIDED MISSILE: SS-10, includes the finned missile body, two on-board missile batteries, and the warhead. The missile is packaged with the launcher and shipped in missile container. The missile may be ground launched or launched from a vehicle. For ground launching, the missile can be launched from the launcher while the launcher is still in the container or the missile and launcher may be removed from the container before launching. Four interchangeable warheads are provided: a shaped charge for use against armored targets; a combined shaped and antipersonnel charge; a combined tear gas and antipersonnel charge, and an inert or practice warhead. A flare is attached to the missile for increased visibility.

Differences among models:

Data plate location:

Classification:

CHARACTERISTICS

Weight:
- W/high explosive warhead .................. 33 lb
- W/high explosive antipersonnel warhead
- W/combined tear gas antipersonnel warhead
- W/inert warhead

Length .................................. 38.85 in.
Body diameter ............................... 6.40 in.
Span .................................... 29.62 in.

Batteries .................................. 2
Flare:
- Type ..................................... pyrotechnic
- No. used .................................. 1

PERFORMANCE
- Maximum effective range .................. 1,500 meters
- Minimum effective range .................. 450 meters
- Speed ...................................... 262 fps
- Initial acceleration ........................ 13 g.
- Normal maximum acceleration ............ 1.5 g
- Propelled flight time ....................... 22 seconds

EQUIPMENT
Basic Issue Items: See TM 9-1400-460-12.

INSTRUCTIONAL MATERIAL
SIMULATOR: S-56*

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped
- Length ....................................
- Width .....................................
- Height ...................................
- Volume ...................................
- Gross weight ..............................
- Ship tons ................................

Outside Continental United States

Shipped
- Length ....................................
- Width .....................................
- Height ...................................
- Volume ...................................
- Gross weight ..............................
- Ship tons ................................

References: TM 9-1400-460-12, TM 9-1400-460-20, TM 9-1400-460-30, TM 9-1400-460-35P.

*Characteristics and data will be added at a later date.
BATTERY, STORAGE: (22 CELLS, 26 VOLTS, 9 AMP HOURS CAP. AT 2-HOUR RATE)

General
BATTERY, STORAGE: (22 cells, 26 volts, 9 amp hours cap. at 2-hour rate) furnishes the field power supply to the generator for the missile ground system. Vehicle-mounted systems use the vehicle battery.

Differences among models

Data plate location

Classification:

CHARACTERISTICS
Type: nickel-cadmium
Weight: 34 lb
Height: 6.45 in.
Width: 8.5 in.
Length: 11.26 in.
Recharging: Indefinite

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
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</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
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<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

CABLE GROUP AND REELS:

SELECTION CABLE ON DOUBLE REEL

BOX CABLE ON SINGLE REEL

Shown: Cases and cable reels

General

CABLE GROUP AND REELS: are electrical connecting cables of different lengths provided to interconnect the operating equipment. The cables are fitted with connections and are equipped with safety protector caps. Each cable required for ground launching is wound on a light metal reel to facilitate orderly packing and shipping. Cases for storing and shipping the wound reels are provided. The cables required for vehicle launching are attached to clips and dummy connectors during travel.

Differences among models

Data plate location

Classification:

CHARACTERISTICS

Ground launching:

Control stick cable (connects control stick with generator):
- Type: 7-conductor
- Length: 50 ft

Selection cable (connector generator with selection box):
- Type: 12-conductor
- Length: 50 ft

Missile cable (connects selection box with missile, 8 issued (2 spares)):
- Type: 7-conductor
- Length: 50 ft

Power supply cable (connects power supply to the generator):
- Type: 2-conductor
- Length: 15 ft

Vehicle launching:

Vehicle control cable (RSA-10021333) (connects control stick to the generator):
- Type: 7-conductor
- Length: 6.5 ft

Selector cable (RSA-10021392) (connects selection box to generator):
- Type: 12-conductor
- Length: 5 ft

Model

Line item No.

Federal stock No.

Ground launching cable

Control stick

RSA-10021330

Selection

RSA-10021331

Missile

RSA-10021332

Power supply

RSA-10021333

Vehicle launching cable

Control

RSA-10021330

Selector

RSA-10021331

Missile

RSA-10021332

Power supply

RSA-10021333

Vehicle power supply cable (RSA-10021331) (connects vehicle battery to the generator):
- Type: 2 conductor
- Length: 6.5 ft

Reel, cable w/control stick cable:
- Weight: 24.30 lb
- Height: 11.00 in.
- Width: 3.58 in.

Reel, cable, double, w/cables:
- Weight: 15.40 lb
- Height: 11.00 in.
- Width: 3.58 in.

Reel, cable, single, w/cable:
- Weight: 9.36 lb
- Height: 11.00 in.
- Width: 3.58 in.

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped

Length

Width

Height

Volume

Gross weight

Ship tons

References:
- TM 9-1400-410-12
- TM 9-1400-410-20
- TM 9-1400-410-39
- TM 9-1410-410-51P.
CONTROL STICK: TYPE A

General
CONTROL STICK: type A, connected to the generator, is designed to be manipulated to control command voltages that are transmitted to the missile by the generator. The control stick may be moved freely backward or forward, left or right, and is returned automatically to the neutral dead-center position by a spring. For ease when carrying, the control stick assembly is included in a light metal case with detachable cover.

Differences among models
Data plate location
Identification plate located on cover. Data plate located on control stick housing.

Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>Type A</td>
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<td>RSA-10021227</td>
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</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

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<tr>
<th>Shipped Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross Weight</th>
<th>Ship tons</th>
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<td></td>
<td></td>
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</table>

Outside Continental United States

<table>
<thead>
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<th>Shipped Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIRE CONTROL CHECK BOX:**

![Image of the FIRE CONTROL CHECK BOX]

**Model:**
- Battery relay model
- Transistorized circuit model

**Federal stock No.:** RBA-10021718

**Performance:**
- Ignition sequence:
  - Signal lamp (MFG) = Ignition of gyro
  - Signal lamp (DG) = Uncaging of gyro
  - Signal lamp (MFT) = Ignition of firing system
  - Signal lamp (MFP) = Ignition of booster

**Equipment:**

**Instructional Material**

**Storage and Shipment Data**

**Within Continental United States**
- Ship, et
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**Outside Continental United States**
- Shipped
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**References:** TM 9-1400-450-12, TM 9-1400-450-20, TM 9-1400-450-30, TM 9-1400-450-86P.

**Characteristics**

<table>
<thead>
<tr>
<th>Component</th>
<th>Measurement</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>14.97 lb</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>6 in.</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>11.25 in.</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>9.5 in.</td>
<td></td>
</tr>
<tr>
<td>Circuity:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Ignition sequence</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Missile line</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Yaw and pitch relays</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Missile spoiler current</td>
<td></td>
</tr>
<tr>
<td>Test</td>
<td>Circuit tester</td>
<td></td>
</tr>
</tbody>
</table>
MISSILE BATTERY CHECK BOX:

**General**
MISSILE BATTERY CHECK BOX is essentially a voltmeter and a resistance coil so constructed that the resistance load can be switched into the circuitry. This places a load on the battery with a corresponding drop in voltage. The missile battery check box is used to check the missile batteries before placing them in the missile.

**Differences among models**
Data plate location: Data plate is located on inside of cover.

**Classification**:

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>9.47 lb</td>
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<tr>
<td>Height</td>
<td>6.11 in.</td>
</tr>
<tr>
<td>Width</td>
<td>7.75 in.</td>
</tr>
<tr>
<td>Length</td>
<td>10.03 in.</td>
</tr>
<tr>
<td>Resistor</td>
<td>56-ohm</td>
</tr>
<tr>
<td>Switch</td>
<td>3-position toggle</td>
</tr>
<tr>
<td>Use</td>
<td>missile battery tester</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

<table>
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<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
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Outside Continental United States

<table>
<thead>
<tr>
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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

MISSILE CONTAINER:

MISSILE CONTAINER is used for transporting the missile, the missile launcher, and two on-board dry-cell missile batteries. For ground launching, the missile can be launched without removing the missile or the launcher from the container. The monopad on the container provides means for elevating the missile to the desired launching angle. For vehicle launching, the missile and the launcher are removed from the container and installed in the vehicle missile supports.

Differences among models

**Data plate location**

Classification:

**CHARACTERISTICS**

- Weight, empty ........................................ 55 lb
- Weight, w/launcher ..................................... 68.6 lb
- Weight, w/launcher and missile (high-explosive warhead) .................. 103.0 lb
- Weight, w/launcher and missile (antipersonnel warhead) ..................
- Weight, w/launcher and missile (combined tear-gas and antipersonnel warhead) ..................
- Weight, w/launcher and missile (inert warhead) ..........................
- Material ................................................ Ribbed sheet steel
- Waterproofed ......................................... rubber gaskets at openings
- Monopad tube assembly and monopad ................................ To obtain correct elevation when missile is launched from container.

Two posts with anchoring spades ......... To secure container to ground during launching operations.

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

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<thead>
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<tr>
<td>Ship tons</td>
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*Outside Continental United States*

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</tr>
<tr>
<td>Volume</td>
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<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:** TM 9-1400-450-12, TM 9-1400-450-20, TM 9-1400-450-30, TM 9-1400-450-35P.
MISSILE SELECTION BOX:

MISSILE SELECTION BOX: governs the simultaneous connection and separate launching of one of the six missiles in the battery. Selection of the missile to be fired is done by positioning the selector switch to the number of the missile desired. When the firing button is pressed, the system energizes the relays in the selection box so that voltage and signals will be sent to only one missile. The missile selection box is connected to the missiles.

Differences among models:

Data plate location:

Characteristics:

- Weight: 10.46 lb
- Height: 3.89 in.
- Width: 7.99 in.
- Length: 9.30 in.
- Connection to generator: 12-pin plug
- Connection to corresponding missile cable: 7-pin plug

Performance:

Equipment:

Storage and shipment data:

- Within Continental United States
- Outside Continental United States

References: TM 9-1400-460-12, TM 9-1400-460-20, TM 9-1400-460-30, TM 9-1400-460-31P.
### SIGNAL GENERATOR: T4F

#### General

**SIGNAL GENERATOR:** T4F has yaw and pitch channels keyed to the same operating frequency as the flight control spoilers of the missiles. The generator converts the control stick movements to electric signals which, transmitted to the missile over the two-wire command line, develop and send a command to the missile to execute any required maneuver to direct the missile to the target. The generator contains the electronic circuits for the signals transmitted to the missile, the filaments and high voltage supply and telephone magneto. The generator has a selector dial, numbered 1 through 6, to select the desired missile to be launched. The generator is connected to the missile selection box.

**Differences among models**

The T4F signal generator can be used for the SS-10 system but cannot be used for the SS-11 system. The T9C signal generator* will operate both systems.

#### Data plate location

**Classification:**

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Timing network output ................................ trigger signal
- Frequency ................................................ fixed

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

- **Within Continental United States**
  - Shipped
    - Length ............................................... 13.8 in.
    - Width .................................................. 11.69 in.
    - Height ............................................... 6.25 in.
    - Weight ............................................... 23.54 lb
  - Timing Circuit .................................. Multivibrator and differentiator

- **Outside Continental United States**
  - Shipped
    - Length ............................................... 13.8 in.
    - Width .................................................. 11.69 in.
    - Height ............................................... 6.25 in.
    - Weight ............................................... 23.54 lb

*For characteristics and data, see item on page 19-144.

**References:** TM 9-1400-450-12, TM 9-1400-450-20, TM 9-1400-450-30, TM 9-1400-450-39F.
TELEPHONE HANDSET:

General
TELEPHONE HANDSET: is used by the gunner and assistant gunner to maintain contact during the missile launching.

Differences among models
Data plate location
Data plate is located on top side of the telephone box.

Classification:

CHARACTERISTICS

Telephone box:

- Weight: 4.34 lb
- Height: 3.93 in.
- Width: 6.89 in.
- Length: 12.34 in.

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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<tr>
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<td></td>
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</tr>
</tbody>
</table>

Outside Continental United States

<table>
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<tr>
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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

ANTITANK GUIDED MISSILE SYSTEM: SS-11
(Includes missile, missile ground guidance, control, handling servicing, and testing equipment)

General

ANTITANK GUIDED MISSILE SYSTEM: SS-11 is intended for use against ground targets. The system may be ground emplaced as adapted for truck launching. The SS-11 system has greater range and is capable of carrying a larger warhead than the SS-10 system. Therefore, the SS-11 system compliments the SS-10 system but does not replace it.

BATTERY STORAGE: .................................................. 19-134
BINOCULAR: Gunner, guided missile, with tripod (For characteristics and data, see item in section 27).
CABLE GROUP AND REELS: ...................................... 19-135
CONTROL STICK: Type A ......................................... 19-136
FIRE CONTROL CHECK BOX: .................................... 19-137
MISSILE BATTERY CHECK BOX: ................................ 19-138
MISSILE CONTAINER: ............................................... 19-139
MISSILE SELECTION BOX: ....................................... 19-140
SIGNAL GENERATOR: TMC ....................................... 19-141
TELEPHONE HANDSET: .......................................... 19-142

ANTITANK GUIDED MISSILE: SS-11, W/launcher. 19-134

19-134
ANTITANK GUIDED MISSILE: SS-11

Model | Line item No. | Federal stock No.
--- | --- | ---
SS-11 | | |
(As above) w/launcher and high-explosive warhead. | | |
(As above) w/launcher and high-explosive antipersonnel warhead. | | |
(As above) w/launcher and combined tear gas antipersonnel warhead. | | |
(As above) w/launcher and inert warhead. | | |

General

ANTITANK GUIDED MISSILE: SS-11 includes the finned missile body, three on-board missile batteries, and the warhead. The missile may be ground launched or launched from a Truck, Utility: 1½-ton, 4 x 4 or helicopter. For ground launching, the missile can be launched from the launcher while the launcher is still in the metal container or the missile and launcher may be removed from the metal container before launching. When using the wooden container, the missile can be launched without a guide rail. The wooden panel has a hinged rod to obtain the proper degree of elevation and another rod provides an anchor point to ensure that the junction box is detached at missile launch. The missiles may be launched in different ways but can be mounted only in one of the following three ways:

(1) By suspension, using two upper attachment lugs.
(2) Resting on its own weight, using two lower resting lugs.
(3) From adjustable support rod.

Four interchangeable warheads are provided: a shaped charge for use against armored targets, a combined shaped and antipersonnel charge, a combined tear gas and antipersonnel charge, and an inert or practice warhead. Two flares are attached to the missile for increased visibility.

Differences among models

Data plate location

Classification:

CHARACTERISTICS

Type missile: antitank-subsonic-rocket-propelled guided

Missile w/warhead attached:

<table>
<thead>
<tr>
<th>Weight:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>W/high explosive warhead</td>
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</tr>
<tr>
<td>W/high explosive antipersonnel warhead</td>
<td></td>
</tr>
<tr>
<td>W/combined tear gas</td>
<td></td>
</tr>
<tr>
<td>Antipersonnel warhead</td>
<td></td>
</tr>
<tr>
<td>W/inert warhead</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Body diameter</td>
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</tr>
<tr>
<td>Span</td>
<td></td>
</tr>
<tr>
<td>Batteries</td>
<td>3</td>
</tr>
<tr>
<td>Flare:</td>
<td>pyrotechnic</td>
</tr>
<tr>
<td>No. used</td>
<td>2</td>
</tr>
</tbody>
</table>

PERFORMANCE

Propelled time of flight: 22 seconds
Maximum effective range: 8,850 yards
Minimum effective range: 550 yards

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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</tr>
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<tr>
<td>Height</td>
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</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
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</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
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</thead>
<tbody>
<tr>
<td>Length</td>
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<td>Volume</td>
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</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References:

19-135
BATTERY STORAGE: (22 cells, 26 volts, 9 amp cap. at 2-hour rate)

BATTERY STORAGE: (22 cells, 26 volts, 9 amp cap. at 2-hour rate) furnishes the field power supply to the generator for the missile ground system. Vehicle mounted systems use the vehicle battery.

Differences among models:

Data plate location:

Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Type</th>
<th>nickel-cadmium</th>
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<tr>
<td>Weight</td>
<td>24 lb</td>
</tr>
<tr>
<td>Height</td>
<td>6.43 in.</td>
</tr>
<tr>
<td>Width</td>
<td>6.5 in.</td>
</tr>
<tr>
<td>Length</td>
<td>13.55 in.</td>
</tr>
<tr>
<td>Recharging</td>
<td>Indefinite</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
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<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References:
# CABLE GROUP AND REELS:

**Control Stick Cable**
- **Type**: 7-conductor
- **Length**: 50 ft

**Selection Cable**
- **Type**: 12-conductor
- **Length**: 50 ft

**Missile Cable**
- **Type**: 7-conductor
- **Length**: 50 ft
- **Issued**: 8 (2 spares)

**Power Supply Cable**
- **Type**: 5-conductor
- **Length**: 13 ft

**Vehicle Launching**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Vehicle control cable (RSA-10021133) (connects control stick to generator):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground launching cable</td>
<td></td>
<td></td>
<td>Types:</td>
</tr>
<tr>
<td>Control stick</td>
<td></td>
<td></td>
<td>Conductor: 7</td>
</tr>
<tr>
<td>Selection</td>
<td></td>
<td></td>
<td>Pin connector: 7</td>
</tr>
<tr>
<td>Missile</td>
<td></td>
<td></td>
<td>Length: 6.6 ft</td>
</tr>
<tr>
<td>Power supply</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Vehicle supply cable (RSA-10021131) (connects vehicle battery to generator)**
- **Type**: 3-conductor
- **Length**: 6.6 ft

**Electrical Reel**
- **Weight**: 16.60 lb
- **Height**: 11.80 in.
- **Width**: 11.50 in.

**Electrical Reel, w/control stick**
- **Weight**: 46.20 lb
- **Height**: 18.89 in.
- **Width**: 6.29 in.

**Electrical Reel, w/cable**
- **Weight**: 11.02 lb
- **Height**: 6.63 in.
- **Width**: 3.38 in.

## CHARACTERISTICS

### Ground launching:
- Control stick cable (connects control stick with generator):
  - **Type**: 7-conductor
  - **Length**: 50 ft
- Selection cable (connects generator with selection box):
  - **Type**: 12-conductor
  - **Length**: 50 ft
- Missile cable (connects selection box with missiles):
  - **Type**: 7-conductor
  - **Length**: 50 ft
  - **Issued**: 8 (2 spares)
- Power supply cable (connects power supply to generator):
  - **Type** 5-conductor
  - **Length**: 13 ft

## PERFORMANCE

**EQUIPMENT**

19-137
## INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

**Within Continental United States**

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**Outside Continental United States**

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<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**References:**
CONTROL STICK: TYPE A

General
CONTROL STICK: type A connected to the generator, is designed to be manipulated to give command voltages that are transmitted to the missile by the generator. The control stick may be moved freely backward or forward, left or right, and is automatically returned to the neutral dead-center position by a spring. For ease when carrying, the control stick assembly is inclosed in a light metal case with detachable cover.

Differences among models
Data plate location
Identification plate located on covers.
Data plate located on control stick housing.

Classification

CHARACTERISTICS

Control stock box:

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<tr>
<th>Weight</th>
<th>7.05 lb</th>
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<tbody>
<tr>
<td>Height</td>
<td>9.64 in</td>
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<tr>
<td>Width</td>
<td>6.69 in</td>
</tr>
<tr>
<td>Length</td>
<td>10.11 in</td>
</tr>
</tbody>
</table>

Equipped with:

- Telephone magneto
- Micro socket
- Seven-pin plug
- Signal lamp

Power for telephone bell for telephone plug-in for cable connection to generator

Potentiometer (2) ...
Resistors (2) ...

Performance equipment

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped Length</th>
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<tbody>
<tr>
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<td>Volume</td>
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<tr>
<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
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Outside Continental United States

<table>
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<th>Shipped Length</th>
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<td>Volume</td>
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<tr>
<td>Gross weight</td>
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</tr>
<tr>
<td>Ship tons</td>
<td></td>
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</tbody>
</table>

References:

19-139
FIRE CONTROL CHECK BOX: (CIRCUIT TESTER)

FIRE CONTROL CHECK BOX: (circuit tester) is designed to check the ground equipment, by simulating, to insure that the system is working properly, that the ignition sequence is correct, and that there is continuity in the corresponding circuits up to their respective terminals on the missile cable.

One model check box is operated by two 1.5-volt batteries. One model check box transistorized is operated by one of the missile batteries.

Data plate location
Instruction plate is located on inside of cover.

Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery relay model</td>
<td>1430-854-4999</td>
<td></td>
</tr>
<tr>
<td>Transistorised circuit model</td>
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<td></td>
</tr>
</tbody>
</table>

General

Ignition sequence:
- Signal lamp (MFC) \( \text{IG} = \) ignition of gyro
- Signal lamp (DG) \( \text{UG} = \) uncaging of gyro
- Signal lamp (MFT) \( \text{IF} = \) ignition of flare
- Signal lamp (MFB) \( \text{IB} = \) ignition of booster

PERFORMANCE

Storage and Shipment Data

Within Continental United States

Shipped
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

Outside Continental United States

Shipped
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

References:
MISSILE BATTERY CHECK BOX:

General
MISSILE BATTERY CHECK BOX: is essentially a voltmeter and a resistance coil so constructed that the resistance load can be switched into the circuitry. This places a load on the battery with a corresponding drop in voltage. This missile battery check box is used to check the missile batteries before placing them in the missile.

Differences among models
Data plate location
Data plate is on the inside of cover.

Classification:

CHARACTERISTICS
Weight 9.47 lb
Height 6.11 in.
Length 10.03 in.
Width 7.78 in.
Resistor 56-ohm
Switch 3-position toggle
Use missile battery tester

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References:
MISSILE CONTAINER:

CHARACTERISTICS

**Metal:**
- **Weight:**
  - W/launcher and missile (high explosive warhead) — 141 lb
  - W/launcher and missile (antipersonnel warhead) — 156.5 lb
  - W/launcher and missile (combined tear gas and antipersonnel warhead) — 156.5 lb
  - W/launcher and missile (inert warhead) — 156.5 lb

**Wooden:**
- **Weight:**
  - W/launcher and missile (high explosive warhead) — 155.5 lb
  - W/launcher and missile (antipersonnel warhead) — 155.5 lb

**Dimensions:**
- **Length:** 35 in.
- **Width:** 24.4 in.
- **Height:** 19.6 in.
- **Volume:**
- **Gross weight:**
- **Ship tons:**

**Performance Equipment**

**Instructional Material**

**Storage and Shipment Data**

**Within Continental United States**
- **Shipped:**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**Outside Continental United States**
- **Shipped:**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

References:
MISSILE SELECTION BOX:

General
  MISSILE SELECTION BOX: governs the simultaneous connection and separate launching of one of the six missiles in the battery. Selection of the missile to be fired is done by positioning the selector switch to the number of the missile desired. When the firing button is pressed, the system energizes the relays in the selection box so that voltage and signals will be sent only to one missile. The missile selection box is connected to the missiles.

Differences among models
Data plate location
Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Height</th>
<th>Width</th>
<th>Length</th>
<th>Connection to generator</th>
<th>Connection to corresponding missile cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.46 lb</td>
<td>3.89 in.</td>
<td>7.99 in.</td>
<td>9.30 in.</td>
<td>12-pin plug</td>
<td>7-pin plug</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References:
SIGNAL GENERATOR: T9C

General
SIGNAL GENERATOR: T9C, has yaw and pitch channels, keyed to the same operating frequency as the flight control spoilers of the missiles. The generator converts the control stick movements to electric signals which, transmitted to the missile over the two-wire command line, develop and send a command to the missile to execute any required movement to direct the missile to the target. The generator contains the electronic circuits for the signals transmitted to the missile, the filament and high voltage supply and telephone magneto. The generator has a selector dial, numbered 1 through 6, to select the missile to be launched. The generator is connected to the missile selector box.

Differences among models
Generator T9C can be used with both SS-10 and SS-11 systems.

Data plate location
Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Frequency</th>
<th>fixed-slightly-variable</th>
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</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>DC</td>
</tr>
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</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
</table>

Shipping Length | Width | Height | Volume | Gross weight | Ship tons |
|----------------|-------|--------|--------|--------------|-----------|

References:

Model Line item No. Federal stock No.
T9C 1430-884-8011
**TELEPHONE HANDSET**

![Image of telephone handset]

**General**

TELEPHONE HANDSET is used by the gunner and assistant gunner to maintain contact during the missile launching.

**Differences among models**

**Data plate location**

Data plate is located on top side of the telephone box.

**Classification**

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Component</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>4.84 lb</td>
</tr>
<tr>
<td>Height</td>
<td>3.88 in.</td>
</tr>
<tr>
<td>Width</td>
<td>6.26 in.</td>
</tr>
<tr>
<td>Length</td>
<td>12.24 in.</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:**

AGO 3716A 19-145
ANTITANK GUIDED MISSILE SYSTEM: ENTAC

(Excludes missile, missile ground guidance, control handling, and testing equipment)

General

ANTITANK Guided MISSILE SYSTEM: ENTAC is intended for use against ground targets.

The missile is wire-guided. A trace runs on the rear of the missile enabling the operator to follow the flight of the missile. The guidance signals are generated in a control unit as the operator moves a control stick which functions similarly to the control stick in an airplane. These guidance signals travel through extension cable and a selection box to two fine steel wires which unwind from the missile as it flies. The guidance signals energize relays which distribute current from a battery in the missile to operate the missile controls. The missile does not roll in flight, but is stabilized by a gyroscope. Control is maintained by spoilers on the trailing edges of the fins.

In a protected position, ten missiles may be set up for firing. Two missiles are connected directly to the control unit by two 10-meter (33-ft) cables. The remaining eight missiles are connected, through two selection boxes, to two 100-meter (330-ft) cables. This combination permits eight missiles to be fired at a distance from the operator, thereby reducing the hazard of exposing his position to the enemy. Where the position is not protected or concealed, the two missiles connected directly to the control unit may be set up and fired quickly.
ANTITANK GUIDED MISSILE: ENTAC 58, W/ LAUNCHING CONTAINER, 19-146A

Guidance Control Station, APX: 7228-36/12, 19-146F

BATTERY: 12 VOLTS AND CHARGER: BATTERY, 19-146G

CABLE ASSEMBLY: 10 METERS AND REEL, 100 METERS, 19-146I

Binocular: 8 X 30, MDL51 AND TELFAC, 19-146H

Guidance Control Unit: (see page 19-146D), 19-146I

TESTER: GUIDANCE AND LAUNCHING STATION CIRCUIT, 19-146J

Classification: Standard A.

INSTRUCTIONAL MATERIAL

TRAINING SET, GUIDED MISSILE FLIGHT CONTROL (S-58 SIMULATOR), 19-146K

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped No. 1 of 2 packages in wooden container consisting of the following:

3—Batteries, 12 volts
3—Battery chargers
2—Boxes, missile selection
1—Cable, Battery charger
1—Cable, 10 meters
1—Guidance control station consisting of:
  1—Binocular
  1—Cover
  1—Guidance control unit
1—Slide
1—Support
1—Griped
1—Tester, circuit

Length: 28 in. (71.12 cm)
Width: 16 in. (40.64 cm)
Height: 14 in. (35.56 cm)
Volume: 3.83 cu ft
Gross weight: 230 lb (99.72 kg)
Ship tons: 0.09

Shipped No. 2 of 2 packages in wooden container consisting of
2—cables, 100 meters and reels:

Length: 32 in. (81.28 cm)
Width: 14 in. (35.56 cm)
Height: 16 in. (40.64 cm)
Volume: 4.14 cu ft
Gross weight: 170 lb (77.1 kg)
Ship tons: 0.103

Shipped separate No. 3 of 3 packages containing 1—missile per waterproof metal shipping container:

Length: 21.7 in. (55.12 cm)
Width: 13.1 in. (33.3 cm)
Height: 13.4 in. (34 cm)
Volume: 2.813 cu ft
Gross weight: 83.4 lb (37.9 kg)
Ship tons: 0.0703

Outside Continental United States

Shipped No. 1 of 2 packages in wooden container consisting of the items as above:

Length: 28 in. (71.12 cm)
Width: 16 in. (40.64 cm)
Height: 14 in. (35.56 cm)
Volume: 3.83 cu ft
Gross weight: 230 lb (99.72 kg)
Ship tons: 0.09

Shipped No. 2 of 2 packages in wooden container consisting of
2—cables, 100 meters and reels:

Length: 32 in. (81.28 cm)
Width: 14 in. (35.56 cm)
Height: 16 in. (40.64 cm)
Volume: 4.14 cu ft
Gross weight: 170 lb (77.1 kg)
Ship tons: 0.103

Shipped separate No. 3 of 3 packages containing 1—missile per waterproof metal shipping container:

Length: 31 in. (78.74 cm)
Width: 15 in. (38.1 cm)
Height: 18.11/32 in.
Volume: 4.1289 cu ft
Gross weight: 112 lb (50.9 kg)
Ship tons: 0.1092


"For characteristics and data, see item in section 29.

AGO 57.4A
ANTITANK GUIDED MISSILE: ENTAC 58
WITH LAUNCHING CONTAINER
ANTITANK GUIDED MISSILE: ENFAC 5s with launching container (FSN 8140-072-4910) is shipped in a waterproof metal shipping container. This container holds two units: one a combination case and launching container that holds the missile body, the other is a small compartment that holds the warhead. The missile is launched from the launching container which has all the electrical and mechanical connections for firing the missile. The missile is propelled by a two-stage solid propellant motor. A flare is located at the rear of the missile, and is used when necessary for increased visibility.

Differences among models

Data plate location

Classification

CHARACTERISTICS

Missile:
- Weight: 27 lb (12.25 kg)
- Length: 8 ft 7 in. (2.6 m)
- Diameter: 5.9 in. (14.98 cm)
- Wingspan: 1 ft, 2.8 in. (37 cm)
- Warhead:
  - Weight: 8.7 lb (3.9 kg)
  - Types: HEAT, inert, dummy

PERFORMANCE

Range:
- Minimum: 400 meters
- Maximum: 2,000 meters

EQUIPMENT

Basic Issue Items: See TM 9-1400-455-12.

INSTRUCTIONAL MATERIAL

Instructional Material: See page 19-19-146A.

STORAGE AND SHIPMENT DATA

Storage and shipment data: See page 19-146A.

BOX: MISSILE SELECTION

a 10-meter cable. After one of the four missiles has been fired, the missile-selector switch on the control unit is turned to select the next missile to be fired, thus completing the circuit to the selection box. The selection box has four missile connectors, and a permanently attached 1.5-meter (5-ft) cable by which the box is connected to the 100-meter extension cable. The selection box also contains a flare switch, which permits the missiles to be fired without igniting the flares.

Differences among models:
There is only one model.

Data plate location

Classification

CHARACTERISTICS

Weight ............................................. 11 lb (5 kg)
Length ........................................... 7.9 in. (20.07 cm)
Width ............................................ 7.1 in. (18.03 cm)
Height ............................................ 3.9 in. (9.9 cm)

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1400-455-12.

INSTRUCTIONAL MATERIAL

Instructional Material: See page 19-146A.

STORAGE AND SHIPMENT DATA

Storage and Shipment Data: See pages 19-146A through 19-146C.

CABLE ASSEMBLY: 10-METER AND CABLE AND REEL: 100-METER

CABLE ASSEMBLY: 10-METER AND CABLE AND REEL: 100-METER, are electrical connecting cables provided to interconnect the operating equipment. The cables are fitted with connectors which are equipped with protective covers, and mechanical safety devices to prevent wrong connections.

The two reel mounted 100-meter cables connect the two missile selection boxes to the guidance control unit. A selection box connector is mounted permanently on each reel, and accepts the connector on the 1.5-meter cable of each selection box.

Two of the 10-meter cables connect directly to the guidance control unit for firing "close" missiles, and the other eight 10-meter cables connect eight missiles to the two selection boxes.

Differences among models:
There is only one model each of the cable assemblies.

Date plate location

Classification

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable assembly</td>
<td></td>
<td>1430-855-9775</td>
</tr>
<tr>
<td>Cable and reel</td>
<td></td>
<td>1430-855-9731</td>
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</tbody>
</table>

General

EQUIPMENT

Basic Issue Items: See TM 9-1400-455-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

GUIDANCE CONTROL STATION: APX/2228-36/12

General

GUIDANCE CONTROL STATION: APX/2228-36/12, generates the signals that select, fire, and guide the missile. This station consists of the following components: Battery, 12 volts; Binocular, 8 x 30; Cable Assembly, battery charger; Charger, battery; Cover, guidance control unit; Guidance Control Unit; Mount, tripod, guidance control unit; Slide Assembly; and Support. A tripod is attached to a swivel mount on which is mounted a vertical support (arm). The guidance control unit is mounted on the vertical support with a slide. This slide can be moved on the vertical support to adjust the height of the control unit. A telescoping tube attached to the slide is used to adjust the height of the 8 x 30 binocular.

Differences among models:
The difference between the tactical and training equipment is in the type of binocular.

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>APX/2228-36/12</td>
<td>1430-955-8609</td>
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</table>

Data plate location

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1400-455-12.

INSTRUCTIONAL MATERIAL

Instructional Material: See page 19-146A.

STORAGE AND SHIPMENT DATA

Storage and Shipment Data: See pages 19-146A through 19-146C.

BATTERY: 12-VOLTS AND CHARGER: BATTERY

The battery consists of ten nickel-cadmium cells connected in series and contained in a nickel-plated steel case; it is 12-volt capacity. The case is constructed so it may be plugged into either the guidance control unit or charger. The charger operates from a 24-volt a.c. or d.c. source and provides a 50-milliampere charging current. The battery may be left on the charger indefinitely, but the fully-charged state is reached in a maximum of 80 hours. A charged battery will insure constant operation for one-half hour after 8 to 30 days storage depending on climate. The charger is connected to the vehicle battery by means of cable assembly, battery charger.

DATA PLATE LOCATION

Classification

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Weight</th>
<th>Length</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>3 lb.</td>
<td>7.5 in. (19.1 cm)</td>
<td>2.2 in. (5.6 cm)</td>
</tr>
<tr>
<td>Charger</td>
<td>1.3 lb</td>
<td>3.5 in. (8.9 cm)</td>
<td>4.3 in. (10.9 cm)</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1400-455-12.

INSTRUCTIONAL MATERIAL:

Instructional Material: See page 19-146A.

STORAGE AND SHIPMENT DATA

Storage and Shipment Data: See pages 19-146A through 19-147A.

BINOCULAR: 8 X 30, MDL51 AND TELFAC 1790-1

(Data and illustration to be published at a later date.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDL51 (for tactical use)</td>
<td></td>
<td>1430-855-9681</td>
</tr>
<tr>
<td>TELFAC 1790-1 (for training use)</td>
<td></td>
<td>1430-871-5813</td>
</tr>
</tbody>
</table>

(Data and illustration to be published at a later date.)

**General**

**BINOCULAR: 8 x 30, MDL51 AND TELFAC 1790-1, are components of the GUIDANCE CONTROL STATION and are used in tactical and training for viewing the target and missile during flight.**

**Differences among models**

**Data plate location**

**Classification**

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Magnification</th>
<th>Aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 power</td>
<td>30-mm</td>
</tr>
</tbody>
</table>

**Field of view**

**Exit pupil**

**"F" number of objective**

**Reticle horizontal scale**

**Reticle range scale**

**Filter**

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-1400-455-12.

**INSTRUCTIONAL MATERIAL**

Instructional Material: See page 19-146A.

**STORAGE AND SHIPMENT DATA**

Storage and Shipment Data: See pages 19-146A through 19-146C.

**References:** TM 9-1400-455-12, TM 9-1400-455-85P/1.
TESTER: GUIDANCE AND LAUNCHING STATION CIRCUIT

indicates by means of a meter and indicators, whether the battery-activation, booster-ignition, flare-ignition, and pitch and yaw circuits are functioning. Since the tester is connected to the ends of the extension cables, the test includes the cables, connectors, and selection boxes. A leather carrying case is issued with the tester, a plastic window in the cover of the case permits easy inspection of the tester's serial number.

Differences among Models

Data plate location

Classification

CHARACTERISTICS

Weight 5.5 lb (2 kg)
Length 7.9 in. (19.0 cm)
Width 6.7 in. (17.0 cm)
Height 6.1 in. (15.8 cm)

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1400-455-12.

INSTRUCTIONAL MATERIAL

Instructional Material: See page 19-146A.

STORAGE AND SHIPMENT DATA

Storage and Shipment Data: See pages 19-146A through 19-146C.

The equipment listed below is required to complete the SYSTEM. It includes maintenance, repair, and checkout equipment specially designed for use with guided missiles and guided missile remote control systems.

- **Beam, Handling, Missile Container:** M5
- **Decontamination Kit, Guided Missile:** M74
- **Draining Kit, Fuel, Guided Missile:** M72
- **Draining Kit, Oxidizer, Guided Missile:** M73
- **Electronic Shop, Truck Mounted:** AN/MPM-38 (SET A)
- **Electronic Shop, Semitrailer Mounted:** AN/MSM-45 (SET C) (Semitrailer AN/MSM-23, SET A; Semitrailer AN/MSM-24, SET B)
- **Electronic Shop, Semitrailer Mounted:** AN/MSM-46 (SET D) (Semitrailer AN/MSM-21; Semitrailer AN/MSM-26)
- **Shop Equipment Set, Guided Missile-Ground Handling-Servicing (Semitrailer Mounted):** SET B (Semitrailer XM490; Semitrailer XM500)
- **Shop Set, Guided Missile, Field Maintenance:** SET A
- **Test Station, Guided Missile, Field Maintenance:** SET A
- **Test Station, Guided Missile, Truck Mounted:** AN/MSM-12

(For characteristics and data, see item in section 20.)

(TM 9–500)

Page 19–147
Air Compressor, Guided Missile, Truck Mounted: M301

**General**

Air Compressor, Guided Missile, Truck Mounted: M301, is used to charge the four air tanks on truck-mounted air-service truck M300. The air compressor M301, consisting of an overhead valve gasoline engine, generator-engine set, air compressor, moisture knockout bottles, air drier assembly, compressor lubricator, skid and shrouding, is mounted on a modified truck, Cargo: 5-ton, 6x6, M41.*

Differences among models

Data plate location

Classification:

**CHARACTERISTICS**

**Engine:**
- Manufacturer: Waukesha Motor Co.
- Model: 145 GKH (Modified)
- Number of cylinders: 6
- Bore and stroke: 5 1/4 x 6 in.
- Piston displacement: 770 cu in.
- Type: Internal combustion, gasoline
- Cooling system: Water-cooled, 18 gallon capacity

**Air Compressor:**
- Manufacturer: Clark Brothers Co.
- Model: HO-6-4C
- Number of cylinders: 6
- Number of compression stages: 4
- Cylinder bore:
  - First stage: 5 in.
  - Second stage: 4 in.
  - Third stage: 3 in.
  - Fourth stage: 1 1/8 in.
- Discharge pressure: 3,500 psi
- Type: horizontal, balance-opposed
- Cylinder action: horizontal, single-acting

**Air Drier Assembly:**
- Manufacturer: Kemp Co.
- Model: BA26 (electrically operated)
- Type: Self-generating, dual-tower
- Capacity: 93 cfm @ 3,500 psi
- Desiccant: 25 lb charge of silica gel for each tower
- Control system: manually controlled (4-hr cycle)

**Cooler Assembly:**
- Manufacturer: Clark Brothers Co.
- Model: 116-3214, 116-3240
- Type: Cooling fins
- Purpose: Intercooling and aftercooling of air and cooling of lubricating oil.

**Clutch:**
- Manufacturer: Industrial Clutch Co.
- Model: 214 GT
- Type: Friction disk gear tooth

**Flexible Coupling:**
- Manufacturer: Thomas Flexible Coupling Co.
- Model: 312 CM
- Type: Laminated ring
- Lubrication: None required
- Bore (max): 3 1/8 in.
- Angular misalignment (max): 1 deg
- Parallel misalignment (max): 1/16 in.

**Compressor Lubricating Pumps:**
- Cylinder lubrication:
  - Manufacturer: McCord Corp.
  - Model: Class SF forced-feed, multi-pump
  - Number of pumping units (feeds): 6
  - Oil reservoir capacity: 8 pint.
  - Type of feed sight: Tubular pyrex "cleansight" drive
  - Gear ratio: 49 to 1
- Internal lubrication:
  - Manufacturer: Tubill Pump Co.
  - Model: O.L. pump
  - Type of feed sight: spur gear from auxiliary drive
  - Flow control: Rotation (clockwise)
  - Type of mounting: Four-bolt flange bracket

**Air Intake Filter:**
- Manufacturer: Vortex Manufacturing Co.
- Model: GA 73 Series 653
- Type: Oil bath

---

*For characteristics and data, see item in section 21.

---

19-148
CHARACTERISTICS—Continued

Compressor air filters—Continued

Air intake filters—Continued

Filter element—crimped, galvanized wiremesh screen with felt end.

Mounting: Opening to intake-header piping

Pipeline air filter element:

Manufacturer: Poroloy Corp.

Model: ORO. No. 8143565

Filter element: Woven stainless steel

Filtration: 10 microns

Flow rate: 150 cfm

Operating pressure: 3,500 psi

Weight (less truck): 12,900 lb

Length (less truck): 13 ft. 11½ in.

Width (less truck): 7 ft. 10 in.

Height (less truck): 6 ft. 2½ in.

PERFORMANCE

Engine speeds (permissible):

Continuous: 1,350 rpm

Intermittent duty: 1,800 rpm

Air compressor speed (normal operating): 1,350 rpm

Air compressor dry air output (total)—not less than 92 cfm at 14.7 psi.
AIR SERVICER, GUIDED MISSILE, TRUCK MOUNTED: M350

**General**

AIR SERVICER, GUIDED MISSILE, TRUCK MOUNTED: M350, is used to charge the missile air tank with compressed air for the propulsion components. The air servicer M350 consists of a BODY, TANK, AIR SUPPLY: mounted on CHASSIS, TRUCK; 6-ton, 6 x 6, M39. The air servicer stores and transports 33.6 cubic feet of air under a maximum working pressure of 3,600 psi (pounds per square inch). The compressed air in the air tanks is obtained from truck-mounted reciprocating compressor XM-301E, and/or Joy model 88H compressor which is used as the main supply of high-pressure air for the missile.

**Differences among models**

Data plate location

The identification plate is located on the left side of the upper protective shield inside the manifold and gage housing.

**Classification:** Standard B (OTCM 38441).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M350, w/e</td>
<td>4-00163-50</td>
<td>1400-362-21RT</td>
</tr>
</tbody>
</table>

Pneumatic-pressure tank (air tank) - Continued

<table>
<thead>
<tr>
<th>Diameter (outside)</th>
<th>1 ft. 6 1/2 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>13,4 cu ft</td>
</tr>
<tr>
<td>Working pressure (max)</td>
<td>3,600 psi</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL Y-63.

**INSTRUCTIONAL MATERIAL**

Graphic Training Aid 9-25.

**STORAGE AND SHIPMENT DATA**

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>25 ft. 10 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>7 ft. 11 in.</td>
</tr>
<tr>
<td></td>
<td>Height</td>
<td>8 ft. 8 in.</td>
</tr>
<tr>
<td></td>
<td>Volume</td>
<td>1,721.0 cu ft</td>
</tr>
<tr>
<td></td>
<td>Gross weight</td>
<td>31,410.0 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons</td>
<td>43.0</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL Y-63, TM 9-500-12.

*For characteristics and data, see item in section 21.*
GUIDED MISSILE, ARTILLERY: M2 AND M2A1

Model | Line item No. | Federal stock No.
--- | --- | ---
M2, Tactical (Type II), less warhead | 1410-706-5478
M2, Tactical (Type II), less warhead (Classified) | 1410-706-5478
M2, Tactical (Type II), less warhead | 1410-706-5475
M2, Tactical (Type II), less warhead (MIS) | 1410-601-5478
M2, Training (Type II), less warhead | 1410-706-5476
M2A1, Tactical (Type IIIB), less warhead | 1410-706-5473
M2A1, Training (Type IIIB), less warhead | 1410-706-5473

Model | Line item No. | Federal stock No.
--- | --- | ---
M2, Tactical (Type II), less warhead | 1410-706-5478
M2, Tactical (Type II), less warhead (Classified) | 1410-706-5478
M2, Tactical (Type II), less warhead | 1410-706-5475
M2, Tactical (Type II), less warhead (MIS) | 1410-601-5478
M2, Training (Type II), less warhead | 1410-706-5476
M2A1, Tactical (Type IIIB), less warhead | 1410-706-5473
M2A1, Training (Type IIIB), less warhead | 1410-706-5473

General
GUIDED MISSILE, ARTILLERY: M2 or M2A1 (Type II or Type IIA CORPORAL), w/ or w/o warhead (called rounds) is a field artillery, medium-range, surface-to-surface guided missile which is fired from a mobile ground installation and is designed to deliver a warhead to targets 50 to 130 kilometers from the firing area. The missile consists of the battery set, aft body section, fore body section, fin assembly kit, nitric acid, propellant mixture, propellant valve release, warhead, and neutralizer, rocket propellant, and safety shower unit. A liquid propellant rocket engine propels the missile, while its direction of flight and range are controlled by an interchange of signals among electronic units within the missile and overriding commands from stations on the ground. The missile uses a combination auto pilot and command-guidance system.

Differences among models
The differences, as indicated by the descriptions of the various guided missile combinations shown below, are: different types of aft body sections; different types of control surfaces; and the guided missile M2A1 does not use batteries. Type IIIB rounds (M2A1) from serial number 2173 use an air-turbin-alternator power system. Rounds prior to serial number 2173 use batteries for missile electrical power.

A complete round for the following artillery guided missiles consists of: M2, tactical, type II, less warhead—BODY SECTION, GUIDED MISSILE: aft, M4 (tactical type II); BODY SECTION, GUIDED MISSILE: fore, M3; FIN ASSEMBLY KIT, GUIDED MISSILE: M60 (type II); BATTERY SRT, GUIDED MISSILE: 4-BB-406/U and 2-BB-407/U (for types II and IIA); RELEASE, PROPELLANT VALVE, GUIDED MISSILE: M4; PROPELLANT, ANILINE-FURFURAL ALCOHOL; and PROPELLANT, NITRIC ACID.

M2, tactical, type IIA, less warhead—BODY SECTION, GUIDED MISSILE: aft, M4E5 (tactical type IIA); BODY SECTION, GUIDED MISSILE: fore, M3; FIN ASSEMBLY KIT, GUIDED MISSILE: XM60E2 (type IIA); BATTERY SRT, GUIDED MISSILE: 4-BB-406/U and 2-BB-407/U (for types II and IIA); RELEASE, PROPELLANT VALVE, GM: M4; PROPELLANT, ANILINE-FURFURAL ALCOHOL; and PROPELLANT, NITRIC ACID.

M2, training, type II, with warhead—BODY SECTION, GUIDED MISSILE: aft, M4 (training type II); BODY SECTION, GUIDED MISSILE: fore, M3; FIN ASSEMBLY KIT, GUIDED MISSILE: M60 (type II); BATTERY SRT, GUIDED MISSILE: 4-BB-406/U and 2-BB-407/U (for types II and IIA); RELEASE, PROPELLANT VALVE, GUIDED MISSILE: M4: WARHEAD, GUIDED MISSILE: inert, XM15; PROPELLANT, ANILINE-FURFURAL ALCOHOL; and PROPELLANT, NITRIC ACID.

M2, training, type IIA, with warhead—BODY SECTION, GUIDED MISSILE: aft, XM4E2 (training type IIA); BODY SECTION, GUIDED MISSILE: fore, M3; FIN ASSEMBLY KIT, GUIDED MISSILE: XM60E2 (type IIA); BATTERY SRT, GUIDED MISSILE: M4
Differences among models—Continued

SILE: 4-BB-406/U and 2-BB-407/U (for types II and IIA); RELEASE, PROPELLENT VALVE, GUIDED MISSILE: M4; WARHEAD, GUIDED MISSILE: inert, XM15; PROPELLANT, ANILINE-FURFURAL ALCOHOL, and PROPELLANT, NITRIC ACID.

M2Al, tactical, type IIb, less warhead—BODY SECTION, GUIDED MISSILE: aft, M4Al (tactical type IIb); BODY SECTION, GUIDED MISSILE: fore, M3; CONTROL SURFACES KIT, GUIDED MISSILE: M113 (for type IIb); RELEASE, PROPELLENT VALVE, GUIDED MISSILE: M4; PROPELLANT, ANILINE-FURFURAL ALCOHOL, and PROPELLANT, NITRIC ACID.

M2Al, training, type IIb, with warhead—BODY SECTION, GUIDED MISSILE: aft, M4E4 (training type IIb); BODY SECTION, GUIDED MISSILE: fore, M3; CONTROL SURFACES KIT, GUIDED MISSILE: M113 (for type IIb); RELEASE, PROPELLENT VALVE, GUIDED MISSILE: M4; WARHEAD, GUIDED MISSILE: inert, XM15; PROPELLANT, ANILINE-FURFURAL ALCOHOL, and PROPELLANT, NITRIC ACID.

Data plate location

| Classification | Standard B (OTCM 36841) | Standard B |

**CHARACTERISTICS**

**Missile:**
- Weight (at takeoff) 11,247 lb
- Weight (without fuel, oxidizer, or air) 4,461 lb
- Length (overall) 48 ft, 4 in.

**Fore body section:**
- Length 9 ft
- Diameter 2 ft, 6 in.
- Weight, less payload 125 lb

**Aft section:**
- Diameter, air tank (major diameter) 2 ft, 6½ in.
- Diameter, propellant tanks 2 ft, 6 in.
- Diameter, propellant tanks, w/tunnels installed 3 ft, ¾ in.
- Length 36 ft, 4 in.
- Weight (w/o batteries) 2,031 lb

**Control surfaces:**
- Stabilizers:
  - Length (east and west) 6 ft, 8½ in.
  - Length (north and south) 6 ft, 4½ in.
  - Weight (north or south) 21 lb, 2 oz
  - Weight (east, including antennas) 22 lb, 11 oz
  - Weight (west, including antennas) 24 lb, 16 oz
- Rudders:
  - Length 2 ft
  - Width 1 ft, 3½ in.
  - Weight (each) 11 lb, 13 oz

**Propellants:**
- Fuel:
  - Weight in missile 2,148 ± 10 lb
  - Freezing point, at sea level -46°F
  - Boiling point, at sea level 174°F
- Oxidizer:
  - Weight in missile 4,423 ± 10 lb
  - Freezing point, at sea level -340°F
  - Boiling point, at sea level 105°F
- Air:
  - Weight (20.9 psig at 68°F) 2,031 lb

**PERFORMANCE**

**Velocity:**
- Maximum 2,000 mph
- Impact 1,600 mph

**Range:**
- 60 kilometers (31 miles) to 120 kilometers (75 miles)

**Height (at zenith of trajectory):** 41.84 kilometers (25 miles)

**Thrust (max):** 20,700 lb

**Rate of fire**

---

**INSTRUCTIONAL MATERIAL**

WARHEAD, GUIDED MISSILE: M15 (inert-training item) (G)

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Missile body fore section: M3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 1 fore section per tactical container</td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
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<tr>
<td>Height</td>
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<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

**Warhead body aft section:**

<table>
<thead>
<tr>
<th>Shipped 1 aft section per container (XM151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
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<tr>
<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
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</table>

**Warhead mounting ring XM1:**

<table>
<thead>
<tr>
<th>Shipped 1 mounting ring per wooden box</th>
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<tbody>
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<td>Length</td>
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<td>Ship tons</td>
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</table>

**Warhead:**

<table>
<thead>
<tr>
<th>Shipped 1 warhead per wooden crate w/skids</th>
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**Fin assembly kit:**

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<th>Shipped 1 kit per wooden crate (M60)</th>
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</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

**Shipped 1 kit per crate (XM60E2) **

| Length | 7 ft, 8½ in. |
| Width | 3 ft, 10½ in. |
| Height | 2 ft, 1½ in. |
| Volume | 54.6 cu ft |
| Gross weight | 571 lb |
| Ship tons | 1.4 |

**Batteries:**

<table>
<thead>
<tr>
<th>Shipped 6 batteries per wooden packing case</th>
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<tr>
<td>Length</td>
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<td>Gross weight (approx)</td>
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**Propellant valve release:**

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**INSTRUCTIONAL MATERIAL**

WARHEAD, GUIDED MISSILE: M15 (inert-training item) (G)

**STORAGE AND SHIPMENT DATA**

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**Fin assembly kit:**

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</table>

**Shipped 1 kit per crate (XM60E2) **

| Length | 7 ft, 8½ in. |
| Width | 3 ft, 10½ in. |
| Height | 2 ft, 1½ in. |
| Volume | 54.6 cu ft |
| Gross weight | 571 lb |
| Ship tons | 1.4 |

**Batteries:**

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<td>Gross weight (approx)</td>
</tr>
<tr>
<td>Ship tons</td>
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</tbody>
</table>
**Guided missile nitric acid:**
- Shipped nitric acid per aluminum drum
  - Height: 2 ft, 5¾ in.
  - Diameter: 2 ft, 3¼ in.
  - Volume: 10.76 cu ft
  - Gross weight: 521 lb
  - Ship tons: 0.27
  - Gallons: 40

**Guided missile propellant mixture:**
- Shipped propellant mixture per aluminum drum
  - Height: 2 ft, 10¾ in.
  - Diameter: 2 ft, 3¼ in.
  - Volume: 14.8 cu ft
  - Gross weight: 477 lb
  - Ship tons: 0.37
  - Gallons: 55

**Missile body fore section:** M3
- Shipped 1 fore section per tactical container
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**Missile body aft section:**
- Shipped 1 aft section per container (XM351)
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**Warhead mounting ring XM1**
- Shipped 1 mounting ring per wooden box
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**Warhead**
- Shipped 1 warhead per wooden crate w/skids
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**References:** SB 9-152, SNL Y-3, TM 9-1410-201-35, TM 9-5038-12.
COMPUTER GROUP, GUIDED MISSILE: AN/MSA-6

General

COMPUTER GROUP, GUIDED MISSILE: AN/MSA-6, receives signals from the RADAR SET: AN/MPQ-25 and RADIO SET: AN/MRQ-7, and this information is used to calculate command data to alter the missile trajectory in elevation and azimuth. The computer group AN/MSA-6 consists of a trailer, van: XM325, which contains seven electrical equipment cabinets (equipment racks). These cabinets (racks) are used for mounting the computer station electronic components: intercommunication station, computer test set, a spare amplifier, voltage regulators, power supply, guided missile flight simulator, computer controls, relay amplifier, electrical test panel, computer test set, oscilloscope, amplifier assembly, amplifier-control group, coder group, amplifier-computer, thrust termination computer, simulator group, and amplifier-oscillator. The van trailer XM325 is a reinforced sheet metal van mounted on the frame which is supported by a rocker arm type undercarriage to assure ground contact at all four wheels when operating over rough terrain.

Differences among models

Data plate location

The trailer identification plate is mounted above the drawbar on the right front of the trailer.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Weight (gross) 8,900 lb
Length 16 ft, 1 1/8 in.
Width 8 ft, 0 in.
Height 8 ft, 1 in.

*Characteristics and data will be added at a later date.

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-51.

STORAGE AND SHIPMENT DATA

Withiin Continental United States

Shipped
Length 16 ft, 2 in.
Width 7 ft
Height 7 ft, 11 in.
Volume 1,095.3 cu ft
Gross weight 10,250 lb
Ship tons 27.4

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

CONTROL CENTER, MISSILE BATTERY: AN/GTW-1 AND AN/GTW-1A

General

CONTROL CENTER, MISSILE BATTERY: AN/GTW-1 and AN/GTW-1A, in the CORPORAL ground guidance center, furnishes the battery commander with a central communication system: telephone, command speaker, and intercommunications. The telephone and intercommunication are two-way circuits; the command speaker operates only one way, from the missile battery control center to the other units. The control center AN/GTW-1A consists of the intercommunication station, control indicator, switchboard, audio frequency amplifier.

Differences among models

Data plate location

Classification

AN/GTW-1 Standard B (OTCM 36841).

AN/GTW-1A

CHARACTERISTICS

Weight 312 lb
Length 3 ft, 9½ in.
Width 1 ft, 7 in.
Height 2 ft, 4½ in.
Volume 16.75 cu ft

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-53.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length 4 ft, 6½ in.
Width 2 ft, 3½ in.
Height 3 ft, 8½ in.
Volume 23.8 cu ft
Gross weight 662 lb
Ship tons 0.6

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

ERECTOR, GUIDED MISSILE, SELF-PROPELLED: M2, W/E

General

The erector M2, W/E, is a four-wheel, electrically operated and controlled vehicle used for handling, transporting, and erecting artillery guided missile M2. Erecting functions are performed in conjunction with guided missile launchers M27, warhead mating functions are performed in conjunction with warhead trailers M311 or warhead-handling slings. The erector M2 can operate effectively over smooth and hard surfaces at speeds up to 30 miles per hour and can ford water up to 60 inches deep. Primary power for operation and control of the erector is obtained from the power unit which consists of an engine, ac generator, and dc generator. Major components of the erector M2 are the chassis base main frame, fuel tank and cab-mounting assembly, rotary boom, traversing support, handling ring clamp assembly, oscillating axle, drive wheel assemblies, power unit, ac motors, and electrical control system components.

Differences among models

Data plate location

The vehicle identification plate is attached to the rotary-boom cradle on the erector chassis and contains the erector model number and serial number. The engine identification plate is located on the engine-accessory section near the governor.

Classification: Standard B (OTCM 34541).

CHARACTERISTICS

Weight:

- Gross: 70,340 lb
- Net: 69,610 lb

Length:

- With boom in carry position: 46 ft, 8 in.
- With boom in missile-loading position: 77 ft, 3 in.
- Height with boom in carry position: 11 ft
- Wheel base: 12 ft
- Width: 9 ft, 6 in.

Ground clearance:

- Frame (center section): 2 ft, 5 in.
- Front axle: 2 ft, 2 in.
- Rear axle: 1 ft, 1 in.

Capacities:

- Controller (variable resistor) 7 gal
- Drive-wheel electromechanical actuator 3 gal
- Elevator-motor gear assembly: 3 gal
- Engine oil system: 11 gal
- Field-control-and-rectifier assembly: 57 gal
- Fire extinguishers (each): 6 lb (CO2)
- Fuel tank (nominal): 238 gal
- Horn-motor gear assembly: 1/4 gal
- Oil-bath air cleaner: 1/4 gal
- Rotary-boom-motor gear assembly: 1/4 gal
- Steering-motor gear assembly: 1/4 gal
- Vane-type rotary blower: 1/4 gal
- Crew: 2

Electrical power sources:

- Lighting, ignition, and dc brakes: two 12-volt batteries in series
- Manual-control switches: 24-volt dc
- Missile handling: ac generator
- Propelling system: ac generator
- Steering: ac generator
- Engine: Continental, 6-cyl, Model AO-896-4

Payload: 11,650 lb

Tire pressure: 30 lb

PERFORMANCE

- Angle of approach: 23 deg
- Angle of departure: 40 deg
- Engine horsepower (gross): 375 bhp @ 2,800 rpm
- Fording depth (max): 5 ft
- Gradability (max): 15-percent slope
- Grade for emplacing missile (max): 10-percent slope
-Governed rpm: 2,160

Speed (max):

- Forward: 30 mph
- Reverse: 30 mph

Minimum turning circle (dia), right or left: 42 ft

Operating time (one tank of gas): 5.6 hr

EQUIPMENT

Basic Issued Items: See ORD 7 SNL Y-61.
### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>46 ft</td>
<td>8 ft 2 in.</td>
<td>11 ft 2 in.</td>
<td>4,876.7 cu ft</td>
<td>58,510 lb</td>
<td>121.9</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
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</tr>
</tbody>
</table>

References: SNL Y-61, TM 9-5048-12, TM 9-5048-34, TM 9-5049.
FIRING STATION, GUIDED MISSILE, TRUCK MOUNTED: AN/MSE-1
(FIRING SET, INCLUDING PANEL, FIRING, GUIDED MISSILE: SB-391/MSE-1;
CHASSIS, TRUCK: 2½ TON, 6X6, M44)

CHARACTERISTICS

General
FIRING STATION, GUIDED MISSILE, TRUCK MOUNTED: AN/MSE-1, w/0, consisting of FIRING SET, INCLUDING PANEL,
FIRING, GUIDED MISSILE: SB-391/MSE-1 with CHASSIS,
TRUCK: 2½ TON, 6X6, M44, provides remote control for missile
firing functions and furnishes external power and emergency air
to the missile during prefiring operations. The firing station is mounted
on chassis, truck: 2½-ton, 6x6, M44. The firing station consists
of the forward compartment (contains the propellant valve release
tester, firing panel, telephones and head sets, 28-volt motor generator,
communications cables, warhead junction box, telescope laying
equipment, terminal box, 120-volt motor generator, and cables), aft
cable compartment (contains six cable reels with cables), engine
generator, and missile propellant shutoff (emergency air system).

Differences among models

Data plate location
Classification: Standard B (OTCM 38841).

Major item
Line item No. 4-14457
Federal stock No. 1430-566-8192

AN/MSE-1, w/0

Power distribution panel—Continued
Weight 191 lb
Length 1 ft, 9½ in.

Guided missile firing panel:
Weight 46 lb
Length 1 ft, 6½ in.
Width 9 in.
Height 1 ft, 6 in.

Terminal box:
Weight 31 lb
Length 1 ft, 3 in.
Width 7 in.
Height 1 ft, 8½ in.

Telescope laying equipment:
Weight 20 lb
Length 1 ft, 10 in.
Width 1 ft, 7 in.
Height 1 ft, 8½ in.

Telephone boxes:
Weight 8 lb
Length 1 ft
Width 6 in.
Height 6 in.

Engine generator:
Weight 2,270 lb
Length 7 ft, 11½ in.
Width 2 ft, 6 in.
Height 4 ft, 2 in.

Emergency air system:
Weight 77 lb
Length 1 ft, 3 in.
Width 9½ in.
Height 2 ft, 1½ in.

PERFORMANCE

Engine generator:
Input
Output 15 kw, 60eps, 115v, 3ph, delta-connected, B phase grounded
### PERFORMANCE—Continued

**Motor generator (115v):**

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.75 kw, 115v, 3φ, 60 cps</td>
<td>3 kw, 3φ, 115v</td>
</tr>
</tbody>
</table>

**Motor generator (28v):**

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 kw, 115v, 3φ, 60 cps</td>
<td>2 kw, 28v</td>
</tr>
</tbody>
</table>

**Power distribution panel:**

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 kw, 115v, 3φ, 60 cps from engine generator</td>
<td>3.75 kw, 115v, 3φ, 60 cps to 115v motor generator</td>
</tr>
<tr>
<td>3 kw, 115v dc from 115v motor generator</td>
<td>2.5 kw, 115v, 3φ, 60 cps to 28v motor generator</td>
</tr>
<tr>
<td>2 kw, 28v dc from 28v motor generator</td>
<td>0.5 kw, 115v, 3φ, 60 cps to gyro heaters</td>
</tr>
</tbody>
</table>

**Firing panel:**

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>115v dc from power distribution panel</td>
<td>Various control voltages to missile, control unit, an emergency air system</td>
</tr>
<tr>
<td>115v, 1φ, 400 cps from missile</td>
<td>Voice-to-launcher telephone and field wire line terminals or radio terminals</td>
</tr>
<tr>
<td>Various metering voltages from missile</td>
<td>Tailbreak-signal-to-field-wire line terminals or radio terminals</td>
</tr>
<tr>
<td>Various indication voltages from missile</td>
<td>Firing indication to connector J10904</td>
</tr>
</tbody>
</table>

**Input**

- Indication voltage from emergency air system.
- Voice from firing panel telephone, field wire line terminals, or radio terminals.

**Output**

- Voice-to-firing panel telephone, field wire line terminals, or radio terminals.

---

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped: 22 ft, 11 in.
- Width: 7 ft, 11 in.
- Height: 9 ft, 6 1/2 in.
- Gross weight: 1,912.0 lb
- Ship tons: 42.9

**Outside Continental United States**

- Shipped: 23 ft, 11 in.
- Width: 8 ft, 1 in.
- Height: 9 ft, 5 1/2 in.
- Gross weight: 1,939.0 lb
- Ship tons: 43.9

**References:** SNL Y-55, TM 9-5064-10.
INTERCONNECTING GROUP: OA-771/G

SHOWN:
- COMPUTER GROUP, GUIDED MISSILE: AN/MSA-6
- RADIO SET: AN/MRQ-7
- CONTROL CENTER, MISSILE BATTERY: AN/GTW-1A
- GENERATOR SET, GASOLINE ENGINE (AIR CONDITIONER)

CABLE LEGEND
- GROUND
- POWER
- SIGNAL

SHOWN:
- RADAR SET: AN/MPQ-25

CABLE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Quantity required</th>
<th>Function</th>
<th>Number of wires</th>
<th>Length extended</th>
<th>Identification tag</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA-771/G, w/e</td>
<td>4-18696-00</td>
<td>1430-568-8163</td>
<td>5</td>
<td>signal</td>
<td>19</td>
<td>225 ft</td>
<td>CX-3194/G</td>
</tr>
<tr>
<td>Cable (ORD No. 7652774)</td>
<td></td>
<td></td>
<td>6</td>
<td>power</td>
<td>3</td>
<td>160 ft</td>
<td>none</td>
</tr>
<tr>
<td>Cable (ORD No. 7669723)</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable (ORD No. 8129218)</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>3</td>
<td>25 ft</td>
<td>CX-2917/G</td>
</tr>
<tr>
<td>Cable (ORD No. 8129217)</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>1</td>
<td>160 ft</td>
<td>CX-2875/G</td>
</tr>
<tr>
<td>Cable (ORD No. 8103914)</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td>260 ft</td>
<td>CX-3194/G</td>
</tr>
<tr>
<td>Cable (ORD No. 8103913)</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>20 ft</td>
<td>CX-2875/G</td>
</tr>
<tr>
<td>Cable (ORD No. 8103912)</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>20 ft</td>
<td>CX-2875/G</td>
</tr>
<tr>
<td>Cable (ORD No. 8103911)</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>20 ft</td>
<td>CX-2875/G</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States

Box #1:
- Shipped
  - Length: 6 ft, 2 in.
  - Width: 2 ft, 1 in.
  - Height: 1 ft, 6 in.
  - Volume: 19.2 cu ft
  - Gross weight: 394.0 lb
  - Ship tons: 0.5
### STORAGE AND SHIPMENT DATA—Continued

**Within Continental United States—Continued**

<table>
<thead>
<tr>
<th>Box #2:</th>
<th>Shipped Length</th>
<th></th>
<th>Width</th>
<th>2 ft, 2½ in.</th>
<th>Height</th>
<th>2 ft, 2½ in.</th>
<th>Volume</th>
<th>8.6 cu ft</th>
<th>Gross weight</th>
<th>190.0 lb</th>
<th>Ship tons</th>
<th>0.2</th>
</tr>
</thead>
</table>

| Box #3:    | Shipped Length |                          | Width | 2 ft, 2½ in. | Height | 2 ft, 2½ in. | Volume | 8.6 cu ft | Gross weight | 318.0 lb | Ship tons | 0.2 |

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Box #1:</th>
<th>Shipped Length</th>
<th></th>
<th>Width</th>
<th></th>
<th>Height</th>
<th></th>
<th>Gross weight</th>
<th></th>
<th>Ship tons</th>
<th></th>
<th></th>
</tr>
</thead>
</table>

LAUNCHER, GUIDED MISSILE: M27, W/E

**Traveling position:**
- Weight (with wheel and axle assemblies) 5,440 lb
- Length 11 ft, 8 in.
- Width 7 ft, 11 in.
- Height 10 ft, 10 in.
- Track 7 ft
- Lunette height above ground 3 ft, 2 in.
- Ground clearance (to bottom of base) 6 in.

**Emplaced:**
- Weight (without wheel and axle assemblies) 4,690 lb
- Height 10 ft
- Ground clearance (to bottom of base) 6 in.

**Strut assemblies:**
Type: telescoping screw
- Static load (max), each 10,000 lb
- Strut length:
  - Extended 9 ft, 4 in.
  - Retracted 7 ft, 10 in.
  - Travel 1 ft, 6 in.

**Outrigger jacks:**
Type: telescoping screw
- Static load (max), each 8,000 lb
- Length:
  - Extended 3 ft, 6 in.
  - Retracted 1 ft, 6 in.
  - Travel 2 ft

**Tire:**
- Type: nondirectional, cross-country
  - Size 11.00 X 20
  - Air pressure 30 psi

**Major item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M27</td>
<td>4-20760-00</td>
<td>1440-588-8194</td>
</tr>
</tbody>
</table>

**General**
LAUNCHER, GUIDED MISSILE: M27, w/e, is a mobile, manually operated item of ground handling equipment. The launcher is designed to support the CORPORAL II artillery guided missile in the vertical position during final phases of preflight checks and during missile launching. The launcher is capable of being towed over relatively rough terrain. The launcher M27 consists of a launcher base assembly, two wheel and axle assemblies, four outrigger assemblies, four strut assemblies, turntable, speed decreaser gear assembly, blast shield, two maintenance platforms, air lines, and electrical system.

**Data plate location**
The identification plate is attached to the forward part of the base and to the left of the speed decreaser gear assembly.

**Classification**: Standard B (OTCM 36841).

**CHARACTERISTICS**

- Weight (with wheel and axle assemblies) 5,440 lb
- Length 11 ft, 8 in.
- Width 7 ft, 11 in.
- Height 10 ft, 10 in.
- Track 7 ft
- Lunette height above ground 3 ft, 2 in.
- Ground clearance (to bottom of base) 6 in.

**Performance**

**EQUIPMENT**
Basic Issue Items: See ORD 7 SNL Y-68.

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States
- Length 17 ft, 7 in.
- Width 8 ft, 11 in.
- Height 5 ft, 7½ in.
- Volume 577.3 cu ft
- Gross weight 6,595.0 lb
- Ship tons 48.1

Outside Continental United States

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

**Prime Mover**
Truck, 5-ton, 6 X 6

**References**: SNL Y-68, TM 9-5060-12, SM 9-5-1430, 40, 50.

19-162
RADAR SET: AN/MPQ-25, W/E
(ANTENNA GROUP: OA-651/MPQ-25; RADAR SET GROUP: OA-652/MPQ-25)

General
RADAR SET: AN/MPQ-25, w/e, consisting of ANTENNA GROUP: OA-651/MPQ-25; RADAR SET GROUP: OA-652/MPQ-25, is used for tracking the missile during flight and for sending command data to alter the missile trajectory.

ANTENNA GROUP: OA-651/MPQ-25, w/e, consisting of ANTENNA GROUP, RADAR TRACKING: OA-1177/MPQ-25: TRAILER, ANTENNA GROUP: M326,* serves as the radar tracking antenna group. The trailer XM326, a modification of the 40-mm antiaircraft gun carriage M2A1, mounts the radar tracking antenna by means of a pedestal adapter. The antenna pedestal consists of a 6-foot, dish-type reflector, a spinner motor-reference generator, and a circularly polarized antenna feed.

RADAR SET GROUP: OA-652/MPQ-25, w/e, consists of RADAR SET GROUP, ELECTRONIC COMPONENTS: SEMITRAILER, VAN, TRACKING STATION: M323,* and DOLLY, TRAILER CONVERTER: 8-ton, 2-wheel, K-85.* The semitrailer can be converted into a trailer by attaching the dolly or can be transported by a prime mover equipped with a suitable fifth wheel (coupler). The semitrailer M323 is equipped with four crank-operated leveling jacks and a crank-operated, manual, roll-back type landing gear. The electronic components of the radar set group are mounted in cabinets at the front, just aft of the drop, and in the extreme rear of the semitrailer. The trailer converter dolly K-83 consists of springs, wheels, hubs, and axle which are attached to the dolly frame. A semiautomatic fifth wheel (coupler) is bolted to the top of the dolly frame. A crank-operated landing gear is bolted to the rear of the dolly frame, and an adjustable drawbar is bolted to the front of the dolly frame.

Differences among models
Data plate location
The identification plate for the trailer M326 is attached to the top of the front chassis girder just aft of the front chassis swivel. The identification plate of the van of the semitrailer M323 is located on the inside of the van just to the rear of the right side door near the floor.

Classification: Standard B (OTCM 38841).

* Characteristics and data will be added at a later date.
CHARACTERISTICS—Continued

Radar set group—Continued

Floor to ground (loaded) ........................................ 3 ft. 3 in.
Tread:
   Center to center (dolly and semitrailer) .............. 6 ft. 7 in.
   Outside to outside .......................................... 7 ft. 10 1/2 in.
Ground clearance:
   Dolly .......................................................... 1 ft. 4 1/2 in.
   Semitrailer ..................................................... 1 ft. 6 1/2 in.
   Lunette eye to dolly axle ................................ .8 ft. 8 1/2 in.
   Dolly axle to semitrailer axle ......................... 15 ft. 6 1/2 in.
   Kingpin to semitrailer axle .............................. 16 ft. 1 1/2 in.
   Piston height (semitrailer) ............................... 2 ft. 5 in.
   Lunette eye (adjustable) ................................. 2 ft. 8 1/2 in. and 8 ft. 4 1/2 in.

PERFORMANCE

Antenna group:
   Maximum slope on which trailer can be leveled ........ 5 deg
   Diameter of circle of emplacement over trailer ....... 18 ft
   Diameter of circle of emplacement over outriggers ... 13 ft

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-58, ORD 7 SNL Y-58.

INSTRUCTIONAL MATERIAL

PRIME MOVER

Antenna group ....................................................... 5-ton, 4 x 4, tractor-truck
Radar set group .................................................... 5-ton, 4 x 4, tractor-truck

STORAGE AND SHIPMENT DATA

ANTENNA GROUP: OA-651/MPQ-25:
   Within Continental United States
   Shipped
   Length .........................................................
   Width ...........................................................

   Outside Continental United States
   Shipped
   Length .........................................................
   Width ...........................................................
   Height ...........................................................
   Volume ...........................................................
   Gross weight ...................................................
   Ship tons ....................................................... 1.24

Radar set group
   Within Continental United States
   Shipped
   Length .........................................................
   Width ...........................................................
   Height ...........................................................
   Volume ...........................................................
   Gross weight ...................................................
   Ship tons ....................................................... 57.9

   Outside Continental United States
   Shipped
   Length .........................................................
   Width ...........................................................
   Height ...........................................................
   Volume ...........................................................
   Gross weight ...................................................
   Ship tons ....................................................... 57.9

Reference:
RADIO SET (DOPPLER STATION): AN/MRQ-7

General

RADIO SET: AN/MRQ-7 calculates the radial velocity of the missile to determine the propellant shutoff time and the amount of range correction required. It transmits the propellant shutoff signal and a warhead-arming signal to the missile. It consists of a transmitting system, a receiving system, an audio system, a power supply system, an air-conditioning system, a communications system, test and calibration equipment, antennas, cable, and van trailer XM324.*

Differences among models

Data plate location

The trailer identification plate is mounted above the drawbar on the right front of the trailer.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Weight (gross) ........................................... 8,900 lb
Length .................................................. 16 ft, 2 in.
Width .................................................... 8 ft, 0 in.
Height .................................................... 8 ft, 1 in.
Tread (c/c) ............................................... 6 ft, 11½ in.
Ground clearance ......................................... 9½ in.
Floor to ground ......................................... 1 ft, 3½ in.
Floor area occupied ..................................... 125.9 sq ft

* For characteristics and data, see item in section.
SELECTOR, LAUNCHER CONTROL: AN/GSW-3
(Data to be published at a later date.)

General
Differences among models
Data plate location
Classification: Standard B (OTCM 3681).

CHARACTERISTICS
Weight
Length
Width
Height

PERFORMANCE

EQUIPMENT
Basic Issue Items: See ORD 7 SNL Y-54.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL Y-54.
SERVICING PLATFORM, TRUCK MOUNTED: M280, M280E1, W/E

General

SERVICING PLATFORM, TRUCK MOUNTED: M280 and M280E1, w/e, is a truck-mounted servicing vehicle for use with the GUIDED MISSILE, ARTILLERY: M2 and M2A1—The truck-mounted servicing platform M280 consists mainly of the servicing platform and a CHASSIS, TRUCK: 5-ton, 6 x 6, M39 (with body removed). The serving platform consists of structural and mechanical components, hydraulic system, intercommunication system, and lighting system. The structural and mechanical components consist of the servicing platform deck, outriggers, speed decreaser (reduction)-gearbox, azimuth-control platform, lower boom, upper boom, maintenance platform, elevating assembly, safety device, and maintenance platform leveling assembly.

Differences among models

The maximum lifting capacity of the M280 is 400 pounds. The maximum lifting capacity of the M280E1 is 600 pounds. The servicing platform M280's lockpin is raised for road travel and lowered for operation of the platform, while the M280E1 uses a shifting lever to operate the platform and to lock it in position for road travel. Other differences are covered under "CHARACTERISTICS" below.

Data plate location

The identification plate for the servicing platform M280E1 is located on the left-rear corner of the servicing platform, while the M280's identification plate is located on the right side of the azimuth weldment above the control valve.

Classification

<table>
<thead>
<tr>
<th>Model</th>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M280</td>
<td>4-39126-40</td>
<td></td>
<td>1430-568-5199</td>
</tr>
<tr>
<td>M280E1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHARACTERISTICS

Weight (excluding truck):

<table>
<thead>
<tr>
<th>Model</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>M280</td>
<td>7,038</td>
</tr>
<tr>
<td>M280E1</td>
<td>9,700</td>
</tr>
</tbody>
</table>

Height (overall, from ground)—Continued

<table>
<thead>
<tr>
<th>Model</th>
<th>ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>M280E1</td>
<td>11</td>
</tr>
</tbody>
</table>

Width (overall, outriggers retracted):

<table>
<thead>
<tr>
<th>Model</th>
<th>in</th>
</tr>
</thead>
<tbody>
<tr>
<td>M280E1</td>
<td>6</td>
</tr>
</tbody>
</table>

Maintenance platform:

<table>
<thead>
<tr>
<th>Model</th>
<th>ft, in</th>
</tr>
</thead>
<tbody>
<tr>
<td>M280E1</td>
<td>6 ft, 1 in</td>
</tr>
</tbody>
</table>

Height:

<table>
<thead>
<tr>
<th>Model</th>
<th>ft, in</th>
</tr>
</thead>
<tbody>
<tr>
<td>M280E1</td>
<td>3 ft, 4½ in</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 21 and page 19-151.
PERFORMANCE
Rotation (M280 and M280E1) ........................................ 360 deg

EQUIPMENT
Basic Issue Items: See ORD 7 SNL Y-67.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped
Length ..................................................... 35 ft, 9 in.
Width ...................................................... 8 ft
Height ..................................................... 12 ft, 6 in.

Shipped—Continued
Volume ..................................................... 3,160.0 cu ft
Gross weight .............................................. 27,650.0 lb
Ship tons ................................................... 78.8

Outside Continental United States

Shipped
Length .....................................................
Width ......................................................
Height .....................................................
Volume .....................................................
Gross weight .............................................
Ship tons ...................................................

TM 9-500

TRACK, SHIPPING CONTAINER AND HANDLING MISSILE: MI, W/E

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI</td>
<td></td>
<td>4-54513-00</td>
</tr>
</tbody>
</table>

General

TRACK, SHIPPING CONTAINER AND HANDLING MISSILE MI, w/e, is used to remove the missile body aft section from the metal container. The hanging rings engage the missile to provide 360 degrees rotation about the longitudinal axis of the supported missile body for checkout purposes.

Differences among models

Data plate location

Classification: Standard B (OTC 36842).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL Y-62.

INSTRUCTIONAL MATERIAL

OUTSIDE CONTINENTAL UNITED STATES

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Length</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3 ft, 3 in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 ft, 3 in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 ft, 7 in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>136.7 cu ft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,600 lb</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.4</td>
</tr>
</tbody>
</table>

REFERENCES: SNL Y-62.

19-169

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M268 (XM268E1)</td>
<td>4-01260-10</td>
<td>1450-508-8204</td>
</tr>
<tr>
<td>X-M268</td>
<td>4-01260-10</td>
<td>1450-532-6107</td>
</tr>
<tr>
<td>FUEL (ORD NO. 8028200)</td>
<td>4-31260-10</td>
<td>1450-572-5044</td>
</tr>
<tr>
<td>OXIDIZER (ORD NO. 8028199)</td>
<td>8028199</td>
<td>1450-573-3043</td>
</tr>
</tbody>
</table>

**General**

TRUCK, PROPELLANT SERVICING, GUIDED MISSILE: X-M268 OR M268 (XM268E1) W/PROPELLANT SERVICING KIT, GUIDED MISSILE: FUEL (ORD NO. 8028200) OR W/PROPELLANT SERVICING KIT, GUIDED MISSILE: OXIDIZER (ORD NO. 8028199) is used for transporting fuel or oxidizer and for filling the missile fuel or oxidizer tank. The propellant servicing truck consists of the propellant handling body and the CH-45 / CH-53, TRUCK: 4-ton, 6 x 6, M139. The propellant handling body is adaptable for use with either the fuel kit or the oxidizer kit. Either type of kit consists mainly of tanks, hoses, assemblies, and aprons.

**Differences among models**

**Data plate location**

The propellant servicing truck identification plate is located to the left of the spare tire well. The fuel tank identification plate is located on one of the stiffener rings on each fuel tank. The oxidizer tank identification plate is located on the stiffener on top of each oxidizer tank.

**Classification:**

X-M268 (XM268E1) - Standard B (OTCM 38441)

**CHARACTERISTICS**

Propellant servicing truck, X-M268:

- Weight (gross)...
- Weight w/four fuel tanks, empty...
- Weight w/four fuel tanks, full...
- Weight w/two oxidizer tanks, empty...
- Weight w/two oxidizer tanks, full...
- Length...
- Height...
- Width...

Propellant servicing truck, M268 (XM268E1):

- Weight (gross)...
- Weight w/four fuel tanks, empty...
- Weight w/four fuel tanks, full...
- Weight w/two oxidizer tanks, empty...
- Weight w/two oxidizer tanks, full...

*For characteristics and data, see item in section 21.

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL J-64, ORD 7 SNL J-739, Sec. 2a, and ORD 7 SNL J-789, Sec. 2a.

**INSTRUCTIONAL MATERIAL**

Graphic Training Aid: 9-25 (chassis M268).

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Cross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-170</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Cross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-170</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
M268 (XM268E1):

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>27 ft</td>
</tr>
<tr>
<td>Width</td>
<td>7 ft, 10½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>10 ft, 10 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2,291.0 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>24,240.0 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>57.3</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

**References:**

SNL J–739, Sec. 24; SNL J–739, Sec. 25; SNL Y–64; TM 9–5006, TM 9–5056–12.
BEAM, HANDLING, MISSILE CONTAINER: M5

### General

Data plate location

Classification: Limited Standard (OTCM 36374).

### Characteristic

<table>
<thead>
<tr>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-0108-10</td>
<td>1450-490-6094</td>
</tr>
</tbody>
</table>

### Equipment

**Storage and Shipment Data**

**Within Continental United States**
- Shipped 1 beam per container.
- Length: 166 in.
- Width: 28 in.
- Height: 15 in.
- Volume: 40 cu ft
- Gross weight: 770 lb
- Ship tons: 1.00

**Outside Continental United States**
- Shipped 1 beam per container.
- Length: 166 in.
- Width: 28 in.
- Height: 15 in.
- Volume: 40 cu ft
- Gross weight: 770 lb
- Ship tons: 1.00

References: SNL Y-98.
DECONTAMINATION KIT, GUIDED MISSILE: M74

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 3 units per pack.
Crate No. 1:
- Length: .48 in.
- Width: .26 in.
- Height: .53 in.
- Volume: .40 cu ft
- Gross weight: .300 lb
- Ship tons: 1.00

Chest No. 1:
- Length: .39³ in.
- Width: .24³ in.
- Height: .23³ in.
- Volume: .3 cu ft
- Gross weight: .150 lb
- Ship tons: .33

Box No. 1:
- Length: .57 in.
- Width: .17³ in.
- Height: .13¹ in.
- Volume: .8 cu ft
- Gross weight: .100 lb
- Ship tons: .02

Outside Continental United States
Shipped 3 units per pack.
Crate No. 1:
- Length: .
- Width: .
- Height: .
- Volume: .
- Gross weight: .
- Ship tons: .

Chest No. 1:
- Length: .
- Width: .
- Height: .
- Volume: .
- Gross weight: .
- Ship tons: .

Box No. 1:
- Length: .
- Width: .
- Height: .
- Volume: .
- Gross weight: .
- Ship tons: .

Major item

Model | Line item No. | Federal stock No.
--- | --- | ---
General | 4-11736-10 | 1450-337-9021

Differences among models

Classification: Standard B (OTCM 30841).

CHARACTERISTICS

EQUIPMENT

INSTRUCTIONAL MATERIAL

References: SNL Y–74.
DRAINING KIT, FUEL, GUIDED MISSILE: M72

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
<td>M72</td>
<td>4-12679-10</td>
<td>1450-337-9016</td>
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</tbody>
</table>

General

Differences among models

Data plate location

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 2 units per pack.

Box No. 1:
- Length: 37½ in.
- Width: 21 in.
- Height: 20 in.
- Volume: 9.10 cu ft
- Gross weight: 150 lb
- Ship tons: 0.23

Chest No. 1:
- Length: 39½ in.
- Width: 23½ in.
- Height: 24½ in.
- Volume: 12.90 cu ft
- Gross weight: 150 lb
- Ship tons: 0.33

Outside Continental United States

Shipped 2 units per pack.

Box No. 1:
- Length: ____________
- Width: ____________
- Height: ____________
- Volume: ____________
- Gross weight: ____________
- Ship tons: ____________

Chest No. 1:
- Length: ____________
- Width: ____________
- Height: ____________
- Volume: ____________
- Gross weight: ____________
- Ship tons: ____________

References: SNL Y-72.
DRAINING KIT, OXIDIZER, GUIDED MISSILE: M73

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
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</tr>
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<tbody>
<tr>
<td>General</td>
<td>4-12685-10</td>
<td>1450-337-9019</td>
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</tbody>
</table>

Differences among models

Data plate location

Classification: Standard B (OTCM 30841).

CHARACTERISTICS

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 2 units per pack.
Crane No. 1:
- Length: 69 1/2 in.
- Width: 23 1/2 in.
- Height: 16 1/2 in.
- Volume: 12.70 cu ft
- Gross weight: 190 lb
- Ship tons: 0.32

Outside Continental United States

Shipped 2 units per pack.
Crane No. 1:
- Length: 57 in.
- Width: 21 in.
- Height: 14 in.
- Volume: 9.70 cu ft
- Gross weight: 190 lb
- Ship tons: 0.24

References: SNL Y-73.

19-175
ELECTRONIC SHOP, TRUCK MOUNTED: AN/MPM-38 (SET A)
(Data to be published at a later date)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>CHARACTERISTICS</th>
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<tbody>
<tr>
<td>General</td>
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<td>EQUIPMENT</td>
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<tr>
<td>Differences among models</td>
<td></td>
<td></td>
<td>INSTRUCTIONAL MATERIAL</td>
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<tr>
<td>Data plate location</td>
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<td></td>
<td>STORAGE AND SHIPMENT DATA</td>
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<tr>
<td>Classification</td>
<td></td>
<td></td>
<td>References: SNL J-739, Sec. 26.</td>
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</table>

19-176
ELECTRONIC SHOP, SEMITRAILER MOUNTED: AN/MSM-45 (SET C)  
(SEMITRAILER AN/MSM-23, SET A; SEMITRAILER AN/MSM-24, SET B)

<table>
<thead>
<tr>
<th>Secondary item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>General</td>
<td>9-41575 (Temp.)</td>
<td>4935-621-5271</td>
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</table>

CHARACTERISTICS  
EQUIPMENT  
INSTRUCTIONAL MATERIAL  
STORAGE AND SHIPMENT DATA

References:  
ELECTRONIC SHOP, SEMITRAILER MOUNTED: AN/MSM-46 (SET D) (SEMITRAILER AN/MSM-21; SEMITRAILER AN/MSM-26) (Data to be published at a later date)

<table>
<thead>
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<th>Model</th>
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<tr>
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CHARACTERISTICS

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

References: SNL J-739, Sec. 29; TM 9-9510-1-45, TM 9-9510-2-45.
SHOP EQUIPMENT SET, GUIDED MISSILE-GROUND HANDLING-SERVICING, SEMITRAILER MOUNTED: SET B (SEMITRAILER XM499; SEMITRAILER XM500)

(Data to be published at a later date.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>CHARACTERISTICS</th>
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</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
<td></td>
<td>EQUIPMENT</td>
</tr>
<tr>
<td>Differences among models</td>
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<td></td>
<td>INSTRUCTIONAL MATERIAL</td>
</tr>
<tr>
<td>Data plate location</td>
<td></td>
<td></td>
<td>STORAGE AND SHIPMENT DATA</td>
</tr>
<tr>
<td>Classification</td>
<td></td>
<td></td>
<td>References: SNL J–739, Sec. 36; TM 9–9513–40, TM 9–9513–45.</td>
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</tbody>
</table>
SHOP SET, GUIDED MISSILE, FIELD MAINTENANCE: SET A
(Data to be published at a later date.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
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<tr>
<td>Differences among models</td>
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<td>Data plate location</td>
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<td>Classification</td>
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</table>

References: MIL-J-739, Sec. 30; TM 9-9514-40, TM 9-9514-45.
TEST STATION, GUIDED MISSILE, TRUCK MOUNTED: AN/MSM-4
(Data to be published at a later date.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>AN/MSM-4, w/e</td>
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<td>4935-968-8195</td>
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</tbody>
</table>

General

Differences among models

Data plate location

Classification

CHARACTERISTICS

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

References: SNL Y-56.
TEST STATION, GUIDED MISSILE, TRUCK MOUNTED: AN/MSM-12
(Data to be published at a later date.)
ARTILLERY GUIDED MISSILE SYSTEM—LACROSSE

GUIDED MISSILE, ARTILLERY: M4 .......................................................... 19-184
LAUNCHER, HELICAL RAIL, GUIDED MISSILE: truck mounted M398 .................. 19-185
MISSILE GUIDANCE CENTRAL, COMPUTING, TRUCK MOUNTING ...................... 19-186
TARGET RANGING SET, GUIDED MISSILE: w/installation frame, truck mounting .... 19-187
TRACKER, ANGULAR, GUIDED MISSILE: MX-3029/M, truck mounting, w/e ......... 19-188
TRUCK, CARGO: 5-ton, 6 x 6, M55
(For characteristics and data, see item in section 21.)
TRUCK WRECKER: crane, 2½-ton, 6 x 6, M108
(For characteristics and data, see item in section 21.)
GUIDED MISSILE, ARTILLERY: M4

General
GUIDED MISSILE, ARTILLERY: M4, provides general support in precision and area fire against targets such as pillboxes, blockhouses, or similarly constructed fortifications. It is also used for supporting fire on such targets as enemy troops, materiel, installations, and supply lines. The missile M4 is delivered to the assembly area in two separate containers: a metal, reusable CONTAINER, SHIPPING AND STORAGE, M471, FOR WARHEAD SECTION: M139 and a metal, reusable, CONTAINER, SHIPPING AND STORAGE, XM374, FOR MAIN ASSEMBLAGE, XM1 AND ROCKET MOTOR: XM10E1. The missile M4 consists of the warhead section, lock ring, pitot tube, wings, fins, tailcone, rocket motor section, beacon antennas, guidance and power section, and transponder antennas.

Differences among models
Data plate location
Classification: Limited production (OTCM 37547).

CHARACTERISTICS
GUIDED MISSILE, MAIN ASSEMBLAGE: XM1 (less rocket motor):

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M4</td>
<td>1410-624-4536</td>
<td></td>
</tr>
</tbody>
</table>

- **Weight:** 988 lb
- **Length:** 12 ft, 7½ in.
- **Diameter:** 1 ft, 8½ in.

CONTAINER, SHIPPING AND STORAGE, XM374, GUIDED MISSILE MAIN ASSEMBLAGE XM1 AND ROCKET MOTOR XM10E1:

- **Weight:** 1,525 lb
- **Length:** 15 ft, 2 in.
- **Width:** 3 ft, 5 in.
- **Depth:** 3 ft, 3 in.

Container, shipping and storage, M471 for warhead section M139:

- **Weight:** 650 lb
- **Length:** 8 ft
- **Width:** 3 ft
- **Depth:** 3 ft, 3 in.

Fin (span, tip to tip):

- **Weight:** 14 lb
- **Length:** 4 ft, 8½ in.

Missile (complete):

- **Weight:** 2,360 lb
- **Length:** 19 ft, 2 in.
- **Diameter:** 1 ft, 8½ in.

Motor, rocket:

- **Weight:** 832 lb
- **Length:** 8 ft, 6 in.
- **Diameter:** 1 ft, 4 in.
CHARACTERISTICS—Continued

WARHEAD SECTION, GUIDED MISSILE, HIGH-EXPLOSIVE:
M139 (T34E2):
Weight 540 lb
Length 6 ft, 7\(\frac{3}{4}\) in.
Diameter 1 ft, 8\(\frac{3}{4}\) in.
Wing (span, tip to tip):
Weight 37.5 lb
Length 9 ft

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-141(4DO)-12.

INSTRUCTIONAL MATERIAL

WARHEAD SECTION, GUIDED MISSILE, PRACTICE: M81
TRAINER, GUIDED MISSILE: M33
TRAINING-SET, GUIDED MISSILE: M50
TRAINER, GUIDED MISSILE MAIN ASSEMBLAGE:

STORAGE AND SHIPMENT DATA

WARHEAD SECTION, M139 (T34E2) GUIDED MISSILE HIGH EXPLOSIVE:

Within Continental United States

Shipped 1 warhead section per metal container.
Length


Width


Height


Volume


Gross weight


Ship tons


Outside Continental United States

Shipped 1 warhead section per metal container.
Length


Width


Height


Volume


Gross weight


Ship tons


References: TM 9-1410-400-10, TM 9-1410-400-12, TM 9-1410-34,

TM 9-1410-400-34/2.
General

LAUNCHER, HELICAL RAIL, GUIDED MISSILE—truck mounted M398, is an assembly platform, transports the assembled missile, and supports the missile during laying and firing. The launcher is mounted on a 2 1/2-ton, 6 x 6 truck chassis M45.* It consists of a work platform, launcher rail and tube assembly, sighting and laying equipment, storage compartments, hydraulic system, electrical system, and truck chassis M45. The launcher M398 can also be adapted so that the entire vehicle can be transported by air in certain cargo planes.

Differences among models

Data plate location

Classification: Standard B (OTCM 37828).

CHARACTERISTICS

Weight .......................... 16,000 lb
Length ................................ 21 ft, 11 in.
Width ................................ 7 ft, 10 in.
Height ................................ 9 ft, 8 in.

PERFORMANCE

Speed (continuous) on:
Gravel and Belgian block type road .................. 20 mph
Radial washboard and cross-country road .......... 15 mph
6-inch washboard road ................................ 3 mph

*For characteristics and data, see item in section 21

EQUIPMENT

Basic Issue Items: See TM 9-1440-400-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length .......................... 21 ft, 11 in.
Width ................................ 7 ft, 9 in.
Height ................................ 8 ft, 3 in.
Volume .................................. 1,424 cu ft
Gross weight .................................. 15,250 lb
Ship tons .................................. 35.6

Outside Continental United States

Shipped
Length .......................... 21 ft, 11 in.
Width ................................ 7 ft, 9 in.
Height ................................ 8 ft, 3 in.
Volume .................................. 1,424 cu ft
Gross weight .................................. 15,250 lb
Ship tons .................................. 35.6

References: TM 9-1440-400-12, TM 9-1440-400-34, SM 0-5-1430-40, 50.
MISSILE GUIDANCE CENTRAL, COMPUTING, TRUCK MOUNTING

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1430-780-5874</td>
</tr>
</tbody>
</table>

General

MISSILE GUIDANCE CENTRAL, COMPUTING, TRUCK MOUNTING: w/e, consists of the electrical cable assembly set, missile guidance computer, range indicator, interrogator set, power supply, electrical equipment rack, TRAILER, AMPHIBIOUS cargo, ½-ton, 2-wheel, M100, and TRUCK, UTILITY: ½-ton, 4 x 4, M38A1E2.* Missle guidance central group is one of two parts, the other part, TRACKER, ANGULAR GUIDED MISSILE: MX-3629-M, truck mounting of the MISSILE GUIDANCE CENTRAL, AN/MSW-5,** whose purpose is to search for, and acquire, the missile beacon signal; accurately track and maintain positive control over the missile directional path; and deliver the missile armed, to the target.

**For characteristics and data, see item in section 12 and on page 189.

**Characteristics and data will be added at a later date.

Weight:

- Electrical cable assembly set: ........................................ 13 lb
- Angular tracker to computer: ........................................ 13 lb
- Generator set to electronic power supply: ....................... 2 lb
- Interrogator set antenna (2): ...................................... 9 lb
- Main cable harness: .................................................. 16 lb
- Remote control unit: ............................................. 3 lb
- Cable reel (2): ...................................................... 11 lb
- Electronic power supply: ........................................ 49.4 lb
- Guidance computer: ............................................. 43.3 lb
- Range indicator: .................................................... 4 lb
- Interrogator set: .................................................. 49.3 lb

Dimensions:

- Electrical cable assembly set: .................................... 50 ft
- Angular tracker to computer: ..................................... 50 ft
- Generator set to electronic power supply: ....................... 50 ft
- Interrogator set antenna (2): ..................................... 50 ft
- Main cable harness: ............................................. 8 ft
- Remote control unit: ............................................. 8 ft
- Cable reel (2): ...................................................... 10 ft

Classification: Standard B (OTCM 37828).

Data plate location

Performance

- Electronic power supply:
  - Length: ......................................................... 1 ft, 8½ in.
  - Height: ......................................................... 9½ in.
  - Width: ......................................................... 1 ft, 1½ in.

- Guidance computer:
  - Length: ......................................................... 1 ft, 9½ in.
  - Height: ......................................................... 9½ in.
  - Width: ......................................................... 1 ft, 1½ in.

- Interrogator set:
  - Length: ......................................................... 1 ft, 8½ in.
  - Height: ......................................................... 9½ in.
  - Width: ......................................................... 1 ft, 1½ in.

- Range indicator:
  - Length: ......................................................... 1 ft, 8½ in.
  - Height: ......................................................... 9½ in.
  - Width: ......................................................... 1 ft, 1½ in.

Volume:

- Electrical cable assembly set: .................................... 4.8 cu ft
- Electronic power supply: ........................................ 1.5 cu ft
- Guidance computer: ............................................. 1.5 cu ft
- Range indicator: .................................................. 1.5 cu ft
- Interrogator set: .................................................. 1.5 cu ft

Equipment

Basic Issue Items: See TM 6-1430-450-12.

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped:

- Electrical cable assembly set: .................................... 2 ft, 7 in.
- Width: ......................................................... 1 ft, 4½ in.
- Height: ......................................................... 1 ft, 4½ in.
- Volume: ......................................................... 4.00 cu ft
- Gross weight: ................................................... 60.00 lb
- Ship tons: ...................................................... 0.10

19-187
## STORAGE AND SHIPMENT DATA—Continued

**Within Continental United States—Continued**

<table>
<thead>
<tr>
<th>Equipment Description</th>
<th>Dimensions</th>
<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Missile Guidance Computer, CP-453/MSW-5</strong></td>
<td>Length: 2 ft, 3 in</td>
<td>3.25 cu ft</td>
<td>71.00 lb</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Range Indicator, IP-478/T</strong></td>
<td>Length: 2 ft, 3 in</td>
<td>3.25 cu ft</td>
<td>68.00 lb</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Interrogator Set, AU/TP X-29</strong></td>
<td>Length: 2 ft, 3 in</td>
<td>3.25 cu ft</td>
<td>70.00 lb</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Power Supply, PP-2149/T</strong></td>
<td>Length: 2 ft, 3 in</td>
<td>3.25 cu ft</td>
<td>69.00 lb</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Electrical Equipment Rack</strong></td>
<td>Length: 4 ft, 8 in</td>
<td>30.00 cu ft</td>
<td>133.00 lb</td>
<td>0.75</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Equipment Description</th>
<th>Dimensions</th>
<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Missile Guidance Computer, CP-453/MSW-5</strong></td>
<td>Length: 2 ft, 3 in</td>
<td>3.25 cu ft</td>
<td>71.00 lb</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Range Indicator, IP-478/T</strong></td>
<td>Length: 2 ft, 3 in</td>
<td>3.25 cu ft</td>
<td>68.00 lb</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Interrogator Set, AU/TP X-29</strong></td>
<td>Length: 2 ft, 3 in</td>
<td>3.25 cu ft</td>
<td>70.00 lb</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Power Supply, PP-2149/T</strong></td>
<td>Length: 2 ft, 3 in</td>
<td>3.25 cu ft</td>
<td>69.00 lb</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Electrical Equipment Rack</strong></td>
<td>Length: 4 ft, 8 in</td>
<td>30.00 cu ft</td>
<td>133.00 lb</td>
<td>0.75</td>
</tr>
</tbody>
</table>

**References:** TM 9-1430-400-12, TM 9-1430-400-20P/1, SM 9-5-1430, 40, 50.
**TRACKER, ANGULAR, GUIDED MISSILE: MX-3029/M, truck mounting, w/e**

### General

Tracker, angular, guided missile: MX-3029/M truck mounting, w/e, consists of the guided missile angular tracker, gasoline engine generator set, battery charger, missile tracking antenna calibration test set, frequency calibration set, missile guidance equipment installation frame, and TRUCK, CARGO, ½ ton, 4 x 4, M37* guided missile angular tracker, MX-3029/M is one of two parts, the other part, MISSILE GUIDANCE CENTRAL, COMPUTING, TRUCK MOUNTING** of the MISSILE GUIDANCE CENTRAL, AN/MSSW-3** whose purpose is to search for, and acquire, the missile beacon signal; accurately track and maintain positive control over the missile directional path; and deliver the missile, armed, to the target.

### Differences among models:

Data plate location:

#### Classification:
Standard II (OTCM 37828).

### CHARACTERISTICS

#### Angular tracker:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX-3029/M</td>
<td>1-39765-10</td>
<td>1430-790-8476</td>
</tr>
</tbody>
</table>

**For characteristics and data, see item in section 21 and on page 19-187.**

**Characteristics and data will be added at a later date.**

### PERFORMANCE

#### INSTRUCTIONAL MATERIAL

### EQUIPMENT

<table>
<thead>
<tr>
<th><strong>EQUIPMENT</strong></th>
<th><strong>STORAGE AND SHIPMENT DATA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
<td>Within Continental United States</td>
</tr>
</tbody>
</table>

**Angular tracker:**
- Length: 4 ft, 1½ in.
- Width: 2 ft, 6½ in.
- Height: 2 ft, 5½ in.
- Volume: 27.00 cu ft
- Gross weight: 210.00 lb
- Ship tons: 0.67

**Installation frame:**
- Length: 4 ft, 2½ in.
- Width: 2 ft, 6½ in.
- Height: 2 ft, 6½ in.
- Volume: 33.00 cu ft
- Gross weight: 105.00 lb
- Ship tons: 0.60

**Missile tracking antenna calibration test set:**
- Length: 1 ft, 1½ in.
- Width: 1 ft, 10½ in.
- Height: 1 ft, 7½ in.
- Volume: 23.00 cu ft
- Gross weight: 118.00 lb
- Ship tons: 0.16

**Generator set:**
- Length: 1 ft, 2½ in.
- Width: 1 ft, 7½ in.
- Height: 1 ft, 7½ in.
- Volume: 6.00 cu ft
- Gross weight: 195.00 lb
- Ship tons: 0.15

**Battery chargers:**
- Length: 1 ft, 8½ in.
- Width: 1 ft, 3½ in.
- Height: 1 ft, 6 in.
- Volume: 3.75 cu ft
- Gross weight: 45.00 lb
- Ship tons: 0.09

**Frequency calibration set:**
- Length: 1 ft, 5½ in.
- Width: 1 ft, 1½ in.
- Height: 1 ft, 11½ in.
- Volume: 1.38 cu ft
- Gross weight: 15.00 lb
- Ship tons: 0.033

**For characteristics and data, see item in section 21 and on page 19-187.**

**Characteristics and data will be added at a later date.**

---

*Federal stock No. 1430-790-8476*
### Missile Tracking Antenna Calibration Test Set
- **Length**: 1 ft, 11 1/2 in.
- **Width**: 1 ft, 10 1/4 in.
- **Height**: 1 ft, 7 5/8 in.
- **Volume**: 6.00 cu ft
- **Gross Weight**: 118.00 lb
- **Ship Tons**: 0.15

### Generator Set
- **Length**: 2 ft, 2 5/8 in.
- **Width**: 1 ft, 7 5/8 in.
- **Height**: 1 ft, 7 5/8 in.
- **Volume**: 6.00 cu ft
- **Gross Weight**: 195.00 lb
- **Ship Tons**: 0.15

### Battery Charger
- **Length**: 1 ft, 8 3/8 in.
- **Width**: 1 ft, 3 1/2 in.
- **Height**: 1 ft, 6 1/2 in.
- **Volume**: 3.75 cu ft
- **Gross Weight**: 45.00 lb
- **Ship Tons**: 0.09

### Frequency Calibration Set
- **Length**: 1 ft, 5 1/4 in.
- **Width**: 1 ft, 7 1/8 in.
- **Height**: 1 ft, 7 1/8 in.
- **Volume**: 1.38 cu ft
- **Gross Weight**: 15.00 lb
- **Ship Tons**: 0.03

### References
- TM 9-1430-400-12, TM 9-1430-400-20P/2, SM 9-5-1430, 40, 50.
TARGET RANGING SET, GUIDED MISSILE: W/INSTALLATION FRAME, TRUCK MOUNTING

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-44974-10</td>
<td>1430-790-8475</td>
</tr>
</tbody>
</table>

General

TARGET RANGING SET, GUIDED MISSILE: w/installation frame, truck mounting, consists of the azimuth drive and tripod assembly, ranging unit assembly, and vest-type battery pack, and TRUCK, UTILITY: ¾-ton, 4 x 4, M38A1EU.* The target ranging set is a component of the missile guidance central and is designed to range with high accuracy against diffused ground targets. The target ranging set is used to determine slant range to a target and elevation angle information.

Differences among models

Data plate location

Classification: Standard B (OTCM 37838).

CHARACTERISTICS

Ranging unit:

- Weight: 80 lb
- Depth: 1 ft, 3 in.
- Height: 1 ft, 8 in.
- Width: 1 ft, 8 in.
- Cubic content: 2.9 cu ft

Power:

- Type of supply: battery
- Battery voltage: 28 volts nominal
- Type of duty: intermittent
- Capacity: 84 watt-minutes

Angular coverage:

- Elevation:
  - Upper limit: 2000 mils (-45 deg)
  - Lower limit: 5,887 mils (-30 deg)
- Azimuth coverage (continuous): 6,400 mile (360 deg)
- Leveling accuracy: 0.5 mils
- Transmitted beam width: 4 to 6 mils
- Receiver field of view: 1 to 16 mils

For characteristics and data, see item in section 21.

Performance

EQUIPMENT

Basic Issue Items: See TM 8-1430-406-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Installation frame:

- Within Continental United States
  - Shipped Length: 2 ft, 3¾ in.
  - Width: 2 ft, 7 in.
  - Height: 1 ft, 9¾ in.
  - Volume: 6.50 cu ft
  - Gross weight: 37.00 lb
  - Ship tons: 0.15

- Outside Continental United States
  - Shipped Length: 3 ft, 9¾ in.
  - Width: 2 ft, 7 in.
  - Height: 1 ft, 9¾ in.
  - Volume: 16 cu ft
  - Gross weight: 50 lb
  - Ship tons: 0.40

Target ranging set:

- Within Continental United States
  - Shipped Length: 3 ft, 3¾ in.
  - Width: 2 ft, 7 in.
  - Height: 1 ft, 9¾ in.
  - Volume: 6.50 cu ft
  - Gross weight: 37.00 lb
  - Ship tons: 0.15

- Outside Continental United States
  - Shipped Length: 3 ft, 9¾ in.
  - Width: 2 ft, 7 in.
  - Height: 1 ft, 9¾ in.
  - Volume: 16 cu ft
  - Gross weight: 50 lb
  - Ship tons: 0.40

ARTILLERY GUIDED MISSILE SYSTEM—REDSTONE
(Includes a guided missile; specially designed components of guided missile remote control systems; nonairborne guided missile launcher; a specially designed trailer for use in transporting guided missiles; and a specially designed A-frame and H-frame for guided missile handling and servicing.)
AIR SERVICER, GUIDED MISSILE, TRAILER MOUNTED: M483, W/E
ERECTOR-SERVICER, GUIDED MISSILE, TRUCK MOUNTED: M478, W/E
GENERATOR SET, DIESEL ENGINE, TRAILER MOUNTED: W/E
GUIDED MISSILE, BALLISTIC: M8, W/E
GUIDED MISSILE BATTERY SERVICING SHOP, TRAILER MOUNTED: M479, W/E
HYDROGEN PEROXIDE SERVICER, GUIDED MISSILE, TRUCK MOUNTED: M506, W/E
LAUNCHER, PLATFORM, GUIDED MISSILE: M74, W/E
POWER DISTRIBUTION STATION, GUIDED MISSILE SYSTEM, TRAILER MOUNTED: AN/MSQ-32, ¾-ton, 2-wheel, W/E
PROGRAMER-TEST STATION, GUIDED MISSILE TRUCK MOUNTED: AN/MSM-38, W/E
SEMIRAILER, LIQUID OXYGEN
SEMIRAILER, GUIDED MISSILE BODY SECTION, THRUST UNIT: M482, W/E
SEMIRAILER, GUIDED MISSILE BODY SECTION, WARHEAD UNIT: M481, W/E
SEMIRAILER, TANK, ALCOHOL: M388
TRAILER, GUIDED MISSILE BODY SECTION, AFT UNIT: M480, W/E
TRAILER, TANK:

TRANSPORTER, LIQUID NITROGEN
TRUCK, ACCESSORIES TRANSPORTATION: 2½ ton, 6 x 6 (ORD NO. 10369333), W/E
TRUCK, FIRE FIGHTING

(The equipment listed below is required to complete the SYSTEM. It includes maintenance, repair, and checkout equipment specially designed for use with guided missiles and guided missile remote control systems.)

MISSILE PROGRAMING DATA COMPUTER, TRUCK MOUNTED: AN/MJQ-1, W/E
PNEUMATIC SHOP, GUIDED MISSILE SYSTEM, TRUCK MOUNTED: M477, W/E
SEMIRAILER GUIDED MISSILE SUPPLY OFFICE: M484, w/e
SEMIRAILER MOUNTED GUIDED MISSILE STATION: AN/MSM-33
SEMIRAILER MOUNTED GUIDED MISSILE STATION: AN/MSM-41
TRAILER, GUIDED MISSILE REPAIR PARTS: M487, W/E
TRUCK, GUIDED MISSILE REPAIR PARTS, BULK MATERIAL: M486, W/E
TRUCK, GUIDED MISSILE REPAIR PARTS: M488, W/E
AIR SERVICER, GUIDED MISSILE, TRAILER MOUNTED: M483, W/E

General
AIR SERVICER, GUIDED MISSILE, TRAILER MOUNTED: M483, w/e, supplies regulated air pressure to the missile during pressure checkout, horizontal checkout, and vertical checkout. The air servicer M483 consists of the CHASSIS, TRAILER: generator, 2½-ton, 2-wheel, M200* and the housing, air storage bottles, inlet and distribution panel, control panel, and relief valves. The air servicer M483 receives 5,000-psi air from the air compressor truck and delivers regulated high-pressure air to the launcher valve box during missile checkout and to the liquid oxygen replenishing valve during the liquid oxygen replenishing operation.

Differences among models
Data plate location: The identification plate is attached to the control panel.
Classification: Standard B (OTCM 373-1)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,710 lb</td>
<td>14 ft</td>
<td>7 ft, 11 in</td>
<td>6 ft, 11 in</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 95

REFERENCES: TM 9-1450-1140-40, 50; TM 9-1450-350-14/6; TM 9-1450-350 21P 80
ERECTOR-SERVICER, GUIDED MISSILE, TRUCK MOUNTED: M478, W/E

**General**

ERECTOR-SERVICER, GUIDED MISSILE, TRUCK MOUNTED: M478, w/e, consists of a modified CHASSIS TRUCK: 21/2-ton, 6 x 6, M40 and the following equipment: tubular aluminum A-frame (jib pole) and H-frame, personnel elevator, two winches, servicing platform, hydraulic unit assembly, two chain hoists, and associated slings and cables. The A-frame functions as a boom to suspend two chain hoists and lifting slings for lifting and positioning the aft unit of the GUIDED MISSILE, BALISTIC: M8 to the warhead unit, for lifting and positioning the rotating frame assembly of the launcher M74 to the thrust unit of the missile M8, and for lifting and suspending the thrust unit for attachment to the body. The H-frame, which is attached to the launcher M74 and truck M40, provides stability between the two pieces of equipment and also serves as a boom for positioning and supporting the servicing platform and personnel elevator. Upon completion of missile assembly and horizontal testing, the missile M8 is attached to the launcher M74 and erecting cables, suspended from the equalizer pulley of the A-frame, are power is attached to the hoisting bolts at the forward end of the missile. Winch then applied, through the cable system and the A-frame, to erect the missile.

**Differences among models**

Data plate location

**Classification:** Standard B (OTCM 37331)

* For characteristics and data, see item in section 21 and on page 19-197.

**Characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (overall, with bumper winch)</td>
<td>20 ft. 5 in.</td>
</tr>
<tr>
<td>Length (overall, without bumper winch)</td>
<td>28 ft. 3 in.</td>
</tr>
<tr>
<td>Width (overall)</td>
<td>7 ft. 11 in.</td>
</tr>
<tr>
<td>Height (overall, fully loaded, estimated)</td>
<td>8 ft. 2 in.</td>
</tr>
</tbody>
</table>

**Performance**

**Equipment**


**Instructional Material**

**Shipment and Storage Data**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GENERATOR SET, DIESEL ENGINE, TRAILER MOUNTED: w/e**

**Storage and Shipment Data**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GENERATOR SET, DIESEL, TRAILER MOUNTED: w/e supplies electrical power through a relay box to the power distributor station. The generator set consists of a standard M200, 2-wheel trailer, heavy duty chassis and housing, diesel-driven 60-KW generator, console panel and accessories. The generator set provides power (120-volt, single-phase and 208-volt, 3-phase, 60-cycle power) to the distribution station.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Differences among models**

**Data Plate Locations**

<table>
<thead>
<tr>
<th>Classification</th>
<th>CHARACTERS (CTICS</th>
<th>PERFORMANCE</th>
<th>EQUIPMENT</th>
<th>INSTRUCTIONAL MATERIAL</th>
</tr>
</thead>
</table>

**References:**

**Shipped**

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>
GUIDED MISSILE, BALLISTIC: M8, W/E

CHARACTERISTICS

Weight:
- Assembled missile, empty: 16,000 lb
- Assembled missile, fueled: 66,710 lb
- Aft unit: 2,350 ± 40 lb

Thrust unit:
- Torque: 3,790 ± 70 lb
- Power: 7,870 ± 70 lb

Length:
- Missile (overall): 69 ft, 4 1/4 in.
- Warhead section: 18 ft, 8 1/4 in.
- Aft unit: 9 ft, 4 in.
- Thrust unit: 9 ft, 6 in.

Width:
- Aft unit (including air vanes): 8 ft, 8 in.
- Thrust unit (including air rudders): 9 ft, 10 in.
- Diameter (maximum):
  - Aft unit: 5 ft, 10 in.
  - Warhead section: 5 ft, 3 in.
  - Thrust unit: 5 ft, 10 in.

Aft unit trailer:
- Weight:
  - Empty: 6,020 lb
  - Loaded: 8,600 ± 40 lb
- Chassis: 4,600 lb
- Cover: 1,420 lb

Tire:
- Main:
  - Size: 9.00 x 20-8
  - Pressure:
    - Normal: 60 psi
    - Air travel: 25 psi
  - Landing gear:
    - Size: 4.00 x 8-6
    - Pressure:
      - Normal: 100 psi
      - Air travel: 30 psi

- Length: 18 ft, 4 in.
- Width: 8 ft
- Height: 8 ft, 10 in.

Warhead unit semitrailer:
- Weight:
  - Cover: 3,470 lb
  - Chassis: 8,290 lb
  - Empty: 11,760 lb
  - Loaded: 19,770 ± 70 lb
- Length: 21 ft
- Width: 8 ft
- Height: 8 ft, 10 in.

- Tire:
  - Main:
    - Size: 11.00 x 20-12
    - Pressure:
      - Normal: 75 psi
      - Air travel: 25 psi
    - Landing gear:
      - Size: 6.00 x 9-10
      - Pressure:
        - Normal: 100 psi
        - Air travel: 30 psi

Thrust unit semitrailer:
- Weight:
  - Cover: 3,630 lb
  - Chassis: 12,890 lb
  - Empty: 16,420 lb
  - Loaded: 22,700 ± 70 lb
- Length: 43 ft, 4 in.
- Width: 8 ft
- Height: 11 ft

- Tire:
  - Main:
    - Size: 11.00 x 20-12
    - Pressure:
      - Normal: 75 psi
      - Air travel: 35 psi
    - Landing gear:
      - Size: 6.00 x 9-10
      - Pressure:
        - Normal: 100 psi
        - Air travel: 30 psi

Federal stock No. 1410-629-9714

General

GUIDED MISSILE, BALLISTIC: M8, is a separable, inertially guided, liquid propellant missile designed for use by the field artillery. The missile ballistic shell consists of three major parts: the guided missile aft unit, thrust unit, and the warhead section. The aft unit has an instrument compartment which contains guidance and control equipment, and other pertinent instrumentation. The thrust unit contains the rocket engine and the liquid oxygen and alcohol tanks. The warhead section contains the payload compartment and the radar fuze.

Differences among models

Data plate location

Classification: Standard B (OTC 37334).
**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-1410-350-14/1.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Aft unit trailer:  
*Within Continental United States*

<table>
<thead>
<tr>
<th>Description</th>
<th>Inside Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 1 trailer uncrated.</td>
<td>Length: 15 ft, 4 in.</td>
<td>Length: 21 ft</td>
</tr>
<tr>
<td></td>
<td>Width: 8 ft</td>
<td>Width: 8 ft</td>
</tr>
<tr>
<td></td>
<td>Height: 8 ft, 10 in.</td>
<td>Height: 11 ft</td>
</tr>
<tr>
<td></td>
<td>Volume: 1,173 cu ft</td>
<td>Volume: 1,477 cu ft</td>
</tr>
<tr>
<td></td>
<td>Gross weight: 8,600 ± 40 lb</td>
<td>Gross weight: 19,770 ± 70 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons: 29.32</td>
<td>Ship tons: 36.9</td>
</tr>
</tbody>
</table>

**Aft unit trailer:**  
*Within Continental United States*

<table>
<thead>
<tr>
<th>Description</th>
<th>Length: 15 ft, 4 in.</th>
<th>Length: 21 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width: 8 ft</td>
<td>Width: 8 ft</td>
</tr>
<tr>
<td></td>
<td>Height: 8 ft, 10 in.</td>
<td>Height: 11 ft</td>
</tr>
<tr>
<td></td>
<td>Volume: 1,173 cu ft</td>
<td>Volume: 1,477 cu ft</td>
</tr>
<tr>
<td></td>
<td>Gross weight: 8,600 ± 40 lb</td>
<td>Gross weight: 19,770 ± 70 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons: 29.32</td>
<td>Ship tons: 36.9</td>
</tr>
</tbody>
</table>

**Thrust unit semitrailer:**  
*Within Continental United States*

<table>
<thead>
<tr>
<th>Description</th>
<th>Length: 43 ft, 4 in.</th>
<th>Length: 43 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width: 8 ft</td>
<td>Width: 8 ft</td>
</tr>
<tr>
<td></td>
<td>Height: 11 ft</td>
<td>Height: 11 ft</td>
</tr>
<tr>
<td></td>
<td>Volume: 3,109 cu ft</td>
<td>Volume: 3,109 cu ft</td>
</tr>
<tr>
<td></td>
<td>Gross weight: 22,700 ± 70 lb</td>
<td>Gross weight: 22,700 ± 70 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons: 77.7</td>
<td>Ship tons: 77.7</td>
</tr>
</tbody>
</table>

GUIDED MISSILE BATTERY SERVICING SHOP, TRAILER MOUNTED: M479, W/E

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M479</td>
<td>4-01040-01</td>
<td>1450-050-9611</td>
</tr>
</tbody>
</table>

**General**

GUIDED MISSILE BATTERY SERVICING SHOP, TRAILER MOUNTED: M479, w/e, is used for activating, testing, and booster-charging batteries for the guided missile M8. The battery servicing shop M479 consists of a unmodified trailer chassis and the following: battery servicing trailer housing, battery servicing center, battery servicing trays, battery charging center, electrolyte bottles, batteries, and miscellaneous battery servicing equipment.

**Differences among models**

Data plate location

Classification: Standard B (OTCM 37334)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>2,480 lb</td>
</tr>
<tr>
<td>Volume</td>
<td>680.35 cu ft</td>
</tr>
<tr>
<td>Length</td>
<td>12 ft, 2½ in</td>
</tr>
<tr>
<td>Width</td>
<td>6 ft, 2½ in</td>
</tr>
<tr>
<td>Angle of departure</td>
<td>45 deg</td>
</tr>
<tr>
<td>Side slope (max.)</td>
<td>20 percent</td>
</tr>
<tr>
<td>Height</td>
<td>8 ft, 1½ in</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

Speed, towing:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Speed (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved roads</td>
<td>35 mph</td>
</tr>
<tr>
<td>Unimproved roads</td>
<td>20 mph</td>
</tr>
</tbody>
</table>

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>12 ft, 2½ in</td>
</tr>
<tr>
<td>Width</td>
<td>6 ft, 2½ in</td>
</tr>
<tr>
<td>Height</td>
<td>8 ft, 1½ in</td>
</tr>
<tr>
<td>Volume</td>
<td>680.3 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>3,160 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>17.01</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>12 ft, 2½ in</td>
</tr>
<tr>
<td>Width</td>
<td>6 ft, 2½ in</td>
</tr>
<tr>
<td>Height</td>
<td>8 ft, 1½ in</td>
</tr>
<tr>
<td>Volume</td>
<td>680.3 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>3,160 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>17.01</td>
</tr>
</tbody>
</table>

**References:**

HYDROGEN PEROXIDE SERVICER, GUIDED MISSILE SYSTEM TRUCK MOUNTED: M506

General
HYDROGEN PEROXIDE SERVICER, GUIDED MISSILE SYSTEM, TRUCK MOUNTED: M506, is used to store, transport, and distribute hydrogen peroxide used for the missile operation. The hydrogen peroxide servicer M506 consists of a modified 3-ton, 4 x 4, M37 cargo truck and the following equipment: a monorail supported by A-frames; a chainfall assembled to the monorail; a gasoline fired heating system and the liquid nitrogen cooling system; an electric motor and pump assembly; an outflow tank; a 50-foot electric power cable; and all necessary fittings and hose.

Differences among models

<table>
<thead>
<tr>
<th>Classification</th>
<th>CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>Empty</td>
<td>7,197</td>
</tr>
<tr>
<td>Loaded</td>
<td>8,263</td>
</tr>
<tr>
<td>Length</td>
<td>17 ft, 10¾ in.</td>
</tr>
<tr>
<td>Width</td>
<td>6 ft, 10 in.</td>
</tr>
<tr>
<td>Height</td>
<td>9 ft, 3 in.</td>
</tr>
<tr>
<td>Angle of approach</td>
<td>38 deg</td>
</tr>
<tr>
<td>Angle of departure</td>
<td>32 deg</td>
</tr>
</tbody>
</table>

Tire:
- Size: 9.00 x 16
- Ply: 8
- Turning radius: 25 ft

PERFORMANCE

EQUIPMENT
Basic Issue Items: See TM 9-1450-350-14/1.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Within Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 1 hydrogen peroxide servicer uncrated</td>
</tr>
<tr>
<td>Length: 17 ft, 10¾ in.</td>
</tr>
<tr>
<td>Width: 6 ft, 1¾ in.</td>
</tr>
<tr>
<td>Height: 9 ft, 3 in.</td>
</tr>
<tr>
<td>Volume: 1013.9 cu ft</td>
</tr>
<tr>
<td>Gross weight: 7,197 lb</td>
</tr>
<tr>
<td>Ship tons: 25.35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 1 hydrogen peroxide servicer uncrated</td>
</tr>
<tr>
<td>Length: 17 ft, 10¾ in.</td>
</tr>
<tr>
<td>Width: 6 ft, 1¾ in.</td>
</tr>
<tr>
<td>Height: 9 ft, 3 in.</td>
</tr>
<tr>
<td>Volume: 1013.9 cu ft</td>
</tr>
<tr>
<td>Gross weight: 7,197 lb</td>
</tr>
<tr>
<td>Ship tons: 25.35</td>
</tr>
</tbody>
</table>

LAUNCHER, PLATFORM, GUIDED MISSILE: M74, W/E

General
LAUNCHER, PLATFORM, GUIDED MISSILE: M74, W/E, supports the GUIDED MISSILE, BALLISTIC: M8 during vertical checkout, propellant filling, launching preparation, and missile firing. The platform launcher consists of a rotating frame assembly, a body assembly, and four adjustable jack assemblies. In the launching position, the missile rests vertically on four fin support pads located 90 degrees apart on the rotating frame. The body assembly supports the rotating frame. The jack assemblies level the body assembly during missile erection, the rotating frame (which is attached to the guided missile M8 in its initial horizontal position just before erection) and missile pivot onto the launcher body. Attached to the platform launcher M74 are two snubber cylinders, which have a yoke on the end of each piston rod, whose purpose is to gently lower the guided missile M8 onto the launcher.

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M74</td>
<td>4-20770-01</td>
<td>1440-629-9094</td>
</tr>
</tbody>
</table>

**Difference among models**

- Data plate location
- Classification: Standard B (OTCM 37334).

**PERFORMANCE**

**CHARACTERISTICS**
- Weight: 6,400 lb
- Length (traveling position): 15 ft

For characteristics and data, see item on page 19-197.

**EQUIPMENT**


**STORAGE AND SHIPMENT DATA**

Within Continental United States
- Length: 15 ft
- Width: 9 ft, 9 1/4 in
- Height: 4 ft, 8 1/4 in
- Volume: 679.5 cu ft
- Gross weight: 6,720 lb
- Ship ton: 17.44

Outside Continental United States
- Length: 15 ft
- Width: 9 ft, 9 1/4 in
- Height: 4 ft, 8 1/4 in
- Volume: 697.5 cu ft
- Gross weight: 6,720 lb
- Ship ton: 17.44

**REFERENCES:**
POWER DISTRIBUTION STATION, GUIDED MISSILE SYSTEM,
TRAILER MOUNTED: M101 (AN/MSQ-32) 3/4-TON, 2-WHEEL, W/E

- **Major item**
  - **Model**: M101
  - **Line item No.**: 4-30680-01
  - **Federal stock No.**: 4450-000-7289

**General**

POWER DISTRIBUTION STATION, GUIDED MISSILE SYSTEM,
TRAILER MOUNTED: M101 (AN/MSQ-32), 3/4-ton, 2-wheel, w/e,
receives 208-volt, 60-cycle, 3-phase power from the generator trailer,
converts it to usable voltages and frequencies, and distributes it to
other ground equipment and to the missile. The trailer consists of the chassis,
pallet, and cover. The pallet, to which the equipment is attached, can be
removed from the chassis by disconnecting the bolts which hold it to the
chassis. The cover, in turn, can be lifted off the pallet by disconnecting 12
eyebolts, providing easy access to the interior components. The trailer
contains the receptacle box, main junction box, lightning and generator panel,
power console, telephone box, inverter console, electrical harness, runway
heater control box, 400-cycle inverter, and interior equipment.

**Differences among models**

Data plate location

The identification plate is riveted to the left (road) side panel of the body
near the front.

**Classification**: Standard B (OTCM:3731)

**CHARACTERISTICS**

- **Weight**
  - w/o equipment: 1,500 lb
  - w/ equipment: 3,500 lb

- **Length**: 12 ft 4 in
- **Width**: 6 ft 5 in
- **Height**: 8 ft 2 in
- **Ground clearance (min)**: 1 ft 2 in
- **Angle of departure**: 45 deg

**PERFORMANCE**

- **Speed (towed)**
  - Improved roads: 33 mph
  - Unimproved roads: 20 mph

- **Slope operation (max)**: 20 percent

**EQUIPMENT**

Basic Issue Items: See TM 9-1150-350-14/3.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

- **Within Continental United States**
  - **Shipped**: 12 ft 4 in
  - **With**: 6 ft 5 in
  - **Height**: 8 ft 2 in
  - **Volume**: 640.7 cu ft
  - **Gross weight**: 3,500 lb
  - **Ship tons**: 16.17

- **Outside Continental United States**

**References**: TM 9-1450-350-14, TM 9-1450-350-24/P/3

**19-202**
PROGRAMER-TEST STATION, GUIDED MISSILE TRUCK MOUNTED: AN/MSM 38, W/E

Model | Line item No. | Federal stock No. |
--- | --- | --- |
AN/MSM 38 | 4-31129-01 | 1490-690-7388 |

**General**

PROGRAMER-TEST STATION, GUIDED MISSILE TRUCK MOUNTED: AN/MSM 38, w/e, provides mobile facilities for testing missile electrical circuits prior to the flight of the GUIDED MISSILE, BALLISTIC M8.* Furthermore, the programer-test station is used to set up the missile guidance circuits according to the predetermined trajectory. After the preflight check has been completed, missile control is transferred to a remote location and the programer-test station is withdrawn from the firing area. The programer-test station AN/MSM 38 consists of a truck, van, shop, 2½-ton, 6 x 6, (modified) and the following equipment: control and test panels, program device console, and communications and frequency control console which are installed; flight simulator box, booster serve interrupter box, portable lamp, multimeter, insulation tester, ST-80 load box, and remote firing box which are carried in the installed consoles; and the relay box and ground equipment test fixture which are in the vestibule of the van.

**Differences among models**

**Data plate location**

| Classification: Standard B (OTCM 37334). |

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Angle of approach</td>
</tr>
<tr>
<td>Angle of departure</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item on page 19-107.

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-1430-350-14/1.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

**References:** TM 9-1430-350-14/1, TM 9-1430-350-14/2, TM 9-1430-350-24P/2.
SEMIMTRAILER, LIQUID OXYGEN

SEMIMTRAILER, LIQUID OXYGEN is a 2-wheel, standard tank-type vehicle with a liquid-oxygen capacity of 9 tons. It is designed to transport liquid oxygen from the storage area to the launching site, and to transfer liquid oxygen to the Redstone missile. The liquid oxygen transfer equipment is mounted in a closed compartment at the rear of the tank. Initial filling of the missile tanks at the launching site and final topping to replace evaporation losses are accomplished from the semitrailer. A TRUCK, TRACTOR, 5-ton, 6 x 6, M52 serves as the prime mover for the semitrailer. The semitrailer weighs 35,040 pounds when loaded.

Differences among models

Data plate location
Classification
CHARACTERISTICS
PERFORMANCE
EQUIPMENT

* For characteristics and data, see item in section 21.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References:
SEMITRAILER, GUIDED MISSILE BODY SECTION, THRUST UNIT: XM482, W/E

General

SEMITRAILER, GUIDED MISSILE BODY SECTION, THRUST UNIT: XM482, w/e is a 2-wheel, single axle, van type semitrailer designed to provide transportation and storage for the missile thrust unit and those missile components which are installed at the firing site. The base of the assembly is of standard construction and contains a rubber-lined saddle, a hold down clamp, and bolt-receiver which secure the thrust unit while in transit. Four jacks equipped with casters are used to lift and remove the cover assembly from the semitrailer base. A TRUCK, TRACTOR: 5-ton, 6 x 6, M52a serves as a prime mover for the semitrailer. The weight of the semitrailer when loaded is 18,927 pounds.

Differences among models

Data plate location

Classification: Standard B (OTCM 37334)

CHARACTERISTICS

PERFORMANCE

* For characteristics and data, see item in section 21.

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XM482</td>
<td></td>
<td>1450-629-9834</td>
</tr>
</tbody>
</table>

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 ft, 4 in.</td>
<td>8 ft</td>
<td>10 ft, 11 3/4 in.</td>
<td>3109 cu ft</td>
<td>18,927 lb</td>
<td>77.72</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: TM 9-1410-350-14/1, TM 9-1410-350-24P/1, TM 9-1450-350-14/2
SEMITRAILER, GUIDED MISSILE BODY SECTION, WARHEAD UNIT: M481, W/E

SEMITRAILER, GUIDED MISSILE BODY SECTION. WARHEAD UNIT: M481, w/e is a 2-wheel, single axle, van type semitrailer designed to provide transportation and storage for the warhead unit, heater-cooler boom and small on-missile explosive accessories. The base assembly is of standard frame construction and contains a rubber-lined saddle, hold-down clamp, and bolt receiver supports which secure the warhead unit while in transit. Four jacks equipped with casters are used to lift and remove the cover assembly from the semitrailer base. Storage compartments, accessible from the outside are provided for the jack tubes, jack bodies and jack casters. Explosive items are stored in a box located inside the semitrailer. A 24-ton 6 x 6 truck tractor serves as a prime mover for the semitrailer. The weight of the semitrailer loaded is 17,660 pounds.

Differences among models

Data plate location

Classification: Standard B (OTCM 57334).

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21 ft</td>
<td>8 ft</td>
<td>8 ft</td>
<td>11,760 lb</td>
<td>36.92</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21 ft</td>
<td>8 ft</td>
<td>8 ft</td>
<td>11,760 lb</td>
<td>36.92</td>
</tr>
</tbody>
</table>

SEMITRAILER, TANK ALCOHOL: M388

General

SEMITRAILER, TANK ALCOHOL: M388, is a 2-wheel, 3,000-gallon, tank-type vehicle designed to transport fuel from the storage area to the launching site and to fill, recirculate, or drain fuel as required at the launching site. The semitrailer consists of an aluminum, elliptically-shaped, one-compartment tank, and undercarriage, a pumping compartment, and a heater system. The fuel-transfer equipment is located at the rear of the tank and provides for metering, filtering, and transferring the fuel to the missile. A 1-inch thick rubber insulation covers the entire aluminum tank with the exception of the pumping compartment. The pumping compartment contains a stainless steel tank for fuel and two pumping units. A TRUCK, TRACTOR: 5-ton, 6 x 6, M52 serves as a prime mover for the semitrailer. The semitrailer weighs 24,300 pounds when loaded.

Differences among models

Data plate location

Classification: Standard B (OTCM 17334).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Capacity: Alcohol tank</th>
<th>3,000 gal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inert tank</td>
<td>20 gal</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 26 ft, 4½ in.
Width: 8 ft, 3¼ in.
Height: 8 ft, 4 in.
Volume: 1,779 cu ft
Gross weight: 29,290 lb
Ship tons: 44-45

Outside Continental United States

Shipped
Length: 24 ft, 4½ in.
Width: 8 ft, 3¼ in.
Height: 8 ft, 4 in.
Volume: 1,779 cu ft
Gross weight: 29,290 lb
Ship tons: 44-45


a For characteristics and data, see item in section 21.
TRAILER, GUIDED MISSILE BODY SECTION, AFT UNIT: M480, W/E

General
TRAILER, GUIDED MISSILE BODY SECTION, AFT UNIT: M480, w/e is a 2-wheeled, single axle, van type vehicle designed to provide transportation and storage for the aft unit. The hose assembly consists of a standard frame construction that contains a rubber-lined cradle and a hold-down band to secure the aft unit while in transit. Four jacks equipped with casters are used to lift and remove the cover assembly from the trailer hose. Storage compartments and brackets for the jack bodies and jack casters are located on the floor of the trailer. An access door in the floor plate permits adjustment of the serve-junction box in the aft unit while the unit is in position on the trailer. A TRUCK: 2½ ton, 6 x 6 serves as a prime mover for the trailer. The weight of the trailer loaded is 6,390 pounds.

Differences among models

Data plate location

Classification: Standard B (OTCM 37334).

CHARACTERISTICS

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>M480</td>
<td>4-57415-01</td>
<td>1450-629-9610</td>
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</table>

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ft 4 in</td>
<td>8 ft</td>
<td>8 ft 9 1/2 in</td>
<td>1173.00 cu ft</td>
<td>6,390 lb</td>
<td>29.32</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 ft 4 in</td>
<td>8 ft</td>
<td>8 ft 9 1/2 in</td>
<td>1173.00 cu ft</td>
<td>6,390 lb</td>
<td>29.32</td>
</tr>
</tbody>
</table>

TRAILER TANK
(Data to be published at a later date)

| Line item No. | Federal stock No. | General
| Differences among models | Data plate location | Classification |

STORAGE AND SHIPMENT DATA

**Within Continental United States**

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**Outside Continental United States**

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References:

References:
TRANSPORTER, LIQUID NITROGEN
(Data to be published at a later date)

Model | Line item No. | Federal stock No. | STORAGEd AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References:
**Model** | **Line item No.** | **Federal stock No.**
--- | --- | ---
**General** | TRUCK, ACCESSORIES TRANSPORTATION: 21/2 ton, 6 x 6 (ORD NO. 10369333), W/E, provides transportation for accessories which include the majority of interconnecting cables, fueling accessories, launch accessories, handling equipment, missile system test equipment, and a gas-fired portable heater which are essential to the preparation and firing of the ballistic guided missile M8. The accessories truck is a modified TRUCK, CARGO: 21/2 ton, 6 x 6, M35*. One truck hauls load A (fueling accessories container, AC distribution box and door holder container, launch accessories and LOX filter accessories container, pressurization kit container, LOX fill hoses container, valve box and accessories container, pressurization kit container, ST-80 handling accessories container, multiple test jumper container, cable support brackets container, protective boots container, and protective helmet-equipment containers), and the other truck hauls load B (ST-80 handling equipment, heater and trailer, platforms, ladders, stands, LOX vent conduit and flexible pipe, ground rods, door holders, alcohol hose, calibration probes, cable reel stands and cable reels).

Differences among models

Data plate location

Classification

**CHARACTERISTICS**

**PERFORMANCE**

* For characteristics and data, see item in section 3.

---

**EQUIPMENT**

Basic Issue Items: See TM 9-1450-350-14/5.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Load A plus vehicle</th>
<th>Load B plus vehicle</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36 ft</td>
<td>8 ft</td>
<td>9 ft, 4 in.</td>
<td>2,087 cu ft</td>
<td>15,765 lb</td>
<td>14,086 lb</td>
<td>67.2</td>
<td></td>
</tr>
</tbody>
</table>

*Outside Continental United States*

<table>
<thead>
<tr>
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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Load A plus vehicle</th>
<th>Load B plus vehicle</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36 ft</td>
<td>8 ft</td>
<td>9 ft, 4 in.</td>
<td>2,087 cu ft</td>
<td>15,765 lb</td>
<td>14,086 lb</td>
<td>67.2</td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, FIRE FIGHTING
(Data to be published at a later date)

<table>
<thead>
<tr>
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<th>Federal stock No.</th>
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<tbody>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Differences among models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data plate location</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CHARACTERISTICS

### PERFORMANCE

### EQUIPMENT

### INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

#### Within Continental United States

- **Shipped**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

#### Outside Continental United States

- **Shipped**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

References:
MISSILE PROGRAMING DATA COMPUTER, TRUCK MOUNTED: AN/MJQ-1, W/E
(Data to be published at a later date)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>CHARACTERISTICS</th>
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<tbody>
<tr>
<td>General</td>
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<td>EQUIPMENT</td>
</tr>
<tr>
<td>Differences among models</td>
<td></td>
<td></td>
<td>INSTRUCTIONAL MATERIAL</td>
</tr>
<tr>
<td>Data plate location</td>
<td></td>
<td></td>
<td>STORAGE AND SHIPMENT DATA</td>
</tr>
</tbody>
</table>
PNEUMATIC SHOP, GUIDED MISSILE SYSTEM, TRUCK MOUNTED: M477, W/E

Secondary item

Model | Line item No. | Federal stock No.
--- | --- | ---
M477 | 4-30445-01 | 4935-629-9600

General: PNEUMATIC SHOP, GUIDED MISSILE SYSTEM, TRUCK MOUNTED: M477, W/E is a basic TRUCK; 21/2-ton, 6 x 6, M109 modified to transport and store the equipment required to test and repair pneumatic systems components. The pneumatic shop contains a checkout bench consisting of an electrical and pneumatic compartment, a control well, a holding-fixture test well, and drawers for storing special test fixtures and fittings. The electrical and pneumatic compartment contains components which provide electrical power and air pressure to the control panel during test operations.

Differences among models

Data plate location

Classification: Standard B (OTCM 37334)

CHARACTERISTICS

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 22 ft. 4 in.
Width: 8 ft. 6 in.
Height: 9 ft. 8 in.
Volume:
Gross weight: 22,185 lb
Ship tons:

SEMIRAILER, GUIDED MISSILE SUPPLY OFFICE: M484, W/E

General

SEMIRAILER, GUIDED MISSILE SUPPLY OFFICE: M484, w/e, is a 3-ton, two-wheel, semitrailer designed to store and transport the necessary files and clerical equipment used to maintain repair parts records for the Redstone missile. Located along one wall of the semitrailer is a bookcase, a repair parts record file, a repair basket rack, a graph-o-type embossing machine, and a heater compartment. Along the opposite wall are four Kardex file cabinets, a bookcase, and an addresograph plate storage cabinet, and a classified file. A TRUCK, TRACTOR: 5-ton, 6 x 6, M52M serves as a prime mover.

Differences among models

Data place location

Classification: Standard B (OTCM 37334)

CHARACTERISTICS

Weight: 
Length: 
Width: 
Height: 

* For characteristics and data, see item in section 21.

Basic Issue Items

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 
Width: 
Height: 
Volume: 
Gross weight: 
Ship tons: 

Outside Continental United States

Shipped
Length: 
Width: 
Height: 
Volume: 
Gross weight: 
Ship tons: 

References: TM 9-1450-350-14/2.
### SEMITRAILER MOUNTED GUIDED MISSILE STATION: AN/MSM-33

**Model:** AN/MSM-33

**General**

SEMITRAILER MOUNTED GUIDED MISSILE STATION: AN/MSM-33 is a 3-ton, 2-wheel van designed to transport and store the equipment required to functionally test the control computer, the control relay box, the actuator, and the inverter. A power panel and receptacle, an energizer, and inverter, and a static de power supply are contained in the semitrailer to supply power and perform tests on related components. The auxiliary equipment contained in the semitrailer includes air conditioning and heating systems, cable reel storage boxes, and equipment access doors. A TRUCK, TRACTOR: 5-ton, 6 x 6, M52* serves as a prime mover for the semitrailer.

* For characteristics and data, see item in section 21.

---

<table>
<thead>
<tr>
<th>Model</th>
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**Data plate location**

**Classification**

**CHARACTERISTICS**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Semitrailer Mounted Guided Missile Station: AN/MSM-41**
(Data to be published at a later date)

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<td>Differences among models</td>
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### CHARACTERISTICS

#### EQUIPMENT

#### INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

**Within Continental United States**

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<th>Shipped</th>
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<th>Gross weight</th>
<th>Ship tons</th>
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**Outside Continental United States**

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<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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References: TM 9-4935-350-14/1.
TRAILER, GUIDED MISSILE REPAIR PARTS: M487, W/E

Major item

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<td>1450-629-9669</td>
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General

Differences among models

Data plate location

Classification: Standard B (OTCM 3734)

CHARACTERISTICS

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length.............................................. 13 ft. 10 in.
Width............................................... 6 ft. 11 in.
Height.............................................. 9 ft. 4 in.
Volume............................................. 868.00 cu ft
Gross weight..................................... 2,640 lb
Ship tons.......................................... 21.7

Outside Continental United States

Shipped
Length............................................... 13 ft. 10 in.
Width............................................... 6 ft. 11 in.
Height.............................................. 9 ft. 4 in.
Volume............................................. 868.00 cu ft
Gross weight..................................... 2,640 lb
Ship tons.......................................... 21.7

TRUCK, GUIDED MISSILE REPAIR PARTS, BULK MATERIAL: M486, W/E

General

TRUCK, GUIDED MISSILE REPAIR PARTS, BULK MATERIAL: M486, W/E is a modified TRUCK, CARGO: 2½-ton, 6 x 6. M35A2 designed for store and transport packaging and preservation materials. This truck is equipped with a detachable housing assembly, rack assemblies, a work bench, and storage cabinets. The truck also contains the necessary facilities for properly preserving and storing parts of the Redstone missile.

Differences among models

Data plate location

Classification: Standard B (OTCM 37334)

CHARACTERISTICS

EQUIPMENT

INSTRUCTIONAL MATERIAL

* For characteristics and data, see item in section 21

<table>
<thead>
<tr>
<th>Major item</th>
<th>Storage and shipment data</th>
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STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped:
- Length: 22 ft. 4½ in.
- Width: 8 ft. 3½ in.
- Height: 9 ft. 6½ in.
- Volume: 1770 cu ft
- Gross weight: 12,460 lb
- Ship tons: 4.25

Outside Continental United States

Shipped:
- Length: 22 ft. 4½ in.
- Width: 8 ft. 3½ in.
- Height: 9 ft. 6½ in.
- Volume: 1770 cu ft
- Gross weight: 12,460 lb
- Ship tons: 4.25

References:

19-219
TRUCK, GUIDED MISSILE REPAIR PARTS: M488, W/E

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**General**

Differences among models

Data plate location

Classification: Standard B (OTCM 37334).

**CHARACTERISTICS**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA:**

**Within Continental United States**

Shipped

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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 ft, 4 3/4 in.</td>
<td>8 ft, 3 1/4 in.</td>
<td>9 ft, 6 1/4 in.</td>
<td>1770 cu ft</td>
<td>15,600 lb</td>
<td>44.25</td>
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**Outside Continental United States**

Shipped

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<th>Volume</th>
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</tbody>
</table>

References:
HONEST JOHN ROCKET SYSTEM

(Includes rockets; launchers; specially designed trailer for use in transporting rocket; and rocket handling and servicing equipment.)

CART ASSEMBLY, TRANSPORT, 762-MM ROCKET: M465

HANDLING UNIT, 762-MM ROCKET, TRAILER MOUNTED: M405 W/E and M405A1

HEATING AND TIEDOWN UNIT, 762-MM ROCKET, TRUCK MOUNTED: M46

HEATING AND TIEDOWN UNIT, 762-MM ROCKET, TRUCK-MOUNTED: M78 and M78A1

LAUNCHER, 762-MM ROCKET: M33
(For characteristics and data, see item in section 7.)

LAUNCHER, 762-MM ROCKET, TRUCK-MOUNTED: M289
(For characteristics and data, see item in section 7.)

LAUNCHER, 762-MM ROCKET, TRUCK-MOUNTED: M386
(For characteristics and data, see item in section 7.)

ROCKET, 762-MM: M31A1, M31A1C, and M31A2

ROCKET, 762-MM: XM50

ROCKET SET, TRAINING: XM49
(Characters and data will be added at a later date.)

TRAILER, ROCKET TRANSPORTER: 762-MM ROCKET: M320 and M329A1
(For data and characteristics, see item in section 22.)

TRUCK, WRECKER, MEDIUM: M62
(For data and characteristics, see item in section 21.)
CART ASSEMBLY, TRANSPORT, 762-MM ROCKET: M465

**Characteristics**

- **Weight**: 850 lb
- **Height**: 41.5 in.
- **Width**: 72 in.
- **Length**: 147 in.
- **Retracted position**: 18.5 in.
- **Road clearance**: 10 in.
- **Tire size and type**: 700 x 16, 6 ply
- **Tire pressure**: 55 psi

**General**

CART ASSEMBLY, TRANSPORT, 762-MM ROCKET: M465, w/e, is a four-wheeled adjustable cart used to assemble and transport the rocket and/or rocket components. The cart assembly is composed of drawbar and rotating lever assemblies, axle locking handle, handbrake lever assemblies, locking tongs assemblies, positioning lockpin assembly, retaining straps, hold-down straps, and slings. When the cart assembly is fully extended, it accommodates the rocket motor or the completely assembled rocket. When the cart is retracted, it accommodates the rocket warhead, provided the warhead is installed in the warhead cradle.

**Differences among models**

- **Data plate location**
  - The identification plate for the rocket transport cart assembly M465 is located on the front saddle and roller assembly.

**Classification**

- **Characteristics**

**Performance**

**Equipment**

Basic issue items: See TM 9-1055-201-12, C2, Appendix III

**Instructional material**

**Storage and shipment data**

**Within Continental United States**

- **Shipped**
  - **Length**
  - **Width**
  - **Height**
  - **Volume**
  - **Area**
  - **Gross weight**
  - **Ship tons**

**Outside Continental United States**

- **Shipped**
  - **Length**
  - **Width**
  - **Height**
  - **Volume**
  - **Area**
  - **Gross weight**
  - **Ship tons**

Reference: TM 9-1055-201-12
HANDLING UNIT, 762-MM ROCKET, TRAILER MOUNTED: M405, W/E, AND M405A1

**Shown:** HANDLING UNIT, 762 MILLIMETER ROCKET, TRAILER MOUNTED. M405.

**ORD AI418**

**Differences among models:**

**Handling unit M405A1** has a safety device attached to chain hoist; M405 does not. A covered driving gear, an idler, and a driven gear transfer the traversing force to the traversing sprocket wheels on handling unit M405A1; in place of sprocket-and-beam drive coupler for a guard used on M405. The hydraulic lift assembly on handling unit M405A1 is shorter and more simple in design than the piping on the M405. A new hydraulic oil filter is secured to the left side of the pedestal assembly on the M405A1. Pump and filter are exposed on M405 but shielded on the M405A1. The lighting system on the M405A1 includes a blackout stoplight which is not present on the M405. The beam idler assembly on the M405A1 has been redesigned.

**Data plate location:**

The identification plate is located on the right front forward portion of the reach near the jack.

**Classification:**

M405 w/E/GP
M405A1

**CHARACTERISTICS**

**Weights:**

Net: 8,030 lb
Payload: 6,000 lb
Grass: 14,630 lb

**Towing facilities:**

Length: 26 ft, 11 in.
Width: 8 ft
Height: 10 ft, 15 in.
Aire delivery (approx.) 81 in.
Track tread-center-center of tires: 9 ft, 3 in.

**Axle:**

Type: tubular
Manufacturer: Ordinance Standard 10,000 lb
Diameter: 15 in.
Number: 2

**Service Brakes:**

Actuation: air-over-hydraulic
Type of brake mechanism: two-shoe, anchor support, two expanding cylinder action
Manufacturer: Wagner Elec. Corp.
Diameter: 15 in.
Width: 30 in.
Operating air pressure: 100 psi

**Parking Brakes:**

Manufacturer: Houdaille-Hershey
Type: hand-operated
Application: rear wheels only

**Jacks:**

Type: hinged screw adjustable
Manufacturer: Homar
Length extended: 30 ft
Length retracted: 22 ft
Width of foot: 10 in
Length of foot: 10 in

**Lamps:**

Voltage: 2
Fluorescent: blackout taillight and stop light assembly:
- Blackout tail: 3 ft
- Blackout stop: 3 ft
Fluorescent: service taillight and stop blackout taillight assembly:
- Blackout tail: 3 ft
- Service stop: 3 ft

19-223
CHARACTERISTICS—Continued

Tires:
- Number: 5
- Type: military pneumatic
- Size: 9.00 x 20
- Design: cross-country non-directional
- Number of plies: 8
- Tire inflation:
  - Highway driving: 40 psi
  - Cross-country driving: 48 psi
  - Sand driving: 32 psi

Engine Generator Set:
- Manufacturer: Onan
- Model: 305 ACK90E/1056C
- Type: 4 cycle gasoline
- Cooling system: air cooled
- Bore and stroke: 3 x 2.65
- No. of cylinders: 2
- Horsepower: 11.4
- Firing: 30° apart
- Valve clearance: 0.006 to 0.008
- Piston displacement: 0.8 cu in.
- Compression ratio: 6.25 to 1
- Speed (full load): 2,250 rpm
- Rotation of crankshaft: clockwise
- Oil capacity: 0.25 to 1 gal
- Oil pressure (at 2,500 rpm): 30 lb
- Fuel octane rating: 80
- Fuel tank capacity: 10 gal

Carburetor:
- Manufacturer: Tillotson
- Type: TL 1129-R

Magnetos:
- Manufacturer: Fairbanks-Morse
- Type: radio shield
- Model No.: FM PEI-2869D
- Contact point: 0.020 in.

Governor:
- Manufacturer: Onan
- Speed:
  - Full load: (approx.) 2,225 rpm
  - No load: (approx.) 2,350 rpm
- Type: by ball with vacuum booster

Fuel pump:
- Manufacturer: Onan
- Manufacturers number: 149C343

Spark plugs:
- Thread: 18 min
- Spark plug gap: 0.035 in.
- Manufacturer and Model No.: Champion XE H8

Oil filter:
- Manufacturer and Model No.: CanoGWO-12567

Air cleaner:
- Manufacturer and Model No.: Onan 140C416

Generator:
- Manufacturer: Onan
- Type: 4-pole revolving armature
- Alternating current: 3,500-watt, 115-volt, 75-cycle, single phase
- Direct current: 1,500-watt, 30-volt
- Start circuit: separate series field winding by use of 24-volt battery
- Drive: direct to engine crankshaft
- Armature make: Onan

Hydraulic Lift Cylinder:
- Type: single acting
- Bore and stroke: 2 x 37 in.
- Cylinder Stroke: 113 in.

Length collapsed: 76 in.
Diameter, inside: 8 in.
Reservoir capacity: 3 gal

Hydraulic piping assembly:
- Pump:
  - Manufacturer: Harvill
  - Capacity: 11½ cu in./cycle
  - Type: hand operated
- Valve, four-way:
  - Manufacturer: Adel
  - Type: 4-way
- Valve, relief:
  - Manufacturer: Waterman
  - Type: adjustable relief
  - Pressure setting: 2,850 to 2,875 psi

Filter:
- Manufacturer: Waterman
- Type: in line

Hoist:
- Manufacturer: Chester
- Type: chain, manually operated
- Capacity: 3 ton

Drive:
- Type: Worm and gear
- Ratio: 30 to 1

Beam:
- Type: I-beam, 10 in.
- Length, overall: 18 ft, 4 in.
- Length, between supports: 14 ft, 4 in.

Chain, Drive:
- Type: 3/8 in. single roller
- Length: 340.6 in.

Frame, traversing Beam:
- Length extended: 12 ft, 3 in.
- Length collapsed: 8 ft, 8 in.

PERFORMANCE
- Maximum load: 6,000 lb
- Speed (max. load): 15 mph
- Speed (irregular terrain): 15 mph

EQUIPMENT
- See TM 9-1055-208-12, Appendix III.

INSTRUCTIONAL MATERIAL

PRIME MOVER

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
- Length:
- Width:
- Height:
- Volume:
- Area:
- Gross weight:
- Ship tons:

Outside Continental United States

Shipped
- Length:
- Width:
- Height:
- Volume:
- Area:
- Gross weight:
- Ship tons:

Deleted by C 1.
HEATING AND TIE DOWN UNIT, 762-MM ROCKET, TRUCK-MOUNTED: M78 and M78A1

Differences among models

Data plate location

The truck-mounted 762-mm rocket heating and tie-down unit M78A1 identification plate is located on the left rear portion of the warhead rear saddle assembly.

Classification:

M78
M78A1

Characteristics

Gasoline Engine Generator Set M25
Manufacturer and Model... Caterpillar Tractor Company, Model 168E
Engine type... Four cylinder, air-cooled
Generator... Four pole, single-phase
Cooling system... Air cooled
Ignition system... Magnetic, automatic spark retard

Number of cylinders... opposed, two cylinders
Speed... 2,250 rpm
Oil capacity... 3 qt
Oil pressure (at 2,250 rpm)... 30 lb
Fuel supply... 20 gal fuel tank
Fuel octane rating... 80
Spark plug gap... 0.035 in.
Alternating current... 3,000-watt, 115-volt, 60-cycle, single-phase
Direct current... 1,500-watt, 30-volt

Performance

Equipment

Basic issue items: See TM 9-1055-203-15, appendix III.

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped: Length, Width, Height, Volume, Area, Gross weight, Ship tons.

Outside Continental United States

Shipped: Length, Width, Height, Volume, Area, Gross weight, Ship tons.


* For characteristics and data, see item in section 21.
ROCKET, 762-MM: M31A1, M31A1C, AND M31A2

Differences among models

Data plate location

Identification plates are located on the rocket motor, nose-shell assembly, and fins.

Classification:

- M31A1: Standard B (OTCM 37119)
- M31A1C: Standard A (OTCM 37468)
- M31A2: Standard A (OTCM 37468)

General

ROCKET, 762-MM: M31 series, is a large caliber, field artillery, free-flight, fin-stabilized rocket designed to be fired from a rail-type launcher against terrestrial targets. The assemblies and components required to assemble one complete 762-mm rocket with a high-explosive warhead are stored, issued, and shipped in three containers: a rocket motor, a loaded warhead assembly, and fins. The rocket motor of M31A1 or M31A1C is that portion of the rocket which houses the propellant, the spin rockets, and the ignition system. Four fins are attached to the fin base fittings which are located 90° apart on the muzzle of the rocket motor. The warhead assembly for the 762-mm rocket is the foremost portion of the complete round, serves as a housing for the warhead and necessary fuzing, and provides a streamlined surface to improve the ballistic trajectory of the rocket.

ROCKET, 762-MILLIMETER: M31A1, consists of rocket motor M3A1, 762-mm rocket flash-smoke warhead assembly XM3A1, or 762-mm rocket high-explosive warhead assembly XM3A2, and 762-mm rocket fin XM3A1 or XM3A2.

ROCKET, 762-MILLIMETER: M31A1C, consists of rocket motor M3A1C, 762-mm rocket flash-smoke warhead assembly XM3A1C, or 762-mm rocket high-explosive warhead assembly XM3A2, and 762-mm rocket fin XM3A1C or XM3A2.

ROCKET, 762-MILLIMETER: M31A2, consists of rocket motor M3A2, 762-mm rocket flash-smoke warhead assembly XM3A2, or 762-mm rocket high-explosive warhead assembly XM3A2, and 762-mm rocket fin XM3A2.

Characteristics

Complete-Round Rockets M31A1, M31A1C, and M31A2

- Diameter: (maximum, excluding fins and launching shoe) 30 in.
- Length: 327 in.
- Gross weight: 5,913 lb

Warhead Assembly M1A2 (Rocket M31 series)

- Diameter (maximum): 30 in.
- Length (overall): 11.5 in.
- Weight: 1,634 lb
- Explosive weight: 2,063 lb
- Firing temperature limits: 0° to +100° F.
- Handling and shipping temperature limits: 0° to +120° F.

Rocket Motors M3A1, M3A1C, and M3A2

- Diameter: 27.7 in.
- Length: 212 in.
- Weight: 4,099 lb
- Explosive weight: 2,063 lb
- Firing temperature limits: 0° to +100° F.
- Handling and shipping temperature limits: 0° to +120° F.

Performance

Equipment

Basic Issue Items: See TM 9-1340-202-12, appendix III.

INSTRUCTIONAL MATERIAL

19-227
### Storage and Shipment Data

#### Within Continental United States

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<th>Description</th>
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<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
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<tbody>
<tr>
<td>762-mm Rocket Motor M3A1</td>
<td>19 ft, 11 1/2 in</td>
<td>3 ft, 5 1/4 in</td>
<td>3 ft, 6 3/4 in</td>
<td>281.85 cu ft</td>
<td>6,538 lb</td>
<td>7.046</td>
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<td>Shipped 1 rocket motor per container</td>
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<th>Description</th>
<th>Length</th>
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<th>Height</th>
<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
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<tbody>
<tr>
<td>762-mm Rocket Motor M3A1C</td>
<td>19 ft, 11 in</td>
<td>3 ft, 5 1/4 in</td>
<td>3 ft, 6 3/4 in</td>
<td>281.85 cu ft</td>
<td>6,538 lb</td>
<td>7.046</td>
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<th>Volume</th>
<th>Gross Weight</th>
<th>Ship Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>762-mm Rocket Motor M3A3</td>
<td>19 ft, 11 in</td>
<td>3 ft, 5 1/4 in</td>
<td>3 ft, 7 in</td>
<td>269.26 cu ft</td>
<td>6,572 lb</td>
<td>7.046</td>
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<th>Ship Tons</th>
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<tbody>
<tr>
<td>762-mm Rocket Fin M196A1</td>
<td>4 ft, 2 in</td>
<td>1 ft, 3 in</td>
<td>4 ft, 2 1/4 in</td>
<td>20.76 cu ft</td>
<td>300 lb</td>
<td>0.693</td>
</tr>
<tr>
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<td>0.693</td>
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<tr>
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<td>20.76 cu ft</td>
<td>300 lb</td>
<td>0.693</td>
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<tr>
<td>762-mm Rocket Warhead Assembly M1A2</td>
<td>12 ft, 2 in</td>
<td>3 ft, 1 1/2 in</td>
<td>4 ft, 6 1/4 in</td>
<td>151.9 cu ft</td>
<td>3,410 lb</td>
<td>5.922</td>
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<th>Ship Tons</th>
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<tbody>
<tr>
<td>762-mm Rocket Warhead Assembly XM38E1</td>
<td>19 ft, 11 1/2 in</td>
<td>3 ft, 6 1/4 in</td>
<td>4 ft, 2 1/4 in</td>
<td>181 cu ft</td>
<td>2,898 lb</td>
<td>4.525</td>
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### Outside Continental United States

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<tr>
<td>762-mm Rocket Motor M3A1</td>
<td>19 ft, 11 1/2 in</td>
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<th>Gross Weight</th>
<th>Ship Tons</th>
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<td>762-mm Rocket Motor M3A1C</td>
<td>19 ft, 7 in</td>
<td>3 ft, 6 1/4 in</td>
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<th>Ship Tons</th>
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<tbody>
<tr>
<td>762-mm Rocket Motor M3A3</td>
<td>19 ft, 7 in</td>
<td>3 ft, 6 1/4 in</td>
<td>4 ft, 2 1/4 in</td>
<td>269.26 cu ft</td>
<td>6,572 lb</td>
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<th>Gross Weight</th>
<th>Ship Tons</th>
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</thead>
<tbody>
<tr>
<td>762-mm Rocket Fin M196A1</td>
<td>4 ft, 2 in</td>
<td>1 ft, 3 in</td>
<td>4 ft, 2 1/4 in</td>
<td>20.76 cu ft</td>
<td>300 lb</td>
<td>0.693</td>
</tr>
<tr>
<td>Shipped 4 fins per box</td>
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<td>762-mm Rocket Fin M196A2</td>
<td>4 ft, 2 in</td>
<td>1 ft, 3 in</td>
<td>4 ft, 2 1/4 in</td>
<td>20.76 cu ft</td>
<td>300 lb</td>
<td>0.693</td>
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<tbody>
<tr>
<td>762-mm Rocket Fin M196A3B1</td>
<td>4 ft, 2 in</td>
<td>1 ft, 3 in</td>
<td>4 ft, 2 1/4 in</td>
<td>20.76 cu ft</td>
<td>300 lb</td>
<td>0.693</td>
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<tr>
<td>762-mm Rocket Warhead Assembly M1A2</td>
<td>12 ft, 2 in</td>
<td>3 ft, 1 1/2 in</td>
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<td>151.9 cu ft</td>
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<th>Ship Tons</th>
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<tbody>
<tr>
<td>762-mm Rocket Warhead Assembly XM38E1</td>
<td>19 ft, 11 1/2 in</td>
<td>3 ft, 6 1/4 in</td>
<td>4 ft, 2 1/4 in</td>
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ROCKET, 762-MM: XM50

General
ROCKET, 762-MM: XM50, is composed of warhead assembly, 762-MM Flash-Smoke: XM38E1 (with rocket fuse XM121), and rocket motor XM66 which includes pedestal XM36E1, rocket motor XM31E2, and four fins XM17. The 762-mm rocket is a large caliber, field artillery, free-flight, fin-stabilized rocket designed to be fired from a rail-type launcher against terrestrial targets. The assemblies and components required to assemble one complete 762-mm rocket with a high-explosive warhead are stored, issued, and shipped in two containers: a rocket motor, a loaded warhead assembly, and fins. The rocket motor is that portion of the rocket which houses the propellant, the spin rockets, and the ignition system. Four fins are attached to the fin base fittings which are located 90° apart on the nozzle of the rocket motor. The warhead assembly for the 762-mm rocket is the foremost portion of the complete round, serves as a housing for the warhead and necessary fuzing, and provides a streamlined surface to improve the ballistic trajectory of the rocket.

Differences among models
Data plate location
Instruction and nameplates are located on the rocket motor, nose-shell assembly, and fins.

Classification: Limited Production (OTC 37718).

CHARACTERISTICS
Complete-round Rocket XM50
- Diameter (maximum excluding fins and launching shoes): 2 ft, 6 in.
- Fin span: 4 ft, 7 ¾ in.
- Length: 24 ft, 10 1/4 in.
- Gross weight: 4,719.1 lb

Warhead Assembly: XM38E1
- Diameter (maximum): 2 ft, 6 in.
- Length (overall): 9 ft, 7 in.
- Weight: 1,052 lb
- Explosive weight: 3,041 lb

Rocket Motor XM66
- Diameter (maximum, excluding fins and launching shoes): 2 ft, 3 3/8 in.
- Length: 15 ft, 3 in.
- Weight: 3,165 lb
- Explosive weight: 3,094.1 lb
- Firing-temperature limits: -30° to +100° F

PERFORMANCE

EQUIPMENT
Basic Issue Items: See TM 9-1340-202-12, appendix III.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
762-mm Rocket Motor XM66
Shipped Length 19 ft, 7 in.
Width: 3 ft, 2 in.
Height: 9 ft, 11 in.
Volume: 422.88 cu ft
Gross weight: 4,880 lb
Ship tons: 6.072

762-mm Warhead Assembly XM38E1
Shipped Length 19 ft, 11 3/4 in.
Width: 3 ft, 8 5/16 in.
Height: 4 ft, 2 1/4 in.
Volume: 289.8 cu ft
Gross weight: 2,898 lb
Ship tons: 4.526

Outside Continental United States
762-mm Rocket Motor XM66
Shipped Length 19 ft, 7 in.
Width: 3 ft, 2 in.
Height: 9 ft, 11 in.
Volume: 422.88 cu ft
Gross weight: 4,880 lb
Ship tons: 6.072

762-mm Warhead Assembly XM38E1
Shipped Length 19 ft, 11 3/4 in.
Width: 3 ft, 8 5/16 in.
Height: 4 ft, 2 1/4 in.
Volume: 289.8 cu ft
Gross weight: 2,898 lb
Ship tons: 4.526

LITTLE JOHN ROCKET
(Includes rockets; launchers; and rocket handling and servicing equipment)

SHOWN:
CART ASSEMBLY, TRANSPORT, 318-MM ROCKET XM449

AMMUNITION SUPPLY POINT

SHOWN:
HANDLING UNIT, 318-MM ROCKET, TRUCK MOUNTED, XM449

BATTERY ASSEMBLY AREA

SHOWN:
LAUNCHER, 318-MM ROCKET, XM34

LAUNCHING AREA

SHOWN:
TRUCK, UTILITY, 4 x 4, 1/4-TON, M151

Page

BASKET, DELIVERY, EQUIPMENT: XM1
CART ROCKET, TRANSPORT, 318-MM ROCKET: M14
HANDLING UNIT, ROCKET, TRUCK-MOUNTED 318-MM: M572
LAUNCIHER, 318-MM ROCKET: XM32 (For data and characteristics see item in section 7)
LAUNCHER, 318-MM ROCKET: XM34 (For data and characteristics, see item in section 7.)
ROCKET, 318-MM: XM51
SET, WIND MEASURING: AN/MPQ-6 (Responsibility of the Signal Corps Reference: TM 11-6860 203-10)
TRAILER, ROCKET, 318-MM: XM420
TRUCK, UTILITY: 3/4-ton, 4 x 4, M151 (For characteristics and data, see item in section 21.)
BASKET, DELIVERY, EQUIPMENT: M1

General

BASKET, DELIVERY, EQUIPMENT: M1, is a collapsible aluminum basket designed for helicopter transport of the wind measuring set, suspension link assembly, aerial delivery cargo slings, and other handling and ancillary equipment. The basket consists of four end sections, two side sections, two floor sections, and a center support tube. A yoke and pin secured to each corner serve as attachments for the lifting sling. Cargo fasteners attached along the upper edges of the sides prevent the sides from spreading. Skids mounted underneath each corner serve as legs to keep the basket off the floor.

Differences among models

Data plate location

The equipment delivery basket M1 identification plate is located on the upper left section of the front end of the basket.

Classification: Standard A (OTCM 37479)

CHARACTERISTICS

Weight: 136 lb
Height: 22.0 in.
Dimension: 5 x 6 ft

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1055-212-12, appendix III.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

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<th>Ship tons</th>
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Outside Continental United States

Shipped

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CART ROCKET, TRANSPORT, 318-MM ROCKET: M14

General
CART ASSEMBLY, TRANSPORT, 318-MM ROCKET: M14 is a two-wheeled cart designed for use in loading a rocket upon the 318-mm rocket launcher XM131, transporting a rocket on land, or transporting a rocket by helicopter. The trailer consists of an aluminum structural framework with a steel track bolted to its top to accommodate a rocket. A retractable caster assembly is attached at the front and a steel skid is mounted at the rear of the trailer. Two lateral tubular brackets are welded to the bottom of the trailer framework. These tubular brackets receive the tubers when two trailers are joined together side-by-side for helicopter transport.

Differences among models
Data plate location
The rocket trailer M14 identification plate is located on the forward left side of the trailer on the brace support bracket for the rear wheel leg group T-shaped brace.

Classification: Standard A (OTCM 37891)

CHARACTERISTICS

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<tr>
<td>Center-to-center of tires</td>
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<td>Tire pressure</td>
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PERFORMANCE

EQUIPMENT

Basic issue Items: See TM 9-1053-212-12, appendix III.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

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Outside Continental United States

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<th>Height</th>
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<th>Arch</th>
<th>Gross weight</th>
<th>Ship tons</th>
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References: TM 9-1053-212-12
HANDLING UNIT, ROCKET, TRUCK MOUNTED: 318-MM, M572

General

HANDLING UNIT, ROCKET, TRUCK MOUNTED: 318-mm. M572 is designed to be used as a primary piece of equipment with the tripod and hoist assembly XM3 as a supplement. The handling unit consists of a vertical davit post with a boom-type crane and winch mounted thereon, called a rocket handling platform XM3. This platform is mounted in the front center portion of a TRUCK. CARGO: 2½-ton, 6 x 6, M36. Four sets of saddles are mounted in the bed for transporting four rockets either mated or unmated. Two additional saddles are provided to be used on the side of the truck for installing the insulating blanket before the rocket or motor is placed in the truck. Also, a launcher can be loaded headed toward the front on one side of the truck, and a trailer loaded headed toward the rear of the opposite side of the truck. The truck can be transported any desired distance.

Differences among models

Data plate location

The rocket handling bar identification plate is located adjacent to the clamping section of the handle, which has the locking device for the bottom strap.

Classification: Standard A (OTCM 37861).

CHARACTERISTICS

* For characteristics and data, see item in section 21.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Area
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Area
Gross weight
Ship tons

Reference: TM 9-1055-212-12
ROCKET, 318-MM: M51

**General**
ROCKET, 318-MM: M51, is a propellant, free-flight, fin-stabilized, field artillery rocket that follows a ballistic trajectory and is fired against ground targets from a straight-rail launcher. The rocket consists of a rocket motor M26, a flash-scan warhead assembly M8, and an igniter assembly M37. The rocket motor contains a solid-propellant grain that provides the thrust energy for the rocket. The motor employs a front-shoe barrel assembly, a fin and fin barrel assembly, and four thrust radial bearings to allow the rocket to spin while it is on the launcher. The warhead assembly structure is an aluminum framework made up of formed aluminum skins and supporting frames. The warhead assembly consists of an aft section, midsection, two spallation charges, fuse M421, and forward section. The warhead assembly is attached to the rocket motor by a captive-locking ring which threads onto the threaded flange of the motor.

**Differences among models**

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**Data plate location**
Identification plates and instruction plates for the rocket are located on the rocket motor and the warhead assembly.

**Classification:**

**CHARACTERISTICS**

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<tr>
<td>Length (as fired)</td>
<td>173.7 in</td>
</tr>
<tr>
<td>Weight (as fired)</td>
<td>775 lb</td>
</tr>
<tr>
<td>Fin span</td>
<td>2.73 ft</td>
</tr>
<tr>
<td>Rocket Motor M26:</td>
<td></td>
</tr>
<tr>
<td>Diameter (maximum)</td>
<td>12.5 in</td>
</tr>
<tr>
<td>Length (w/o thrust neutralizer)</td>
<td>84.5 in</td>
</tr>
<tr>
<td>Weight of propellant grain (w/inhibitor)</td>
<td>770.5 ±0.3 lb</td>
</tr>
<tr>
<td>Weight of propellant grain (w/o inhibitor)</td>
<td>754.6 ±0.1 lb</td>
</tr>
<tr>
<td>Firing-temperature limits</td>
<td>-10°F to +210°F</td>
</tr>
<tr>
<td>Storage-temperature limits</td>
<td>-65°F to +120°F</td>
</tr>
<tr>
<td>Explosive weight of igniter</td>
<td>380 oz</td>
</tr>
<tr>
<td>Warhead Assembly M8:</td>
<td></td>
</tr>
<tr>
<td>Diameter (maximum)</td>
<td>12.5 in</td>
</tr>
<tr>
<td>Length (average)</td>
<td>70.2 in</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

**Basic Issue Items:** See TM 9-1340-201-12, appendix III.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

**Rocket Motor M26**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 1 rocket motor M26 per storage and shipment container M455</td>
<td>136 in</td>
</tr>
<tr>
<td>Length</td>
<td>44 in</td>
</tr>
<tr>
<td>Height</td>
<td>38 1/2 in</td>
</tr>
<tr>
<td>Volume</td>
<td>105.3 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>1,573 lb</td>
</tr>
<tr>
<td>Shipment tons</td>
<td>0.6875</td>
</tr>
</tbody>
</table>

**Warhead Assembly M8**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 1 warhead assembly M8 per storage and shipment container XM143</td>
<td>100 in</td>
</tr>
<tr>
<td>Length</td>
<td>38.38 in</td>
</tr>
<tr>
<td>Weight</td>
<td>34.25 lb</td>
</tr>
<tr>
<td>Gross weight</td>
<td>82 lb</td>
</tr>
<tr>
<td>Shipment tons</td>
<td>0.4901</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

**Rocket Motor M26**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 1 rocket motor M26 per storage and shipment container M455</td>
<td>126 in</td>
</tr>
<tr>
<td>Length</td>
<td>44 in</td>
</tr>
<tr>
<td>Weight</td>
<td>38 in</td>
</tr>
<tr>
<td>Height</td>
<td>105.3 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>1,375 lb</td>
</tr>
<tr>
<td>Shipment tons</td>
<td>0.6875</td>
</tr>
</tbody>
</table>

**Warhead Assembly M8**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>100 in</td>
</tr>
<tr>
<td>Length</td>
<td>28.38 in</td>
</tr>
<tr>
<td>Weight</td>
<td>34.25 lb</td>
</tr>
<tr>
<td>Gross weight</td>
<td>82 lb</td>
</tr>
<tr>
<td>Shipment tons</td>
<td>0.4901</td>
</tr>
</tbody>
</table>

**Reference:** TM 9-1340-201-12
TRAILER, ROCKET, 318-MM: XM420

**General**

TRAILER, ROCKET, 318-MM: XM420, is a two-wheeled vehicle used for transport of 318-mm rocket XM47 from the assembly area to the launcher. The trailer consists of a welded frame, front and rear rocket saddle assemblies, lunette, front leg, two-wheel assemblies, and a pintle. A thermometer and case assembly, and a connecting bar assembly are stowed on brackets welded to the frame. The trailer is of aluminum construction and is designed so that two trailers, loaded with resupply rockets, can be fastened together and be transported to the launching site by helicopter. It can also be hand towed or be attached to a towing vehicle. Towing speeds are limited to not more than 20 mph on improved roads and 5 mph cross-country.

**Differences among models**

**Data plate location**

The identification plate for the rocket trailer XM420 is located on the right-rear connecting bar tube.

The warning placards are located on the sloping front surface of the launcher lunette bracket and at the upper front end of the trailer between the main channel members of the frame.

**Classification**

**CHARACTERISTICS**

- **Weight**: 314 lb
- **Height**: 28 in.
- **Width**: 42 in.
- **Length**: 157 in.
- **Road clearance**: 9.25 in.
- **Tire size and type**: 6.00 x 8, 4 ply
- **Tire pressure**: 15 psi

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-3162-12, appendix III.

**INSTRUCTIONAL MATERIAL**

For graphic training aids and devices, refer to DA Pam 310-5.

**STORAGE AND SHIPMENT DATA**

Within Continental United States

- **Shipped Length**:
- **Width**:
- **Height**:
- **Volume**:
- **Area**:
- **Gross weight**:
- **Ship tons**:

Outside Continental United States

- **Shipped Length**:
- **Width**:
- **Height**:
- **Volume**:
- **Area**:
- **Gross weight**:
- **Ship tons**:

**Reference**: TM 9-3162-12
SECTION 20
PASSENGER MOTOR VEHICLES
(CLASS 2310)
(Includes ambulance trucks)

TRUCK, AMBULANCE: 1/2-ton, 4 x 4, M170 front line, w/e

TRUCK, AMBULANCE: 3/4-ton, 4 x 4, M43 and M438

Page

20-2
20-4
TRUCK, AMBULANCE: 1/4-TON, 4 X 4, M170, FRONT LINE, W/E

**General**

TRUCK, AMBULANCE: 1/4-ton, 4 x 4, M170, front line, is a lightweight open-body, canvas-covered, four-wheel drive vehicle designed to transport ill or wounded personnel. When used with litters, it can accommodate three; when used for ambulatory personnel, it can accommodate six. The tailgate can be lowered to facilitate loading of the litters. The spare wheel is raised inside at the right side of the front passenger seat. The hand brake has been modified to avoid interference with the left lower litter. Additional facilities include crash pads and an interior emergency light.

**Differences among models**

**Data plate location**

The identification plate (nameplate) is located on the instrument panel at the right of the instrument cluster.

**Classification:** Standard B (OTCM 36841)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M170</td>
<td></td>
<td>4-9832-00</td>
<td>2310-835-8686</td>
</tr>
</tbody>
</table>

**Electrical system.**

<table>
<thead>
<tr>
<th>Number of batteries</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts</td>
<td>24</td>
</tr>
<tr>
<td>Type of ground</td>
<td>negative</td>
</tr>
<tr>
<td>Fuel octane rating</td>
<td>72</td>
</tr>
</tbody>
</table>

**Capacities:**

<table>
<thead>
<tr>
<th>Fuel</th>
<th>20 gal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling system</td>
<td>11½ qt</td>
</tr>
<tr>
<td>Crankcase</td>
<td>1½ qt</td>
</tr>
<tr>
<td>Transmission</td>
<td>1 qt</td>
</tr>
<tr>
<td>Rear axle and front axle, each</td>
<td>1½ qt</td>
</tr>
</tbody>
</table>

**Brakes:**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Bendix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Hydraulic</td>
</tr>
</tbody>
</table>

**Parking brake:**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Timken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Disc-Brake</td>
</tr>
</tbody>
</table>

**Engine:**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Willys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>MD</td>
</tr>
<tr>
<td>Type</td>
<td>4 cylinder</td>
</tr>
<tr>
<td>Bore</td>
<td>3½ in</td>
</tr>
<tr>
<td>Stroke</td>
<td>43/4 in</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>6:9:1</td>
</tr>
<tr>
<td>Displacement</td>
<td>194.2 cu in</td>
</tr>
<tr>
<td>Governor speed</td>
<td>governed</td>
</tr>
<tr>
<td>Brake horsepower</td>
<td>68 at 4,000 rpm</td>
</tr>
<tr>
<td>Torque</td>
<td>113 lb-ft at 2,000 rpm</td>
</tr>
<tr>
<td>Gear ratio</td>
<td>Synchromesh</td>
</tr>
</tbody>
</table>

**Axles:**

<table>
<thead>
<tr>
<th>Type</th>
<th>hypoid, full-floating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight capacity</td>
<td>Empty: 1,836 lb, Loaded: 1,737 lb</td>
</tr>
<tr>
<td>Rear:</td>
<td>hypoid, semifloating</td>
</tr>
<tr>
<td>Weight capacity</td>
<td>Empty: 1,327 lb, Loaded: 2,006 lb</td>
</tr>
</tbody>
</table>

**Tires:**

<table>
<thead>
<tr>
<th>Ply</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>7.00 x 15</td>
</tr>
<tr>
<td>Pressure</td>
<td>25 psi</td>
</tr>
<tr>
<td>Tread, center-to-center, front</td>
<td>49½ in</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

| Computed grade ability lowest gear loaded | 71.1 percent |
| Turning radius | 24½ ft |
| Fording depth | 15 in |
| Fuel consumption, loaded | 17.0 mpg |
| Cruising range, loaded | 390 mi |
| Allowable speed, governed | not governed |

**EQUIPMENT**

Basic Issue Items: See TM 9-8014, C4

**INSTRUCTIONAL MATERIAL**
### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncrated</td>
<td></td>
<td></td>
<td></td>
<td>433 cu ft</td>
<td>66.7 sq ft</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:** SNL G-758, TM 9-8014, TM 9-8015
TRUCK, AMBULANCE: ¾-TON, 4 X 4, M43 and M43B1

<table>
<thead>
<tr>
<th>Major Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shown: Truck, Ambulance: ¾-ton, 4 x 4, M43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M43, w/wn.</td>
<td>4-59831-00</td>
<td>2310-853-8017</td>
</tr>
<tr>
<td>M43, w/o/wn.</td>
<td>4-59830-40</td>
<td>2310-853-8516</td>
</tr>
<tr>
<td>M43B1, w/o/wn.</td>
<td>4-59850-41</td>
<td>2310-912-1034</td>
</tr>
</tbody>
</table>

**General**

TRUCK, AMBULANCE: ¾-ton, 4 x 4, M43 and M43B1 are lightweight vehicles with a panel-type fully enclosed body mounted on a light truck chassis designed to transport ill or wounded personnel. Each vehicle is single-tired, four-wheel drive. When used for litter patients, four can be transported. Six ambulatory patients can be accommodated otherwise. Two rear doors are provided for access to patients’ compartment and litter which is separated from the driver’s compartment by a partition in which a door is mounted. The spare wheel and tire assembly is mounted on a swing-out carrier attached to the left-front cab door. An adjustable spotlight atop the cab can be controlled from inside the cab. A personnel heater (and surgical light) are provided for the patient’s compartment.

**Differences between models**

The M43 is provided with a winch of 7,500-pound capacity mounted on the front of the vehicle. The M43B1 has an aluminum body instead of a steel body and is without a winch.

**Data plate location**

The identification plate (nameplate) is located on the instrument panel to the right of the instrument cluster.

**Classification:**

- M43—Standard B (OTCM 37926)
- M43B1—Standard A (OTCM 37926)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, overall</td>
<td>in.</td>
<td>198(\frac{1}{2})</td>
</tr>
<tr>
<td>Width</td>
<td>in.</td>
<td>73(\frac{1}{2})</td>
</tr>
<tr>
<td>Height</td>
<td>in.</td>
<td>91(\frac{1}{2})</td>
</tr>
<tr>
<td>Weight, net</td>
<td>lb</td>
<td>8,780</td>
</tr>
<tr>
<td>Weight, w/wn</td>
<td>lb</td>
<td>8,860</td>
</tr>
<tr>
<td>Payload</td>
<td>lb</td>
<td>1,400</td>
</tr>
<tr>
<td>Rear axle gear ratio</td>
<td></td>
<td>3.83:1</td>
</tr>
<tr>
<td>Chassis</td>
<td></td>
<td>M56</td>
</tr>
<tr>
<td>Body (4 litters)</td>
<td>Insulated</td>
<td></td>
</tr>
<tr>
<td>Axles: Front</td>
<td>Weight capacity:</td>
<td></td>
</tr>
<tr>
<td>Empty</td>
<td>lb</td>
<td>3,200</td>
</tr>
<tr>
<td>Loaded</td>
<td>lb</td>
<td>3,600</td>
</tr>
<tr>
<td>Axles: Rear</td>
<td>Weight capacity:</td>
<td></td>
</tr>
<tr>
<td>Empty</td>
<td>lb</td>
<td>3,850</td>
</tr>
<tr>
<td>Loaded</td>
<td>lb</td>
<td>5,300</td>
</tr>
<tr>
<td>Tires: Type</td>
<td>Ply</td>
<td>8</td>
</tr>
<tr>
<td>Size</td>
<td>in.</td>
<td>9.00 x 16</td>
</tr>
<tr>
<td>Pressure</td>
<td>psi</td>
<td>40</td>
</tr>
<tr>
<td>Gear, center-to-center, front</td>
<td>in.</td>
<td>62</td>
</tr>
<tr>
<td>Electrical system: Number of batteries</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Volts</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Type ground</td>
<td></td>
<td>Negative</td>
</tr>
<tr>
<td>Fuel octane rating</td>
<td></td>
<td>72</td>
</tr>
<tr>
<td>Capacities: Cooling system w/o heater</td>
<td>qt</td>
<td>17</td>
</tr>
<tr>
<td>Crankcase</td>
<td>qt</td>
<td>5</td>
</tr>
<tr>
<td>Differential</td>
<td>qt</td>
<td>3</td>
</tr>
<tr>
<td>Fuel tank</td>
<td>gal</td>
<td>24</td>
</tr>
<tr>
<td>Steering gear</td>
<td>pt</td>
<td>1</td>
</tr>
<tr>
<td>Axles</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Transmission</td>
<td></td>
<td>25/4</td>
</tr>
<tr>
<td>Winch clutch housing</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Winch worm housing</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Brakes: Manufacturer</td>
<td>Dodge</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Hydraulic</td>
<td></td>
</tr>
<tr>
<td>Parking, type</td>
<td>Transfer</td>
<td></td>
</tr>
<tr>
<td>Engine: Manufacturer</td>
<td>Dodge</td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>T245</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>4 cycle “L” head</td>
<td></td>
</tr>
<tr>
<td>No. cylinders</td>
<td>(in line) 6</td>
<td></td>
</tr>
<tr>
<td>Displacement</td>
<td>cu in</td>
<td>330.2</td>
</tr>
<tr>
<td>Bore</td>
<td>in</td>
<td>3(\frac{1}{16})</td>
</tr>
<tr>
<td>Stroke</td>
<td>in</td>
<td>4(\frac{3}{16})</td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td>6.7:1</td>
</tr>
<tr>
<td>Governed speed</td>
<td>rpm</td>
<td>3,400</td>
</tr>
<tr>
<td>Brake horsepower (w/std accessories)</td>
<td>hp</td>
<td>78 at 3,200 rpm</td>
</tr>
<tr>
<td>Torque (w/std accessories)</td>
<td>lb-ft</td>
<td>177 at 1,200 rpm</td>
</tr>
<tr>
<td>Transmission: Type</td>
<td>Synchronmesh</td>
<td></td>
</tr>
<tr>
<td>Forward speeds</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Gear ratio: High</td>
<td></td>
<td>1:1</td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td>6.4:1</td>
</tr>
</tbody>
</table>
### PERFORMANCE

- Computed grade ability in lowest gear: 68 percent
- Turning radius: 25 ft
- Fuel consumption: 9 mpg
- Cruising range: 225 mi
- Allowable speed (governed): 55 mph
- Forging depth:
  - w/foring kit: 84 in.
  - w/o/foring kit: 42 in.

### EQUIPMENT

**Basic Issue Items:** See TM 9-8030, C5

### INSTRUCTIONAL MATERIAL

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped uncrated
  - Length
  - Width

**Outside Continental United States**

- Shipped uncrated
  - Length
  - Width

**References:** SNL G741, TM 9-8030
SECTION 21

TRUCK AND TRUCK TRACTORS
(CLASS 2320)

(Includes military cargo carrying vehicles, truck chassis, amphibian personnel carrier, full-tracked recovery vehicles, tractor trucks, van trucks, and wrecker trucks)

CARRIER, CARGO, AMPHIBIOUS: M76, w/e ............................. 21-7
CARRIER, CARGO, AMPHIBIOUS: tracked, M116 (T116E1) ........ 21-8A
CARRIER, COMMAND POST: light, tracked, XM577 .................. 21-8C
CARRIER, PERSONNEL, FULL TRACKED: armored, M59 ........... 21-11
CARRIER, PERSONNEL, FULL TRACKED: armored, M76 ............ 21-13
CARRIER, PERSONNEL, FULL TRACKED: armored, M113 (T113E2) 21-15
CARRIER, PERSONNEL, FULL TRACKED: armored, M114 and M113A1 (Command and Reconnaissance) 21-16A

CHASSIS, TRUCK: 5-ton, 4 x 4, M56, w/ and w/o winch and M56B1 and M56C, w/wn ........................................ 21-17
CHASSIS, TRUCK: 21/2-ton, 6 x 6, M44 and M44C, w/ and w/o winch ................................................................. 21-19
CHASSIS, TRUCK: 21/2-ton, 6 x 6, M45, w/ and w/o winch and M45C, w/wn ......................................................... 21-21
CHASSIS, TRUCK: 21/2-ton, 6 x 6, M46 and M46C .................... 21-23
CHASSIS, TRUCK: 21/2-ton, 6 x 6, M58, w/ and w/o winch .......... 21-25
CHASSIS, TRUCK: 21/2-ton, 6 x 6, M133, w/ and w/o winch ....... 21-27
CHASSIS, TRUCK: 21/2-ton, 6 x 6, M207 and M207C, w/ and w/o winch .............................................................. 21-29
CHASSIS, TRUCK: 5-ton, 6 x 6, M39, w/ and w/0 winch .......... 21-31
CHASSIS, TRUCK: 5-ton, 6 x 6, M40 and M40C, w/ and w/o winch 21-33
CHASSIS, TRUCK: 5-ton, 6 x 6, M61, w/wn ......................... 21-35
CHASSIS, TRUCK: 5-ton, 6 x 6, M63 and M63C ..................... 21-37
CHASSIS, TRUCK: 5-ton, 6 x 6, M139, M139C, and M139D ...... 21-39
RECOVERY VEHICLE, FULL TRACKED: heavy, M51, w/e ............ 21-43
RECOVERY VEHICLE, FULL TRACKED: light, armored M578 (T120E1) 21-44A
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TRUCK, TRACTOR: 10-ton, 6 x 6, M123 and M123C, w/e 21-99
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TRUCK, TRACTOR, WRECKER: 5-ton, 8 x 6, M246, w/winch, w/e 21-103
TRUCK, UTILITY: ¾-ton, 4 x 4, M38, w/e 21-105
TRUCK, UTILITY: ¾-ton, 4 x 4, M38A1 and M38A1C, w/e 21-107
TRUCK, UTILITY: ¾-ton, 4 x 4, M151, w/e 21-109
TRUCK, UTILITY: ¾-ton, 4 x 4, lightweight, M422 21-111
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TRUCK, VAN: shop, 2½-ton, 6 x 6, M109, M109A1, M109C, and M109D, w/e 21-114
TRUCK, VAN: shop, 2½-ton, 6 x 6, M220C, and M220D 21-116
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TRUCK, WRECKER: crane, 2½-ton, 6 x 6, M108, w/winch, w/e 21-118
TRUCK, WRECKER: light, 2½-ton, 6 x 6, M160, w/winch, w/e 21-120
TRUCK, WRECKER: medium, 5-ton, 6 x 6, M63 and M62E1, w/winch, w/e 21-122
TRUCK, WRECKER: medium, 5-ton, 6 x 6, M543, w/front winch 21-124

Pages 21-3, 21-4, 21-5, and 21-6 are deleted by C 1.
**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M76</td>
<td>4-03172-00</td>
<td>2820-706-5080</td>
</tr>
</tbody>
</table>

**General**

CARRIER, CARGO, AMPHIBIOUS: M76, W.E. is a full-track-drive vehicle designed to transport general cargo and personnel on land or water. The vehicle is identified by the high water-tight enclosed sheet aluminum hull, wide rubber tracks with large pneumatic rubberized size wheel. Also, a trapezoidal-shaped stack; located between the driver's and assistant driver's seats, is used for all engine air requirements. Engine and heater exhausts are also expelled through the stack.

The vehicle contains engine, crew, and cargo compartments. It is powered by a gasoline, key starter, opposed air-cooled engine. A cross drive-type torque converter transmission is mounted directly under the engine to form a unit powerplant. The transmission is designed to transmit engine power to the tracks by providing steering control, service and parking brakes, and a power take-off for moving the vehicle at higher speed. It is also fully supported for radio installation.

**Differences among models**

The key changes made in the M76 model compared to earlier models are:

- The identification plate (name plate) is located on the stack wall, on driver's side of rear warning plate.
- The fuel and water cans, spare wheel, pioneer kit, and shutter stowage have been moved further to the rear.
- The rear suspension arm has been altered to make more stable track adjustment.
- The rear steps have been changed slightly.
- The bilge pumps are driven by chains instead of gears and the pipes are also different.
- The rear suspension arm has been altered to give more ease and easier track adjustment.
- The towing pintle has been changed to a welded type.

**Data plate location**

The identification plate (nameplate) is located on the stack wall, on driver's side of rear warning plate.

**Classification:** Standard B (OTCM 37597).

**AMMUNITION**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Caliber</th>
<th>Weight (estimated)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.30</td>
<td>12.62 lbs</td>
</tr>
</tbody>
</table>

**Weight:**

- Loaded: 8,813 lbs
- Ground pressure: 2.1 psi
- Ground clearance (with 3,000 lb load): 102 in.
- Height (reduced): 70 in.
- Height (unreduced): 90 in.
- Tread (center to center of track): 68 in.

**Engine:**

- Manufacturer: Continental
- Model: 401-283-3A
- Type: Air-cooled, 4-cylinder, opposed
- Displacement: 490 cu. in.
- Bore: 4.14 in.
- Stroke: 4 in.
- Compression ratio: 6:1
- Maximum power: 320 hp
- Brake horsepower, gross: 157 at 3,000 rpm
- Torque, gross: 225 lb-ft at 2,000 rpm
- Type of ignition: Magneto
PERFORMANCE

Maximum grade ability: 60 percent
Turning radius: 60 feet
Fording depth: floats
Maximum vertical obstacle vehicle can climb: 18 in.
Maximum width of ditch vehicle can cross: 60 in.
Fuel consumption (average conditions):
  On land: 2.3 mpg
  In water: 12 gph
Allowable speed recommended:
  On land: 28 mph
  In water: 414 mph
Maximum allowable towed load, gross: 6,000 lb
Cruising range (average conditions):
  On land: 160 mi
  In water: 5.8 hrs
Winch capacity: 5,000 lb

EQUIPMENT

Armament: One MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible.
Communications: Radio sets and combinations (AN/GRC-3 or AN/GRC-9 or 19).
Basic Issue Items: See TM 9-7004, C2.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 vehicle uncrated:
  Length, overall: 188.4 in.
  Width, overall: 98 in.
  Height: 108.3 in.
  Max. height for air transport: 92 in.
  Area: 132 sq ft
  Volume: 1,139 cu ft
  Gross weight: 12,162 lb
  Ship tons: 28.5

Outside Continental United States

Shipped 1 vehicle uncrated:
  Length, overall:
  Width, overall:
  Height:
  Overall:
  Lowest operable:
  Volume:
  Area:
  Gross weight:
  Ship tons:

CARRIER, CARGO, AMPHIBIOUS: TRACKED, M116 (T116E1)

General
CARRIER, CARGO, AMPHIBIOUS: tracked, M116 (T116E1) is a lightweight, low-silhouette vehicle designed to transport cargo and/or personnel. The vehicle is capable of operation with full-rated load over unimproved roads, trails, hilly country, loose sand, snow, ice, unfrozen tundra, muskeg, soft marsh, rock strewn areas, and inland waterways under all seasonal conditions in arctic, temperate, and tropical zones. Movement of the tracks propels and steers the vehicle on both land and water. The low net weight of the vehicle enables it to be transported by cargo aircrafts and parachutes dropped to using forces.

Differences among models

Data plate location
Classification: Standard A (OTCM 37620(C)).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Crew (driver)</th>
<th>Passengers</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 to 13</td>
<td></td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curb (including fuel, on-equipment material, and driver)</td>
<td>7,860 lb</td>
<td></td>
</tr>
<tr>
<td>Payload (cargo)</td>
<td>3,000 lb</td>
<td></td>
</tr>
<tr>
<td>Gross</td>
<td>10,860 lb</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>188 1/8 in.</td>
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<tr>
<td>Reducible to</td>
<td>181 1/4 in.</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>81 1/4 in.</td>
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</tr>
<tr>
<td>Reducible to</td>
<td>80 in.</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>79 1/4 in.</td>
<td></td>
</tr>
<tr>
<td>Reducible to</td>
<td>63 1/4 in.</td>
<td></td>
</tr>
<tr>
<td>Ground clearance</td>
<td>15 3/4 in.</td>
<td></td>
</tr>
<tr>
<td>Ground pressure:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At curb weight:</td>
<td>1.8 psi</td>
<td></td>
</tr>
<tr>
<td>w/3,000 lb payload</td>
<td>2.6 psi</td>
<td></td>
</tr>
<tr>
<td>Tread, center to center of track</td>
<td>64 1/2 in.</td>
<td></td>
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<tr>
<td>Pinch height</td>
<td>21 in.</td>
<td></td>
</tr>
<tr>
<td>Angle of approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle of departure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical system</td>
<td>24 volt</td>
<td></td>
</tr>
<tr>
<td>Number of batteries (12 volt)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Type of batteries</td>
<td>2HN</td>
<td></td>
</tr>
<tr>
<td>Fuel economy rating (min)</td>
<td>80 mpg</td>
<td></td>
</tr>
</tbody>
</table>

For characteristics and data, see item in sections 2 and 27.

C 2, TM 9-500

NOTE: All dimensions shown are in inches.

AMMUNITION

7.62 MM .............. 180 rounds

PERFORMANCE

Maximum grade ability: 60 percent
Turning radius: Pivot to infinity
Ponding depth: Amphibious
Maximum vertical obstacle: approx 18 in.
Vehicle can climb: approx 20 in.
Maximum width of ditch: approx 38 in.
Vehicle can cross: approx 18 in.
Fuel consumption:
On land: 4 mpg
On water: approx 1.6 mpg

Engine:
Manufacturer: Chevrolet
Model: Military version of 283 cu in. V-8
Type: overhead valve, liquid cooled, gasoline
Displacement: 283 cu in.
Bore: 3 5/8 in.
Stroke: 3 3/4 in.
Compression ratio: 9:1
Maximum governed speed (full load): 400 @ 2400 rpm
Brake horsepower, gross (max w/std accessories): 180 @ 4,000 rpm
Torque, gross (max w/std accessories): 210 lb-ft @ 2400 rpm

Transmission:
Manufacturer: Detroit Transmission Div.
Model: 805 MC
Type: hydramatic
Brakes: wet, multiple disc
Number of ranges: 3 forward and reverse
Final drive gear ratio: 4.17:1

Armament:
RIFLE, 7.62 MILLIMETER: M14 *
Communication system: radio and interphone

For characteristics and data, see item in sections 2 and 27.
Allowable speed, recommended:
- On land 37 mph
- On water 4 mph

Maximum allowable towed load, gross 2,400 lb

Cruising range:
- On land (hard surface) approx 22 mi
- On water approx 22 mi

Winch capacity 5,000 to 6,000 lb

EQUIPMENT

Sighting and Fire Control:
- BINOCULAR, M17A1

Communications:
- Radio Sets and Combinations AN/GRC-3 through AN/GRC-8, -9, or -19; or AN/GRC-9, -10, -15, -24, or -35; or AN/VR Q-1 through -5, with intercommunication set AN/UG-1.


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 carrier, uncrated

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped 1 carrier, uncrated

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
</tr>
</thead>
</table>

### Carrier, Command Post: Light Tracked, M577 and M577A1

**General**

CARRIER, COMMAND POST: LIGHT TRACKED, M577 and M577A1 is a light, lightly armored, self-propelled, tracked vehicle providing approximately 47 square feet of floor space resembling the size and shape, and using the chassis of the CARRIER PERSONNEL, FULL TRACKED: ARMORED M113A1*. This mobile command post vehicle for use at division or lower levels may also be used as a fire direction center, communications vehicle, or as a mobile medical treatment facility. To the extent feasible it will replace standard tentage used for these purposes. The carrier is amphibious, has superior cross-country mobility, and is adaptable to multiple functions through the application of kits.

#### Differences among models.

The difference between the M577 and M577A1 is the engines and transmissions. The M577A1 is equipped with a diesel engine instead of a gasoline engine as in the M577.

#### Data plate location:

Data plates are located above the engine compartment door to the right of the driver, and on the right wall of the driver's compartment.

#### Classification:

- **M577**—Standard B (AMCTCM W-740)
- **M577A1**—Standard A (AMCTCM W-740)

### Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stack No.</th>
<th>Type of fuel</th>
<th>Fuel rating</th>
<th>Octane</th>
<th>Cetane</th>
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</thead>
<tbody>
<tr>
<td>M577</td>
<td>4-82365-10</td>
<td>2220-455-6621</td>
<td>gasoline</td>
<td>M577</td>
<td>Octane 85 to 91</td>
<td></td>
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<tr>
<td>M577A1</td>
<td></td>
<td>2220-455-6608</td>
<td>diesel</td>
<td>M577A1</td>
<td>Cetane 18 (uses grade DF-1, DF-2, DF A, and LITE (MIL-F-46005).</td>
<td></td>
</tr>
</tbody>
</table>

#### Center of gravity above ground (loaded):

- M577: 43.8 in.
- M577A1: 45.0 in.

#### Weight:

- Gross (combat, loaded): M577: 23,800 lb, M577A1: 24,390 lb
- Net: M577: 22,800 lb, M577A1: 23,060 lb
- Air transported: M577: 22,150 lb, M577A1: 23,000 lb

#### Length of track on ground:

- 105 in.

#### Ground contact area—8-inch penetration:

- M577: 7.4 psi, M577A1: 7.1 psi

#### Ground clearance:

- 16½ in.

#### Ground pressure:

- Combat loaded weight:
  - M577: 7.59 psi, M577A1: 7.70 psi
  - Net weight:
    - M577: 7.24 psi, M577A1: 7.32 psi
- Air transported weight:
  - M577: 7.06 psi, M577A1: 6.98 psi
- Pintle height (loaded):
  - 20.8 in.

#### Electrical system:

- 24 volts

#### Number of batteries:

- 2

---

*Characteristics and data to be included at a later date.

AGO 5716A.
CHARACTERISTICS—Continued

Type of ground negative 
Communication system radio and Interphone 

Capacities:
Fuel (2 tanks) 120 gal
Cooling system:
M577 (approx) 9 1/2 gal
M577A1 (approx) 9 gal
Crankcase:
M577 (approx) 18 qt
M577A1 (approx) 18 qt
Transmission (approx) 12 qt

Brakes:
Type:
M577 differential band
M577A1 differential band and disc
Operation: mechanical

Transmission:
Manufacturer: General Motors Corp. (Allison Div)
Model:
M577 TX200-2B
M577A1 TX100-1
Type: single stage—multiphase

Number of ranges:
Forward: 6
Reverse: 1
Final reduction: 3.93:1
Hull construction: aluminum armor

Engine:
Manufacturer:
M577 Chrysler Corp.
M577A1 Detroit Diesel Engine Div.-GMC
Model:
M577 7.3L
M577A1 7.3L
Type:
M577 overhead valve 90°V-8
M577A1 two-cycle diesel, V-6
Displacement:
M577 361 cu in.
M577A1 318.6 cu in.
Bore:
M577 4.125 in.
M577A1 3.875 in.
Stroke:
M577 3.375 in.
M577A1 3.875 in.
Compression ratio:
M577 7.8:1
M577A1 8.2:1
Governed speed (full load):
M577 3,900 rpm
M577A1 3,200 rpm
Brake horsepower (min w/ std accessories):
M577 215 hp 6,000 rpm
M577A1 210 hp 5,500 rpm
Torque, gross (max w/ std accessories):
M577 302 lb-ft 67 2,800 rpm
M577A1 245 lb-ft 67 2,800 rpm
Type of ignition:
M577 battery
M577A1 compression ignition

PERFORMANCE

Maximum gradeability 60% 
Turning radius:
M577 (min) 22 ft 8 in.
M577A1 (min) 22 ft 10 in.

Fording depth amphibious
Maximum vertical wall vehicle can climb 2 ft
Maximum trench vehicle can cross 5 ft, 6 in.
Fuel consumption (average conditions):
M577 3.5 mpg
M577A1 3.4 mpg
Cruising range (average conditions):
M577 200 miles
M577A1 300 miles
Allowable speed recommended:
On land:
M577 35 mph
M577A1 3.6 mph
In water:
M577 3 mph
M577A1 3 mph
Maximum allowable towed load, gross 11,500 lb

EQUIPMENT

Communications:
Radio sets. Basic sets include:
AM sets AN/GRC-19, AN/VRC-24, AN/GRR-5, and AN/VRC-29.
Old series of frequency modulated (FM) sets
AN/GRC-3 through 8, AN/VRC-8 to 10, AN/VRC-13 to 15, AN/VRC-20 to 22, AN/VRC-24 to 26, and intercommunication set AN/UIC-1.
New transistorized series of (FM) sets AN/VRC-46, AN/VRC-47, AN/VRC-25, and intercommunication set AN/UIC-1(V).

Basic issue items: See TM 9-2300-224-10/3/2.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 carrier, uncrated.
Length 191.50 in.
Width 105.75 in.
Height 105.50 in.
Volume 1,238 cu ft
Area 141 SQ ft
Gross weight:
M577 22,150 lb
M577A1 21,766 lb
Ship tons 30.95

Outside Continental United States

Length 190 in.
Width 100 in.
Height 101 in.
Volume 1,100 cu ft
Area 132 SQ ft
Gross weight:
M577 22,130 lb
M577A1 21,766 lb
Ship tons 27.50

TRUCK, PLATFORM, UTILITY: 1/2-TON, 4 X 4, M274, M274A1, M274A2, M274A3, AND M274A4, W/E

General
TRUCK, PLATFORM, UTILITY: 1/2-TON, 4 X 4, M274, M274A1, M274A2, M274A3, AND M274A4, W/E, is essentially a platform mounted on two axles and four wheels; with an air-cooled, opposed-type gasoline engine under the platform at the rear of the vehicle. Each lightweight vehicle is designed to carry light cargo over rough terrain at slow speed with a very low silhouette and keep pace with riflemen at foot speeds in combat. Each truck has a four-wheel drive with three speeds forward and one reverse in the transmission and a two-speed transfer case. A quick-change mechanism allows either two- or four-wheel steer to be used. There is no suspension system; shock is being absorbed by low-pressure tires.

The vehicle does not have a cab, only a flat platform on which the driver's seat is mounted. A handrail is attached to the platform and can be raised to accommodate payload or lowered for shipping and storage. The engine and related power train units are located beneath the platform. The seat and footrest may also be detached and stowed beneath the platform when the vehicle is to be towed and for shipping and storage.

The steering gear assembly is so constructed that in case of necessity, the driver can dismount, disconnect the telescope brace holding the steering column in its upright position, and reposition the column forward in front of the vehicle, and retain control while walking or crouching in front of the vehicle.

Fording in water up to the bottom of the accessory drive pulley is safely possible, provided low speed and caution are used when entering water.

Differences among models:
The M274 and M274A1 are equipped with Military Standard AO53 and AO53-1 engines respectively. The M274A2, M274A3, and M274A4 vehicles are equipped with Military Standard AO42 engines. The M274 and M274A3 vehicles have a slightly higher transmission gear ratio. All models are considered to be functionally interchangeable.

Data plate location:
The data plate is located at the side of body over left front wheel.

Classifications:
M274—Standard C (AMCTC Item 126)
M274A1—Standard B (AMCTC Item 126)
M274A3—Standard A (AMCTC Item 1867)
M274A3
M274A4

Characteristics

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
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<tbody>
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</tr>
<tr>
<td>Magnesium platform:</td>
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</tr>
<tr>
<td>M274, M274A1, and M274A2</td>
<td>900 lb</td>
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<tr>
<td>M274A1, and M274A2</td>
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<td>Gross:</td>
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<tr>
<td>Magnesium platform:</td>
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</tr>
<tr>
<td>M274, M274A1, and M274A2</td>
<td>2,076 lb</td>
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<td>M274A1, and M274A2</td>
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<td>Allowance for operator</td>
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<td>On highway</td>
<td>1,000 lb</td>
</tr>
<tr>
<td>Off highway</td>
<td>1,000 lb</td>
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<tr>
<td>Payload:</td>
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<tr>
<td>On highway</td>
<td>1,000 lb</td>
</tr>
<tr>
<td>Off highway</td>
<td>1,000 lb</td>
</tr>
<tr>
<td>Towing capacity</td>
<td>not a prime mover</td>
</tr>
<tr>
<td>Length (platform):</td>
<td></td>
</tr>
<tr>
<td>M274</td>
<td>118.62 in.</td>
</tr>
<tr>
<td>M274A1, and M274A2</td>
<td>118.25 in.</td>
</tr>
<tr>
<td>M274A3, and M274A4</td>
<td></td>
</tr>
<tr>
<td>Width:</td>
<td></td>
</tr>
<tr>
<td>Over platform</td>
<td>46.6 in.</td>
</tr>
<tr>
<td>Over side rails</td>
<td>49 in.</td>
</tr>
<tr>
<td>Height loaded:</td>
<td></td>
</tr>
<tr>
<td>Over platform</td>
<td>27.50 in.</td>
</tr>
<tr>
<td>Over driver's seat</td>
<td>42.24 in.</td>
</tr>
<tr>
<td>Over steering wheel</td>
<td>49.12 in.</td>
</tr>
<tr>
<td>Ground clearance:</td>
<td></td>
</tr>
<tr>
<td>At front steering arm</td>
<td>12 in.</td>
</tr>
<tr>
<td>Under engine</td>
<td>11.5 in.</td>
</tr>
<tr>
<td>At rear axle</td>
<td>12.25 in.</td>
</tr>
<tr>
<td>Under propeller shaft</td>
<td>15.2 in.</td>
</tr>
<tr>
<td>Live axle gear ratio</td>
<td>1:81:1 drop gear; ratio 2.20:1</td>
</tr>
<tr>
<td>Axle:</td>
<td></td>
</tr>
<tr>
<td>Weight capacities:</td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>325 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>575 lb</td>
</tr>
<tr>
<td>Loaded:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>800 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>1,100 lb</td>
</tr>
</tbody>
</table>

21-9
**CHARACTERISTICS—Continued**

### Axle—Continued

**Tires:**
- **Size:** 7.50 x 10
- **Ply:** 4

**Pressure:**
- **Cross-country:** 12 psi
- **Sand:** 15 psi
- **Mud and snow:** 18 psi

**Fuel octane rating:** 85

**Capacities:**
- **Fuel:** 8 gal
- **Crankcase, refill:**
  - M274 and M274A1: 2 qt
  - M274A2, M274A3, and M274A4: 2 1/2 qt

**Transmission and transfer:** 2 qt

**Brakes:**
- **Service, type:** internal expanding, mechanical
- **Parking, type:** internal expanding, mechanical

**Speeds:**
- 3 forward, 1 reverse with high and low range

At 4,200 rpm engine speed:
- **High range:** 25 mph
- **Intermediate:** 14 mph
- **Low and reverse:** 8 mph

**Overall gear ratios:**
- **Low and reverse:** 3.93:1
- **Intermediate:** 1.71:1
- **High:** 1.00:1

**Engine (M274, and M274A1):**
- **Manufacturer:** Military Standard (Willys)
- **Model No.:** M274/ M274A1: A04-3

**Type:** horizontal, opposed, air-cooled

**Displacement:** 53 cu in.

**Bore and stroke:** 2.75 x 3.25

**Compression ratio:** 6.8:1

**Brake horsepower (max w/std accessories):** 13.6 at 3,600 rpm

**Torque (max w/std accessories):** 25 lb-ft at 2,500 rpm

**Governed speed (max):** 3,800 rpm

**PERFORMANCE**

**Grade ability:**
- **Side slope:** 40 percent
- **Longitudinal slope:** 60 percent
- **Angle of approach:** 40°
- **Angle of departure:** 31°

**Turning radius:**
- **Right:** 9 ft, 2 in.
- **Left:** 9 ft, 10 in.

**Fording depth:** 18 in.

**Fuel consumption:** 12.8 mpg

**Cruising range, loaded:**
- (5 mph) 151.3 mi
- (25 mph) 107.5 mi

**Maximum speed:** 10.1 mph

**EQUIPMENT**

**Basic issue items:** See TM 9-2320-213-10.

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- **Shipped Length:** 117 in.
- **Width:** 46 in.
- **Height:** 31 1/2 in.
- **Volume (uncrated):** 81.7 cu ft
- **Area:** 37.4 sq ft
- **Gross weight:** 795 lb
- **Ship tons:** 2.14

**Outside Continental United States**

**Shipped Length:**

**Width:**

**Height:**

**Volume:**

**Area:**

**Gross weight:**

**Ship tons:**

**References:**
CARRIER, PERSONNEL, FULL TRACKED: ARMORED, M59, W/E

Differences among models

Data plate location

The name and data plate is located on the left side of the driver's compartment, just to the left of the driver's seat.

Classification: Standard B (OTCM 37110).

Characteristics

Crew: 2
Passengers: 10
Armament:
- Cal. .50 machinegun heavy barrel, M2 cupola type
- Cal. .45 submachinegun, M3A1

Communication system: radio and interphone

Weight, fighting (estimated): 13,000 lb
Engine, weight: 9,501 lb

Ground pressure: 7.1 psi

Ground clearance: 18 in.

Fuselage height (loaded): 97 in.

Electrical system:
- Potential: 24 volts
- Number of batteries: 2
- Type of batteries: 6TN

Fuel octane rating: 80

Capacities:
- Fuel (total): 136 gal
- Cooling system (each engine): 28 qt
- Crankcase (each engine): 11 qt
- Transmission: 14 qt
- Controlled differential (including oil cooler): 24 qt

Final drive:
- Vehicles No. F7 through F117: 0.14 qt
- Vehicles No. F117 and up: 0.35 qt

Engine (two):
- Manufacturer: General Motors Corp, Model 302
- Type: water-cooled, 6-cylinder, in-line
- Displacement: 316.6 cu in.
- Bore: 4 in.
- Stroke: 4 in.
- Compression ratio: 7.2:1
- Maximum governed speed (full load): 3,200 rpm
- Brake horsepower, gross (max w/std accessories): 127 @ 3,350 rpm
- Torque, gross (max w/std accessories): 254 lb-ft @ 1,800 rpm
- Type of ignition: battery-distributor

Transmission (two):
- Manufacturer: General Motors Corp, Model 300 6F or 301 11F
- Type: hydramatic
- Brakes: hand lever controlled, mechanical, controlled differential
- No. of ranges: 2
- Final drive gear ratio: 4.25:1

AMMUNITION

Cal. .45: 180 rounds
Cal. .30: 2,000 rounds

PERFORMANCE

Maximum grade ability: 30 percent

Turning radius: 38 ft

Fording depth: 42 in.

Maximum vertical obstacle vehicle can climb: 18 in.

Maximum width of ditch vehicle can cross: 60 in.

Fuel consumption (average conditions on land): 1 mpg

Allowable speed, recommended, on land: 32 mph

On land: 32 mph

In water: 3 mph

Maximum allowable towed load, gross: 14,000 lb

Cruising range (average conditions): 180 mi
TM9-500

EQUIPMENT
Basic Issue Items: See TM 9-2300-203-12.

RADIO SETS AND COMBINATIONS:
AN/GRC-3 through 8 or AN/VRC-13 through 15 or AN/VRC-7
or AN/RQ-1 through 3 and AN/UC-1 and AN/GRC-19.

INTERPHONE CONTROL: C-580-U

Lighting and fire control
Mount, Periscope: M104A1
PERISCOPE: M17 and M19
SIGHT PERISCOPE: M28 (sight cal. .50)

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 221 in.
Width: 128 in.
Height: 94 in.
Volume: 3.346 cu ft
Area: 197 sq ft
Gross weight: 140 lb
Ship tons: .58

Outside Continental United States

Shipped
Length: 221 in.
Width: 128 in.
Height: 94 in.
Volume: 3.346 cu ft
Area: 197 sq ft
Gross weight: 140 lb
Ship tons: .58

References: TM 9-2300-203-12, TM 9-2300-203-20F, SM 9-1-5180-
CARRIER, PERSONNEL, FULL TRACKED: ARMORED, M75, W/E

General
CARRIER, PERSONNEL, FULL TRACKED, armored, M75, w/c, transports and furnishes protection for 10 men with full equipment, a driver, and a commander. The carrier M75 consists of a hull, power plant, suspension, electrical system, and auxiliary equipment. The hull is a completely enclosed, welded armor plate and cast structure. The power plant, composed of the engine and transmission, is mounted on a frame as an integral unit and can be removed from the hull for mechanical repair, adjustment, or replacement. The vehicle is equipped with torsion bar-type suspension and individually spring road wheels which travel on two-wide steel tracks which are individually driven by track drive sprockets. This vehicle is nonamphibious in operation and has no trim vane on the front of the hull.

Differences among models

Data plate location
The identification plate is located on the right wall of the driver's compartment.

Classification: Standard C (OTCM 37728)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model M75</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement</td>
<td></td>
<td></td>
<td>2320-700-0800</td>
</tr>
<tr>
<td>Bore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>.55 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td></td>
<td>6.5:1</td>
</tr>
<tr>
<td>Max governed speed (full load)</td>
<td></td>
<td></td>
<td>2,800 rpm</td>
</tr>
<tr>
<td>Brake horsepower, gross (max w/std accessories)</td>
<td>265 @ 2,000 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torque, gross (max w/std accessories)</td>
<td>672 lb-ft @ 1,850 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of ignition</td>
<td></td>
<td></td>
<td>magneto</td>
</tr>
<tr>
<td>Transmission:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>General Motors Corp (Allison Div.), Model CD-500-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Cross drive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brakes</td>
<td>Hand lever controlled, hydraulic, multiple disk sleeve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of ranges</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final drive gear ratio</td>
<td>4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armament: One cal. .50, machine gun, M2; One cal. .45 submachine gun, M3A1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communications system</td>
<td>Radio and interphone</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PERFORMANCE

Maximum grade ability: ............ 60 percent
Turning radius: .................... pivots
Fording depth:.............
W/ deep water fording kit: .... 48 in.
W/ deep water fording kit: .... 80 in.
Maximum vertical obstacle vehicle can climb: .... 18 in.
Maximum width of ditch vehicle can cross: .... 66 in.
Fuel consumption (average conditions): .... 0.8 mpe
Allowable speed, recommended: .... 44.5 mph
Maximum allowable towed load, gross: .... 14,000 lb
Cruising range (average conditions): .... 115 mi

AMMUNITION

<table>
<thead>
<tr>
<th>Caliber</th>
<th>Rounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>.50</td>
<td>1,800</td>
</tr>
<tr>
<td>.45</td>
<td>180</td>
</tr>
<tr>
<td>3.5 inch</td>
<td>10</td>
</tr>
</tbody>
</table>

EQUIPMENT

Sighting and fire control:
PERISCOPE: M17 and M19.
Basic Issue Items: See ORD 7 SNL G-2100.
Radio sets: AN/GRC-3 through 8 or AN/VRC-13 through 15 or AN/VRC-7, or AN/VRC-1 through 3 and AN/UIC-1

INSTRUCTIONAL MATERIAL
<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>204 1/2 in.</td>
</tr>
<tr>
<td>Width</td>
<td>112 in.</td>
</tr>
<tr>
<td>Height</td>
<td>119 3/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>1,438 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>42,000 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>35.95</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>References: S N1 C-260, TM 9-7418</td>
<td></td>
</tr>
</tbody>
</table>
CARRIER, PERSONNEL, FULL TRACKED: ARMORED, M113 (T113E2), W/E

General
CAR CARRIER, PERSONNEL, FULL TRACKED: armored, M113 (T113E2), w/e, is a lightweight, low-silhouette vehicle designed to transport personnel and cargo. The vehicle is capable of amphibious operation on inland lakes and streams, of extended cross-country travel over rough terrain, and of high speed operation on improved roads and highways. Movement of the tracks propels and steers the vehicle on both land and water. The low net weight of the carrier M113 enables it to be transported by cargo aircraft and parachute-dropped to using forces. The vehicle accommodates a driver, troop commander, and 11 passengers. An open-type cupola with a pintle mount for a .50 caliber flexible machine gun capable of 360° rotation is located at the commander's station.

Differences among models

Data plate location
The identification plate is located above the engine compartment door which is to the right of the driver.

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M113 (T113E2)</td>
<td>4-05225-01</td>
<td>2320-629-1294</td>
</tr>
</tbody>
</table>

Crew (Drivers)

Weights:
- Combat loaded: 22,615 lb
- Air drop: 18,600 lb
- Less crew, storage, and fuel: 19,755 lb
- Ground pressure: 7.3 psi
- Ground clearance: 16⅔ in.
- Pintle height (fitted): 30 in.

Capabilities:
- Fuel (total): 80 gal
- Crankcase, refill (w/o cooler, cores, and lines): 10 qt
- Transmission, cross-drive, nominal refill: 48 pt
- Final drive (each side): 3 pt
- Electrical system: 24 volts
- Number of batteries: 2
- Type of batteries: (12 volt) STN
- Generator: 100 amps
- Fuel octane rating: 80
- Engine:
  - Manufacturer: Chrysler
  - Model: 75M

* For characteristics and data, see item in section 27.

Number of cylinders: 8
Displacement: 361 cu in.
Bore: 4.125 in.
Stroke: 3.375 in.
Compression ratio: 7:8:1
Maximum governed speed (full load): 3,900 rpm
Brake horsepower, gross (max w/std accessories): 215 @ 4,000 rpm
Torque, gross (max w/std accessories): 332 lb-ft @ 2,800 rpm
Type of ignition: battery

Transmission:
- Manufacturer: General Motors Corp (Allison Div)
- Model: TX260-X
- Type: single stage-multiphase
- Brakes: differential band and disk
- Ratio from torque converter output shaft to final drive flange:
  - High range: 3.08:1
  - Low range: 26.64:1
  - Reverse range: 30.41:1

Armament: Gun, machine, cal. .50, M2, flexible.

PERFORMANCE

Maximum grade ability: 60 percent
Turning radius: 12 ft, 7 in.
Maximum vertical obstacle vehicle can climb: 24 in.
Maximum width of ditch vehicle can cross: 66 in.
Allowable speed, recommended: 40 mph
Maximum allowable towed load, gross: 24,000 lb
Cruising range (average conditions): 200 mi
Fording depth: floats

AMMUNITION

Cal. .50
- 2,000 rd

EQUIPMENT

Sighting and fire-control:
- PERISCOPE: M17
- PERISCOPE: M18

Radio set:
- AN/GRR-5, AN/PRC-8 thru 10, AN/VRQ-1 thru 5,
- AN/GRC-19, AN/VRC-12

Interphone:
- AN/VIC-1

Interphone, external, extension kit: AN/GRC-9 thru 8, AN/VRC-24

Location: on wall racks and sponson

Basic Issue Items: See TM 9-2300-224-10.
### INSTRUCTIONAL MATERIAL

#### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped uncrated</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>191 1/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>105 1/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>79 1/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>936 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>141 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>22,615 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>23.40</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>1,024.6 cu ft</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CARRIER, COMMAND AND RECONNAISSANCE: ARMORED, M114

General

CARRIER, COMMAND AND RECONNAISSANCE: armored, M114 is a light-weight, low silhouette vehicle designed for command and reconnaissance missions. The vehicle is capable of operation with full-rated load over unimproved roads, trails, hilly country, loose sand, snow, ice, soft marsh, rock-strewn areas, and inland waterways under all seasonal conditions in arctic, temperate, and tropical zones. Movement of the tracks propels and steers the vehicle on both land and water. The low net weight of the vehicle enables it to be transported by cargo aircrafts and parachute-dropped to using forces. A commander's cupola, with split hatch covers, incorporates a pintle mount for MACHINE GUN, CALIBER .50: M2* and is capable of 360-degree rotation. Two machine gun pintle mounts, capable of mounting MACHINE GUN, CALIBER .30: M1919A4 or M2, are located at the observer's station, one in front and one in rear of the hatch opening.

Differences among models

Data plate location

Classification: Standard A (AMCTCM 966).

CHARACTERISTICS

Model Line item No. Federal stock No. 2326-860-2249
M114 4-05196-10

Fuel octane rating (min): 91

Capacities:
Fuel: 110 gal
Cooling system: 35 qt

Crankcase:
Dry: 7 qt
Refill: 6 qt
w/filter change: 7 qt

Transmission:
Dry: 13 qt
Refill: 8 qt

Gear steer unit:
Dry: 15 qt
Refill: 11 qt

Engine:
Manufacturer: Chevrolet
Model: Military version of 283 cu in., V-8
Type: Overhead valve, liquid cooled, gasoline
Displacement: 283 cu in.
Bore: 3 7/8 in.
Stroke: 3 in.
Compression ratio: 8:1

Maximum governed speed (full load): 4,600 rpm
Brake horsepower, gross (Max w/std accessories): 160 @ 4,200 rpm
Torque, gross (max w/std accessories): 210 lb-ft @ 2,400 rpm
Type of ignition: Igniter

Transmission:
Manufacturer: Detroit Transmission Div.
Model: 705MC
Type: Hydraulic

Brakes:
multiple wet plate

Number of ratios: 3 forward and reverse
Final drive gear ratio: 4.17:1

Armament:
MACHINE GUN, CALIBER .30: M1919A4 or M37,

MACHINE GUN, 7.62 MILLIMETER: M73

MACHINE GUN, CALIBER .50: M50C or M2, flexible.

Communication system: radio and interphone

AG0 3018A

21-16A
PERFORMANCE

Maximum grade ability: 50%
Turning radius: 32 ft
Forcing depth: amphibious
Maximum vertical obstacle vehicle can climb: 18 ft
Maximum width of ditch vehicle can cross: 60 in.
Fuel consumption (average conditions): 2.72 mpg
Allowable speed, recommended: 34 mph
Cruising range (average conditions): approx. 308 mi

AMMUNITION

Cal .50 .................................................. 1,960 rounds
Cal .30 .................................................. 3,000 rounds
7.62-mm:
For machine gun................................... 3,000 rounds
For rifle ................................................. 150 rounds
Grenade:
Hand ................................................... 8
For LAUNCHER, GRENADE: M19 ............... 148

EQUIPMENT

Sighting and Fire Control:
BINOCULAR: M1A1
PERISCOPE, TANK: M13
PERISCOPE, TANK: M19
PERISCOPE, TANK: M26

Communications: Radio Sets and Combinations
AN/VRC-15 plus intercom AN/UIC-1 (Armored units);  
AN/VRC-9 plus intercom AN/UIC-1 (Artillery units).

** For characteristics and data, see item in sections 14 and 27.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped:
Length .............................................
Width .............................................
Height ............................................
Volume .......................................... 762 cu ft
Area ..............................................
Gross weight ...................................
Ship tons ......................................

Outside Continental United States

Shipped:
Length .............................................
Width .............................................
Height ............................................
Volume .......................................... 762 cu ft
Area ..............................................
Gross weight ...................................
Ship tons ......................................


**Note:** All dimensions shown are in inches.

### Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M56, w/ wn</td>
<td>2320-294-1942</td>
</tr>
<tr>
<td>M56, w/ wn</td>
<td>2320-833-8615</td>
</tr>
<tr>
<td>M56B1, w/ wn</td>
<td>44-40-8809</td>
</tr>
<tr>
<td>M56B1, w/ wn</td>
<td>2320-542-4633</td>
</tr>
</tbody>
</table>

### General

**CHASSIS, TRUCK:** ¾-ton, 4 x 4, M56 and M56B1, w/ and w/o wn and M56C w/wn, is provided for mounting ambulance or telephone maintenance bodies. They are equipped with a liquid cooled, 6-cylinder, L-head-type gasoline engine located at the front of the vehicle. Power is transmitted through the clutch and the four-speed transmission. A short propeller shaft connects the transmission to the two-range transfer unit. Power is then transmitted to both front and rear axles by propeller shafts.

Front and rear springs are of the semielliptic type. Hydraulic-type shock absorbers are used to control flexing of both front and rear springs.

The steering gear is the worm and sector type. A 24-volt electrical system supplies current for starting, ignition, lights, and horn. The electrical system is completely waterproofed. The lighting system includes service headlights, blackout driving light, marker lights, service and blackout tail and stop lights, and instrument panel lights.

### Differences among models

M56C is the same as chassis M56, except M56C is equipped with heavy-duty suspension on rear axle to provide improved stability. M56C is used for truck, bomb handling, ¾-ton, 4 x 4, X142 and truck, maintenance, ¾-ton, 4 x 4, XM201.

### Data plate location

Identification plates are located on the instrument panel in the driver compartment, in the engine compartment, and in the patient compartment of the ambulance truck M43.

### Classification

<table>
<thead>
<tr>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M56 w/o winch</td>
<td>2320-294-1942</td>
</tr>
<tr>
<td>M56 w/ winch</td>
<td>2320-833-8615</td>
</tr>
<tr>
<td>M56B1 w/o winch</td>
<td>44-40-8809</td>
</tr>
<tr>
<td>M56B1 w/ winch</td>
<td>2320-542-4633</td>
</tr>
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### Characteristics

<table>
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<th>Crew</th>
<th>2</th>
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<tbody>
<tr>
<td>Weight</td>
<td>5,200 lb</td>
</tr>
<tr>
<td>Net</td>
<td>5,450 lb</td>
</tr>
<tr>
<td>Live-axle gear ratio</td>
<td>5.83:1</td>
</tr>
</tbody>
</table>

### Axle load

<table>
<thead>
<tr>
<th>Empty</th>
<th>3,125 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2,075 lb</td>
</tr>
<tr>
<td>W/wnch Front axle</td>
<td>3,400 lb</td>
</tr>
<tr>
<td>W/wnch Rear axle</td>
<td>5,050 lb</td>
</tr>
</tbody>
</table>

### Gross load

<table>
<thead>
<tr>
<th>On highway</th>
<th>3,200 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/wnch</td>
<td>2,700 lb</td>
</tr>
<tr>
<td>W/wnch</td>
<td>2,450 lb</td>
</tr>
</tbody>
</table>

### Tires

<table>
<thead>
<tr>
<th>Size</th>
<th>21-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure</td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td>40 psi</td>
</tr>
<tr>
<td>Highway (no load)</td>
<td>30 psi</td>
</tr>
<tr>
<td>Tread, center to center</td>
<td>62 in.</td>
</tr>
</tbody>
</table>

### Ground clearance

| 10¾ in. |

### Electrical system

| Nominal voltage | 24 volt |
| Number of batteries (12 volt) | 2 |
| Fuel octane rating | 72-80 |

### Capacities

| Fuel | 24 gal |
| Cooling system | 17 qt |
| Crankcase, refill | 5 qt |
| Transmission | Through engine T245-3955 | .10½ pt (w/o pto) | .0 pt (w/o pto) |
| Transfer | After engine T245-3955 | .7 pt (w/o pto) | .0 pt (w/o pto) |
| Axles | Front | 6 pt |
| Rear | 6 pt |
| Winch gear lubricant capacity | 1 qt |
| Winch load capacity | 7,500 lb |

### Engine

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Dodge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>T-245</td>
</tr>
<tr>
<td>Type</td>
<td>gasoline, L-head, 6-cylinder, in-line</td>
</tr>
<tr>
<td>Displacement</td>
<td>230.2 cu in.</td>
</tr>
<tr>
<td>Bore</td>
<td>3.25 in.</td>
</tr>
<tr>
<td>Stroke</td>
<td>4.023 in.</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>6.7:1</td>
</tr>
<tr>
<td>Govered speed</td>
<td>3,400 rpm</td>
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</table>
**CHARACTERISTICS—Continued**

**Engine—Continued**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brake horsepower:</td>
<td></td>
</tr>
<tr>
<td>Net</td>
<td>78 @ 3,400 rpm</td>
</tr>
<tr>
<td>Gross</td>
<td>94 @ 3,400 rpm</td>
</tr>
<tr>
<td>Torque, gross</td>
<td>180 lb-ft @ 1,200 rpm</td>
</tr>
<tr>
<td>Brakes:</td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Dodge</td>
</tr>
<tr>
<td>Service brake, type</td>
<td>internal expanding front and rear</td>
</tr>
<tr>
<td>Drum size</td>
<td>14½ dia x 1¾ w</td>
</tr>
<tr>
<td>Parking brake</td>
<td>external contracting</td>
</tr>
<tr>
<td>Drum size</td>
<td>.71½ in. dia x 2 in. w</td>
</tr>
<tr>
<td>Transmission:</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>synchronemesh</td>
</tr>
<tr>
<td>Number of speeds</td>
<td>4 forward; 1 reverse</td>
</tr>
<tr>
<td>Gear ratio:</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>6.4:1</td>
</tr>
<tr>
<td>3rd</td>
<td>3.43:1</td>
</tr>
<tr>
<td>4th</td>
<td>1.69:1</td>
</tr>
<tr>
<td>Reverse</td>
<td>direct</td>
</tr>
<tr>
<td>Transfer:</td>
<td></td>
</tr>
<tr>
<td>Number of speeds</td>
<td>2</td>
</tr>
<tr>
<td>Gear ratio:</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.96:1</td>
</tr>
<tr>
<td>High</td>
<td>1.1:1</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum grade ability (lowest gear off highway load)</td>
<td>68 percent</td>
</tr>
<tr>
<td>Turning radius</td>
<td>87 ft</td>
</tr>
<tr>
<td>Fording depth:</td>
<td></td>
</tr>
<tr>
<td>W/o fording kit</td>
<td>42 in.</td>
</tr>
<tr>
<td>W/fording kit</td>
<td>.84 in.</td>
</tr>
<tr>
<td>Fuel consumption (loaded)</td>
<td>.9 mpg</td>
</tr>
<tr>
<td>Cruising range (loaded)</td>
<td>225 mi</td>
</tr>
<tr>
<td>Allowable speed (governed)</td>
<td>.55 mpg</td>
</tr>
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</table>

**EQUIPMENT**

**Basic Issue Items:** See TM 9-8030, C5.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th></th>
<th>M56, M56Bl</th>
<th>M56C w/wm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Continental United States</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipped Length</td>
<td>100½ in.</td>
<td>200½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>73½ in.</td>
<td>73½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>68½ in.</td>
<td>68½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>524 cu ft</td>
<td>628 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>105 sq ft</td>
<td>105 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>5,350 lb</td>
<td>5,350 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>13.10</td>
<td>13.20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>M56, M56Bl</th>
<th>M56C w/wm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outside Continental United States</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipped Length</td>
<td>199½ in.</td>
<td>203½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>73½ in.</td>
<td>73½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>63½ in.</td>
<td>63½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>524 cu ft</td>
<td>628 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>103 sq ft</td>
<td>105 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>5,350 lb</td>
<td>5,350 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>13.10</td>
<td>13.20</td>
</tr>
</tbody>
</table>

CHASSIS, TRUCK: 2\(\frac{1}{2}\)-TON, 6 X 6, M44 AND M44C, W/ AND W/O WINCH

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M44, w/w</td>
<td>2320-835-8299</td>
<td></td>
</tr>
<tr>
<td>M44, w/o w</td>
<td>2320-736-8278</td>
<td></td>
</tr>
<tr>
<td>M44C, w/w</td>
<td>2320-890-8361</td>
<td></td>
</tr>
<tr>
<td>M44C, w/o w</td>
<td>2320-766-8298</td>
<td></td>
</tr>
</tbody>
</table>

General:

CHASSIS, TRUCK: 2\(\frac{1}{2}\)-TON, 6 X 6, M44 and M44C, w/ and w/o w, mount optional type bodies. The M44 is the basic chassis for the TRUCK, CARGO: M3A and for the Signal Corps Maintenance Trucks V-17A/MTQ and V-18A/MTQ. They are equipped with one driving front axle and two driving rear axles. Provision is made for normal driving to be done by rear axles only. All axles are bevel drive top mounted, double reduction, single speed.

Power is supplied by a gasoline type, 6-cylinder, 4-cycle, water-cooled engine with overhead valves and removable wet-sleeve cylinders. Air compressor, carburetor, clutch, distributor, fuel pump, generator, oil filter, and starter are mounted on top. The transmission, mounted on rear of engine, has five speeds forward and one reverse. The transfer is mounted back of the transmission. The clutch is a dry-plate type. The cab is a metal, open top structure approximately 33 inches high, which surrounds the driver's compartment. A two-piece windshield is mounted at rear of cowl. An instrument panel, below windshield, serves as support for steering jacket assembly, and as mounting for instruments and switches. The cab is furnished with adjustable driver's seat and a companion seat. Doors are provided at each side. Foot operated ventilators are installed in lower portion of front panels. Tools are stored under driver's seat. The cab may be covered by a canvas tarpaulin or metal hard top cover.

The front winch assembly on vehicles so equipped is a worm-gear, jaw-clutch, single-drum assembly with an adjustable drum brake on the drum to prevent drum spin during free spooling of the drum line. The winch has an adjustable automatic worm brake for controlled lowering of a load.

Differences among models:

Data plate location

Identification plates (nameplates) are located on the instrument panel in the cab of the truck chassis.

Classification: Standard A (OTCM 37119)

CHARACTERISTICS

| Crew/Weight | Net: W/o winch | 10,285 lb | W/winch | 10,665 lb |
|            | Gross allowance: W/o winch | 17,850 lb | On highway | 22,850 lb |
|            | W/winch: Off highway | 17,350 lb | On highway | 22,850 lb |
|            | Axe load: Empty: W/o winch | 5,350 lb | Rear: 4,900 lb |
|            | W/winch: | Front: 5,815 lb | Rear: 4,820 lb |
|            | Tire: Size: | 11.00 x 20 | Ply: 12 |
|            | Pressure: Highway | 50 psi | Cross country: | 2 psi |
|            | Tread, center-to-center, front: | 69% in. | Ground clearance: 12½ in. |
|            | Pintle height, empty: | 3½ in. | Frame height at rear: 41½ in. |
|            | Frame octane rating: | 80 |
|            | Capacities: | Fuel tank: 50 gal | Cooling system: | 22 qt |
|            | | Crankcase refi: | 4 qt | Transfer, w/power-take-off: | 4.25 qt |
|            | | Transmission, w/power-take-off: | 7 qt | Transfer: | 7 qt |
|            | | Axles, each: 7 qt | Winch, load capacity: | 10,000 lb |
|            | Electrical system: | 24 volts | Number of batteries: 2 |
|            | Brakes: | Service: | Timken |
|            | | Manufacturer: | Reo Motors Inc. |
|            | | Type: | air-hydraulic |
|            | | Parking, type: | dual grip |
|            | | Engine: | Continental |
|            | | Manufacturer: | Model CAA-331 |
|            | | Model: | Model COA-331 |
|            | | Displacement: | 3.5L cu in. |

21-19
CHARACTERISTICS—Continued

Engine—Continued

Bore: .......................................................... 4½ in.
Stroke: .......................................................... 4½ in.
Compression ratio: 6.75:1
Governed speed:
   Full load .................................................. 3,400 rpm
   No load ....................................................... 3,600 rpm
Brake horsepower (max w/std accessories) .............. 127 @ 2,400 rpm
Torque (max w/std accessories) ......................... 248 lb-ft @ 1,400 rpm

Transmission:

Type: ................................................................ synchromesh
Forward speeds: .................................................. 5
Gear ratio:
   High .............................................................. 1:1
   Low .............................................................. 7.55:1

Transfer:

Speeds: ........................................................... 2
Gear ratio:
   High .............................................................. 1:1
   Low .............................................................. 1.98:1

PERFORMANCE

Computed grade ability in lowest gear (with towed load, off highway) ........ 64 percent
Turning radius:
   W/o winch .................................................. 33 ft
   W/winch ..................................................... 36 ft
Fording depth:
   W/o kit ....................................................... 40 in.
   W/kit ......................................................... 72 in.
Fuel consumption, w/body and payload ...................... 7 mpg
Cruising range, w/body and payload ......................... 350 mi
Maximum speed governed, w/body and payload ......... 62 mph

Maximum pintle tow, gross:
   Off highway .................................................. 6,000 lb
   On highway ................................................... 10,000 lb

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th></th>
<th>M44C</th>
<th>M44C</th>
<th>M44</th>
<th>M44</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/wn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>262 in.</td>
<td>263 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>85 in.</td>
<td>85 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>87 in.</td>
<td>87 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>1,053 cu ft</td>
<td>1,108 cu ft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>10,450 lb</td>
<td>10,665 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>36.32</td>
<td>27.7</td>
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Outside Continental United States

<table>
<thead>
<tr>
<th></th>
<th>M44C</th>
<th>M44C</th>
<th>M44</th>
<th>M44</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/wn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>263 in.</td>
<td>263 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>85 in.</td>
<td>85 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>87 in.</td>
<td>87 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>1,108 cu ft</td>
<td>1,108 cu ft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>10,665 lb</td>
<td>10,665 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>27.7</td>
<td>27.7</td>
<td></td>
<td></td>
</tr>
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</table>

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M45, w/wn</td>
<td>2320-736-8524</td>
<td></td>
</tr>
<tr>
<td>M45, w/o wn</td>
<td>2320-885-8196</td>
<td></td>
</tr>
<tr>
<td>M45C, w/wn</td>
<td>2320-219-7390</td>
<td></td>
</tr>
</tbody>
</table>

General

CHASSIS, TRUCK: 21/2-ton, 6 x 6, M45, w/ and w/o winch and M45C, w/wn mount optional type bodies or are used as a tractor truck. They are equipped with one driving front axle and two driving rear axles. Provision is made for normal driving to be done by rear axles only. All axles are bevel drive top mounted, double reduction, single-speed. Power is supplied by a gasoline type, 6-cylinder, 4-cycle, water-cooled engine with overhead valves and removable wet-sleeve cylinders. Air compressor, carburetor, clutch, distributor, fuel pump, generator, oil filter and starter are mounted on engine. The transmission, mounted on rear of engine, has five speeds forward and one reverse. The transfer is mounted back of the transmission. The clutch is single dry-plate type attached to flywheel. The cab is a metal, open top structure approximately 33 inches high, which surrounds the driver's compartment. A two-piece windshield is mounted at rear of cab. An instrument panel, below windshield, serves as support for steering jacket assembly, and as mounting for instruments and switches. The cab is furnished with adjustable driver's seat and a companion seat. Doors are provided at each side.

Foot operated ventilators are installed in lower portion of front panels. Tools are stored under driver's seat. The cab may be covered by a canvas tarpaulin or metal hard top closure.

The front winch assembly on vehicles so equipped is a wormgear, jaw-clutch, single-drum assembly with an adjustable drag brake on the drum to prevent drum spin during free spooling of the drum line. The winch has an adjustable automatic worm brake, for controlled lowering of a load.

The M45 is the basic chassis for the following 21/2-ton vehicles: Truck, cargo, M35; Truck, tank gasoline, M19 and M19C; Truck, tank, water, M50; Truck, tractor, M48; Truck, Van: medical, M132; Truck, Van shop, M109.

Differences among models

Chassis M45C is the same as M45, except M45C is equipped with walking beam suspension on the rear axle. M45C is used for: Truck, Crane, 21/2-ton, 6 x 6, M108 and Truck, Light Wrecker, 21/2-ton, 6 x 6, M60.

Data plate location

Identification plates (nameplates) are located on the instrument panel in the cab of the truck chassis.

Classification: Standard A (OTCM 30841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crew</td>
<td>2</td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>Net w/o winch</td>
<td>10,530 lb</td>
</tr>
<tr>
<td>Net w/wn</td>
<td>10,935 lb</td>
</tr>
<tr>
<td>Gross allowance:</td>
<td></td>
</tr>
<tr>
<td>W/o winch:</td>
<td></td>
</tr>
<tr>
<td>Off highway</td>
<td>6,080 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>11,990 lb</td>
</tr>
<tr>
<td>W/wn:</td>
<td></td>
</tr>
<tr>
<td>Off highway</td>
<td>6,565 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>11,565 lb</td>
</tr>
<tr>
<td>Axle gear ratio:</td>
<td>6.723:1</td>
</tr>
<tr>
<td>Axle load</td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
<td></td>
</tr>
<tr>
<td>W/o winch:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>5,190 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>5,330 lb</td>
</tr>
<tr>
<td>W/wn:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>5,600 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>5,245 lb</td>
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<tr>
<td>Tires:</td>
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</tr>
<tr>
<td>Size</td>
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<tr>
<td>Ply</td>
<td>8</td>
</tr>
<tr>
<td>Pressure:</td>
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</tr>
<tr>
<td>Highway:</td>
<td></td>
</tr>
<tr>
<td>Cross country:</td>
<td></td>
</tr>
<tr>
<td>Sand:</td>
<td></td>
</tr>
<tr>
<td>Tread, center to center, front</td>
<td>67/4 in</td>
</tr>
<tr>
<td>Ground clearance (lowest point)</td>
<td>11 in</td>
</tr>
<tr>
<td>Fintle height, empty</td>
<td>34 in</td>
</tr>
<tr>
<td>Frame height (at rear)</td>
<td>407/4 in</td>
</tr>
<tr>
<td>Fuel octane rating</td>
<td>80</td>
</tr>
<tr>
<td>Capacities:</td>
<td></td>
</tr>
<tr>
<td>Fuel tank</td>
<td>50 gal</td>
</tr>
<tr>
<td>Cooling system:</td>
<td>22 qt</td>
</tr>
<tr>
<td>Crankcase, refill</td>
<td>9 qt</td>
</tr>
<tr>
<td>Transmission, w/power-take off</td>
<td>4.25 qt</td>
</tr>
<tr>
<td>Transfer</td>
<td>7 qt</td>
</tr>
<tr>
<td>Axles (each)</td>
<td>7 qt</td>
</tr>
<tr>
<td>Winch (load capacity)</td>
<td>10,000 lb</td>
</tr>
<tr>
<td>Electrical system:</td>
<td></td>
</tr>
<tr>
<td>Voltage:</td>
<td>24 volt</td>
</tr>
<tr>
<td>Number of batteries</td>
<td>2</td>
</tr>
<tr>
<td>Brakes:</td>
<td></td>
</tr>
<tr>
<td>Service:</td>
<td></td>
</tr>
<tr>
<td>Manufacturer:</td>
<td>Timken</td>
</tr>
<tr>
<td>Type:</td>
<td>Internal, air/hydraulic</td>
</tr>
<tr>
<td>Parking, type:</td>
<td>Dual grip</td>
</tr>
<tr>
<td>Percent slope effective:</td>
<td>40</td>
</tr>
</tbody>
</table>

21-21
CHARACTERISTICS—Continued

Engine:
- Manufacturer: Reo Motors Inc. Model OA-331
- Continental Model CAO-331
- Type: gasoline, valve-in-head
- Number of cylinders: 6
- Displacement: 331 cu in
- Bore: 4.125 in
- Stroke: 4.125 in
- Compression ratio: 6.75:1

Computed grade ability in lowest gear (with load, off highway): 5.5 percent
Turning radius:
- W/3 winch: 36 ft
- W/no winch: 37.3 ft
Fording depth (les k) 40 in
Fuel consumption, loaded: 0 mpg
Cruising range, loaded: 300 mi
Allowable speed, governed: 65 mph

PERFORMANCE

Maximum pintle tow, gross:
- Off highway: 6,000 lb
- On highway: 10,000 lb

EQUIPMENT

Basic Issue Items: See TM 9-8022

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th></th>
<th>M45</th>
<th>M46</th>
<th>M46C</th>
</tr>
</thead>
<tbody>
<tr>
<td>M45</td>
<td>M46</td>
<td>M46C</td>
<td></td>
</tr>
<tr>
<td>Shipped</td>
<td>w/o winch</td>
<td>w/3 winch</td>
<td>w/3 winch</td>
</tr>
<tr>
<td>Length</td>
<td>232 in</td>
<td>275 in</td>
<td>321 in</td>
</tr>
<tr>
<td>Width</td>
<td>93 in</td>
<td>93 in</td>
<td>93 in</td>
</tr>
<tr>
<td>Height</td>
<td>91 in</td>
<td>91 in</td>
<td>91 in</td>
</tr>
<tr>
<td>Volume</td>
<td>1,180 cu ft</td>
<td>1,180 cu ft</td>
<td>1,180 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>26.1</td>
<td>26.1</td>
<td>26.1</td>
</tr>
<tr>
<td>Gross weight</td>
<td>10,52 lb</td>
<td>10,52 lb</td>
<td>11,50 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>25.3</td>
<td>25.3</td>
<td>20.25</td>
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Outside Continental United States

<table>
<thead>
<tr>
<th></th>
<th>M45</th>
<th>M46</th>
<th>M46C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>w/o winch</td>
<td>w/3 winch</td>
<td>w/3 winch</td>
</tr>
<tr>
<td>Length</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHASSIS, TRUCK: 2 1/2-TON, 6 X 6, M46 AND M46C

Major items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M46, w/winch</td>
<td></td>
<td>2320-835-8198</td>
</tr>
<tr>
<td>M46C, w/o winch</td>
<td></td>
<td>2320-342-4414</td>
</tr>
</tbody>
</table>

General

CHASSIS, TRUCK: 2 1/2-ton, 6 x 6, M46 and M46C, is provided to mount optional type bodies. The chassis M46 is the basic chassis for the 2 1/2-ton truck, except, M36.

The truck chassis are equipped with one driving front axle and two driving rear axles. Provision is made for normal driving to be done by rear axles only. All axles are bevel drive tap mounted, double reduction, single speed.

Power is supplied by a gasoline type, 6-cylinder, 4 cycle, water-cooled engine with overhead valves and removable wet-sleeve cylinders. Air compressor, carburetor, clutch, distributor, fuel pump, generator, oil filter, and starter are mounted on engine. The transmission mounted on rear of engine, has five speeds forward and one reverse. The transfer is mounted back of the transmission. The clutch is single dry-plate type attached to flywheel.

The cab is a metal, open top structure approximately 33 inches high, which surrounds the driver's compartment. A two-piece windshield is mounted at rear of cab. An instrument panel, below windshield, serves as a support for steering jacket assembly, and as mounting for instruments and switches. The cab is furnished with adjustable driver's seat and a companion seat. Doors are provided at each side. Foot-operated ventilators are installed in lower portion of front panels. Tools are stored under driver's seat. The cab may be covered by a canvas tarpaulin or metal hard top closure.

The front winch assembly on vehicles so equipped is a worm-gear, jaw-clutch, single-drum assembly with an adjustable drag brake on the drum to prevent drum spin during free spooling of the drum line. The winch has an adjustable automatic worm brake for controlled lowering of a load.

Differences among models

Data plate location

Identification plates (nameplates) are located on the instrument panel in the cab of the truck chassis.

Classification

M46 w/winch—Standard B (OCTM 36841)
M46C w/o winch—Standard A (OCTM 36876)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Crew</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Net:</td>
</tr>
<tr>
<td>W/winch</td>
<td>10,860 lb</td>
</tr>
<tr>
<td>W/winch</td>
<td>11,270 lb</td>
</tr>
<tr>
<td>Gross allowance:</td>
<td></td>
</tr>
<tr>
<td>W/o winch:</td>
<td></td>
</tr>
<tr>
<td>Off highway</td>
<td>18,090 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>20,860 lb</td>
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<tr>
<td>W/winch:</td>
<td></td>
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<tr>
<td>Off highway</td>
<td>18,480 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>21,270 lb</td>
</tr>
<tr>
<td>Axle gear ratio</td>
<td>6.72:1</td>
</tr>
<tr>
<td>Axle load:</td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>5,450 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>5,410 lb</td>
</tr>
<tr>
<td>W/winch:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>5,944 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>5,326 lb</td>
</tr>
<tr>
<td>Tires:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Size</td>
</tr>
<tr>
<td>High.</td>
<td>9.00 x 20</td>
</tr>
<tr>
<td>Cross c.</td>
<td>9.00 x 20</td>
</tr>
<tr>
<td>Sand</td>
<td>9.00 x 20</td>
</tr>
<tr>
<td>Tread, center-to-center, front:</td>
<td>67 1/2 in.</td>
</tr>
<tr>
<td>Ground clearance (lowest point):</td>
<td>12 1/2 in.</td>
</tr>
<tr>
<td>Pintle height, empty:</td>
<td>35 1/2 in.</td>
</tr>
<tr>
<td>Frame height (at rear):</td>
<td>41 1/4 in.</td>
</tr>
<tr>
<td>Fuel octane rating</td>
<td>72 to 80</td>
</tr>
<tr>
<td>Capacities:</td>
<td></td>
</tr>
<tr>
<td>Fuel tank:</td>
<td>50 gal</td>
</tr>
<tr>
<td>Cooling system:</td>
<td>22 qt</td>
</tr>
<tr>
<td>Crankcase, refill:</td>
<td>9 qt</td>
</tr>
<tr>
<td>Transmission, w/power-take-off:</td>
<td>4.25 qt</td>
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<tr>
<td>Transfer:</td>
<td>7 qt</td>
</tr>
<tr>
<td>Axle (each):</td>
<td>7 qt</td>
</tr>
<tr>
<td>Winch (load capacity):</td>
<td>10,000 lb</td>
</tr>
<tr>
<td>Electrical system:</td>
<td></td>
</tr>
<tr>
<td>Voltage:</td>
<td>24 volt</td>
</tr>
<tr>
<td>Type of ground:</td>
<td>negative</td>
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<tr>
<td>Brakes:</td>
<td></td>
</tr>
<tr>
<td>Manufacturer:</td>
<td>Timken-Detroit</td>
</tr>
<tr>
<td>Type:</td>
<td>air-hydraulic</td>
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<tr>
<td>Parking brake:</td>
<td></td>
</tr>
<tr>
<td>Type:</td>
<td>dual trip</td>
</tr>
<tr>
<td>Percentage of slope effective</td>
<td>21 - 23</td>
</tr>
</tbody>
</table>

21-23
**CHARACTERISTICS—Continued**

**Engine:**
- **Manufacturer:** Roe Motors Inc
- **Model:** OOA-331
- **Type:** gasoline, valve-in-head, 6 cyl.
- **Displacement:** 321 cu in.
- **Bore:** 4.125 in.
- **Stroke:** 4.125 in.
- **Compression ratio:** 6.75:1
- **Governed speed:**
  - Full load: 3,400 rpm
  - No load: 3,000 rpm
- **Brake horsepower:**
  - Maximum with std accessories: 127 @ 3,400 rpm
  - Maximum without std accessories: 140 @ 3,400 rpm
- **Torque:**
  - Maximum with std accessories: 248 lb-ft @ 3,400 rpm
  - Maximum without std accessories: 270 lb-ft @ 3,400 rpm

**Transmission:**
- **Type:** synchromesh
- **Forward speed:** 5
- **Gear ratio:**
  - High: 1:1; Low: 7.55:1

**Transfer:**
- **Speeds:** 2
- **Gear ratio:** High: 1:1; Low: 1.98:1

**PERFORMANCE**
- **Computed grade ability in lowest gear:** 65 percent
- **Turning radius:**
  - W/kit: 40 ft
  - W/o kit: 72 ft
- **Fuel consumption, loaded:** 25 mpg
- **Cruising range, loaded:** 350 mi
- **Allowable speed, governed:** 58 mph

**EQUIPMENT**

**Basic issue items:** See TM 9-8022, C5.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th></th>
<th>M48</th>
<th>M48C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
<td>336 in.</td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td>93 in.</td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td>82 in.</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td>1,473 lb</td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td>1,473 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td>14,270 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td>36.82</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<p>| | | |</p>
<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
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<tr>
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<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td>14,270 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td>36.82</td>
</tr>
</tbody>
</table>

**Maximum pintle tow, gross:**
- Off highway: 6,000 lb
- On highway: 10,000 lb

**REFERENCES:**
CHASSIS, TRUCK: 2½-TON, 6 X 6, M57 W/ AND W/O WINCH

(Illustration will be added at a later date.)

Model Line item No. Federal stock No. M57, w/ winch M57, w/o winch
M57, w/ winch 2320-690-7497 2320-369-7215

General

CHASSIS, TRUCK: 2½-ton, 6 x 6, M57 w/ and w/o winch is the basic chassis for TRUCK, DUMP: M47.

The truck chassis is equipped with one driving front axle and two driving rear axles. Provision is made for normal driving to be done by rear axles only.

Power is supplied by a gasoline type, 6-cylinder, 4-cycle, water-cooled engine with overhead valves and removable wet-sleeve cylinders. Air compressor, carburetor, clutch, distributor, fuel pump, generator, oil filter and starter are mounted on engine. The transmission mounted on rear of engine has five speeds forward and one reverse. The transfer is mounted back of the transmission. The clutch is a single dry-plate type attached to flywheel.

The cab is a metal open top structure; it may be covered by a canvas top or metal hardtop closure.

The front winch assembly, on vehicles so equipped, is a worm-gear, jaw-clutch, single-drum assembly with an adjustable drum brake on the drum to prevent drum spin during free spooling of the drum line. The winch has an adjustable automatic worm brake for controlled lowering of a load.

Differences among models

Data plate location

Classification: Standard

CHARACTERISTICS

Crew: 2

Weight:
Net: w/o winch 10,493 lb w/ winch 10,823 lb

Gross allowance:
w/o winch:
Off highway
On highway w/ winch:
Off highway
On highway

Axle gear ratio

Axle loads:
Empty:
w/0 winch:
Front Rear
w/ winch:
Front Rear

Tires:

Size
Ply
Pressure:
Highway
Cross country
Sand
Tread, center-to-center, front
Ground clearance (lowest point)
Frame height (at rear)

Fuel tank
Cooling system
Crankcase, refill
Transmission
Transfer
Winch:

Oil capacity
Load capacity

Engine:

Manufacturer: Reo Motors Inc.
Model No.: OA-331
Type: gasoline, valve-in-head, 6 cylinders
Displacement: 331 cu in.
Bore: 4.125 in.
Stroke: 4.125 in.
Compression ratio: 6.75:1
Governed speed:
Full load
No load

Brake horsepower (max):
w/ std accessories
w/o std accessories

Torque (max):
w/ std accessories
w/o std accessories

Transmission:
Type:
Forward speeds
Gear ratio:

Transfer:

Speeds:
Gear ratio

*For characteristics and data see item on page 27-70A.

AGO 0716A
PERFORMANCE
Computed grade ability in lowest gear
Turning radius:  
    w/o kit
    w/kit
Fuel consumption, loaded
Cruising range, loaded
Allowable speed, governed
Maximum tow load allowance:
    Off highway
    On highway

EQUIPMENT
Basic Issue Items

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 1 truck chassis uncrated per fixture.
Length:
    w/ winch 239 in.
    w/o winch 225½ in.
Width:
    w/ winch 85 in.
    w/o winch 85 in.
Height:
    w/ winch 81-13/16 in.
    w/o winch 81-13/16 in.
Volume:
    w/ winch 1,152.2 cu ft
    w/o winch 1,087.0 cu ft
Gross weight:
    w/ winch 10,823 lb
    w/o winch 10,193 lb
Ship tons:
    w/ winch 28.88
    w/o winch 27.18

Outside Continental United States

Shipped 1 truck chassis uncrated.
Length:
    w/ winch 239 in.
    w/o winch 225½ in.
Width:
    w/ winch 85 in.
    w/o winch 85 in.
Height:
    w/ winch 81-13/16 in.
    w/o winch 81-13/16 in.
Volume:
    w/ winch 961.0 cu ft
    w/o winch 908.0 cu ft
Gross weight:
    w/ winch 10,823 lb
    w/o winch 10,193 lb
Ship tons:
    w/ winch 23.1
    w/o winch 21.7

CHASSIS, TRUCK: 2\(\frac{1}{2}\)-TON, 6 X 6, M58, W/ AND W/O/WINCH

**Characteristics**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M58 w/o winch</td>
<td>2320-219-7331</td>
<td></td>
</tr>
<tr>
<td>M58 w/ winch</td>
<td>2020-650-7498</td>
<td></td>
</tr>
</tbody>
</table>

**General**

CHASSIS, TRUCK: 2\(\frac{1}{2}\)-ton, 6 x 6, M58 w/ and w/o winch, is the basic chassis for TRUCK, DUMP: M69, and TRUCK TRACTOR: M275. Optional type bodies may be mounted to chassis for use as a Truck Tractor.

The truck chassis is equipped with one driving front axle and two driving rear axles. Provision is made for normal driving to be done by rear axles only. All axles are bevel drive top mounted, double reduction, single speed.

Power is supplied by a gasoline type, 6-cylinder, 4-cycle, water-cooled engine with overhead valves and removeable wet-sleeve cylinders. Air compressor, carburetor, clutch, distributor, fuel pump, generator, oil filter, and starter are mounted on engine. The transmission, mounted on rear of engine, has five speeds forward and one reverse. The transaxle is mounted back of the transmission. The clutch is single dry-plate type attached to flywheel.

The cab is a metal open top structure approximately 33 inches high which surrounds the driver's compartment. A two-piece windshield is mounted at rear of cab. An instrument panel, below windshield, serves as a support for steering jacket assembly, and as a mounting for instruments and switches. The cab is furnished with adjustable driver's seat and a companion seat. Doors are provided at each side. Foot-operated ventilators are installed in lower portion of front panels. Tools are stored under driver's seat. The cab may be covered by a canvas top or metal hardtop closure.

The winch assembly on vehicles so equipped is a worm-gear, jaw-clutch single-drum assembly with an adjustable drum brake on the drum to prevent drum spin during free spooling of the drum line. The winch has an adjustable automatic worm brake for controlled lowering of a load.

**Differences among models**

| Data plate location | Identification plates are located on the instrument panel in the cab of the truck chassis. |

**Classification:** Standard A (OTCM 3891).

---

**Major item**

<table>
<thead>
<tr>
<th>Gross allowance:</th>
<th>W/o winch:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off highway</td>
<td>18,091 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>23,841 lb</td>
</tr>
<tr>
<td>W/ winch:</td>
<td></td>
</tr>
<tr>
<td>Off highway</td>
<td>18,451 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>21,201 lb</td>
</tr>
</tbody>
</table>

**Axle gear ratio:** 6.722:1

**Axle load:**

<table>
<thead>
<tr>
<th>Empty:</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/o winch:</td>
</tr>
<tr>
<td>Front:</td>
</tr>
<tr>
<td>Rear:</td>
</tr>
<tr>
<td>W/ winch:</td>
</tr>
<tr>
<td>Front:</td>
</tr>
<tr>
<td>Rear:</td>
</tr>
</tbody>
</table>

**Tires:**

| Size:          | 9.00 x 20 |
| Pressure:      |
| Highway:       | 50 psi    |
| Cross-country: | 55 psi    |
| Sand:          | 60 psi    |
| Tread, center-to-center: | 67\% in. |
| Ground clearance (lowest point): | 12\% in. |
| Frame height (at rear): | 40\% in. |
| Fuel octane rating: | 88 |

**Capacities:**

| Fuel tank: | 50 gal |
| Cooling system: | 22 qt |
| Crankcase, refill: | 8 qt |
| Transfer: | 4.25 qt |
| Transfer: | 7 qt |
| Axles (each): | 7 qt |
| Winch: |
| Oil capacity: | 1 qt |
| Load capacity: | 10,000 lb |

**Electrical system:**

| Voltage: | 24 Volt |
| Number of batteries: | 2 |

**Brakes:**

| Manufacturer: | Timken |
| Type:         | air-hydraulic |
| Parking, type: | dual grip |
| Percent slope effective: | 60 |

---

21-25
CHARACTERISTICS—Continued

Engine:

Manufacturer
Reo Motors, Inc. Model OA-331
Continental Model COA-331
Type
Gasoline, valve-in-head, 6 cylinders
Displacement
331 cu in.
Bore
4.125 in.
Stroke
4.125 in.
Compression ratio
6.75:1
Governed speed:
Full load 3,400 rpm
No load 3,600 rpm
Brake horsepower (max):
W/ std accessories 127 @ 3,400 rpm
W/o std accessories 145 @ 3,400 rpm
Torque (max):
W/ std accessories 248 lb-ft @ 1,400 rpm
W/o std accessories 270 lb-ft @ 1,400 rpm
Transmission:
Type Synchromesh
Forward speeds 5
Gear ratio high 1:1; low 7.55:1
Transfer:
Speeds 2
Gear ratio high 1:1; low 1.98:1

PERFORMANCE

Computed grade ability in lowest gear 65 percent
Turning radius 35 ft
Fording depth:
W/o kit 49 in.
W/kit 72 in
Fuel consumption, loaded 6 mpg

Cruising range, loaded 300 mi
Allowable speed, governed 62 mph
Maximum tow load allowance:
Off highway 4,000 lb
On highway 10,000 lb

EQUIPMENT

Basic Issue Items: See TM 9-8022, C5

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>M68</th>
<th>M68</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Width</td>
</tr>
<tr>
<td>323 in</td>
<td>92 in</td>
</tr>
<tr>
<td>Volume</td>
<td>2,140 cu ft</td>
</tr>
<tr>
<td>Area</td>
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<tr>
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Outside Continental United States

Shipped

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CHASSIS, TRUCK: 2 1/2-TON, 6 X 6, M133, W/ AND W/O WINCH

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

Major item

<table>
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<tr>
<th>Model</th>
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<tr>
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<tr>
<td>M133, w/o wn</td>
<td>2320-542-1297</td>
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General

CHASSIS, TRUCK: 2 1/2-ton, 6 x 6, M133 w/ and w/o wn is the basic chassis for the cargo truck M135 or for mounting general purpose bodies.

All vehicles are equipped with one driving front axle and two driving rear axles. The cargo truck M133 is equipped with single front and rear tires.

Power is supplied by a gasoline, 6-cylinder-in-line, valve-in-head engine, conventionally four-point mounted. Engine assembly and mounted accessories are accessible after hood is raised. A hydraulic transmission, mounted directly to engine, has four automatic forward speeds and one reverse in each of two ranges, high and low. A single-speed transfer, mounted to rear of transmission, transmits power through conventional propeller shafts to front and rear driving axles. A manually operated lever permits transfer to be placed in neutral or driving position.

The transfer is provided with an opening on the left side of the unit for mounting a power-take-off to operate winch equipment, or a power-take-off and accessory drive to operate dump body hoist, gasoline tank pump, water tank pump, and winch on vehicles so equipped.

Service brakes are air-actuated hydraulic-type, operating brake shoes at all wheels. Air-actuated power cylinder transmits hydraulic pressure to dual wheel cylinders at each wheel. A contracting hand-type parking brake assembly is mounted on output shaft at rear of transfer.

The vehicle is equipped with a three-man soft-top cab. The cab comprises a metal open-top inclosure around driver's compartment with metal doors hinged to cab structure on each side.

Provisions have been made in the standard vehicle design to permit ready installation of winterization and deepwater flooding equipment.

Differences among models

Data plate location

Identification plates (nameplate) are located on the instrument panel in the cab of the truck chassis.

Classification: Standard B (OYCM 3894).

CHARACTERISTICS

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<td></td>
<td>22,680 lb</td>
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<td></td>
<td>W/wnch</td>
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<tr>
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<tr>
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<td>7 3/4 qt</td>
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<tr>
<td></td>
<td>6 1/4 qt</td>
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<tr>
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<td>5 3/4 qt</td>
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<td>Winch:</td>
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</tr>
<tr>
<td></td>
<td>1 1/4 pt</td>
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<td>Voltage:</td>
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<td>Manufacturer:</td>
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<td>air-hydraulic</td>
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<tr>
<td></td>
<td>transfer</td>
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</table>

21-27
Engine:
Manufacturer: Gen. Motors Corp
Model: 302
Type: gasoline, valve-in-head, 6 cyl
Displacement: 302 cu in.
Bore: 4 in.
Stroke: 4 in.
Compression ratio: 7.2:1
Governed speed:
Full load: 3,400 rpm
No load: 3,600 rpm
Brake horsepower:
Maximum w/ std accessories: 130 @ 3,400 rpm
Maximum w/o std accessories: 145 @ 3,400 rpm
Governed speed:
Full load: 3,400 rpm
No load: 3,400 rpm
Torque:
Maximum w/ std accessories: 254 lb-ft @ 1,100-1,400 rpm
Maximum w/o std accessories: 265 lb-ft @ 1,200-2,000 rpm
Transmission:
Type: Hydromatic
Forward speeds: 8
High range: High 0:1; low 4.97:1
Low range: High 3.82:1; low 15.55:1
Transfer:
Speeds: 1
Gear ratio: 1.16:1
Perfomance:
Computed grade ability in lowest gear: 60 percent
Turning radius: 35 ft
Fording depth:
W/o kit: 50 in.
W/kit: 30 in.
Fuel consumption, loaded: 224 ml

Allowable speed, governed: 88 mph
Maximum pintle tow:
Off highway: (gross) 0.000 lb
On highway: (gross) 10,000 lb

Equipment:
Basic Issue Items: See TM 9-8024.

Storage and Shipment Data
Within Continental United States
Length:
Width:
Height:
Volume:
Area:
Gross weight:
Ship tons:

Outside Continental United States
Length:
Width:
Height:
Volume:
Area:
Gross weight:
Ship tons:

### General

CHASSIS, TRUCK: \( \frac{3}{4} \)-TON, 6 X 6, M207 AND M207C, W/ AND W/O WINCH. All vehicles are equipped with one driving front axle and two driving rear axles. Power is supplied by a gasoline, 6-cylinder in-line, valve-in-head engine, conventionally four-point mounted. Engine assembly and mounted accessories are accessible after hood is raised. A hydraulic transmission, mounted directly to engine, has four automatic forward speeds and one reverse in each of two ranges, high and low. A single-speed transfer, mounted to rear of transmission, transmits power through conventional propeller shafts to front and rear driving axles. A manually operated lever permits transfer to be placed in neutral or driving position. The transfer is provided with an opening on the left side of the unit for mounting a power-take-off to operate winch equipment, or a power-take-off and accessory drive to operate dump body hoist, gasoline tank pump, water tank pump, and winch on vehicles so equipped.

Service brakes are air-actuated hydraulic-type, operating brake shoes at all wheels. Air-actuated power cylinders transmit hydraulic pressure to dual wheel cylinders at each wheel. A contracting band-type parking brake assembly is mounted on output shaft at rear of transfer. All vehicles, except shop van truck M220, are equipped with a three-man soft-top cab. The cab comprises a metal open top enclosure around driver's compartment with metal doors hinged to cab structure on each side. Provisions have been made in the standard vehicle design to permit ready installation of winterization and deepwater fording equipment.

### Differences among models

Chassis truck, M207C is the same as M207 except it is equipped with walking beam suspension on rear axle. The M207C is used for truck crane, 2½-ton, 6 x 6, M221 and truck, light wrecker, 2½-ton, 6 x 6, M218.

### Data plate location

Identification plates (nameplate) are located in the cab of the truck chassis.

### Classification

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M207, w/wn</td>
<td>2320-691-1154</td>
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<tr>
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<td>2320-141-8345</td>
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<td>M207C, w/wn</td>
<td>2320-174-9086</td>
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<tr>
<td>M207C, w/o</td>
<td>2320-174-9085</td>
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</tbody>
</table>

### Major item

- **Model**
- **Line item No.**
- **Federal stock No.**

### Characteristics

- **Crew**: 2
- **Weight**: Net: W/o winch, 11,175 lb; W/ winch, 11,585 lb.
- **Gross allowance**: W/o winch: Off highway, 18,575 lb; On highway, 24,375 lb; W/ winch: Off highway, 18,575 lb; On highway, 24,375 lb.
- **Axle gear ratio**: 6.166:1
- **Axle load**: Empty: W/o winch, Front, 5,255 lb; Bogie, 5,920 lb; W/ winch, Front, 5,695 lb; Bogie, 5,990 lb.
- **Tires**: Size 9.00 x 20, Ply 8, Pressure 45 psi, Tread, center-to-center, front, 693/4 in.
- **Vehicle dimensions**: Ground clearance (lowest point), 12 in; Frame height (at rear), 393/4 in.
- **Fuel octane rating**: 80
- **Capacities**: Fuel tank, 36 gal; Cooling system, 22 qt; Crankcase, refill, 8½ qt; Transmission, 15 qt.
- **Transfer**: W/o power-take-off, 6½ pt; W/power-take-off, 7½ pt.

### Data plate location

Identification plates (nameplate) are located on the instrument panel in the cab of the truck chassis.
**CHARACTERISTICS—Continued**

<table>
<thead>
<tr>
<th>Capacities—Continued</th>
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<tbody>
<tr>
<td><strong>Axles:</strong></td>
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<tr>
<td>Front: 15 pt</td>
</tr>
<tr>
<td>Intermediate: 13 pt</td>
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<tr>
<td>Rear: 11 pt</td>
</tr>
<tr>
<td><strong>Winch:</strong></td>
</tr>
<tr>
<td>Oil capacity: 1 qt</td>
</tr>
<tr>
<td>Load capacity: 10,000 lb</td>
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<tr>
<td><strong>Electrical system:</strong></td>
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<td>Number of batteries: 2</td>
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<td>Voltage: 24</td>
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<td>Type of ground: negative</td>
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<td><strong>Brakes:</strong></td>
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<td>Manufacturer: Bendix</td>
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<td>Type: air-hydraulic</td>
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<td>Parking brakes (Type): transfer</td>
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<td><strong>Engine:</strong></td>
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<td>Manufacturer: Gen. Motors Corp.</td>
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<tr>
<td>Model: 302</td>
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<tr>
<td>Displacement: 301.6 cu in.</td>
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<td>Bore: 4 in.</td>
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<tr>
<td>Stroke: 4 in.</td>
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<td>Compression ratio: 7:1</td>
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<tr>
<td>Governed speed: Full load: 3,400 rpm</td>
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<td>No load: 3,400 rpm</td>
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<tr>
<td><strong>Brake horsepower:</strong></td>
</tr>
<tr>
<td>Max w/std accessories: 130 @ 3,400 rpm</td>
</tr>
<tr>
<td>Max w/o std accessories: 145 @ 3,400 rpm</td>
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<tr>
<td><strong>Torque:</strong></td>
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<td>Max w/std accessories: 480 lb-ft @ 1,200 rpm</td>
</tr>
<tr>
<td>Max w/o std accessories: 504 lb-ft @ 1,400 rpm</td>
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<tr>
<td><strong>Transmission:</strong></td>
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<td>Type: hydromatic</td>
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<td>Forward speeds: 8</td>
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<td>Gear ratio: High range: 1:1; low 4.076:1</td>
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<td>Low range: high 3.821:1; low 13.57:1</td>
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<td><strong>Transfer:</strong></td>
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<td>Speeds: 1</td>
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<td>Gear ratio: 1.16:1</td>
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</tbody>
</table>

**PERFORMANCE**

- Computed grade ability in lowest gear, loaded: 65 percent
- Turning radius: 34 ft
- Fording depth:
  - W/kit: 30 in.
  - W/kit: 30 in.
- Fuel consumption, loaded: 5.4 mpg
- Cruising range, loaded: 300 mi
- Allowable speed, governed: 35 mph
- Maximum tow load allowance:
  - Off highway: 8,000 lb
  - On highway: 10,000 lb

**EQUIPMENT**

**Basic Issue Items:** See TM 9-8024.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

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**Outside Continental United States**

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<tr>
<td>Gross weight</td>
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<td>Ship tons</td>
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**References:**
- TM 9-8024
- TM 9-8025-1
- TM 9-8025-2
- TM 9-18258
- TM 9-1827
- TM 9-1827A
- TM 9-1827C
- TM 9-8001
- TM 9-191AC
- TM 9-8024
CHASSIS, TRUCK: 5-TON, 6 X 6, M39, W AND W/O WINCH

General

CHASSIS, TRUCK 5-ton, 6 x 6, M39 w and w/o w is, is the basic chassis for the cargo truck M41. The chassis can be used as a general purpose or special equipment vehicle.

Both are six-wheel trucks equipped with one driving front axle and two driving rear axles.

Power is supplied by a 6-cylinder, 4-cycle, water-cooled, valve-in-head-type, gasoline engine. Accessories, such as generator, starter, distributor, oil filters, carburetor, and clutch are mounted on the engine.

The transmission mounted at the rear of the engine, has five speeds forward and one reverse. The clutch is of the single dry-disk type and is attached to the engine flywheel. The transfer is a two-speed unit driven by the transmission and distributes power to the front and rear axles through propeller shafts.

Some of the trucks are equipped with a winch mounted at the front of the truck on support brackets attached to frame side extensions. Power for operating the front winch is supplied by a propeller shaft extending from the power-take-off, mounted on the right side of the transmission, to the winch drive shaft. On vehicles, which are not equipped with a front winch, frame extensions, winch support brackets, power-take-off, and winch propeller shaft are omitted, and the front bumper is inverted when assembled to the vehicle.

Differences among models

Data plate location

Identification plate is mounted on the instrument panel to the right of the instrument cluster.

Classification: Standard II (OTCM 37119).

CHARACTERISTICS

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<th>Model</th>
<th>Line items No.</th>
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Fuel octane rating ............................................................................. 80

Capacities

Fuel .................................................................................................... 78 gal
Cooling system .................................................................................. 11 gal
Crankcase, refill .............................................................................. 21 qt
Transmission

W/power-take-off ............................................................................ 11 qt
W/o power-take-off ......................................................................... 9 qt

Transfer ........................................................................................... 51 qt

Axles

Front .............................................................................................. 12 qt
Rear ................................................................................................. 12 qt

Winch:

Oil capacity (front) ....................................................................... 2.5 pt
Load capacity (front) .................................................................... 20,000 lb

Electrical system:

No. of batteries ............................................................................. 2
Type of batteries ........................................................................... 81TN 23

Engine:

Manufacturer .................................................. Continental
Model ................................................................. R-6082
Type ................................................................. 6 cyl. valve-in-head
Displacement ....................................................... 662 cu in
Base .............................................................................. 4 in
Stroke .............................................................................. 5 in
Compression ratio .......................................................... 5.4:1
Governed speed ........................................................................ 1,200 rpm

Brake horsepower, gross (max w/std accessories) ........ 224 @ 2,800 rpm

Torque, gross (max w/std accessories) ......................... 504 ft.-lb @ 1,400 rpm

Brakes:

Type ................................................................. internal-expanding
Service brake:

Actuation .............................................................................. air-hydraulic
Drum size .............................................................................. 16 1/2 dia x 5 1/4 w
Parking brake:

Type ................................................................. internal-external
Drum size .............................................................................. 14 dia x 3 w

Transmission:

Manufacturer .......................................................... Spiecer
Model ................................................................. 6332
Type .............................................................................. synchronesh
No of speeds ........................................................................... 5 forward, 1 reverse

Gear ratios:

First ............................................................................... 7.31:1
Second ........................................................................... 4.88:1
Third ............................................................................... 2.41:1
Fourth .............................................................................. 1.43:1
Fifth ............................................................................... 1.00:1
Reverse .............................................................................. 7.34:1

21-31
CHARACTERISTICS—Continued

Transfer:

Manufacturer: Timken, Detroit

Model: T-138

No. of speeds: 2

Gear ratios:
Front output shaft: high 1.068:1; low 2.163:1
Rear output shaft: high 1.00:1; low 2.024:1

PERFORMANCE

Max grade ability (lowest gear with off-highway load) ........................................... 75.63%

Turning radius:
W/Winch .................................................................................................................... 41 ft. 7 in.
W/o Winch ........................................... 41 ft. 1 in.

Fording depth:
W/Winch ................................................................................................................. 30 in.
W/o Winch .............................................................................................................. 78 in.

Fuel consumption .................................................................................................... 4.44 mpg

Cruising range (loaded at 30 mph) ........................................................................... 244 mi

Maximum allowable towed load:
Cross-country ........................................................................................................ 15,000 lb
Highway .................................................................................................................. 30,000 lb

EQUIPMENT

Basic Issue Items: See TM 9-8028, C 7.

INSTRUCTIONAL MATERIAL

Graphic Training Aid: 9-25.


STORAGE AND SHIPMENT DATA

Within Continental United States

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CHASSIS, TRUCK: 5-TON, 6 X 6, M40 AND M40C, W/ AND W/O WINCH

### Major Item

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<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
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<td>M40, w/e</td>
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#### General

CHASSIS, TRUCK: 5-ton, 6 x 6, M40 and M40C w/ and w/o winch is a six-wheel truck equipped with one driving front axle and two driving rear axles. The chassis is used as component of general purpose or special equipment vehicles.

Power is supplied by a six cylinder, four cycle, water-cooled, valve-in-head-type, gasoline engine. Accessories, such as generator, starter, distributor, oil filters, carburetor, and clutch are mounted on the engine.

The transmission, mounted at the rear of the engine, has five speeds forward and one reverse. The clutch is of the single dry-disk-type and is attached to the engine flywheel. The transfer is a two-speed unit driven by the transmission and distributes power to the front and rear axles through propeller shafts. Some of the trucks are equipped with a winch mounted at the front of the truck on support brackets attached to frame side extensions. Power for operating the front winch is supplied by a propeller shaft extending from the power-take-off mounted on the right side of the transmission to the winch drive shaft. On vehicles which are not equipped with a front winch frame extensions, winch support brackets, power-take-off, and winch propeller shaft are omitted, and the front bumper is inverted when assembled to the vehicle.

#### Differences among models

The M40C is basically the same chassis as the M40 with the exception of being equipped with “walking beam” suspension and the frame being modified at the rear.

#### Data plate location

An identification plate is mounted on the instrument panel to the right of the instrument cluster.

#### Classification

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<tr>
<td>M40C w/wi</td>
<td>Standard A (OTCM 36841)</td>
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</table>

### CHARACTERISTICS

| Crew                   | 2 |
| Weight                |   |
| Net                   |   |
| W/o winch             | 10,786 lb |
| W/winch               | 17,303 lb |
| Axle gear ratio       | .9443:1 |

### Axle Load:

| Empty:                |   |
| W/o winch:            |   |
| Front                 | 7,776 lb |
| Rear                  | 4,063 lb |
| W/winch               |   |
| Front                 | 5,027 lb |
| Rear                  | 4,437 lb |

### Tires:

| Size                  | 11.00 x 20 |
| Ply                   | 12 |
| Pressure              | 70 psi |
| Track, center-to-center, front | 72 1/2 in. |
| Ground clearance       | 10 1/2 in. |
| Frame height, empty   | 30 1/4 in. |
| Frame height (at rear)| 43 3/4 in. |

### Fuel system:

| Type                  | 80 |

### Capacities

| Fuel                   | 78 gal |
| Cooling system         | 44 qt |
| Crankcase refill       | 18 qt |
| Transmission, w/power-take-off | 11 qt |
| Transfer               | 5 3/4 qt |
| Axles (each)           | 1 1/2 qt |
| Oil capacity           | 1.3 qt |
| Load capacity          | 20,000 lb |

### Electrical system:

| Voltage               | 24 |
| Type of ground        | -negative |

### Brakes:

| Service:               | Timken |
| Type:                  | hydraulic, air-actuated, dual grip |

### Engine:

| Manufacturer          | Continental |
| Type                  | R-6632 |
| Displacement          | 602 cu in. |
| Bore                  | 4 1/2 in. |
| Stroke                | 3 1/2 in. |
| Compression ratio     | 6.4 |
| Governor speed:       | 2,250 rpm |
| Brake horsepower (max w/std accessories) | 2,100 rpm |
| Torque (max w/std accessories) | 196 @ 2,100 rpm |
TM9-500

CHARACTERISTICS—Continued

Transmission:

- Type: Synchronesh
- Forward speeds: 5
- Gear ratio:
  - High: 1:1
  - 4th: 1.43:1
  - Low: 7.31:1

Transfer:

- Speeds: 2
- Gear ratio:
  - High front: 1.68:1
  - Rear: 1:00
  - Low front: 2.103
  - Rear: 2.024

PERFORMANCE

Computed grade ability in lowest gear (with towed load off highway):

- W/Winch: 49.2% percent
- W/o Winch: 50.76% percent

Turning radius:

- W/Winch: 14.08 ft
- W/o Winch: 1.09 ft

Fording depth: 87 in.

Fuel consumption, loaded (at 30 mph w/Winch off highway): 2.78 mpg

Cruising range, loaded: 217 mi

Allowable speed, governed: 52.6 mph

Max pintle tow, gross:

- Off highway: 15,000 lb
- On highway: 30,000 lb

EQUIPMENT

Basic Issue Items: See TM 9-8028, C7.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

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21–34
CHASSIS, TRUCK: 5-TON, 6 X 6, M61, W/WINCH

Major item.

Model Line item No. Federal stock No.
M61, w/o w/ 2320-835-8333
M61, w/e 2320-835-8332

General

CHASSIS, TRUCK: 5-ton, 6 x 6, M61 w/wn mounts optional type bodies or can be used as truck tractor. It is the basic chassis for the truck tractor M52.

The chassis is equipped with six wheels, one driving front axle, and two driving rear axles.

Power is supplied by a 6-cylinder, 4-cycle, water-cooled, valve-in-head-type, gasoline engine. Accessories, such as generator, starter, distributor, oil filters, carburetor, and clutch are mounted on the engine. The transmission, mounted at the rear of the engine, has five speeds forward and one reverse. The clutch is of the single dry-disk-type and is attached to the engine flywheel. The transfer is a two-speed unit driven by the transmission and distributes power to the front and rear axles through propeller shafts.

Some of the trucks are equipped with a winch mounted at the front of the truck on support brackets attached to the frame side extensions. Power for operating the front winch is supplied by a propeller shaft extending from the power-take-off mounted on the right side of the transmission to the winch drive shaft. On vehicles, which are not equipped with a front winch, frame extensions, winch support brackets, power-take-off, and winch propeller shafts are omitted, and the front bumper is inverted when assembled to the vehicle.

Differences among models

Data plate location

An identification plate (nameplate) is mounted on the instrument panel to the right of the instrument cluster.

Classification: Standard A (OTCM 38841).

CHARACTERISTICS

Crew: 2

Weight

Net:
W/o winch ........................................... 17,360 lb
W/ winch ........................................... 18,043 lb
Gross
W/ winch:
Off highway ........................................ 29,711 lb
On highway ........................................... 39,711 lb
W/ winch:
Off highway ........................................ 281,293 lb
On highway ........................................... 303,394 lb
Axle gear ratio
Off highway ........................................... 0.643:1
Axle load:
Empty:
W/ winch:
Front ........................................... 8,060 lb
Rear (each)........................................... 4,630 lb
W/ winch:
Front ........................................... 8,905 lb
Rear (each) ........................................ 4,510 lb

Tires:
Size ........................................... 11.00 x 20
Ply ........................................... 12
Pressure ........................................... 70 psi
Tread, center-to-center, front ........................................... 73 3/4 in.
Ground clearance ........................................... 10 3/4 in.
Frame height, empty ........................................... 30 3/4 in.
Frame height (at rear) ........................................... 48 3/4 in.
Fuel octane rating ........................................... 80

Capacities:
Fuel (two tanks) (each) ........................................... 55 gal
Cooling system ........................................... 44 qt
Crankcase, refill ........................................... 18 qt
Transmission, w/power-take-off ........................................... 11 qt
Transfer ........................................... 3.2 qt
Axles, each ........................................... 12 qt
Winch:
Oil capacity ........................................... 1 3/4 qt
Load capacity ........................................... 20,000 lb

Electrical system:
Number of batteries ........................................... 2
Type of ground ........................................... sensitive
Voltage ........................................... 24 volts

Brakes:
Service:
Manufacturer ........................................... Timken
Type ........................................... hydraulic, air-actuated
Parking brake type ........................................... dual grip

Engine:
Manufacturer ........................................... Continental
Model ........................................... R-6602
Type ........................................... 4 cycle, valve-in-head, (in line)
Number of cylinders ........................................... 6
Displacement ........................................... .602 cu in
CHARACTERISTICS—Continued

Engine—Continued

Bore ........................................ 4.54 in.
Stroke ........................................ 5.54 in.
Compression ratio ......................... 6.4
Governed speed:
   Full load ................................ 2,800 rpm
   No load ................................ 2,950 rpm
Brake horsepower (max w/std accessories) ................... 198 @ 2,800 rpm
Torque (max w/std accessories) .................. 480 lb-ft @ 1,200 rpm

Transmission:
   Type ...................................... synchronesh
   Forward speeds .................................. 5
   Gear ratio:
      High ........................................ 1.00:1
      4th ......................................... 1.43:1
      Low ........................................ 7.31:1

Transfer:
   Speeds ...................................... 2
   Gear ratio:
      High, front: 1.068, Low, front: 2.163
      High, rear 1.000, Low, rear 2.024

PERFORMANCE

Computed grade ability in lowest gear (with towed load, off highway):
   W/Winch ................................... 49.32%
   W/o Winch ................................... 51.07%

Turning radius:
   W/Winch ................................... 39.20 ft
   W/o Winch ................................... 38.75 ft

Fording depth ..................................... 78 in.

Fuel consumption, loaded (at 30 mph, w/Winch, off highway) .......... 2.79 mpg

Cruising range, loaded .................................. 307 mi

Allowable speed, governed ................................ 52.5 mph

Max pintle tow, gross:
   Off highway ........................................... 15,000 lb
   On highway ........................................... 30,000 lb

EQUIPMENT

Basic Issue Items: See TM 9-8028, C 7.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

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Outside Continental United States

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<td>Ship tons</td>
<td>32.5</td>
<td>34.75</td>
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CHASSIS, TRUCK: 5-TON, 6 X 6, M63 AND M63C

General

CHASSIS, TRUCK: 5-ton, 6 x 6, M63 and M63C, is equipped with six wheels, one driving front axle, and two driving rear axles. The chassis is used for mounting general purpose bodies or special bodies.

Power is supplied by a 6-cylinder, 4-cycle, water-cooled, valve-in-head-type, gasoline engine. Accessories, such as generator, starter, distributor, oil filters, carburetor, and clutch are mounted on the engine. The transmission, mounted at the rear of the engine, has five speeds forward and one reverse. The clutch is of the single dry-disk-type and is attached to the engine flywheel. The transfer is a two-speed unit driven by the transmission and distributes power to the front and rear axles through propeller shafts.

Some of the trucks are equipped with a winch mounted at the front of the truck on support brackets attached to frame side extensions. Power for operating the front winch is supplied by a propeller shaft extending from the power-take-off mounted on the right side of the transmission to the winch drive shaft. On vehicles which are not equipped with a front winch, frame extensions, winch support brackets, power-take-off, and winch propeller shaft are omitted, and the front bumper is inverted when assembled to the vehicle.

Differences among models

The M63C is basically the same chassis as the M63 with the exception of being equipped with "walking beam" suspension and the frame being modified at the rear.

Data plate location

An identification plate is mounted on the instrument panel to the right of the instrument cluster.

Classification

M63, w/e—Standard A (OTCM 36841)
M63, w/wn—Standard A (OTCM 38766)
M63C, w/wn—Standard A (OTCM 36876)

CHARACTERISTICS

Major item

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<td>M63C, w/wn</td>
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</table>

Weight—Continued

Gross:
- Off highway: 31,050 lb
- On highway: 45,062 lb
Axle gear ratio: 6.443:1
Axle load:
- Empty w/o winch: 8,361 lb
- Bare: 8,859 lb

Tires:
- Size: 11.00 x 20
- Ply: 12
- Pressure: 70 psi
- Tread, center-to-center, front: 73.5 in.
- Ground clearance: 10 in.
- Pintle height, empty: 30 in.
- Ground level: 45 in.
- Fuel octave rating: 80

Capacities:
- Fuel: 78 gal
- Cooling system: 44 qt
- Crankcase, refill: 18 qt
- Transmission, w/power-take-off: 11 qt
- Transfer: 5.2 qt
- Axles, each: 12 qt

Electrical system:
- Number of batteries: 2
- Type of ground: negative
- Voltage: 24

Brakes:
- Service:
  - Manufacturer: Timken
  - Type: hydraulic, air-actuated
- Parking, type: dual grip

Engine:
- Manufacturer: Continental
- Model: R-6602
- Type: 4 cycle, valve-in-head, 6 (in line) cyl
- Displacement: 602 cu in.
- Bore: 4.5 in.
- Stroke: 5 in.
- Compression ratio: 6.4
- Governed speed:
  - Full load: 2,800 rpm
  - No load: 2,800 rpm
- Brake horsepower (max w/std accessories): 186 @ 2,800 rpm
- Torque (max w/std accessories): 460 lb-ft @ 1,200 rpm

TAGO 419A
CHARACTERISTICS—Continued

Transmission:
  Forward speeds: 5
  Type: synchromesh
  Gear ratios:
    High: 1.001
    4th: 1.301
    Low: 7.351

Transfer:
  Speeds: 2
  Gear ratios:
    High, front: 1.068
    Low, front: 2.165
    High, rear: 1.068
    Low, rear: 2.084

PERFORMANCE

Computed grade ability in lowest gear (with towed load, off highway, w/o winch): 48.02 percent
Turning radius (w/o winch): 48.166 ft
Footing depth: 2.78 in
Fuel consumption, loaded (85 mph w/o winch off highway): 2.78 mpg
Cruising range, loaded (@ 30 mph w/o winch off highway): 217 mi
Allowable speed, governed: 52.6 mph
Max pintle tow, gross:
  Off highway: 15,000 lb
  On highway: 30,000 lb

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th></th>
<th>M63</th>
<th>M63 w/wi</th>
<th>M63C w/wi</th>
</tr>
</thead>
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</tr>
<tr>
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<td>Width</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>2,169 cu ft</td>
<td>2,289 cu ft</td>
<td>2,169 cu ft</td>
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<tr>
<td>Area</td>
<td>263 sq ft</td>
<td>299 sq ft</td>
<td>299 sq ft</td>
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<tr>
<td>Gross weight</td>
<td>19,342 lb</td>
<td>19,942 lb</td>
<td>21,514 lb</td>
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<td>Ship tons</td>
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Outside Continental United States

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<th>M63 w/wi</th>
<th>M63C w/wi</th>
</tr>
</thead>
<tbody>
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<td>Shipped:</td>
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<td>Width</td>
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<tr>
<td>Height</td>
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<td></td>
</tr>
<tr>
<td>Volume</td>
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<tr>
<td>Area</td>
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<tr>
<td>Gross weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
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References:

CHASSIS, TRUCK: 5-TON, 6 X 6, M139, M139C, AND M139D

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M139, w/wn</td>
<td>2320-835-834</td>
<td></td>
</tr>
<tr>
<td>M139C, w/6</td>
<td>2320-212-9030</td>
<td></td>
</tr>
<tr>
<td>M139D, w/6</td>
<td>2320-348-7797</td>
<td></td>
</tr>
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</table>

**General**

CHASSIS, TRUCK: 5-ton, 6 x 6, M139, M139C, and M139D, is equipped with six wheels, one driving front axle, and two driving rear axles. This chassis can be used as a component of general purpose or special equipment vehicles.

Power is supplied by a 6-cylinder, 4-cycle, water-cooled, valve-in-head-type, gasoline engine. The transmission, mounted at the rear of the engine, has five speeds forward and one reverse. The clutch is of the single dry-disk-type and is attached to the engine flywheel. The transfer is a two-speed unit driven by the transmission and distributes power to the front and rear axles through propeller shafts.

Some of the trucks are equipped with a winch mounted at the front of the truck on support brackets attached to frame side extensions. Power for operating the front winch is supplied by a propeller shaft extending from the power-take-off mounted on the right side of the transmission to the winch drive shaft. On vehicles, which are not equipped with a front winch, frame extensions, winch support brackets, power-take-off, and winch propeller shaft are omitted, and the front bumper is inverted when assembled to the vehicle.

**Differences among models**

Chassis truck M139 is specifically designed for the transporting of bridge building equipment.

Chassis truck M139C is specifically designed for transporting the 72-mm rocket launcher.

Chassis trucks M139C and M139D are equipped with high reduction axles to increase tractive power, and modified front cross member.

Chassis truck M139D has rear axle 1.02 in. and jack bracket supports.

**Data plate location**

An identification plate (nameplate) is mounted on the instrument panel to the right of the instrument cluster.

**Classification**

M139—Standard A (OTCM 36844)
M139C—Standard B (OTCM 37119)
M139D—Standard B (OTCM 37119)

**Characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross weight</td>
<td>42,000 lb</td>
</tr>
<tr>
<td>Axle gear ratio</td>
<td>4.43:1</td>
</tr>
<tr>
<td>Axle load (empty)</td>
<td>6,674 lb</td>
</tr>
<tr>
<td>Front</td>
<td>16,520 lb</td>
</tr>
<tr>
<td>Size</td>
<td>4.00 x 2 in.</td>
</tr>
<tr>
<td>Tread, center-to-center</td>
<td>76% tread</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>13 in.</td>
</tr>
<tr>
<td>Frame height</td>
<td>43% frame</td>
</tr>
<tr>
<td>Frame height</td>
<td>43.5 in.</td>
</tr>
<tr>
<td>Fuel capacity</td>
<td>0.5 gal.</td>
</tr>
<tr>
<td>Oil capacity</td>
<td>0.2 gal.</td>
</tr>
<tr>
<td>Load capacity</td>
<td>725 lb</td>
</tr>
<tr>
<td>Fuel system</td>
<td>12V</td>
</tr>
<tr>
<td>Number of batteries</td>
<td>12</td>
</tr>
<tr>
<td>Type of ground</td>
<td>Roadway</td>
</tr>
<tr>
<td>Brakes</td>
<td>Service</td>
</tr>
<tr>
<td></td>
<td>Manufacture</td>
</tr>
<tr>
<td></td>
<td>Type</td>
</tr>
<tr>
<td></td>
<td>Engine</td>
</tr>
<tr>
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<td>Manufacturer</td>
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<tr>
<td></td>
<td>Mode</td>
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<tr>
<td></td>
<td>Bore</td>
</tr>
<tr>
<td></td>
<td>Stroke</td>
</tr>
<tr>
<td></td>
<td>Compression ratio</td>
</tr>
<tr>
<td></td>
<td>Governor speed</td>
</tr>
<tr>
<td></td>
<td>Brake horsepower (max w/ std accessories)</td>
</tr>
<tr>
<td></td>
<td>Torque (max w/ std accessories)</td>
</tr>
</tbody>
</table>
CHARACTERISTICS—Continued

TRANSMISSION:
Type: Synchromesh
Forward speeds: 5

Gear ratios:
High: 1:1
Low: 7.31:1

TRANSFER:
Gears: 2
Gear ratios:
High: 1:1
Low: 2.024:1

PERFORMANCE
Computed grade ability in lowest gear w/off highway load... 43 percent
Turning radius: 47 ft
Fording depth: 78 in.
Fuel consumption, loaded: 3.2 mpg
Cruising range, loaded: 224 mi
Max pintle tow:
Gross: Off highway 15,000 lb
On highway 30,000 lb

EQUIPMENT
Basic Issue Items: See TM 9-8028, C 7.
INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th></th>
<th>M139</th>
<th>M139C</th>
<th>M139D</th>
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<tbody>
<tr>
<td>Shipped</td>
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<td></td>
</tr>
<tr>
<td>Length</td>
<td>378 in.</td>
<td></td>
<td></td>
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<tr>
<td>Width</td>
<td>115 in.</td>
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<tr>
<td>Height</td>
<td>89 in.</td>
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<tr>
<td>Volume</td>
<td>2,208 cu ft</td>
<td>2,208 cu ft</td>
<td>2,208 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>260 sq ft</td>
<td>260 sq ft</td>
<td>260 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>20,365 lb</td>
<td>20,365 lb</td>
<td>20,365 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>55.20</td>
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Outside Continental United States

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<tbody>
<tr>
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<tr>
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<tr>
<td>Volume</td>
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<tr>
<td>Area</td>
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<tr>
<td>Gross weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
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RECOVERY VEHICLE, FULL TRACKED: HEAVY, M51, W/E

Characteristics

<table>
<thead>
<tr>
<th>Crew</th>
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<tr>
<td>Length overall</td>
<td>399 in.</td>
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<tr>
<td>Length (front spade to)</td>
<td>269% in.</td>
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<tr>
<td>Width, overall</td>
<td>148 in.</td>
</tr>
<tr>
<td>Width of cab</td>
<td>124 in.</td>
</tr>
<tr>
<td>Height, overall</td>
<td>129 in.</td>
</tr>
</tbody>
</table>

Arrangement:

- **MACHINE GUN, CALIBER .50**: Browning, M2, heavy barrel, flexible, mounted on AA mount on commander’s cupola.

Data Plate Location

The data plate is located on the left front side of the driver’s compartment.

Classification: Standard B (OTCM 36841)

Transmission:

- Manufacturer: General Motors
- Model: XT-1400-2A
- Type: snow-drive
- Number of ranges: 3
  - Forward: 1
  - Reverse: 1
- Ratio from torque converter output shaft to final drive flange:
  - High range: 6.3:1
  - Low range: 112:1
- Reverse range: 112:1
- Final drive gear ratio: 6.03:1
CHARACTERISTICS—Continued

Engine:
- Manufacturer: Continental
- Model: AVS1-1790-6
- Type: 4 cycle, valve-in-head, 90° V, supercharged, fuel injection
- Displacement: 1,790 cu in.
- No. of cylinders: 12
- Bore: 5.75 in.
- Stroke: 5.75 in.
- Compression ratio: 5.5:1
- Maximum governed speed (full load): 2,800 rpm
- Brake horsepower, gross (max w/ std accessories): 1,020 @ 2,800 rpm
- Torque, gross (max w/ std accessories): 1,900 ft-lb @ 2,200 rpm
- Type of ignition: scintilla, high tension magneto

Auxiliary engine:
- Manufacturer: General Motors
- Model: A-41-2
- Type: 4 cycle, gasoline
- No. of cylinders: 1
- Bore: 3.5 in.
- Stroke: 4 in.
- Cooling: forced air
- Oil capacity: 3 qt
- Horsepower: 15
- Ignition: magneto

AMMUNITION
- Cal. .50: 1,500 rds
- Cal. .45: 180 rds
- Cal. .30: 540 rds
- Launcher, rocket, M20: 6 rds
- Hand grenades: 32

PERFORMANCE
- Maximum grade ability: 60 percent
- Turning radius, pivot to infinity
- Fording depth:
- Maximum vertical obstacle vehicle can climb: 30 in.
- Maximum width of ditch vehicle can cross: 109 in.

Fuel consumption (average conditions): .5 mpg
Allowable speed recommended: 30 mph
Maximum allowable towed load, gross: 120,000 lb
Cruising range (average conditions): 200 mi

EQUIPMENT

Communications:
- Radio set: (AN/GRC-3, -4, -7, -8, -13, -14, or -15)
- Interphone station for commanders

* Sighting and Fire Control:
  - PERISCOPE: M17
  - PERISCOPE: M19
  - Basic Issue Items: See TM 9-2320-204-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

- Length: 399 in.
- Width: 143 in.
- Height: 129 in.
- Gross weight: 106,500 lb
- Ship tons: 4.286 cu ft
- Area: 400 sq ft
- Gross weight: 120,000 lb
- Ship tons: 106.50

Outside Continental United States

- Length: 399 in.
- Width: 143 in.
- Height: 129 in.
- Gross weight: 120,000 lb
- Ship tons: 106.50

RECOVERY VEHICLE, FULL TRACKED: light, armored, M578
(T120E1), W/E

General
RECOVERY VEHICLE, FULL TRACKED: light, armored, M578 (T120E1) is a low, all-welded steel hulled, full tracked vehicle with an armored, independently operated cab and crane mounted on the hull near the rear of the vehicle. The hull, power plant, and running gear are similar to those of HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M110*. It is used to recover mechanized equipment which has been bogged down, turned over, or become so disabled it cannot be towed readily. The vehicle can also be used as a wrecker to tow disabled vehicles or as a crane at a repair base.

Differences among models

Data plate location

Classification: Standard A (AMCTCM 356).

CHARACTERISTICS

Crew
Length, overall (crane in travel position) .... 258 1/4 in.
Width, overall ............. 124 in.
Height, overall (crane in travel position) .... 138 1/2 in.
Height (to top of cupola) .......... 115 in.
Height of lifting hook ............ 97 3/4 in.

Armament:
MACHINE GUN, CALIBER 50: M2 or M85
RIFLE, 7.62 MILLIMETER: M14

Tracks
Width ............ 10 in.
Tread (center to center of track) .......... 104 in.
Outside to outside of track .......... 124 in.
Wheelbase ............. 115 3/4 in.
Angle of approach .......... 20 deg
Angle of departure .......... 30 deg
Type of fuel ............. (VW-P-800) diesel
Center of gravity above ground ........... 40 in.
Weight of vehicle:
w/crew and equipment ........... 54,960 lb
w/crew and equipment ........... 47,000 lb

Length of track on ground ........... 148 3/4 in.
Ground contact area - 0-inch penetration ........... 17.38 in.
Ground clearance ........... 19.5 in.
Ground pressure ........... 10.1 psi
Plated height .......... 27.13 in
Electrical system ........... 24 volt
Number of batteries .......... 4
Type of ground ............. Negative
Generator (Juck and Heintz, Model 53186-999) .......... 300 amp
Fuel cetane rating (minimum) .......... 40

Cylinders:
Hydraulic system .......... 165 gal
Fuel .......... 320 gal
Cooling system .......... 22 gal
Crankcase, refill (w/o radiator, cores, and lines) .......... 26 qt
Transmission, differential, and final drives, refill (w/o cooler, cores, and lines) .......... 26 qt
Brakes (service and parking) wet friction disk, mechanical

Transmission:
Manufacturer ............. Allison Div (GM)
Model ............. XTG-411-2A
Type ............. Cross drive
Number of ranges:
Forward .......... 4
Reverse .......... 2
Ratio from torque converter output shaft to final drive flanges:
High range .......... 0.78:1
Low range .......... 4.68:1
Reverse range .......... R-1-5.59:1
R-2-5.79:1
Final drive gear ratio .......... 5.35:1

Engine:
Manufacturer ............. General Motors Detroit Diesel
Model ............. 5V17T
Type ............. 12V, liquid cooled, turbocharged 2 cycle diesel
Displacement .......... 356 cu in.
Number of cylinders .......... 8
Bore .......... 4.05 in.
Stroke .......... 5 in.
Compression ratio .......... 17:1
Maximum governed speed: No load .......... 2,450 rpm
Hydraulic pump engaged .......... 1,250 rpm

For characteristics and data, see item in section 23.
Brake horsepower, gross: 425 lb-sec, 2,240 rpm
Torque, gross (max w/std accessories): 950 lb-ft, 1,780 rpm
Type of ignition: Compression

Boom and winch data:
- Boom: Type - tapered box construction
- Capacity: 15 ton
- Traverse: 1,700 deg
- Hoist winch capacity: 4,000 lb
- Tow winch capacity: 8,000 lb

AMMUNITION
- Cal., .50: 1,500 rounds
- 7.62-mm: 105 rounds

PERFORMANCE
- Maximum speed ability: 60 mph
- Turning radius (minimum): 15 ft
- Fording depth (including low wave): 42 in.
- Maximum vertical obstacle vehicle can climb: 3 ft, 4 in.
- Maximum width of ditch vehicle can cross: 7 ft, 9 in.
- Fuel consumption (average conditions): 1.5 mpg
- Allowable speed, recommended: 37 mph
- Cruising range (average conditions): 450 mi

EQUIPMENT
- Communication:
  Radio set, VRC/13, 14, or 15
  Radio set AN/VRC-46 w/interphone
- Sighting and fire control:
  Binocular: M17A1
  Periscope, TANK: M17

Basic Issue Items: See TM 9-2320-238-10

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 recovery vehicle, uncrated:
- Length: 255.25 in.
- Width: 124.0 in.
- Height: 115.0 in.
- Gross weight: 51,600 lb
- Volume: 2,030 cu ft
- Ship tons: 51.75

Outside Continental United States
Shipped 1 recovery vehicle, uncrated:
- Length: 255.25 in.
- Width: 124.0 in.
- Height: 115.0 in.
- Volume: 2,030 cu ft
- Gross weight: 51,600 lb
- Ship tons: 51.75

References: TM 9-2320-238-10, LO 9-2320-238-12.
**CHARACTERISTICS**

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<thead>
<tr>
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<th>Line item No.</th>
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<tbody>
<tr>
<td>M74</td>
<td>4-44250-40</td>
<td>2220-835-8646</td>
</tr>
</tbody>
</table>

**General**

RECOVERY VEHICLE, FULL TRACKED: medium, M74, is a full-track-laying, low-silhouette vehicle built on the medium tank M4A3 chassis. The vehicle is designed for recovering vehicles in the medium and light tank class. The vehicle is powered by an 8-cylinder, V-type, 4-cycle, water-cooled engine with overhead valves and two overhead camshafts, one for each bank of 4 cylinders. Power is transmitted to the final drive through a combined transmission, differential, and steering unit.

The vehicle utilizes the horizontal suspension system.

The hull of the vehicle is a welded steel structure, except for two access plates and an escape door on the bottom of the hull. The hull is divided into three compartments: the driver's compartment at the front, engine compartment at the rear, and winch compartment between the two. The (fixed) turret mounts the auxiliary winch and the commander's cupola. Boom cable doors are provided at the front and rear of the turret to allow the boom winch cable to pass through. The turret is also equipped with an escape hatch, portable spotlight reel, and mounting brackets for a LAUNCHER, ROCKET: 3.5 inch, M20 and a cal. .50 machine gun mount. A spade is provided to stabilize the vehicle during heavy lifting or winching operations, or as a bulldozer blade. Release, height adjustment, and stowage is accomplished from the inside.

**Data plate location**

The data plate is located on the left front sponson.

**Classification:** Standard B (TTCM 37028).

---

**Tracks:**

- Width: 23 in.
- Rubber: T84
- Steel: T80E8

**Tread (center to center of track):**

<table>
<thead>
<tr>
<th>Outside to outside of track</th>
<th>150-3/4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle of approach</td>
<td>30°</td>
</tr>
<tr>
<td>Angle of departure</td>
<td>30°</td>
</tr>
<tr>
<td>Type of fuel</td>
<td></td>
</tr>
<tr>
<td>Center of gravity above ground</td>
<td></td>
</tr>
<tr>
<td>Weight of vehicle:</td>
<td></td>
</tr>
<tr>
<td>Crew and equipment</td>
<td>33,750 lb</td>
</tr>
<tr>
<td>Empty</td>
<td>88,600 lb</td>
</tr>
</tbody>
</table>

**Ground contact area — 0 inch penetration:** 6,944 sq in

**Ground clearance:** 13.5 in.

**Ground pressure:** 13 psi

**Fishtail height (loaded):** 48 in.

**Electrical system:** 24 volts

**Number of batteries:** 4

**Type of ground:** negative

**Fuel octane rating:** 80

**Capacities:**

- Hydraulic system: 100 gal
- Fuel (total): 168 gal
- Cooling system: 56 qt
- Crankcase, refill (without cooler, cores, and lines): 42 qt
- Transmission, differential, and final drives, refill (without cooler, cores, and lines): 164 qt
- Brakes: mechanically-controlled differential steering lever

**Transmission:**

- Manufacturer: 
- Type: synchromesh-conventional
- No. of ranges: Forward: 5, Reverse: 1
- Gear ratio: First: 7.56:1, Second: 3.11:1, Third: 1.74:1, Fourth: 1.11:1, Fifth: 0.73:1, Reverse: 5.63:1
- Right angle drive ratio: 3.33:1
CHARACTERISTICS—Continued

Final-drive gear ratio ................................................. 3.36:1
Engine:
Manufacturer .......................................................... Ford
Model ................................................................. GAA
Type ................................................................. 4-cycle, valve-in-head (60° V) water-cooled
Displacement ........................................................... 1,100 cu in.
No. of cylinders ......................................................... 8
Bore ................................................................. 5.4 in.
Stroke ................................................................. 6 in.
Compression ratio ..................................................... 7.5:1
Max governed speed (fuel load) ................................... 2,600 rpm
Brake horsepower, gross (max w/std accessories) — 525 at 2,800 rpm
Torque, gross (max w/std accessories) 980 ft-lb at 2,600 rpm
Type of ignition ......................................................... magneto

AMMUNITION
Cal. .30 machine gun .................................................. 2,000 rd
Cal. .50 machine gun .................................................. 1,050 rd
3.5-inch rockets ....................................................... 0 rd
Hand grenades ......................................................... 8

PERFORMANCE
Maximum grade ability ................................................. 60 percent
Turning radius .......................................................... 37 ft
Fording depth:
w/o deep-water fording kit ........................................ 36 in.
w/deep-water fording kit ........................................... 36 in.
Maximum vertical obstacle vehicle can climb .................. 24 in.
Maximum width of ditch vehicle can cross .................... 90 in.
Fuel consumption (average conditions) ......................... 0.6 mpg
Allowable speed, recommended ................................... 21 mph
Maximum allowable towed load, gross ........................ 100,000 lb
Cruising range (average conditions) ............................ 100 mi

* For characteristics and data, see item in section 27.

EQUIPMENT
Communications:
Radio and interphone ........................................... AN/GRC-4, -6, or -8 or AN/VRC-13,
-14 or -15, or AN/UIC-1

Sighting and Fire Control:
PERISCOPE: M13
PERISCOPE: M19

Base Issue Items: See ORD 7 SNL G-281

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Skipped
Length ................................................................. 313 in.
Width ................................................................. 122 in.
Height ................................................................. 133 in.
Volume ............................................................... 3,688.2 cu ft
Area ................................................................. 364 sq ft
Gross weight ........................................................ 88,600 lb
Ship tons ............................................................. 66.45

Outside Continental United States

Skipped
Length .................................................................
Width .................................................................
Height .................................................................
Volume ...............................................................
Area .................................................................
Gross weight ........................................................
Ship tons ...........................................................

References: SNL G-281, TM 9-7402, LO 9-7402
RECOVERY VEHICLE, FULL TRACKED: MEDIUM, M88, W/E

NOTE: All DIMENSIONS SHOWN ARE IN INCHES

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M88</td>
<td></td>
<td>2320-675-3772</td>
</tr>
</tbody>
</table>

General

RECOVERY VEHICLE, FULL TRACKED: medium, M88, w/e, is a full-track-laying armored vehicle used to perform the rescue and recovery roles for vehicles in the medium and light tank class. The vehicle is powered by a 12-cylinder, 90° V, air-cooled, fuel injection engine. Power is transmitted to the final drives through a cross-drive transmission. This vehicle can be identified by its longer and lower silhouette than that of the other vehicles in this category.

The vehicle is supported by a torsion bar suspension system similar to the new procurement vehicle.

The vehicle hull is inclosed, affording the operating crew full protection from small arms fire, mortar fire, and land mines.

 Differences among models

Data plate location

Classification: Standard A (OTCM 37119)

CHARACTERISTICS

Crew........................................................................ 4
Length, overall................................................... 325½ in.
Width, overall...................................................... 135 in.
Height, overall.................................................... 127 in.
Armament:
CARBINE, CALIBER 30: M2....................................... 1
LAUNCHER, ROCKET: 3.5-inch, M20........................... 1
MACHINE GUN, CALIBER 50: Browning, M2................ 1
SUBMACHINE GUN, CALIBER 45: M3A1..................... 1

Tracks:
Width........................................................................ 28 in.
Tread (center-to-center-of-tracks)............................ 107 in.
Outside-to-outside-of-tracks.................................... 135 in.
Angle of approach.................................................
Angle of departure................................................
Type of fuel..........................................................
Center of gravity above ground................................
Weight of vehicle:
Crew and equipment.......................................... 112,000 lb
Empty......................................................................
Length of track on ground.....................................
Ground clearance................................................
Ground contact area – 0 inch penetration...................
Ground pressure...................................................
Pistole height, loaded......................................... 43½ in.

Electrical system.................................................. 24 volts
Number of batteries............................................. 4
Type of batteries................................................ 6TN
Fuel octane rating.............................................. 83–91

Capacities:
Fuel total.......................................................... 445 gal
Crankcase, refill (without cooler, cores, and lines)......... 64 qt
Final drive...........................................................

Brakes..................................................................... multiple wet plate, foot pedal operated

Transmission:
Manufacturer.................................................... Continental
Model................................................................. AV81-1790-6A
Type.................................................................. cross-drive
Final reduction.................................................... 4.03:1

Engine:
Manufacturer.................................................... Continental
Model................................................................. AV81-1790-6A
Type.................................................................. 90° V, air-cooled, supercharged, fuel injection
No. of cylinders.................................................... 12
Displacement....................................................... 1,791 cu. in.
Bore.................................................................. 5.746 in.
Stroke................................................................. 5.750 in.
Compression ratio................................................ 5.5:1
Maximum governed speed (full load)......................... 2,800 rpm
Brake horsepower, gross (max w/std accessories)......... 390 at 2,900 rpm
Torque, gross (max w/std accessories)....................... 1,840 ft-lb at 2,800 rpm
Type of ignition................................................... magneto

Boom and Winch Data:

Boom capacity:
Spade up-4 part line............................................ 6 tons
Spade down-4 part line......................................... 25 tons

Boom maximum lift height:
At 8 ft reach..................................................... 19 ft
At 4 ft reach..................................................... 25 ft

Main winch:
Cable size........................................................ 1¾ dia. 6 x 31 LWRC
Cable length..................................................... 200 ft
Line pull and speed:
Bare drum: 90,000 lb at 27 fpm, low speed; 108 fpm, high speed
Full drum: 51,400 at 42 fpm, low speed; 170 fpm, high speed

Hoist winch:
Cable size........................................................ ¾ dia. 6 x 19 fibercore
Cable length..................................................... 400 ft
Line pull and lifting speed:
Bare drum: 4 part line-50,000 lb at 8¾ fpm, low speed;
95 fpm, high speed
Full drum: 4 part line-30,000 lb at 16 fpm, low speed;
86 fpm high speed

21-47
CHARACTERISTICS—Continued

Operable height and reach of boom:
- At 0 ft. in. (reach): Height of boom: 201 in. Height of lifting hook: 267 in. Lowest operable height: 115 in.
- At 76 in. (reach): Height of boom: 237 in. Height of lifting hook: 27 in.

AMMUNITION
- Cal. .50: 1,500 rd
- Cal. .30: 180 rd
- Cal. .45: 180 rd
- Rockets: 10

PERFORMANCE
- Maximum grade ability: 60 percent
- Turning radius: pivots
- Fording depth:
  - w/o deep-water fording kit: 24 in.
  - w/ deep-water fording kit: 42 in.
- Maximum vertical obstacle vehicle can climb: 103 in.
- Fuel consumption (average conditions): 0.5 mpg
- Maximum directional pull: 81,000 lb
- Maximum tractive effort: 122,000 lb
- Cruising speed (average conditions): 30 mph

EQUIPMENT
- Communications:
  - Radio set: AN/GRC-1 or -8 or AN/GRC-15, -14, or -15

* Sighting and Fire Control:
  - BINOCULAR: (CH) M18
  - PERISCOPE: M17
  - PERISCOPE: M24

Basic Issue Items: See TM 9-2320-222-10P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped Within Continental United States
- Length: 325½ in.
- Width: 135 in.
- Height: 127 in.
- Volume: 3,231 cu ft
- Area: 305 sq ft
- Gross weight: 80.75 tons

Shipped Outside Continental United States
- Length: 
- Width: 
- Height: 
- Volume: 3,231 cu ft
- Area: 305 sq ft
- Gross weight: 
- Ship tons: 

TRUCK, CARGO: 3/4-TON, 4 X 4, M37 AND M37BI, W- AND W-O WINCH

Data plate location

The vehicle identification plate is located on the instrument panel at the right of the instrument cluster.

Classification:

TRUCK, CARGO: 3/4-ton, 4 x 4, M37 and M37BI, is a lightweight, open-top cab, four-wheel drive vehicle used to transport personnel or light general cargo. These vehicles are built on a heavy-duty chassis and may be identified by the high-wide fenders, flat hood, knock-down type wheels, and large tires.

Differences among models

The differences between models M37 and M37BI are not visual. However, M37BI has greater interchangeability of parts within the supply system.

Data plate location

The vehicle identification plate is located on the instrument panel at the right of the instrument cluster.

Classification:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M37</td>
<td>4-0039-25</td>
<td>2230-835-8322</td>
</tr>
<tr>
<td>M37BI, w/e</td>
<td>4-0039-01</td>
<td>2230-842-4636</td>
</tr>
<tr>
<td>M37, w/wn, w/e</td>
<td>4-0039-25</td>
<td>2230-836-8322</td>
</tr>
<tr>
<td>M37BI, w/wn</td>
<td>4-0039-91</td>
<td>2230-842-4636</td>
</tr>
</tbody>
</table>

CHARACTERISTICS

Crew: 2
Length, overall: W/wn 1897/16 in. W/o wn 1847/8 in.
Width: 73/4 in.
Height:
  Loaded: 897/4 in.
  Light: 819/16 in.
Weight (fully equipped, less payload and personnel):
  W/wn: 5,950 lb
  W/o wn: 5,700 lb
Payload:
  Cross country: 3,000 lb
  Highway: 2,000 lb
Axle gear ratio (front and rear): 6.83:1

CHARACTERISTICS—Continued

Axle load:
  Empty:
    W/Winch:
      Front: 3,275 lb
      Rear: 2,375 lb
    W/o Winch:
      Front: 3,000 lb
      Rear: 2,700 lb
  Loaded:
    W/Winch:
      Front: 3,481 lb
      Rear: 2,381 lb
    W/o Winch:
      Front: 3,174 lb
      Rear: 4,371 lb
Tires:
  Size: 9.00 x 16
  Ply: 8
  Pressure: 40 psi
  Tread, center-to-center, front and rear: 62 in.
Electrical system:
  Number of batteries: 2 (12 volt)
  Voltages: 24
  Type of ground: negative
  Fuel octane rating: 82-89
  Capacities:
    Cooling system w/o heater: 17 qt
    Crankcase (refill): 5 qt
    Fuel tank: 24 gal
    Steering gear: 1 pt
    Axles: 3 qt
    Transmission:
      Through engine T245-3955: 7 pt (w/o p00) 6 pt (w/o p00)
      After engine T245-3955: 7 pt (w/o p00) 6 pt (w/o p00)
    Winch clutch housing: 1 qt
    Winch worm housing: 1 qt
    Transfer: 5 pt
Brakes:
  Manufacturer: Dodge
  Type: Hydraulically
  Parking brake: External contracting

Engine:
  Manufacturer: Dodge
  Model: T245
  Type: 4 cycle L-head
  No. cylinders: (In Line) 6

TAGO 419A

21-49
### CHARACTERISTICS—Continued

**Engine—Continued**
- **Displacement**: 230.2 cu in.
- **Bore**: 3\(\frac{1}{4}\) in.
- **Stroke**: 4\(\frac{3}{4}\) in.
- **Compression ratio**: 6.7:1
- **Governed speed**: 3,400 rpm
- **Brake horsepower (w/ std accessories)**: 78 at 2,300 rpm
- **Torque (w/ std accessories)**: 177 lb-ft at 1,200 rpm

**Transmission**
- **Type**: Synchromesh
- **Forward speeds**: 4
- **Gear ratio**:
  - High: 1:1
  - Low: 6.4:1

### PERFORMANCE

- **Computed grade ability in lowest gear**: 65 percent
- **Turning radius**: 25 ft
- **Fuel consumption**: 9 mpg
- **Cruising speed**: 53 mph
- **Fording depth**:
  - w/ fording kit: 84 in.
  - w/o fording kit: 62 in.

### ADDITIONAL DATA

- **Live axle type**: Hypoid fully floating
- **Body**
  - **Insider dimension**:
    - **Length**: 78 in.
    - **Width**: 64 in.
    - **Height**: 54 in.

- **Cargo space**: 170 cu ft
- **Winch capacity**: 7,500 lb
- **Chassis**: M13

### EQUIPMENT

**Basic Issue Items**: See TM 9-8030.

### INSTRUCTIONAL MATERIAL

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**
- **Ship uncrated, w/ winch**
  - **Length**: 189 in.
  - **Width**: 73 in.
  - **Height**: 64 in.
  - **Area**: 96 sq ft
  - **Volume**: 513 cu ft
  - **Gross weight**:
  - **Ship tons**:

**Outside Continental United States**
- **Ship uncrated, w/ winch**
  - **Length**:
  - **Width**:
  - **Height**:
  - **Area**: 97 sq ft
  - **Volume**: 513 cu ft
  - **Gross weight**:
  - **Ship tons**:

**References**

**TAGO A**
TRUCK, CARGO: 2½-TON, 6 x 6, M135, W/ AND W/O WINCH, W/E

<table>
<thead>
<tr>
<th>Major items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>M135, w/o winch</td>
</tr>
<tr>
<td>M135, w/winches</td>
</tr>
</tbody>
</table>

**General**

TRUCK, CARGO: M135, 2½-ton, 6 x 6, is dual-tired vehicle used to transport general cargo and personnel. The cab is canvas-covered, open-top type. The cab sides and body side boards can be removed.

**Differences among models**

Data plate location

The vehicle identification plate is located on the instrument panel at the right of the instrument cluster.

**Classification**

M135, Standard B (OTCM 36841)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Crew</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, overall:</td>
<td>267 in.</td>
</tr>
<tr>
<td>w/winch</td>
<td>255 in.</td>
</tr>
<tr>
<td>Width</td>
<td>88 in.</td>
</tr>
<tr>
<td>Height as supplied for travel</td>
<td>80 in.</td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>Net:</td>
<td>12,740 lb</td>
</tr>
<tr>
<td>w/winch</td>
<td>12,330 lb</td>
</tr>
<tr>
<td>Payload</td>
<td>10,000 lb</td>
</tr>
<tr>
<td>Rear axle gear ratio</td>
<td>6.17:1</td>
</tr>
<tr>
<td>Axle load:</td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>5,540 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>3,600 lb</td>
</tr>
<tr>
<td>Loaded:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>7,970 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>7,560 lb</td>
</tr>
<tr>
<td>Tires:</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>11.00 x 20</td>
</tr>
<tr>
<td>Ply</td>
<td>12</td>
</tr>
</tbody>
</table>

**Pressure**

- Highway: 70 psi
- Snow: 35 psi
- Sand: 35 psi
- Tread, center-to-center front: 71 in.

**Electrical system:**

- Number of batteries: 2
- Volts: 28
- Type ground: negative
- Fuel octane rating: 86

**Capacities:**

- Cooling system w/o heater: 22 qt
- Crankcase refill: 11 qt
- Fuel tank: 30 gal
- Steering gear: |
- Axles:
  - Transmission: 15 qt
  - Winch clutch housing: 1½ pt
  - Winch worm housing: 1½ pt

**Brakes:**

- Manufacturer: Bendix
- Type: air-hydraulic
- Parking: transfer

**Engine:**

- Manufacturer: General Motors
- Model: 302
- Type: 4 cycle valve in head
- No. cylinders: 6
- Displacement: 301.6 cu in.
- Bore: 4 in.
- Stroke: 4 in.
- Compression ratio: 7.2:1
- Governed speed: 3,400 rpm
- Brake horsepower (w/ std accessories): 130 at 3,200 rpm
- Torque (w/std accessories): 262 lb-ft at 1,200 rpm

**Transmission:**

- Type: hydramatic
- Forward speeds: 8
- High range:
  - High: 1:1
  - Third: 1.55:1
  - Low: 4.67:1

21-51
CHARACTERISTICS—Continued

Transmission—Continued

Low range:
- High: 3.82:1
- Third: 5.92:1
- Low: 15.55:1

Live axle: double reduction full-floating

Body cargo space: 408 cu ft

Winch capacity: 10,000 lb

Chassis: M183

PERFORMANCE

Computed grade ability in lowest gear: 60 percent

Turning radius: 34 ft.

Fuel consumption: 4 mpg

Cruising range: 350 mi

Allowable speed (governed): 58 mph

Fording depth:
- w/fording kit: 78 in.
- w/o fording kit: 30 in.

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Area</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncrated w/winch</td>
<td>207 in.</td>
<td>78 in.</td>
<td>80 in.</td>
<td>163 sq ft</td>
<td>1,425 cu ft</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Area</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncrated w/winch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TRUCK CARGO: 21/2-TON, 6 X 6, M34, W/ AND W/O WINCH, W/E

Major items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M34, w/o wn</td>
<td>4-60110-25</td>
<td>2320-730-745</td>
</tr>
<tr>
<td>M34, w/wn</td>
<td>4-60141-25</td>
<td>2320-835-8030</td>
</tr>
</tbody>
</table>

General

TRUCK CARGO: 21/2-ton, 6 x 6 M34, is a heavy-duty carrier of personnel and general cargo. It is a six-wheel drive, single-tired vehicle with a 12-foot steel body. Cargo racks and tarpaulin racks are provided and are removable. The spare wheel is carried below the chassis.

Differences among models

Data plate location

The responsible agency data plate is located on the instrument panel to the right of the instrument cluster.

Classification: Standard B (OTCM 37119).

CHARACTERISTICS

Crew: 2

Length, overall:
- w/wn: 275 in.
- w/o wn: 362 in.

Width: 88 in.

Height (as supplied for travel): 109 in.

Weight, net:
- w/wn: 12,190 lb
- w/o wn: 11,775 lb

Payload (highway): 10,350 lb

Rear axle gear ratio: 6.72:1

Axle load:
- Empty:
  - Front: 6,900 lb
  - Rear: 3,145 lb
- Loaded:
  - Front: 6,325 lb
  - Rear: 3,707 lb

Tires:
- Ply: 12
- Size: 11.00 x 20
- Pressure:
  - Highway: 70 lb
  - Cross country: 52 lb
  - Sand: 25 lb
  - Tread, center-to-center, front: 69 1/4 in.

Electrical System:
- Number batteries: 2
- Voltage: 24
- Type ground: Negative

Fuel octane rating: 80

Capacities:
- Cooling system w/o heater: 22 qt
- Crankcase (refill): 9 qt
- Fuel tank: 60 gal
- Steering gear: 1 pt
- Axles: 7.5 qt
- Transmission: 6.73:1
- Winch clutch housing: 1 pt
- Winch worm housing: 1 pt

Brakes:
- Manufacturer: Timken
- Type: Air-actuated hydraulic
- Parking type: Transfer

Engine:
- Manufacturer: Reo Motors Inc.
- Type: Continental Model OA-331
- Valve in head: 4-cycle
- No. cylinders: 6
- Displacement: 331 cu in.
- Bore: 4 1/2 in.
- Stroke: 4 7/16 in.
- Compression ratio: 6.73:1
- governed speed: 3,400 rpm
- Brake horsepower (w/ std accessories): 146 at 3,400 rpm
- Torque (w/ std accessories): 248 lb-ft at 1,400 rpm

Transmission:
- Type: Synchromesh
- Forward speed: 5
- Gear ratio:
  - High: 1:1
  - Low: 7.55:1
- Live axle, type: Spiral bevel full-floating
- Body cargo space: 408 cu ft
- Chassis: M44

PERFORMANCE

Computed grade ability in lowest gear: 61 percent
- Turning radius: 36 ft
- Fuel consumption: 8 mpg
- Cruising range: 350 mi
- Allowable speed (governed): 58 mph
- Fording depth:
  - w/fording kit: 72 in.
  - w/o fording kit: .

EQUIPMENT

Basic Issue Items: See TM 9-8002, Cs

21-53
**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Uncrated, w/ winch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>273½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>88 in.</td>
</tr>
<tr>
<td>Height</td>
<td>105 in.</td>
</tr>
<tr>
<td>Area</td>
<td>169 sq ft</td>
</tr>
<tr>
<td>Volume</td>
<td>1150 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

*Outside Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Uncrated, w/ winch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, CARGO: 2 1/2-TON, 6x6, M35 AND M35A1, W/ AND W/O WINCH, W/E

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M35, w/o win, soft top</td>
<td>1 06110 29</td>
<td>2820 825-8161</td>
</tr>
<tr>
<td>M35, w/o win, hard top</td>
<td>1 06110 28</td>
<td>2820 825-8163</td>
</tr>
<tr>
<td>M35A1, w/o win, hard top</td>
<td>1 06110 47</td>
<td>2820 825-8159</td>
</tr>
<tr>
<td>M35, w/ win</td>
<td>1 06110 22</td>
<td>2820 542-5434</td>
</tr>
<tr>
<td>M35A1, w/ win</td>
<td>1 06110 29</td>
<td>2820 542-5433</td>
</tr>
</tbody>
</table>

**General**

TRUCK, CARGO: 2 1/2-ton, 6 x 6, M35 and M35A1, is a vehicle used to transport general cargo or personnel. The truck has troop seats for 14 passengers when it can carry in lieu of cargo. It is dual-fired on the rear wheels. The body is a 12-foot steel finished type. Sides and gantry frames are removable.

**Differences among models**

The M35 cargo truck has a spark plug ignition engine. The M35A1 has a multi-electric compression ignition engine.

**Data plate location**

Classification: M35: Standard A (OTCM 34581).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Crew Parameters</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, overall</td>
<td></td>
<td>12 ft</td>
</tr>
<tr>
<td>Width overall</td>
<td></td>
<td>8 ft</td>
</tr>
<tr>
<td>Height (as supplied to travel)</td>
<td></td>
<td>112 in</td>
</tr>
<tr>
<td>Weight net</td>
<td></td>
<td>M35</td>
</tr>
<tr>
<td>M35A1</td>
<td></td>
<td>W/Winch</td>
</tr>
<tr>
<td>Troy Cables</td>
<td></td>
<td>M35A1, W/ Winch</td>
</tr>
<tr>
<td>Preload:</td>
<td>Highway</td>
<td></td>
</tr>
<tr>
<td>M35A1</td>
<td></td>
<td>16,000 lb</td>
</tr>
</tbody>
</table>

**Tires:**

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Front</th>
<th>70 psi</th>
<th>Rear</th>
<th>45 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-country:</td>
<td>Front</td>
<td>45 psi</td>
<td>Rear</td>
<td>35 psi</td>
</tr>
<tr>
<td>Sand</td>
<td>Front</td>
<td>45 psi</td>
<td>Rear</td>
<td>35 psi</td>
</tr>
<tr>
<td>Trend, center of center, front</td>
<td>40 psi</td>
<td>67 psi</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Electrical system:**

| Number of batteries (12 volts each) | 2 |
| Voltage | 24 |
| Ground | Negative |
| Fuel octane rating (gasoline) | 80 |
| Fuel exhaust rating | 35-37 |
| Compression-ignition engine type | 40 |
| Diesel | 40 |

**Cabinets:**

| Cooling systems: | M35 (w/o heater) | 22 qt | M35A1 | 34 qt |

21-55
Ground clearance: 12.5 in.

Ack of approach:

W w/o: .38 deg
W w/ow: .38 deg

Annge of departure: .44 deg

**PERFORMANCE**

Computed grade ability in lowest gear:

M35: .64 percent
M35A: .69 percent

Turning radius:

W w/o: .31 ft
W w/ow: .34 ft

Fuel consumption:

M35: 6 mpg
M35A: 0.3 mpg (gasoline); 0.7 mpg (CIE fuel); 11.3 mpg (diesel)

Cruising range:

M35: 350 miles
M35A: 550 miles

Allowable speed (governed):

M35: 60 mph
M35A: 50 mph

Fording depth:

W fording kit: .71 in.
W w/o fording kit: .30 in.

Towed load:

Highway: 16,000 lb
Cross-country: 6,000 lb

**EQUIPMENT**

Basic Issue Items:

M35: See TM 9-8022, C5
M35A: See TM 9-2320-235-10

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

*Within Continental United States*

Shipped 1 truck, uncrated

W/Winch

W w/o Winch

M35:

Length: 276 in.
Width: 96 in.
Height: 112 in.
Volume: 1.718 cu ft
Gross weight: 24,064 lb
Ship tons: 42.97
Area: 259 sq ft

M35A:

Length:...
Width:...
Height:...
Volume:...
Gross weight:...
Ship tons:...
Area:...

*Outside Continental United States*

Shipped 1 truck, uncrated

W/Winch

W w/o Winch

M35:

Length:...
Width:...
Height:...
Volume:...
Gross weight:...
Ship tons:...
Area:...

M35A:

Length:...
Width:...
Height:...
Volume:...
Gross weight:...
Ship tons:...
Area:...


TRUCK, CARGO: 2 1/2-TON, 6 X 6, M36 AND M36C, W/ AND W/O WINCH, W/E

**Major items**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M36, w/o wn.</td>
<td>4-00230-00</td>
<td>3220-301-6009</td>
</tr>
<tr>
<td>M36C, w/o wn.</td>
<td>4-00235-00</td>
<td>3220-300-0108</td>
</tr>
<tr>
<td>M36, w/ wn.</td>
<td>4-00239-01</td>
<td>3220-001-6005</td>
</tr>
<tr>
<td>M36C, w/ wn.</td>
<td>4-00265-10</td>
<td>3220-200-1400</td>
</tr>
</tbody>
</table>

**General**

TRUCK, CARGO: 2 1/2-ton, 6 x 6, M36 and M36C, is used to transport general cargo and personnel. It is dual-tired on the rear wheels. The cab is canvas-covered open type. The body is a flat-bed steel type, 17 feet long; sides and tarpaulin frames are removable.

**Differences among models**

**Data plate location**

The responsible agency data plate is located on the instrument panel to the right of the instrument cluster.

**Classification:** Standard A (UTC00 36907).

**CHARACTERISTICS**

- **Crew:** 2
- **Length, overall:** w/o wn 336 in., w/ wn 322 in.
- **Width:** 86 in.
- **Height (as supplied for travel):** 97 in.
- **Weight, net:** w/o wn 22,915 lb, w/ wn 23,500 lb
- **Payload:** 10,000 lb
- **Rear axle gear ratio:** 6.72:1
- **Axle load:**
  - Empty:
    - Front 6,085 lb, Rear 3,915 lb
  - Loaded:
    - Front 6,825 lb, Rear 8,843 lb
- **Tires:** Ply 8, Size 9.00 x 20
  - **Pressure:** Highway 50 psi, Cross country 30 psi, Sand
  - **Tread, center-to-center, front:** 67 3/4 in.

**Electrical system:**
- **Number batteries:** 2
- **Voltage:** 24
- **Type ground:** negative
- **Fuel octane rating:** 80

**Capacities:**
- **Cooling system w/o heater:** 22 qt
- **Crankcase refill:** 9 qt
- **Steering gear:** 1 pt
- **Fuel tank:** 50 gal
- **Axle:** 7 qt
- **Transmission:** 64 qt
- **Winch clutch housing:** 1 qt
- **Winch worm housing:** 1 qt

**Brakes:**
- **Manufacter:** Timken
- **Type:** air-hydraulic
- **Parking, type:** transfer

**Engine:**
- **Manufacturer:** Reo Motors Inc.
- **Model:** OA-331
- **Type:** Continental
- **Model COA-331
- **Valve-in-head 4-cylinder
- **No. cylinders:** 6
- **Displacement:** 331 cu in.
- **Bore:** 4 3/4 in.
- **Stroke:** 4 3/4 in.
- **Compression ratio:** 5.73:1
- **Governed speed:** 3,400 rpm
- **Brake horsepower (w/Std accessories):** 146 at 3,400 rpm
- **Torque (w/Std accessories):** 218 lb-ft at 1,400 rpm
- **Transmission:** Type synchromesh
- **Forward speeds:** 5
- **Gear ratios:** High 1:1, Low 7.55:1
- **Live axles, type:** double reduction full-floating
- **Body cargo space:** 630 cu ft
- **Winch capacity:** 10,000 lb
- **Chassis:** M46

**PERFORMANCE**

- **Computed grade ability in lowest gear:** 64 percent
- **Turning radius:** 45 ft
- **Fuel consumption:** 8 mpg
- **Cruising range:** 300 mi
PERFORMANCE—Continued

Allowable speed (governed) ........................................... 58 mph
Fording depth:
w/fording kit .......................................................... 72 in.
w/o fording kit ......................................................... 30 in.

EQUIPMENT
Basic Issue Items: See TM 9-2320-209-20P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped uncrated, w/wn.
Length ........................................
Width ........................................
Height .........................................
Volume ...........................................
Area ...........................................
Gross weight ...................................
Ship tons ......................................

Outside Continental United States
Shipped uncrated, w/wn.
Length ........................................
Width ........................................
Height .........................................
Volume ...........................................
Area ...........................................
Gross weight ...................................
Ship tons ......................................

TRUCK, CARGO: 2½-TON, 6 X 6, M211, W/ AND W/O WINCH, W/E

<table>
<thead>
<tr>
<th>Major items</th>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>M211, w/ winch</td>
<td>4-60114-39</td>
<td>2320-384-4508</td>
</tr>
<tr>
<td></td>
<td>M211, w/o winch</td>
<td>4-60110-38</td>
<td>2320-384-4507</td>
</tr>
</tbody>
</table>

**General**

TRUCK, CARGO: 2½-ton, 6 x 6, M211, is used to transport general cargo and personnel. The cab is canvas-covered. The flatbed steel body has removable tarpaulin frames and removable wooden sides. The rear wheels are dual-tired.

**Differences among models**

Data plate location
Vehicle identification plate is located on the instrument panel.

**Classification:** Standard B (OTCM 36844).

**CHARACTERISTICS**

- **Crew:** 2
- **Length, overall:**
  - W/0 winch: 257 in.
  - W/ winch: 269 in.
- **Width:** 96 in.
- **Height (as supplied for travel):** 78½ in.
- **Weight, net:**
  - W/0 winch: 13,170 lb
  - W/ winch: 13,580 lb
- **Payload:** 10,600 lb
- **Rear axle gear ratio:** 6.17:1
- **Fuel tank:** 56 gal
- **Transmission:** Hydramatic
- **Governed speed:** 1,3,400 rpm
- **Brake horsepower (w/ std accessories):** 130 at 3,400 rpm
- **Torque (w/ std accessories):** 265 lb-ft at 1,400 rpm

**Engine**

- **Manufacturer:** General Motors
- **Model:** 302
- **Type:** Valve-in-head 4-cycle
- **No. cylinders:** 6
- **Displacement:** 301.6 cu in.
- **Bore:** 4 in.
- **Stroke:** 4 in.
- **Compression ratio:** 7.2:1
- **Governed speed:** 1,3,400 rpm
- **Brake horsepower (w/ std accessories):** 130 at 3,400 rpm
- **Torque (w/ std accessories):** 265 lb-ft at 1,400 rpm
- **Transmission:**
  - Type: Hydramatic
  - Forward speeds: 8
  - High range:
    - High: 1:4
    - Low: 4.0:1
  - Low range:
    - High: 8:8:1
    - Low: 5.5:1
- **Live axles:** Hypoid, full-floating
- **Body cargo space:** 105 cu ft
- **Winch capacity:** 10,000 lb
- **Chassis:** M507

**PERFORMANCE**

- **Computed grade ability in lowest gear:** 60 percent
- **Turning radius:** 36 in.
- **Fuel consumption:** 6.8 mpg
- **Cruising range:** 300 mi
- **Allowable speed (governed):** 55 mph
PERFORMANCE—Continued

Fording depth:
W/fording kit.................................................. .78 in.
W/o fording kit.................................................. .30 in.

EQUIPMENT
Basic Issue Items: See ORD 7 SNL G-749.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped uncrated w/winch.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,167 cu ft</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped uncrated w/winch.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.167 cu ft</td>
</tr>
</tbody>
</table>

Gross weight.................................................. ,
Ship tons..................................................,
Area.......................................................... 180 sq ft

TRUCK, CARGO: 5-TON, 6 X 6, M41, W/ AND W/O WINCH, W/E

General
TRUCK, CARGO: 5-ton, 6 x 6 M41, is used to transport general cargo and personnel. The cab is canvas-covered. The body has removable wooden sides and tarpaulin braces. The rear wheels are single-tired.

Differences among models

Data plate location
The vehicle identification plate is located on the instrument panel.

Classification: standard B (OTCM 37119).

CHARACTERISTICS

Model
M41, w/wn
M41, w/o wn

Line item No. 4-60320-05 4-60390-10
Federal stock No. 2320-835-8327 2320-835-8328

Electrical system:
Number batteries ........................................... 2
Voltage .................................................. 24
Type ground ........................................... negative

Fuel octane rating ........................................... 80

Capacities:
Cooling system, w/o heater ................................ 44 qt
Crankcase refill ........................................... 22 qt
Fuel tank .................................................. 78 gal

Steering gear ........................................... fill to level approximately 5 1/2 pt
Axles (each) .................................................. 12 qt
Transmission ............................................. 11 qt
Winch clutch housing ..................................... 1 1/4 qt
Winch worm housing ....................................... 1 1/2 qt

Brakes:
Manufacturer ........................................... Timken
Type .................................................. Air-actuated hydraulic
Parking, type ........................................... transfer

Engine:
Manufacturer, Continental ................................ Model R6602
Type .................................................. Valve-in-head 4-cycle
No. cylinders ........................................... 6
Displacement ........................................... 602 cu in.
Bore .................................................. 4 1/2 in.
Stroke ................................................... 5 in.

Compression ratio ........................................ 6.4:1
Governed speed ........................................... 2,800 rpm

Brake horsepower (w/std accessories) ............... 196 at 2,800 rpm

Transmission:
Type ................................................... synchromesh
Forward speeds .......................................... 5
High .................................................... 1:1
Fourth ................................................... 1:43:1
Low ....................................................... 7:31:1

Live axles ................................................ double reduction, full-floating
Body cargo space ........................................... 650 cu ft
Winch capacity ........................................... 20,000 lb

Chassis ................................................ M39

PERFORMANCE
Computed grade ability in lowest gear ............... 68 percent
Turning radius ........................................... 41 ft
Fuel consumption ........................................ 4.44 mpg

Major item

<table>
<thead>
<tr>
<th>Federal stock</th>
<th>Line item No.</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>2230-835-8327</td>
<td>4-60320-05</td>
<td>M41, w/wn</td>
</tr>
<tr>
<td>2230-835-8328</td>
<td>4-60390-10</td>
<td>M41, w/o wn</td>
</tr>
</tbody>
</table>

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

- Tires:
  - Ply: 12
  - Size: 14.00 x 20
  - Pressure:
    - Highway: 50 psi
    - Cross country: 40 psi
    - Sand: 30 psi
    - Tread, center-to-center, front: 70 1/2 in
PERFORMANCE—Continued
Cruising range........................................... 280 mi
Allowable speed (governed).......................... 59 mph
Fording depth:
  w/foring kit........................................... 78 in.
  w/o foring kit........................................... 30 in.

EQUIPMENT
Basic Issue Items: See TM 9-2320-211-20P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped uncrated, w/winch.
  Length................................................. 309¾ in.
  Width................................................... 96 in.
  Height............................................... 88½ in.

Outside Continental United States
Shipped uncrated, w/winch.
  Length.................................................
  Weight..................................................
  Height..................................................
  Volume..................................................
  Area...................................................
  Gross weight......................................... 19,700 lb
  Ship tons.............................................. 38.10

TRUCK, CARGO: 5-TON, 6X6, M54, M54A1, AND M54A2, W/ AND W/O WINCH, W/E

### Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M54 w/o winch, hardtop cab</td>
<td>4-60290-21</td>
<td>2320-832-8582</td>
</tr>
<tr>
<td>M54 w/winche, hardtop cab</td>
<td>4-60320-11</td>
<td>2320-832-8581</td>
</tr>
<tr>
<td>M54 w/o winche, softtop cab</td>
<td>4-60290-20</td>
<td>2320-832-8584</td>
</tr>
<tr>
<td>M54 w/winche, softtop cab</td>
<td>4-60320-10</td>
<td>2320-832-8585</td>
</tr>
<tr>
<td>M54A1, w/o winche</td>
<td>4-60290-15</td>
<td>2320-866-7481</td>
</tr>
<tr>
<td>M54A1, w/winche</td>
<td>4-60320-15</td>
<td>2320-855-9266</td>
</tr>
<tr>
<td>M54A2, w/o winche</td>
<td></td>
<td>2320-855-9266</td>
</tr>
<tr>
<td>M54A2, w/winche</td>
<td></td>
<td>2320-855-9266</td>
</tr>
</tbody>
</table>

### General

**TRUCK, CARGO: 5-ton, 6 x 6.** M54, M54A1 and M54A2, is a dual-tired, flatbed, general purpose vehicle used to transport general cargo or personnel. It has either a hard top cab or a soft top cab.

**Differences among models**

The M54 cargo truck has a spark ignition engine, M54A1 has a diesel compression-ignition engine and the M54A2 has a multifuel compression-ignition engine.

### Data plate location

The vehicle identification plate is located on the instrument panel.

### Classification

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M54 w/o winch, hardtop cab</td>
<td>Standard B (OTCM 38098)</td>
<td>2320-832-8582</td>
</tr>
<tr>
<td>M54A1</td>
<td>Standard B (AMCTCM 1120)</td>
<td>2320-832-8584</td>
</tr>
<tr>
<td>M54A2</td>
<td>Standard A (AMCTCM 1120)</td>
<td>2320-832-8585</td>
</tr>
</tbody>
</table>

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Crew</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, overall:</td>
<td></td>
</tr>
<tr>
<td>w/o winch</td>
<td>2303 in.</td>
</tr>
<tr>
<td>w/winche</td>
<td>2314 in.</td>
</tr>
<tr>
<td>Width</td>
<td>97 in.</td>
</tr>
<tr>
<td>Height (as supplied for travel)</td>
<td>114 in.</td>
</tr>
<tr>
<td>Weight, net:</td>
<td></td>
</tr>
<tr>
<td>W/winche:</td>
<td></td>
</tr>
<tr>
<td>M54</td>
<td>19,945 lb</td>
</tr>
<tr>
<td>M54A1</td>
<td>20,355 lb</td>
</tr>
<tr>
<td>M54A2</td>
<td>20,400 lb</td>
</tr>
<tr>
<td>W/o winche:</td>
<td></td>
</tr>
<tr>
<td>M54</td>
<td>10,230 lb</td>
</tr>
<tr>
<td>M54A1</td>
<td>10,480 lb</td>
</tr>
<tr>
<td>M54A2</td>
<td>10,480 lb</td>
</tr>
</tbody>
</table>

Payload (less crew):

- On highway: 20,000 lb
- Off highway: 10,000 lb

Rear axle gear ratio:

- M54: 6.44:1
- M54A1: 6.44:1
- M54A2: 6.44:1

Axle load:

**W/Winch**

- Empty:
  - Front: M54: 8,735 lb
  - M54A1: 8,735 lb
  - M54A2: 8,735 lb

- W/O Winch:
  - Front: M54: 14,930 lb
  - M54A1: 14,930 lb
  - M54A2: 14,930 lb

**W/Loaded**

- W/Winch:
  - Front: M54: 9,584 lb
  - M54A1: 9,584 lb
  - M54A2: 9,584 lb

- W/O Winch:
  - Front: M54: 15,220 lb
  - M54A1: 15,220 lb
  - M54A2: 15,220 lb

Federal stock No.:

- 2320-832-8582
- 2320-832-8584
- 2320-832-8585
- 2320-855-9266
- 2320-855-9266
- 2320-855-9266
- 2320-866-7481
- 2320-866-7481
- 2320-855-9266

Major Item

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<tr>
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<td></td>
<td>2320-855-9266</td>
</tr>
<tr>
<td>M54A2, w/winche</td>
<td></td>
<td>2320-855-9266</td>
</tr>
</tbody>
</table>

GEO 4073 A
### Tires:
- **Fly**
- **Size** 11.00 x 20
- **Pressure (psi):**
  - **Highway** 70 psi
  - **Cross country** 35 psi
  - **Sand** 15 psi
- **Tread, center-to-center, front** 73% in.

### Electrical system:
- **Number batteries** 2
- **Voltage** 24
- **Type ground** negative
- **Fuel octane rating (gasoline)** .56
- **Compression-ignition engine type** .33 to 37
- **Diesel** .49

### Capacities:
- **Cooling system:**
  - M54 (w/o heater) 44 qt
  - M54A1 44 qt
  - M54A2 22 qt
- **Crankcase, refill:**
  - M54 (filters dry) 22 qt
  - M54A1 (filters dry) 22 qt
  - M54A2 22 qt
- **Steering gear:**
  - M54 fill to level approximately 5½ pt
  - M54A1 fill to level approximately 5½ pt
  - M54A2 fill to level approximately 5½ pt
- **Axle (each)** 12 qt
- **Fuel tank** 78 gal

### Transmission:
- **W/power take-off** 11 qt
- **W/o power take-off** 9 qt
- **Winch clutch housing** 1½ qt
- **Winch worm housing** 1½ qt

### Brakes:
- **Manufacturer** Bendix-Westinghouse
- **Type** Air-hydraulic
- **Parking, type** Dual-grip

### Engine:
- **M54 truck**
  - **Manufacturer** Continental, Model R6602
  - **Type** Gasoline, valve-in-head, 4-cylinder
  - **Number of cylinders** 6
  - **Displacement** 602 cu in.
  - **Bore** 4¾ in.
  - **Stroke** 6 in.
  - **Compression ratio** 6.4:1
  - **Governed speed** 2,800 rpm
  - **Brake horsepower (w/ std accessories)** 196 @ 2,800 rpm
  - **Torque (w/ std accessories)** 480 lb-ft @ 1,200 rpm

- **M54A1 truck**
  - **Manufacturer** Mack ENDD-613
  - **Type** Diesel, compression-ignition
  - **Number of cylinders** 6
  - **Displacement** 672 cu in.
  - **Bore** 4.875 in.
  - **Stroke** 6 in.
  - **Compression ratio** 16.39:1
  - **Governed speed** 2,100 rpm
  - **Brake horsepower (w/ std accessories)** 265 @ 2,100 rpm
  - **Torque (w/ std accessories)** 600 lb-ft @ 1,400-1,600 rpm

### Transmission:
- **M54**
  - **Manufacturer** Spicer 6322
  - **Type** Synchronesh

### Transmission:
- **M54A1**
  - **Manufacturer** Spicer 6453
  - **Type** Synchronesh

### Performance:
- **Computed grade ability in lowest gear:**
  - M54 59.6 percent
  - M54A1 74.5 percent
  - M54A2

### Fuel consumption:
- **M54**
  - **W/ winch** 2.74 mps
  - **W/o winch**
  - **M54A1**
  - **M54A2**

### Cruising range:
- **M54** 31.4 mi
  - **M54A1** (approx) 40 mi
  - **M54A2**

### Allowable speed (governed):
- **M54** 52.6 mph
  - **M54A1**
  - **M54A2**

### Towed load:
- **Highway** 30,000 lb
  - **Cross-country** 15,000 lb

**C 2, TM 9-500**

---

**Notice:**

The document contains detailed specifications for a M54 truck, including tire information, electrical system details, fuel system capacities, transmission types, and performance metrics. The performance characteristics highlight the truck's capabilities in various conditions, such as gradeability, fuel efficiency, and towing capacity.
EQUIPMENT

Basic Issue Items: See TM 9-2820-211-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 truck, uncrated.

W/ winch | W/O winch
---|---

M54:
- Length: 110 in.
- Width: 07 in.
- Height: 86 in.
- Volume: 2.946 cu ft
- Area: 211 sq ft
- Gross weight: 10,040 lb
- Ship tons: 37.50

M54A1:
- Length: 
- Width: 
- Height: 
- Volume: 
- Area: 
- Gross weight: 
- Ship tons: 


Outside Continental United States

Shipped 1 truck, uncrated.

W/ winch | W/O winch
---|---

M54:
- Length: 
- Width: 
- Height: 
- Volume: 
- Area: 
- Gross weight: 
- Ship tons: 

M54A1:
- Length: 
- Width: 
- Height: 
- Volume: 
- Area: 
- Gross weight: 
- Ship tons: 

TRUCK, CARGO: 5-TON, 6 X 6, M55 W/ AND W/O WINCH

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M55, w/o win</td>
<td>4-00410-00</td>
<td>2320-200-1978</td>
</tr>
<tr>
<td>M55, w/ win</td>
<td>4-00420-00</td>
<td>2320-391-0970</td>
</tr>
</tbody>
</table>

General

The TRUCK, CARGO: 5-ton, 6 x 6, M55, is used to transport general cargo and personnel. The body construction is steel except for troop seats, tarpaulin, and hardwood middle layer in floor. Sides and tarpaulin braces are removable.

Differences among models

Data plate location

The vehicle identification data plate is located on the instrument panel.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Crew: 2

Weight:

Net: 24,064 lb

Payload:

Off highway: 10,000 lb

On highway: 20,000 lb

Gross:

Off highway: 34,414 lb

On highway: 44,414 lb

Capacities:

Fuel: 78 gal

Cooling system: 44 qt

Crankcase, refill: 22 qt

Transmission, v/power-take-off: 11 qt

Transfer: 6.2 qt

Axle (each): 12 qt

Winch:

Oil capacity: 1.3 qt

Load capacity: 20,000 lb

Electrical system: 24 volt

Number of batteries: 2

Type of ground: Negative

Brakes:

Manufacturer: Timken

Type: Air-hydraulic

Parking brake, type: Dual grip

Engine:

Manufacturer: Continental

Model: R-6602

Type: Gasoline, valve-in-head

Number of cylinders (in line): 6

Displacement: 602 cu in.

Bore: 47/8 in.

Stroke: 55/8 in.

Compression ratio: 6.4:1

Governor speed: Full load, 2,800 rpm

No load: 2,550 rpm

Brake horsepower (max):

W/std accessories: 140 @ 2,500 rpm

W/o std accessories: 224 @ 2,600 rpm

Torque (max):

W/std accessories: 480 lb-ft @ 1,200 rpm

W/o std accessories: 504 lb-ft @ 1,400 rpm

Transmission:

Type: Synchronesh

Forward speeds: 5

Gear ratio:

High: 1.1

Low: 7.31:1

Transfer:

Speeds: 3

Gear ratio:

High: 1.068:1

Low: 2.163:1

Axle:

Type: Double reduction

Body:

Type: Flat floor

Length: 244 in.

Width: 88 in.

Height: 14 in.

Tailgate (w/step type steps): 19 1/4 in.

Tires:

Size: 11.00 x 20

Ply: 12

Pressure:

Highway: 70 psi

Cross country: 60 psi

Sand: 80 psi

Tread, center-to-center, front: 73 3/4 in.

Ground clearance: 10 1/4 in.

Fuel height, empty: 38 3/4 in.

Loading height, empty: 29 3/4 in.

Fuel octane rating: 80

PERFORMANCE

Computed grade ability in lowest gear, loaded: 65 percent

Turning radius:

W/o kit: 46 ft

W/kit: 30 in.

W/kit: 78 in.
PERFORMANCE—Continued

Fuel consumption, loaded..........................2.7 mpg
Cruising range, loaded..............................214 mi
Allowable speed, governed........................52.0 mph
Maximum recommended towed load:
  Off highway........................................15,000 lb
  On highway.........................................30,000 lb

EQUIPMENT
Basic Issue Items: See TM 9-2320-211-20P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped uncrated w/ winch.
Length.................................................386 in.
Width..................................................96 in.
Height..................................................86 in.

Volume................................................2.544 cu ft
Area....................................................259 sq ft
Gross weight.........................................24,004 lb
Ship tons............................................1.5140

Outside Continental United States

Shipped
Length...................................................
Width..................................................
Height..................................................
Volume..................................................
Area....................................................
Gross weight.........................................
Ship tons.............................................

TRUCK, CARGO: 10-TON, 6 X 6, M125, W/WINCH, W/E

**General**

TRUCK, CARGO: 10-ton, 6 x 6, M125, is a tandem rear axle truck equipped with a 96 x 168 steel cargo body, and designed primarily to tow a 155-mm gun or an 8-inch howitzer and to transport general cargo.

**Differences among Models**

**Data plate location**

The vehicle identification plate is located on the instrument panel.

**Classification:** Standard B (OTCM 37220).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Crew</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, overall</td>
<td>318½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>114 in.</td>
</tr>
<tr>
<td>Height</td>
<td>129½ in.</td>
</tr>
<tr>
<td>Weight: Net</td>
<td>30,000 lb</td>
</tr>
<tr>
<td>Payload</td>
<td>35,000 lb</td>
</tr>
<tr>
<td>Axle load: Empty</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>12,845 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>18,755 lb</td>
</tr>
<tr>
<td>Loaded: Front</td>
<td>13,665 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>25,865 lb</td>
</tr>
<tr>
<td>Rear axle gear ratio</td>
<td>9.02:1</td>
</tr>
<tr>
<td>Tires: Size</td>
<td>14 x 24</td>
</tr>
<tr>
<td>Ply</td>
<td>4/20</td>
</tr>
<tr>
<td>Pressure: Highway</td>
<td>30 psi</td>
</tr>
<tr>
<td>Cross country</td>
<td>35 psi</td>
</tr>
<tr>
<td>Sand</td>
<td>15 psi</td>
</tr>
<tr>
<td>Tread, center-to-center, front</td>
<td>79 in.</td>
</tr>
<tr>
<td>Electrical system: Number of batteries</td>
<td>2</td>
</tr>
<tr>
<td>Voltage</td>
<td>24 volts</td>
</tr>
<tr>
<td>Type ground</td>
<td>negative</td>
</tr>
<tr>
<td>Fuel octane rating</td>
<td>.80</td>
</tr>
<tr>
<td>Capacities: Cooling system, w/o heater</td>
<td>.66 qt</td>
</tr>
<tr>
<td>Crankcase, refill</td>
<td>.22 qt</td>
</tr>
<tr>
<td>Fuel tanks (2 each)</td>
<td>.110 gal</td>
</tr>
<tr>
<td>Steering gear</td>
<td>fill to level</td>
</tr>
<tr>
<td>Axles: Rear</td>
<td>.32 pt</td>
</tr>
<tr>
<td>Front</td>
<td>.12 pt</td>
</tr>
<tr>
<td>Transmission</td>
<td>.22 pt</td>
</tr>
<tr>
<td>Transfer</td>
<td>.20 pt</td>
</tr>
<tr>
<td>Winch clutch housing</td>
<td>.8½ pt</td>
</tr>
<tr>
<td>Winch worm housing</td>
<td>.8½ pt</td>
</tr>
<tr>
<td>Brakes: Manufacturer</td>
<td>Mack-Bendix-Westinghouse</td>
</tr>
<tr>
<td>Type</td>
<td>internal expanding</td>
</tr>
<tr>
<td>Engine: Manufacturer</td>
<td>Le Roi, Model T-H 844</td>
</tr>
<tr>
<td>Type</td>
<td>valve in head</td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>V8</td>
</tr>
<tr>
<td>Displacement</td>
<td>.844 cu in.</td>
</tr>
<tr>
<td>Bore</td>
<td>.534 in.</td>
</tr>
<tr>
<td>Stroke</td>
<td>.434 in.</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>.67:1</td>
</tr>
<tr>
<td>Governing speed</td>
<td>2,600 rpm</td>
</tr>
<tr>
<td>Brake horsepower</td>
<td>297@2,600 rpm</td>
</tr>
<tr>
<td>Torque</td>
<td>725 lb-ft@1,700 rpm</td>
</tr>
<tr>
<td>Transmission: Type</td>
<td>selective constant mesh</td>
</tr>
<tr>
<td>Forward speeds: High</td>
<td>3.1</td>
</tr>
<tr>
<td>Low</td>
<td>7.5:1</td>
</tr>
<tr>
<td>Live axles</td>
<td>full-floating, double reduction</td>
</tr>
<tr>
<td>Body cargo space</td>
<td>600 cu ft</td>
</tr>
<tr>
<td>Winch capacity</td>
<td>45,000 lb</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

Computed grade ability in lowest gear | 66 percent |
Turning radius | 36 ft |
Fuel consumption | 3 mpg |
Cruising range | .330 mi |
Allowable speed (governed) | .43 mph |
Fording depth: W/o fording kit | .30 in. |
W/fording kit | .78 in. |

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL G-792.
### Storage and Shipment Data

**Within Continental United States**

- Shipped uncrated w/ winch.
- Length: 320 in.
- Width: 114 in.
- Height: 90 in.
- Volume: 1,902 cu ft
- Area: 252 sq ft
- Gross weight: 31,600 lb
- Ship tons: 47.55

**Outside Continental United States**

- Shipped uncrated w/ winch.
- Length: [ ] in.
- Width: [ ] in.
- Height: [ ] in.
- Volume: [ ] cu ft
- Area: [ ] sq ft
- Gross weight: [ ] lb
- Ship tons: [ ]

**References:**
TRUCK, CARGO DUMP: 2⅓-TON, 6 X 6, M342, W/ AND W/O WINCH, W/E

**Major item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M342, w/wn.</td>
<td>4-60710-65</td>
<td>2320-341-8808</td>
</tr>
<tr>
<td>M342, w/o wn.</td>
<td>4-60680-18</td>
<td>2320-542-4842</td>
</tr>
</tbody>
</table>

**General**

TRUCK, CARGO DUMP: 2⅓-ton, 6 x 6, M342. is used to transport and dump earth, sand, gravel, coal, etc. It can also be used to transport general cargo and personnel. Body includes hinged cab protector, combination side racks and troop seats.

**Differences among models**

Data plate location
The identification plate is located on the instrument panel.

Classification: Standard A (OTCM 36841).

**CHARACTERISTICS**

**Crew:**
- Net: 15,165 lb
- W/ winch: 15,580 lb

**Payload:**
- Off highway: 5,000 lb
- On highway: 10,000 lb

**Axle load:**
- Empty:
  - W/ winch: 5,705 lb
  - Rear: 9,460 lb
  - W/ winch: 6,200 lb
  - Rear: 9,380 lb

**Load:**
- On highway:
  - W/ winch: 20,165 lb
  - W/ winch: 20,580 lb
  - Off highway:
  - W/ winch: 25,165 lb
  - W/ winch: 25,580 lb

**Ground clearance:** 10⅛ in.

**Capacities:**
- Fuel: 50 gal
- Cooling system: 22 qt
- Crankcase, refill (dry): 10¾ qt
- Transmission: 8½ qt

**Transfer:**
- 14 pt

**Axles:**
- Front: 14 pt
- Rear (each): 14 pt

**Winch oil capacity (each end):** 1 qt

**Winch load capacity:** 10,000 lb

**Electrical system:**
- Potential: 24 volts
- Number of batteries: 2
- Type of batteries: (12 volt) 6TN

**Fuel octane rating:** 72-80

**Brakes:**
- Manufacturer: Timken, Detroit
- Type, internal drum size: 15 dia x 3 in
- Parking, type; internal-external drum size: 14 dia x 3 in
- Actuation: air-over-hydraulic

**Engine:**
- Manufacturer:
  - Reo Motors Inc., Model OA-331
  - Continental, Model COA-331
- Type: gasoline, valve-in-head
- Number of cylinders: 6
- Displacement: 331 cu in
- Bore: 4.125 in
- Stroke: 4.125 in
- Compression ratio: 6:73:1
- Governed speed: 3,400 rpm
- Brake horsepower (max w/std accessories): 146@3,400 rpm
- Torque (max w/std accessories): 270 lb-ft @ 1,400 rpm

**Transmission:**
- Manufacturer: Spicer, Model 3052
- Type: synchromesh
- Speeds: 5 forward
- Reverse: 1
- Gear ratio: 7:55:1; 4:15:1; 2:45:1; 1:45:1; high 1:1; low 1:98:1

**Transfer:**
- Manufacturer: Timken, Detroit, Model T-136
- Number of speeds: 2
- Gear ratio: high 1:1; low 1:98:1

**Dump body:**
- Capacity: 2½ cu yd
- Sides: 12½ in.
- Dumping angle: 70°
- Length: 11 ft
- Width (inside): 70 in
- Tailgate: 20 in.

Federal stock: N/A
Major item: N/A
Model: General
TRUCK, CARGO DUMP: 1⅔- TON, 6 X 6, M342, is used to transport and dump earth, sand, gravel, coal, etc. It can also be used to transport general cargo and personnel. Body includes hinged cab protector, combination side racks and troop seats.
CHARACTERISTICS—Continued

Tires:
- Size: 9.00 x 20
- Ply: 8
- Pressure:
  - Highway: 45 psi
  - Cross country: 15 psi
  - Sand, mud, snow: 15 psi
  - Tread, center-to-center, front: 67% in.

PERFORMANCE
- Computed grade ability lowest gear: 64 percent
- Turning radius: 36 ft
- Fuel consumption: 9 mpg
- Cruising range: 350 miles
- Allowable speed (governed): 58 mph
- Fording depth:
  - W/o fording kit: 40 in.
  - W/foring kit: 72 in.

EQUIPMENT
- Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
- Shipped:
  - Length
  - Width
  - Height
  - Volume: w/o wn, 1,573 cu ft
  - w/o wn, 1,487 cu ft
  - Area
  - Gross weight
  - Ship tons

Outside Continental United States
- Shipped:
  - Length
  - Width
  - Height
  - Volume
  - Area
  - Gross weight
  - Ship tons

TRUCK, DUMP: 2½-TON, 6x6, M47, W/ AND W/O WINCH

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M47, w/winch</td>
<td>4-60710-25</td>
<td>2220-835-8240</td>
</tr>
<tr>
<td>M47, w/o winch</td>
<td>4-60680-25</td>
<td>2220-835-8239</td>
</tr>
</tbody>
</table>

**General**

TRUCK, DUMP: 2½-ton, 6x6, M47, w/ and w/o winch, is a vehicle used to haul and dump earth, sand, gravel, coal, etc. It can also be used to transport general cargo.

**Differences among models**

**Data plate location**

The identification (name) plate is located on the right-hand side of the instrument panel.

**Classification:** Limited standard (AMCTC 156).

**W/winch:**

| Front 6,110 lb | Rear 7,350 lb |

**W/0 winch:**

| Front 6,110 lb | Rear 7,350 lb |

**Load:**

| Front 6,110 lb | Rear 7,350 lb |

**Ground clearance:**

| 13 3/8 in. |

**Angle of approach:**

| W/0 winch 48 deg | W/winch 40 deg |

**Angle of departure:**

| 76 deg |

**Body inside dimensions:**

| Length 11 ft | Width 70 in. | Height 12 3/8 in. |

**Truck capacity:**

| 2% cu yd |

**Fuel octane rating:**

| 72 to 80 |

**Capacities:**

| Fuel tank 50 gal | Cooling system 22 qt | Crankcase refill 9 qt | Differential (each) 7 qt |

**Transmission:**

| W/o power take-off 8 1/2 pt | W/power take-off 10 1/2 pt | Transfer 7 qt | Transfer power take-off (initial chassis run-in) 3 1/2 pt |

**Winch:**

| 2½ pt |

**Hydraulic hose:**

| 5 gal |

**Electrical system:**

| Voltage 24 volt | Number of batteries (12 volts each) 2 |

**Ground:**

| Negative |

**Brakes:**

| Manufacturer Timken-Detroit | Type air/hydraulic |

**Parking type:**

| Transfer |

**Engine:**

| Manufacturer Reo Motors Inc | Model OA-551 |

| Continental Motor Corp | Model COA-831 |

**Type gasoline, valve-in-head**
Number of cylinders: 6 (in line)

Displacement: 331 cu in.
Bore: 4 1/4 in.
Stroke: 4 1/4 in.
Compression ratio: 6.7:1

Governed speed:
- Full load: 3,400 rpm
- No load: 3,600 rpm

Brake horsepower:
- Maximum w/std accessories: 146 @ 3,400 rpm
- Maximum w/o std accessories: 163 @ 3,400 rpm

Torque:
- Maximum w/std accessories: 248 lb-ft @ 1,400 rpm
- Maximum w/o std accessories: 270 lb-ft @ 1,400 rpm

Transmission:
- Type: Synchromesh

Speeds:
- Forward: 5
- Reverse: 1

Gear ratio:
- High: 1:1
- Low: 7.65:1

Transfer:
- Gear ratio: 2
- High: 1:1
- Low: 1.98:1

Tires:
- Number: 6
- Size: 11.00 x 20
- Ply: 12

Pressure:
- Highway: 70 psi
- Cross-country: 35 psi
- Sand: 15 psi
- Trend, center to center, front: 68 3/4 in.

PERFORMANCE

Computed grade ability in lowest gear w/off highway load: 45 percent

Turning radius:
- W/o winch: 32 1/2 ft
- W/ winch: 32 1/2 ft

Fuel consumption: 6 mpg
Cruising range: 300 mi
Allowable speed: 58 mph

Panting depth:
- W/o fording kit: 30 in.
- W/ fording kit: 72 in.

Winch capacity: 10,000 lb

EQUIPMENT

Basic Issue Items: See TM 9-8022

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 truck, uncrated.

- Length
- Width
- Height
- Volume: 1,840 cu ft
- Area: 193 sq ft
- Gross weight
- Ship tons

Outside Continental United States

Shipped 1 truck, uncrated.

- Length
- Width
- Height
- Volume: 1,840 cu ft
- Area: 193 sq ft
- Gross weight
- Ship tons

**TRUCK, DUMP: 2½-TON, 6 X 6, M59, W/ AND W/O WINCH, W/E**

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M59 w/winch</td>
<td>4-60710-52</td>
<td>2320-830-8597</td>
</tr>
<tr>
<td>M59 w/o winch</td>
<td>4-60680-22</td>
<td>2320-830-8595</td>
</tr>
</tbody>
</table>

**General**

TRUCK, DUMP: 2½-ton, 6 x 6, M59, is used to transport and dump earth, sand, gravel, coal, etc. It can also be used to transport general cargo.

**Differences among models**

- Data plate location: The vehicle identification plate is located on the instrument panel.
- Classification: Standard B (OTCM 30841).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Crew</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Empty:</td>
</tr>
<tr>
<td></td>
<td>W/o winch:</td>
</tr>
<tr>
<td></td>
<td>Front:</td>
</tr>
<tr>
<td></td>
<td>Rear:</td>
</tr>
<tr>
<td></td>
<td>loaded:</td>
</tr>
<tr>
<td></td>
<td>W/o winch:</td>
</tr>
<tr>
<td></td>
<td>Front:</td>
</tr>
<tr>
<td></td>
<td>Rear:</td>
</tr>
<tr>
<td></td>
<td>W/ winch:</td>
</tr>
<tr>
<td></td>
<td>Front:</td>
</tr>
<tr>
<td></td>
<td>Rear:</td>
</tr>
</tbody>
</table>

- Ground clearance: 12¾ in
- Pintle height, empty: 44½ in
- Body inside dimensions:
  - Length: 108 in
  - Width: 70 in
  - Height: 55½ in
- Truck capacity: 2½ cu yd
- Fuel octane rating: 72 to 90

**Capacities:**

- Fuel: 50 gal
- Cooling system: 22 gal
- Crankcase refill: 9 gal
- Transmission and transfer:
  - W/o power-take-off: 1/4 gal
  - W/power-take-off: 1/2 gal
- Transfer: 7 gal
- Axles (each): 7 gal
- Winch: Oil capacity: 3 gal
- Load capacity: 11,000 lb

**Electrical system:** 24 volts

<table>
<thead>
<tr>
<th>Type of ground:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher: Trionto-Detroit</td>
</tr>
<tr>
<td>Type: Air/hydraulic</td>
</tr>
<tr>
<td>Parking type: Transfer</td>
</tr>
</tbody>
</table>

**Engine:**

- Manufacturer: Reo Motors Inc
- Model: O-23
- Type: Continental
- Model: COA-33
- Gasoline, valve-in-head
- Number of cylinders: 10
- Bore: 4¼ in
- Stroke: 4½ in
- Displacement: 331 cu in
- Compression ratio: 6.73:1
- Governed speed: 3,400 rpm
- Brake horsepower:
  - Maximum w/ std accessories: 127 at 3,400 rpm
  - Maximum w/o std accessories: 148 at 3,400 rpm
- Torque:
  - Maximum w/ std accessories: 216 lb-ft @ 1,400 rpm
  - Maximum w/o std accessories: 270 lb-ft @ 1,400 rpm
CHARACTERISTICS—Continued

Transmission:
Type: synchromesh
Forward speeds: 5
Gear ratio:
High: 1:1
Low: 7.55:1

Transfer:
Speeds: 2
Gear ratio:
High: 1:1
Low: 1.98:1

Tires:
Size: 9.00 x 20
Ply: 8
Pressure:
Highway: 45 psi
Cross country: Sand
Tread, center-to-center, front: 67 3/4 in.

PERFORMANCE
Computed grade ability lowest gear: 63 percent
Turning radius: 36 ft
Fuel consumption: 9 mpg
Cruising range: 300 mi
Allowable speed (governed): 62 mph
Fording depth:
W/o kit: 30 in.
W/kit: 72 in.

EQUIPMENT
Basic Issue Items: See TM 9-2320-209-20P

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped uncrated w/ winch.
Length: 3.267 cu ft
Area: 160 cu ft
Gross weight:
Ship tons:

Outside Continental United States
Shipped
Length:
Width:
Height:
Volume:
Area:
Gross weight:
Ship tons:

References: TM 9-8022, TM 9-8023, SNL G-742, TM 9-2320-209-20P,
TM 9-8615, TM 9-8601, LO 9-8022.
TRUCK, DUMP: 2 1/2-TON, 6 X 6, M215, W/ AND W/O WINCH

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

TRUCK, DUMP: 2 1/2-TON, 6 X 6, M215, W/ and w/o winch, is a general purpose vehicle used to haul and dump earth, sand, gravel, coal, etc., and to transport general cargo.

The vehicle has a six cylinder, in line, valve-in-head engine, a hydramatic transmission and a single speed transfer. The transfer has an opening on the left side for mounting a power-take-off and accessory drive which operates the dump body hoist, and winch on vehicles so equipped. This vehicle has a soft-top cab.

Differences among models

Data plate location

The data plate is located on the instrument panel in driver's cab.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M215, w/e</td>
<td>4-60710-54</td>
<td>.2520.831-4510</td>
</tr>
</tbody>
</table>

Brakes:

Manufacturer:............................................Bendix
Type:............................................air-hydraulic
Parking, type:.................................................transfer

Engine:

Manufacturer: General Motors............................Model 302
Type, gasoline, valve-in-head.................................No. of cylinders (in line) 6
Displacement:............................................301.6 cu in.
Bore..........................................................4 in.
Stroke........................................................4 in.
Compression ratio..........................................7:2:1
Governed speed: Full load...................................3,400 rpm
No load.....................................................3,600 rpm

Brake horsepower:

Max w/std accessories...................................130 @ 3,400 rpm
Max w/o std accessories................................145 @ 3,400 rpm

Torque:

Max w/std accessories...................................480 lb-ft @ 1,200 rpm
Max w/o std accessories................................504 lb-ft @ 1,400 rpm

Transmission:

Type.........................................................Model 303M hydramatic
Forward speeds................................................8
Gear ratio: High range......................................High 1.1:1
Low range...........................................Low 4.076:1

Transfer:

Speeds.........................................................1
Gear ratio................................................1.16:1

Body inside dimensions:

Length....................................................108 in.
Width.....................................................70 in.
Height.....................................................154 in.
Truck capacity...........................................2 1/2 cu ft

Tires:

Size............................................................9 x 20
Ply..............................................................8
Pressure

Highway...................................................45 psi
Cross country...........................................35 psi
Sand...........................................................0.09 psi

Fuel octane rating........................................80

Axles:

Type.........................................................hypoid, full Floating
Gear ratio................................................6.106:1
CHARACTERISTICS—Continued

Ashe—Continued

Weight capacity:

Empty:

- W/o winch:
  - Front: 5,560 lb
  - Bogie: 9,140 lb
- W/winch:
  - Front: 5,790 lb
  - Bogie: 12,940 lb

 Loaded:

- W/o winch:
  - Front: 5,560 lb
  - Bogie: 13,000 lb
- W/winch:
  - Front: 5,790 lb
  - Bogie: 12,940 lb

Weight:

- W/o winch:
  - Net: 14,460 lb
  - Payload: 3,750 lb
  - Gross: 18,210 lb
- W/winch:
  - Net: 14,870 lb
  - Payload: 3,900 lb
  - Gross: 18,760 lb

PERFORMANCE

Computed grade ability in lowest gear, loaded: 66 percent
Turning radius: 32 ft
Fording depth:
- W/o kit: 30 in
- W/kit: 80 in
Fuel consumption, loaded: 5.4 mpg

Cruising range, loaded: 300 mi
Allowable speed, governed: 55 mph

EQUIPMENT

Basic Issue Items: See ORD 7 SNL G-749.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped:
- Length: 240 ft
- Width: 80 in
- Height: 30 in
- Volume: 1,391 cu ft
- Area: 190 sq ft
- Gross weight: 18,620 lb
- Ship tons: ...

Outside Continental United States

Shipped:
- Length: 240 ft
- Width: 80 in
- Height: 30 in
- Volume: 1,391 cu ft
- Area: 190 sq ft
- Gross weight: 18,620 lb
- Ship tons: ...

TRUCK, DUMP: 5-TON, 6 X 6, M51, W/ AND W/O WINCH

General

The TRUCK, DUMP: 5-ton, 6 x 6, M51, w/ and w/o winch, is used to haul and dump earth, sand, gravel, etc., and to transport general cargo. This vehicle has a Continental Model R-6002 6-cylinder valve-in-head engine, a Spicer Model 552 synchromesh transmission, a Timken Model T-138 2-speed transfer, and a Spicer Model WYD-11 power-take-off. The power-take-off is mounted on the transmission for powering the front winch and the dump-body hydraulic-hoist-dump. It has two output shafts, one on the front, the other on the rear.

Differences among models

Data plate location

The data plate is located on the instrument panel in the driver’s cab.

Classification: Standard (OTCM 30841).

CHARACTERISTICS

| Crew               | 1               |
|                   | 2               |
| Length, overall   | 281 3/4 in.     |
| Length w/o winch  | 260 3/4 in.     |
| Width             | 97 in.          |
| Height (max)      | 110 3/4 in.     |
| Height w/o cab protector | 87 1/4 in. |
| Front of vehicle w/ winch to center of front wheel spindle | 42 3/8 in. |
| Front of vehicle w/o winch to center of front wheel spindle | 37 3/8 in. |
| Length, front wheel spindle to center of rear spring seat | 107 in. |
| Length, center to center of dual wheels | 54 in. |
| Length of dump body | 148 in. |

Capacities:

- Fuel: 110 gal
- Cooling system: 44 qt
- Crankcase, refill: 22 qt
- Transmission, w/power-take-off: 11 qt
- Transfer: 54 qt
- Axles (each): 12 qt
- Electrical system: 24 volts
- Number of batteries: 2 (12 volt)
- Type of ground: negative

Brakes:

- Manufacturer: Timken
- Type: air actuated hydraulic transfer

Engine:

- Manufacturer: Continental Motors
- Model: R-6002
- Type: valve-in-head, 4-cycle
- Number of cylinders: 6 (in line)
- Displacement: .602 cu in.
- Bore: .47 in.
- Stroke: .54 in.
- Compression ratio: 6.4:1
- Governed speed: 2,800 rpm
- Brake horsepower (max/std accessories): 196 @ 2,800 rpm
- Torque (max/std accessories): 480 lb-ft @ 1,200 rpm

Transmission:

- Type: synchromesh
- Forward speeds: 5
- Gear ratio: High 1:1; Fourth 1.48:1; Low 7.31:1

Transfer:

- Speeds: 2
- Gear ratio: High 1:1; Low 2.02:1

Body inside dimensions:

- Width: 82 in.
- Length: 125 in.
- Height: 24 in.
- Truck capacity: 5 cu yd

Tires:

- Size: 11 x 20
- P.S.I.: 12
- Pressure: Highway: 70 psi
- Cross country: 50 psi
- Sand: 30 psi
- Tread, center-to-center, front: 79 in.
- Fuel octane rating: 80

Axles:

- Gear ratio: 6.44:1
- Type: double reduction full floating

Weight capacity:

- Empty:
  - W/o winch:
    - Front: 8,449
    - Rear (ea): 6,781
  - W/winch:
    - Front: 9,304
    - Rear (ea): 6,680

Federal stock No.: 4-60740-20, 2320-835-8336

TM9-500
CHARACTERISTICS—Continued
Axles—Continued

Loaded:
W/o winch:
Off highway:
   Front ........................................... 8,867
   Rear (ea) ...................................... 11,732
On highway:
   Front ........................................... 9,067
   Rear (ea) ...................................... 16,632
W/ winch:
Off highway:
   Front ........................................... 9,712
   Rear (ea) ...................................... 11,651
On highway:
   Front ........................................... 9,912
   Rear (ea) ...................................... 16,551

Weight:
Net:
W/o winch .......................................... 21,981 lb
W/ winch ........................................... 22,664 lb
Payload:
Off highway ...................................... 10,000 lb
On highway ....................................... 20,000 lb
Gross:
W/o winch on highway ................................ 41,981 lb
W/ winch on highway ................................ 42,664 lb
W/o winch off highway ................................ 31,081 lb
W/ winch off highway ................................ 32,664 lb

PERFORMANCE
Computed grade ability in lowest gear, loaded .................. 70 percent
Turning radius ..................................... 39½ ft
Fording depth:
W/o winch ........................................... 80 in.
W/ winch ............................................ 78 in.

Fuel consumption, loaded ...................................... 4.4 mpg
Cruising range, loaded .................................... 488 mi
Allowable speed, governed ................................... 32 mph
Maximum recommended towed load:
   Off highway .................................... (gross) 15,000 lb
   On highway ..................................... (gross) 30,000 lb

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped, w/ winch:
Length ............................................. 381½ in.
Width ................................................ 97½ in.
Height ............................................... 87½ in.
Volume ............................................. 1,391 cu ft
Area ................................................ 190 sq ft
Gross weight ...................................... 22,664 lb
Ship tons .......................................... 347½

Outside Continental United States

Shipped:
Length ................................................
Width ................................................
Height ............................................... cu ft
Volume ............................................. sq ft
Area ................................................
Gross weight ......................................
TRUCK, GUN-LIFTING: HEAVY, 4 X 4, FRONT, M249

**Characteristics**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M249, W/e</td>
<td>4-00690-00</td>
<td>2320-835-8623</td>
<td></td>
</tr>
</tbody>
</table>

**General**

TRUCK, GUN-LIFTING: heavy, 4 x 4, front, M249, is used with TRUCK, GUN-LIFTING: heavy, 4 x 4, rear, M250 to lift and transport the 280-mm gun M65 and 280-mm gun carriage M39 (T72). This vehicle is equipped with hydraulic lifting forks to raise and lower the gun carriage. An interphone system provides a means for drivers of front and rear trucks to communicate when both vehicles are used in transporting the gun and carriage.

**Differences among models**

M249 truck has cab installed at front of vehicle with engine installed behind cab over front wheels. M250 truck has cab installed over rear dual wheels of vehicle with engine installed behind cab.

M249 truck lifting fork is supported on a circular upper and lower mounting plate type fifth wheel, extending over the rear of the vehicle. M250 truck lifting fork is supported on a cylindrical outer fifth wheel which extends over the front of the vehicle. M249 truck is equipped with a spare tire and a hydraulic power winch. Tire is raised and lowered from vehicle with a manual ratchet type winch.

Transfer assembly on M249 truck is an integral part of the engine assembly. M250 truck transfer assembly is a separate unit connected to engine and vehicle power train with propeller shafts (2).

**Data plate location**

The data plate is located on the left side of the driver's seat base.

**Classification**

Standard B (OTCM 37119)

**Dimensions Shown are in Inches**

- Pintle height: Front: 52 7/8 in., Rear: 56 in.
- Length, center to center of axles: 120 in.
- Tire:
  - Size: 16 x 25
  - Ply: 24-ply rating
  - Pressure:
    - Highway: 70 psi
    - Cross country: 70 psi
    - Sand: 70 psi
- Axle gear ratio:
  - Front: 10.87:1
  - Rear: 10.16:1
- Axle load:
  - W/o gun and carriage:
    - Front: 15,475 lb
    - Rear: 22,375 lb
  - W/gun and carriage:
    - Front: 29,775 lb
    - Rear: 61,850 lb
- Capacities:
  - Fuel: 140 gal
  - Crankcase, refill: 11 gal
  - Transmission: 14 gal
  - Differential:
    - Front: 6 gal
    - Rear: 5 gal
  - Winch:
    - Oil capacity: 10 qt
    - Steering reservoir: 4 gal
    - Steering gear housing: 6 qt
    - Hoist and winch hydraulic reservoir: 18 gal
  - Electrical system:
    - Type: 24 volts
    - Number of batteries: 2 (12 volt)
  - Type ground: negative
- Brakes:
  - Manufacturer: Bendix-Westinghouse
  - Type: air
  - Parking, type: mechanical, drum
- Engine:
  - Manufacturer: Continental
  - Model: AO-805-4, spec-3
  - Type: overhead valve, 4-cycle, air-cooled
  - Number of cylinders (opposed): 6
  - Fuel octane rating (gasoline): 80

*For characteristics and data, see item on page 21-77.
CHARACTERISTICS—Continued.

Engine—Continued

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement</td>
<td>860 cu. in.</td>
</tr>
<tr>
<td>Bore</td>
<td>5 3/4 in.</td>
</tr>
<tr>
<td>Stroke</td>
<td>5 3/4 in.</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>6.5:1</td>
</tr>
<tr>
<td>Governed speed (max)</td>
<td></td>
</tr>
<tr>
<td>No load</td>
<td>2,950 rpm</td>
</tr>
<tr>
<td>Full load</td>
<td>2,840 rpm</td>
</tr>
<tr>
<td>Brake horsepower (max w/std accessories)</td>
<td>375 @ 5,800 rpm</td>
</tr>
<tr>
<td>Torque (max)</td>
<td>.785 lb-ft @ 2,200 rpm</td>
</tr>
</tbody>
</table>

Transmission:

| Type                                  | manually-controlled, full torque shifting |
| Forward speeds                        | High 1:1; 2d 2.02:1; Low 4.40:1          |

Transfer:

| Gear ratio                            |                                  |
|                                      | 1:1                              |

Winch load capacity                   | 60,000 lb                       |

PERFORMANCE

Computed grade ability in lowest gear w/gun and carriage: 30 percent
Turning radius, w/o gun and carriage: (right or left) 29 ft
Fording:
Depth                        | 60 in.                        |
Speed                        | 3-4 mph                       |
Crusing range, w/gun and carriage:
Highway                      | 165 mi                        |
Secondary road               | 130 mi                        |
Cross-country                 | 104 mi                        |

Maximum allowable speed, governed
Cruising speed

EQUIPMENT

Basic Issue Items: See ORD 7 SNL G-268.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Net weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,459 cu ft</td>
<td>329 sq ft</td>
<td>37,900 lb</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Net weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,459 cu ft</td>
<td>329 sq ft</td>
<td>37,900 lb</td>
<td>8.0</td>
</tr>
</tbody>
</table>

References: SNL G-268, TM 9-8005, TM 9-1755BB.
TRUCK, GUN-LIFTING: HEAVY, 4 X 4 REAR, M250

**General**

TRUCK, GUN-LIFTING: heavy, 4 x 4, rear, M250, is used with TRUCK, GUN-LIFTING: heavy, 4 x 4, front, M249, to lift and transport the 280-mm gun M63 and 280-mm gun carriage M9 (T72). It is equipped with hydraulic lifting forks to raise and lower the gun carriage. An interphone system provides a means for drivers of front and rear trucks to communicate when both vehicles are used in transporting the gun and carriage.

**Characteristics**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M260, W/a</td>
<td>4-00970-00</td>
<td>2330-838-8624</td>
</tr>
</tbody>
</table>

**Weight:**

- Net, w/o gun and carriage: 35,910 lb
- Gross, w/portion of gun and carriage carried by truck: 81,240 lb
- Length (overall): 380-1/4 in.
- Width (overall): 124 in.
- Height (overall), w/o gun and carriage: 137-1/2 in.
- Length, center to center of axles: 120 in.
- Ground clearance: 14-1/4 in.
- Pintle height, rear: 93-1/4 in.

**Capacities**

- Fuel: 140 gal
- Hoist hydraulic reservoir: 12 gal
- Steering reservoir: 4 gal
- Steering gear housing: 6 qt
- Transfer case: 6 qt
- Crankcase, refill: 11 gal
- Transmission: 14 gal
- Differential:
  - Front: 5 gal
  - Rear: 5 gal
- Electrical system: 24 volts
- Number of batteries: 2 (12 volt)
- Type of ground: negative

**Brakes:**

- Type: air
- Parking: mechanical, drum on rear axle

**Engine:**

- Manufacturer: Continental
- Model: OG-895-4, spec-4
- Type: Overhead valve, 4 cycle, air-cooled
- No. of cylinders (opposed): 6
- Displacement: 895 cu in.
- Bore: 3-1/2 in.
- Stroke: 3-1/4 in.
- Compression ratio: 6.5:1
- Governed speed (max):
  - No load: 2,950 rpm
  - Full load: 2,840 rpm
- Brake horsepower (max w/std accessories): 375 @ 2,800 rpm
- Torque (max): 780 lb-ft @ 2,200 rpm

**Transmission:**

- Type: manually controlled, full-torque shifting
- Forward speeds: 3
- Gear ratio:
  - High: 1:1; 2d: 2.08:1; Low: 4.40:1

**Transfer:**

- Gear ratio: 1:1

**Tires:**

- Size: 16 x 25
- Ply: 24-ply rating
- Pressure:
  - Highway: 70 psi
  - Cross country: 70 psi
  - Sand: 70 psi

For characteristics and data, see item on page 21-39.

21-79.
CHARACTERISTICS—Continued

Axle gear ratio:
Front: 10.87:1  
Rear: 10.16:1

Axle load:
W/o gun and carriage:
Front: 16,350 lb  
Rear: 19,560 lb
W/gun and carriage:
Front: 24,109 lb  
Rear: 54,327 lb

PERFORMANCE
Computed grade ability in lowest gear w/gun and carriage: 30 percent
Turning radius, w/o gun and carriage: (right or left) 40 ft
Fording:
Depth: 60 in  
Speed: 3-4 mph
Cruising range, w/gun and carriage:
Highway: 165 mi  
Secondary road: 130 mi  
Cross-country: 104 mi
Maximum allowable speed, governed: 40 mph
Cruising speed: 25 mph

EQUIPMENT
Basic Issue Items: See ORD 7 SNL 0–268.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped
Length: 380\(\frac{1}{4}\) in.  
Width: 124 in.  
Height: 137\(\frac{1}{4}\) in.  
Volume: 3,740 cu ft  
Area: 328 sq ft  
Gross weight: 93.50 tons

Outside Continental United States

Shipped
Length: 380\(\frac{1}{4}\) in.  
Width: 124 in.  
Height: 137\(\frac{1}{4}\) in.  
Volume: 3,740 cu ft  
Area: 328 sq ft  
Gross weight: 93.50 tons

References: SNL G–268, TM 9–8006, TM 9–1755BB.
TRUCK, MAINTENANCE: 3/4-TON, 4 X 4, M201, AND M201B1, W/WINCH
(Signal Corps Model V41/GT)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M201, w/wn</td>
<td>2320-885-883</td>
<td></td>
</tr>
<tr>
<td>M201B1, w/wn</td>
<td>2320-930-6801</td>
<td></td>
</tr>
</tbody>
</table>

**General**
TRUCK, MAINTENANCE: 3/4-ton, 4 x 4, M201 and M201B1, w/ winch is used for telephone maintenance. It has an all steel body with compartment for stowage of tools and supplies. It has a steel cab with soft top which is separated from the body.

**Differences among models**
The differences among models M201 and M201B1 are not visual. However M201B1 has a greater interchangeability of parts within the supply system.

**Data plate location**
The data plate is located on the dash panel.

**Classification**
M201—Standard B (OTCM 37926)
M201B1—Standard A (OTCM 37926).

---

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Crew</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight, Net, w/wn</td>
<td>6,950 lb</td>
</tr>
<tr>
<td>Gross, Off highway</td>
<td>8,800 lb</td>
</tr>
<tr>
<td>Length</td>
<td>203 in</td>
</tr>
<tr>
<td>Width</td>
<td>76 in</td>
</tr>
<tr>
<td>Height, Light</td>
<td>92 1/8 in</td>
</tr>
<tr>
<td>Loaded</td>
<td>91 7/8 in</td>
</tr>
<tr>
<td>Wheel base</td>
<td>126 in</td>
</tr>
<tr>
<td>Fuel octane rating</td>
<td>72-80</td>
</tr>
<tr>
<td>Axle gear ratio</td>
<td>5.83:1</td>
</tr>
<tr>
<td>Axle load, Empty w/wn: Front</td>
<td>3,500 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>3,450 lb</td>
</tr>
<tr>
<td>Loaded w/wn: Front</td>
<td>3,775 lb</td>
</tr>
<tr>
<td>Rear</td>
<td>5,025 lb</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>10 7/8 in</td>
</tr>
<tr>
<td>Pinch height, loaded</td>
<td>21 7/8 in</td>
</tr>
</tbody>
</table>

**Loading height** | 30 7/8 in |

**Capacities:**
- Fuel | 24 gal
- Cooling system | 17 qt
- Crankcase, refill | 5 qt

**Transmission:**
- Through engine T245-3955... 10 1/2 pt (w/pto) 9 pt (w/o pto)
- After engine T245-3955... 7 pt (w/pto) 6 pt (w/o pto)
- Transfer: Axle Front | 6 pt Rear | 6 pt
- Winch oil capacity: Clutch hsg | 1 qt Worm hsg | 1 qt
- Winch load capacity | 7,500 lb

**Electrical system:**
- 24 volt
- Number of batteries | 2 (12 volt)
- Type of batteries | U.S. 2HN

**Brakes:**
- Manufacturer | Thermoid
- Type | tapered woven and molded
- Parking, type | woven asbestos
- Service | Molded, ground concentrically

**Engine:**
- Manufacturer | Dodge, Model T245
- Type | gasoline I-head
- Number of cylinders | 6 (in line)
- Displacement | 230.2 cu in
- Bore | 3 7/8 in
- Stroke | 4 1/4 in
- Compression ratio | 6.7:1
- Governed speed | 3,400 rpm
- Brake horsepower, gross (max w/std accessories) | 94 @ 3,400 rpm
- Torque, gross (max w/std accessories) | 188 lb-ft @ 1,600 rpm

**Transmission:**
- Manufacturer | New Process Model 8850
- Type | helical gear synchro-shift
- Number of speeds | four forward, one reverse
- Gear ratios | 6.40; 3.09; 1.69; 1.00; reverse 7.61

**Transfer:**
- Manufacturer | New Process Model 8850
- Number of speeds | 2
- Gear ratios | 1.96; 1.00

**Tires:**
- Size | 9.00 x 16
- Ply | 8
## CHARACTERISTICS—Continued

### Tires—Continued

<table>
<thead>
<tr>
<th>Pressure</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Front</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td>40 psi</td>
<td></td>
</tr>
<tr>
<td>Cross country</td>
<td>40 psi</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>20 psi</td>
<td></td>
</tr>
<tr>
<td>Mud or snow</td>
<td>15 psi</td>
<td></td>
</tr>
<tr>
<td><strong>Rear</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td>45 psi</td>
<td></td>
</tr>
<tr>
<td>Cross country</td>
<td>45 psi</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>25 psi</td>
<td></td>
</tr>
<tr>
<td>Mud or snow</td>
<td>20 psi</td>
<td></td>
</tr>
</tbody>
</table>

### Tread, center to center, front and rear: 62 in.

## PERFORMANCE

<table>
<thead>
<tr>
<th>Performance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum grade ability (lowest gear with off highway load)</td>
<td>68 percent</td>
</tr>
<tr>
<td>Turning radius</td>
<td>27 ft</td>
</tr>
<tr>
<td>Fording depth</td>
<td></td>
</tr>
<tr>
<td>W/o fording kit</td>
<td>42 in.</td>
</tr>
<tr>
<td>W/foring kit</td>
<td>44 in.</td>
</tr>
<tr>
<td>Fuel consumption (loaded)</td>
<td>(approx) 9 mpg</td>
</tr>
<tr>
<td>Cruising range (loaded)</td>
<td>225 mi</td>
</tr>
<tr>
<td>Allowable speed (governed)</td>
<td>55 mph</td>
</tr>
</tbody>
</table>

### Maximum allowable towed load:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross country</td>
<td>4,000 lb</td>
</tr>
<tr>
<td>Highway</td>
<td>6,000 lb</td>
</tr>
</tbody>
</table>

## EQUIPMENT

### Basic Issue Items:
See TM 9-8030, C5

### STORAGE AND SHIPMENT DATA

#### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>203 $^{3/4}$ in.</td>
</tr>
<tr>
<td>Width</td>
<td>76 in.</td>
</tr>
<tr>
<td>Height</td>
<td>65 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>583 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>167 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>14.48</td>
</tr>
</tbody>
</table>

#### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

### References:
TRUCK, MAINTENANCE: EARTH BORING MACHINE AND POLE SETTER, 2 1/2-TON, 6X6, V18A/MTQ

Model | Line item No. | Federal stock No.
V18A/MTQ | 6-93540-00 | 2320-200-1758

**General**

TRUCK, MAINTENANCE: earth boring machine and pole setter, 2 1/2-ton, 6x6, V18A/MTQ, mounted on CHASSIS. TRUCK: 2 1/2-ton, 6x6, M44; has modified M31 body. The tailgate of the body is removed and bedplate of body cut and reinforced at rear to support the earth boring machine, model "HD". The front part of bedplate, behind track cab, is cut to mount a V18A rear winch. Mounts for collapsible cable reel, four earth augers, wheel chock with chain, pole-lifting jack, and support legs are bolted to body and chassis. The boring machine is equipped with integral derrick consisting of derrick tube, derrick sheave, snatch sheave, and a strap sheave. The boring machine and rear winch receive power from transfer power take-off through power divider, secured to rear winch mounting frame from underneath vehicle. The power divider is connected to transfer power take-off of truck. The machine is controlled by the control lever operating handle assembly mounted on left-hand side of boring machine. Rear winch is controlled from cab of vehicle through control lever linkage.

**Differences among models**

**Data plate location**
The identification (name) plate is located on the right-hand side of the instrument panel.

**Classification**: Standard

**CHARACTERISTICS**

**Grew**

**Weight:**

| Net: W/o front winch | 16,735 lb |
| W/front winch | 17,159 lb |

**Payload:**

| Off highway | 3,392 lb |
| On highway | 3,296 lb |

**Gross:**

| W/o front winch: Off highway | 19,125 lb |
| On highway | 22,125 lb |

*For characteristics and data, see item on page 21-17.
Transfer:
- Transfer power take-off (initial chassis run-in)........ 1 qt
- Front winch ........................................ 41/2 qt
- Rear winch, warm housing ................................ 4 qt
- Power-divider ........................................ 31/2 qt

Earth boring machine:
- Clutch and brake case .................................. 5 qt
- Intermediate case ....................................... 5 qt
- Boring case ............................................. 10 qt

Electrical system:
- Voltage .................................................. 24 volt
- Number of batteries (12 volts each) ..................... 2
- Grouded .................................................. negative

Brakes:
- Manufacturer ............................................ Timken-Detroit
- Type ..................................................... air/hydraulic
- Parking, type ........................................... transfer

Engine:
- Manufacturer: Reo Motors Inc. ................................ Model OA-331
- Continental Motor Corp. ................................... Model CDA-331
- Type ..................................................... gasoline, valve-in-head
- Number of cylinders ..................................... 6
- Displacement ............................................ 331 cu in.
- Bore ..................................................... 41/2 in.
- Stroke .................................................... 41/2 in.
- Compression ratio ........................................ 7:1
- Governed speed:
  - Full load ............................................ 3,400 rpm
  - No load ............................................... 3,600 rpm

Brake horsepower:
- Maximum w/std accessories .......................... 146 @ 3,400 rpm
- Maximum w/o std accessories ....................... 165 @ 3,400 rpm

Torque:
- Maximum w/std accessories .......................... 248 lb-ft @ 1,400 rpm
- Maximum w/o std accessories ....................... 270 lb-ft @ 1,400 rpm

Transmission:
- Type ..................................................... synchromesh
- Forward speeds ........................................ 6
- Gear ratio:
  - High ................................................... 1:1
  - Low .................................................... 7:56:1

Transfer:
- Speeds .................................................. 2
- Gear ratio:
  - High ................................................... 1:1
  - Low .................................................... 1:88:1

Tires:
- Number .................................................. 6
- Size ..................................................... 11.00 x 20
- Ply ....................................................... 12

Pressure:
- Highway ............................................... 70 psi
- Cross-country ......................................... 55 psi
- Sand ...................................................... 15 psi
- Trend, center-to-center, front .......................... 59%

PERFORMANCE

Computed grade ability in lowest gear:

- Turning radius:
  - W/ front winch .................................... 143 ft
  - W/ front winch .................................... 135 ft
- Fuel consumption ...................................... 6 mpg
- Cruising range ......................................... 300 mi
- Allowable speed (governed) ........................... 50 mph
- Fording depth:
  - W/ fording kit ...................................... 30 in.
  - W/ fording kit ...................................... 32 in.
- Front winch capacity .................................. 10,000 lb
- Rear winch capacity .................................. 15,000 lb
- Earth boring machine boring depth (max) ............ 7 ft

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States:

- Length ..................................................
- Width ...................................................
- Height ..................................................
- Volume ................................................
- Gross weight ...........................................
- Ship tons .............................................

Outside Continental United States:

- Length ..................................................
- Width ...................................................
- Height ..................................................
- Volume ................................................
- Gross weight ...........................................
- Ship tons .............................................

TRUCK, MAINTENANCE: TELEPHONE CONSTRUCTION AND MAINTENANCE, 2½-TON, 6X6, V17A/MTQ

---

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V17A/MTQ</td>
<td>6-93520-00</td>
<td>2320-200-1288</td>
</tr>
</tbody>
</table>

#### General

TRUCK, MAINTENANCE: telephone construction and maintenance, 2½-ton, 6 x 6, V17A/MTQ, has a special body mounted on CHASSIS, TRUCK: 2½-ton, 6 x 6, M44. The body is designed for telephone work and has compartments built into side panels of body. Compartments are accessible through hinged doors on the outside of panels. Other openings in side panels provide access to drums and auxiliary shafts of V-17A rear winch that is mounted in front end of body. The rear winch is also used with pole derrick. The derrick, when not in use, is carried in left-hand side of body and held in place by two derrick leg hold-down clamps. Two wheel chocks with chains and two support legs are provided. A pillow block transfers power from transfer power takeoff to rear winch.

#### Differences among models

Data plate location

The identification (name) plate is located on the right-hand side of the instrument panel.

Classification: Standard.

#### Crew

Weight:

- Net:
  - W/o front winch: 16,100 lb
  - W/ front winch: 16,550 lb
- Payload:
  - Off highway: 2,290 lb
  - On highway: 6,290 lb
- Gross:
  - W/o front winch:
    - Off highway: 18,390 lb
    - On highway: 22,840 lb
  - W/ front winch:
    - Off highway: 23,390 lb
    - On highway: 22,840 lb

*For characteristics and data, see item on page 21-19.

---

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

Length overall:

- W/o front winch: 262 in.
- W/ front winch: 276 in.

Width overall: 94 in.

Height overall: 120 in.

Height (minimum reducible): 120 in.

Axle gear ratio: 6.72:1

Axle load:

- Empty:
  - W/o front winch:
    - Front: 10,000 lb
    - Rear: 10,000 lb
  - W/ front winch:
    - Front: 10,550 lb
    - Rear: 10,550 lb
- Loaded:
  - W/o front winch:
    - Front: 18,840 lb
    - Bogie: 18,840 lb
  - W/ front winch:
    - Front: 22,390 lb
    - Bogie: 22,390 lb
- Ground clearance: 13 in.

Angle of approach:

- W/o front winch: 48 deg
- W/ front winch: 40 deg

Angle of departure: 43 deg

Pintle height, empty: 36 in.

Body inside dimensions:

- Length
- Width
- Height

Fuel octane rating:

- Capacities:
  - Fuel tank: 50 gal
  - Cooling system: 22 qt
  - Crankcase refill: 9 qt
  - Differential (each): 47 qt
  - Transmission:
    - W/o power take-off: 83/4 pt
    - W/ power take-off: 10 pt
  - Transfer:
    - W/o power take-off (initial chassis run-in): 5/4 pt
  - Transfer power take-off (initial chassis run-in): 5/4 pt
Front winch: 2 \frac{1}{2} \text{ at}
Rear winch worm housing: 3 \text{ at}
Pillow block: 1 \frac{1}{4} \text{ at}

Electrical system:
Voltage: 24 \text{ volt}
Number of batteries (12 volts each): 2
Ground: negative

Grades:
Manufacturer: Timken-Detroit
Type: air/hydraulic
Parking: transfer

Engine:
Manufacturer: Reo Motors Inc.
Model: OAC-331
Type: gasoline, valve-in-head
Number of cylinders: 6
Displacement: 331 \text{ cu in.}
Bore: 4 \frac{1}{2} \text{ in.}
Stroke: 4 \frac{1}{4} \text{ in.}
Compression ratio: 6.73:1

Governing speed:
Full load: 3.400 \text{ rpm}
No load: 3.100 \text{ rpm}

Brake horsepower:
Maximum w/o accessories: 140 \text{ hp}
Maximum w/o accessories: 165 \text{ hp}

Torque:
Maximum w/o accessories: 450 \text{ lb-ft}
Maximum w/o accessories: 570 \text{ lb-ft}

Transmission:
Type: synchromesh
Forward speeds: 6
High: 1.1
Low: 1.55:1

Transfer:
Speeds: 2
High: 1.1
Low: 1.98:1

Tires:
Number: 6
Size: 11.00 x 20
Ply: 12
Pressure:
Highway: 50 \text{ psi}
Cross-country: 35 \text{ psi}

Rear winch capacity: 10,000 \text{ lb}
Rear winch capacity: 15,000 \text{ lb}

PERFORMANCE
Computed grade ability in lowest gear:
Turning radius:
W/o front winch: 34 \frac{1}{2} \text{ ft}
W/front winch: 32 \frac{1}{2} \text{ ft}

Fuel consumption:
8 \text{ mpg}

Cruising range: 300 \text{ mi}

Allowable speed (governed): 50 \text{ mph}

Fording depth:
W/o front winch: 30 \text{ in.}
W/front winch: 72 \text{ in.}

Towed load:
Highway: 10,000 \text{ lb}
Cross-country: 4,000 \text{ lb}

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sales weight

Area

Gross weight

Ship tons

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sales weight

Area

Gross weight

Ship tons

References:
### Major Item

**Shown:** Truck, tank: gasoline, 2½-ton 6 x 6, 1200-gal, M49 and M49C, w/ w/o winch.

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M49, w/ w/o winch</td>
<td>4-61832-30</td>
<td>9570-835</td>
</tr>
<tr>
<td>M49C, w/ w/o winch</td>
<td>4-61832-30</td>
<td>2820-14-835</td>
</tr>
</tbody>
</table>

**General**

TRUCK, TANK: gasoline, 2½-ton, 6 x 6, 1200-gal. M49 and M49C, w/ w/o winch, is mounted on M45 chassis. The tank body has 200-, 400-, and 600-gallon sections. A delivery pump mounted in the rear compartment fills or empties the various sections. No trailer connections or pintle are provided on M49. Trailer connections and pintle are provided on model M49C.

**Differences among models**

M49C is a standard M49 equipped with kit, segregator, trailer connections and pintle, aviation gasoline.

**Data plate location**

Plates are located on the instrument panel.

**Classification**

M49—Standard B (OTCM 37057).
M49C—Standard A (OTCM 37057).

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Crew</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (net):</strong></td>
<td></td>
</tr>
<tr>
<td>M49</td>
<td>13,490 lb</td>
</tr>
<tr>
<td>M49C</td>
<td>15,056 lb</td>
</tr>
<tr>
<td><strong>Length:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>261¾ in</td>
</tr>
<tr>
<td><strong>Width:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>93¼ in</td>
</tr>
<tr>
<td><strong>Height:</strong></td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>80½ in</td>
</tr>
<tr>
<td>Reduced to (37½ in)</td>
<td>73½ in</td>
</tr>
<tr>
<td><strong>Wheel base:</strong></td>
<td>164 in</td>
</tr>
<tr>
<td><strong>Length of tank:</strong></td>
<td>148 in</td>
</tr>
<tr>
<td>Center to center of rear axles</td>
<td>48 in</td>
</tr>
<tr>
<td><strong>Axle gear ratio:</strong></td>
<td>7:1</td>
</tr>
<tr>
<td><strong>Ground clearance (loaded):</strong></td>
<td>70¾ in</td>
</tr>
<tr>
<td><strong>Capacities:</strong></td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td>50 gal</td>
</tr>
<tr>
<td>Cooling system</td>
<td>22 qt</td>
</tr>
<tr>
<td>Crankcase, refill</td>
<td>9 qt</td>
</tr>
<tr>
<td>Transmission</td>
<td>4.25 qt</td>
</tr>
<tr>
<td>Axle (each)</td>
<td>7 qt</td>
</tr>
<tr>
<td><strong>Electrical system:</strong></td>
<td></td>
</tr>
<tr>
<td>Number of batteries</td>
<td>12 (12 volts)</td>
</tr>
<tr>
<td><strong>Type of sound:</strong></td>
<td>negative</td>
</tr>
<tr>
<td><strong>Brakes:</strong></td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Timken-Detroit</td>
</tr>
<tr>
<td>Type</td>
<td>air-hydraulic</td>
</tr>
<tr>
<td>Parking, type</td>
<td>transfer</td>
</tr>
</tbody>
</table>

### Engine

| Manufacturer          | Reo Motors Inc. |
| Model                 | Model OA-331   |
| Type                  | 4-cyl, valve-in-head |
| Number of cylinders   | 6 (in line)     |
| Displacement          | 391 in³ |
| Bore                  | 4.125 in |
| Stroke                | 4.125 in |
| Compression ratio     | 7:1 |
| Governor speed:       |   |
| **Full load:**        | 3,400 rpm |
| **No load:**          | 3,600 rpm |
| **Brake horsepower (max):** | 175 @ 3,400 rpm |
| **Transmission:**     | synchronesh |
| **Forward speeds:**   | 5 |
| **Gear ratio:**       |   |
| **High:**             | 1:1 |
| **Low:**              | 2:50:1 |

### Transfer

| Speeds | 2 |
| Gear ratio |   |
| **High:** | 1:1 |
| **Low:**  | 1:41 |

### Tires

| Size     | 9 x 20 |
| Pressure | 28 psi |
| **Highway:** | 45 psi |
| **Sand:**  |   |
| **Tread, center to center, front:** | 70¾ in |

### Values

| Type     | double reduction, full floating |
| Weight capacity: |   |
| Empty M49: | 3,300 lb |
| Front:     | 5,500 lb |
| Bogie:     | 13,175 lb |

### PERFORMANCE

| Computed grade ability in lowest gear, loaded | 62 percent |
| Turning radius:                              | 30 ft |
| **Fording depth:**                           |   |
| W/o winch                                   | 40 in |
| W/Winch                                     | 72 in |
| Fuel consumption, loaded                    | 7 mpg |
| Cruising range, loaded                      | 350 mi |
| Allowable speed, governed                    | 58 mph |
## EQUIPMENT

Basic Issue Items: See TM 9-8022.

### INSTRUCTIONAL MATERIAL

## STORAGE AND SHIPMENT DATA

### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>961/4 in.</td>
<td>951/4 in.</td>
<td>973/4 in.</td>
<td>1,260 cu ft</td>
<td>173 sq ft</td>
<td></td>
<td>31.50</td>
</tr>
</tbody>
</table>

### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TRUCK, TANK: FUEL SERVICING, 2 1/2-TON, 6 x 6, 1200 GAL, M217 AND M217C, W/E**

Shown: Truck, Tank: Fuel Servicing, 2 1/2-Ton, 6 x 6, 1200 Gal, M217 and M217C, w/e, is used to transport and dispense gasoline. The 1,200 gallon tank is divided into three compartments of 200, 400, and 600 gallons each. The transfer has an opening on the left side for mounting a power-take-off and accessory drive to operate gasoline tank pump and winch on the vehicle so equipped.

**Difference among models**
M217C is a standard M217 equipped with a Kit, segregator, aviation gasoline.

**Data plate location**
Data plate is located on the instrument panel.

**Classification:** Standard B (OTCM 37057).

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Description</th>
<th>M217</th>
<th>M217C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight net:</td>
<td>14,340 lb</td>
<td>14,805 lb</td>
</tr>
<tr>
<td>Length:</td>
<td>266 3/4 in.</td>
<td>266 3/4 in.</td>
</tr>
<tr>
<td>Height (max):</td>
<td>102 in.</td>
<td>102 in.</td>
</tr>
<tr>
<td>Height reducible to:</td>
<td>89 3/4 in.</td>
<td>89 3/4 in.</td>
</tr>
<tr>
<td>Wheel base:</td>
<td>156 in.</td>
<td>156 in.</td>
</tr>
<tr>
<td>Axle gear ratio:</td>
<td>6.166:1</td>
<td>6.166:1</td>
</tr>
</tbody>
</table>

### Capacities:

- **Fuel:** 56 gal
- **Cooling system:** 22 qt
- **Crankcase, refill:** 8 3/4 qt
- **Transmission:** 35 qt
- **Transfer, w/o power-take-off:** 6 3/4 pt

### Axles:

- **Front:** 13 3/4 pt
- **Intermediate:** 13 3/4 pt
- **Rear:** 13 3/4 pt

### Electrical system:

- **24 volts
- **Number of batteries:** 2 (12 volt)

### Brakes:

- **Manufacturer:** Bendix
- **Type:** air-hydraulic
- **Parking type:** transfer

### Engine:

- **Manufacturer:** General Motors Corp Model 302
- **Type:** gasoline, valve-in-head
- **Number of cylinders:** 6 (in line)
- **Displacement:** 300.6 cu in.
- **Bore:** 4 in.
- **Stroke:** 4 in.
- **Compression ratio:** 7.4:1
- **Governed speed:**
  - Full load: 3,400 rpm
  - No load: 3,300 rpm
- **Brake horsepower:**
  - Maximum:
    - w/std accessories: 150 @ 3,400 rpm
    - w/o std accessories: 155 @ 3,200 rpm
  - Torque:
    - Maximum:
      - w/std accessories: 480 lb-ft @ 1,100 rpm
      - w/o std accessories: 504 lb-ft @ 1,400 rpm
- **Transmission:
  - Type: hydraulic
  - Forward speeds: 8
  - Gear ratio:
    - High range: High 1:1; Low 4.075:1
    - Low range: High 3.82:1; Low 15.625:1
- **Transfer:
  - Speeds: 1
  - Gear ratio: 1.16:1
- **Tires:
  - Size: 11 1/2 x 24
  - Pressure: 8
  - Highway: 45 psi
  - Cross country: 43 psi
  - Sand: 60 psi
  - Treel. center to curb: 60 in.

### PERFORMANCE

- **Computed grade ablility in forward motion, loaded:** 67 percent
- **Turning radius:** 34 1/4 ft
- **Fording depth:**
  - W/o kit: 30 in.
  - W/kit: 80 in.
- **Fuel consumption, loaded:** 5.4 miles
- **Cruising range, loaded:** 300 miles
- **Allowable speed, governed:** 15 mph

---

21-85
### Equipment

Basic Issue Items: See ORD 7 SNL G-749.

### Instructional Material

### Storage and Shipment Data

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2661/2 in.</td>
<td>96 in.</td>
<td>102 in.</td>
<td>1,335 cu ft</td>
<td>178 sq ft</td>
<td></td>
<td>33.38</td>
</tr>
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</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, TANK: WATER, 2½-TON, 6 X 6, 1000 GAL, M50, W/ AND W/O WINCH

Differences among models

Data plate location

Data plate is located on the instrument panel.

Classification: Standard A (OTC 50841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M50, w/o wn, w/e</td>
<td>4-61332-25</td>
<td>2320-835-8344</td>
</tr>
<tr>
<td>M50, w/wn, w/e</td>
<td>4-61333-00</td>
<td>2320-174-1001</td>
</tr>
</tbody>
</table>

General

TRUCK, TANK: water, 2½-ton, 6 x 6, 1000 gal, M50, w/ and w/o winch, is used to transport and dispense drinking water. The 1000-gallon tank is divided into two compartments. Front compartment, 400 gallons. Rear compartment, 600 gallons. An exhaust heater chamber on underside of the tank body protects the discharge valves and drain pipe during freezing weather. The delivery pump is located at the rear of the tank and is operated from the power-take-off by two drive shafts in series. No trailer connections or pintles are provided. The body-water tank is aluminum construction and insulated with fiber glass. Tank has built-in heating chamber and manhole openings for immersion heater.

Electrical system:

Number of batteries: 2 (12 volt)
Type of ground: negative

Brakes:

Manufacturer: Timken-Detroit
Type: air-hydraulic
Parking brake, type: transfer

Engine:

Manufacturer: Reo Motors Inc.
Model: 30-311
Continental
Model: COA-311
4-cycle, valve-in-head
Displacement: 311 cu in
Number of cylinders: in line 6
Displacement: 311 cu in
Bore: 4.125 in
Stroke: 4.125 in
Compression ratio: 6.73:1
Governed speed: Full load 3,400 rpm
No load: 3,600 rpm
Brake horsepower (max):
W/ std accessories: 127 @ 3,400 rpm
W/o std accessories: 140 @ 3,400 rpm
Torque (max):
W/ std accessories: 248 lb-ft @ 1,400 rpm
W/o std accessories: 270 lb-ft @ 1,400 rpm

Transmission:

Type: synchromesh
Forward speeds: 5
Gear ratio:
High: 1:1
Low: 5.55:1

Transfer:

Speeds: High 1:1
Low 1:9.8:1

Tires:

Size: 9.00 x 20
Ply: 8
Pressure:
Highway: 45 psi
Sand: 35 psi

Performance:

Computed grade ability in lowest gear, loaded: 57.5 percent
Turning radius, loaded: 36 ft
Fording depth:
W/o kit: 40 in
W/kit: 72 in
Fuel consumption, loaded:
7 mpg
Cruising range, loaded: 350 mi
Allowable speed, governed: 38 mph

Equipment

Basic issue items: See TM 9-8022.
INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

Length ............................................. 261\(\frac{1}{4}\) in.
Width ............................................. 95 in.
Height ............................................. 96\(\frac{3}{4}\) in.
Volume ............................................. 1,272 cu ft
Area ............................................. 172 sq ft
Gross weight .....................................
Ship tons ......................................... 31.80

Outside Continental United States

Shipped

Length .............................................
Width .............................................
Height .............................................
Volume .............................................
Area .............................................
Gross weight .....................................
Ship tons .........................................

TRUCK, TANK: WATER, 21/2-TON, 6 X 6, 1,000 GAL, M222

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M222 w/o</td>
<td>4-61332-30</td>
<td>2320-834-4514</td>
</tr>
</tbody>
</table>

General

TRUCK, TANK: water. 21/2 ton. 6 x 6. 1,000 gal. M222, is used to transport drinking water. The 1,000-gallon tank is divided into two compartments. 400-gallon forward, and 600-gallon rear made of aluminium with steel skirting. The tank is insulated with fibre glass and has a built-in heating chamber; manhole openings are provided for immersion heater. A rear mounted water pump, capacity 70 gallons per minute, is operated through propeller shafts from power-take-off and accessory drive mounted on transfer. Vehicle is furnished without winch, trailer brake service line, trailer-light receptacle, or pintle. The tank body is mounted on a M207 chassis.

Difference among models

Data plate location

Data plate is located on the instrument panel.

Classification: Standard B.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Crew</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (Net)</td>
<td>14,100 lb</td>
</tr>
<tr>
<td>Payload (On highway)</td>
<td>8,500 lb</td>
</tr>
<tr>
<td></td>
<td>3,300 lb</td>
</tr>
<tr>
<td>Gross (On highway)</td>
<td>22,900 lb</td>
</tr>
<tr>
<td></td>
<td>17,800 lb</td>
</tr>
<tr>
<td>Length (2601/2 in.)</td>
<td>103 in.</td>
</tr>
<tr>
<td>Height</td>
<td>96 in.</td>
</tr>
<tr>
<td>Wheel base</td>
<td>155 in.</td>
</tr>
<tr>
<td>Length of tank</td>
<td>1471/2 in.</td>
</tr>
<tr>
<td>Center to center of rear axles</td>
<td>48 in.</td>
</tr>
<tr>
<td>Fuel octane rating</td>
<td>80</td>
</tr>
<tr>
<td>Axle gear ratio</td>
<td>6:4:6:1</td>
</tr>
<tr>
<td>Type</td>
<td>hypoid, full-floating</td>
</tr>
</tbody>
</table>

Capacities:

| Fuel             | 56 gal |
| Coating system   | 22 qt  |
| Crankcase refill  | 83/4 qt |
| Transmission     | 15 qt  |
| Transfer, w/o power-take-off | 83/4 pt |
| Axle: Front      | 153/4 pt |
| Intermediate     | 123/4 pt |
| Rear             | 113/4 pt |
| Electrical system| 24 volts |
| Number of batteries | 2 (12 volt) |
| Type of ground   | negative |

Brakes:

| Manufacturer      | Bendix |
| Type              | air-hydraulic |
| Parking type      | transfer |

Engine:

| Manufacturer      | General Motors Corp, Model 302 |
| Type              | gasoline, valve-in-head |
| Number of cylinders (in line) | 6 |
| Displacement      | 301.8 cu in. |
| Bore              | 4 in. |
| Stroke            | 4 in. |
| Compression ratio | 7.2:1 |
| Governed speed    | 3,400 rpm |
| No load           | 3,600 rpm |
| Brake horsepower:  |
| W/td accessories  | 135 @ 3,400 rpm |
| W/td accessories  | 145 @ 3,400 rpm |

Torque:

| W/td accessories | 480 lb-ft @ 1,300 rpm |
| W/td accessories | 504 lb-ft @ 1,400 rpm |

Transmission:

| Type              | hydramatic |
| Forward speeds    | 8 |
| Gear ratio: High range | High 1:1; Low 4.627:1 |
|                   | High 3.87:1; Low 15.67:1 |
| Transfer: Speeds | 1 |
| Gear ratio        | 1.16:1 |

Tires:

| Size             | 9 x 20 |
| Pressure: Highway | 45 psi |
| Sand             | 30 psi |
| Tread, center to center, front | 0013/4 in. |

Federal stock No. 2320-834-4514

Line item No. Major item

Model: M222 w/o. A-6/332-30

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Crew</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (Net)</td>
<td>14,100 lb</td>
</tr>
<tr>
<td>Payload (On highway)</td>
<td>8,500 lb</td>
</tr>
<tr>
<td></td>
<td>3,300 lb</td>
</tr>
<tr>
<td>Gross (On highway)</td>
<td>22,900 lb</td>
</tr>
<tr>
<td></td>
<td>17,800 lb</td>
</tr>
<tr>
<td>Length (2601/2 in.)</td>
<td>103 in.</td>
</tr>
<tr>
<td>Height</td>
<td>96 in.</td>
</tr>
<tr>
<td>Wheel base</td>
<td>155 in.</td>
</tr>
<tr>
<td>Length of tank</td>
<td>1471/2 in.</td>
</tr>
<tr>
<td>Center to center of rear axles</td>
<td>48 in.</td>
</tr>
<tr>
<td>Fuel octane rating</td>
<td>80</td>
</tr>
<tr>
<td>Axle gear ratio</td>
<td>6:4:6:1</td>
</tr>
<tr>
<td>Type</td>
<td>hypoid, full-floating</td>
</tr>
</tbody>
</table>

Capacities:

| Fuel             | 56 gal |
| Coating system   | 22 qt  |
| Crankcase refill  | 83/4 qt |
| Transmission     | 15 qt  |
| Transfer, w/o power-take-off | 83/4 pt |
| Axle: Front      | 153/4 pt |
| Intermediate     | 123/4 pt |
| Rear             | 113/4 pt |
| Electrical system| 24 volts |
| Number of batteries | 2 (12 volt) |
| Type of ground   | negative |

Brakes:

| Manufacturer      | Bendix |
| Type              | air-hydraulic |
| Parking type      | transfer |

Engine:

| Manufacturer      | General Motors Corp, Model 302 |
| Type              | gasoline, valve-in-head |
| Number of cylinders (in line) | 6 |
| Displacement      | 301.8 cu in. |
| Bore              | 4 in. |
| Stroke            | 4 in. |
| Compression ratio | 7.2:1 |
| Governed speed    | 3,400 rpm |
| No load           | 3,600 rpm |
| Brake horsepower:  |
| W/td accessories  | 135 @ 3,400 rpm |
| W/td accessories  | 145 @ 3,400 rpm |

Torque:

| W/td accessories | 480 lb-ft @ 1,300 rpm |
| W/td accessories | 504 lb-ft @ 1,400 rpm |

Transmission:

| Type              | hydramatic |
| Forward speeds    | 8 |
| Gear ratio: High range | High 1:1; Low 4.627:1 |
|                   | High 3.87:1; Low 15.67:1 |
| Transfer: Speeds | 1 |
| Gear ratio        | 1.16:1 |

Tires:

| Size             | 9 x 20 |
| Pressure: Highway | 45 psi |
| Sand             | 30 psi |
| Tread, center to center, front | 0013/4 in. |
### Equipment

**Basic Issue Items:** See ORD 7, SNL G-749.

### Instructional Manual

**Storage and Shipment Data**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
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</thead>
<tbody>
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<td>Length</td>
<td>266¾ in.</td>
</tr>
<tr>
<td>Width</td>
<td>102 in.</td>
</tr>
<tr>
<td>Height</td>
<td>78 sq ft</td>
</tr>
<tr>
<td>Weight</td>
<td>33.36 tons</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, TRACTOR: 2½-TON, 6 X 6, M48, W/ AND W/O WINCH

Note. All dimensions shown are in inches.

General

TRUCK, TRACTOR; 2½-ton, 6 x 6, M48, w/o and w/o winch, is designed to tow a semitrailer attached to fifth wheel mounted on vehicle. Maximum towed load for tractor is 17,000 pounds for cross-country travel and 36,000 pounds for travel on highways. Spare wheel carrier and toolbox are mounted on rear of cab. Air-brake hose and electrical cable for semitrailer service are stowed on airbrake hose support mounted at rear of spare wheel carrier. Pioneer tools are stowed just forward of fifth wheel. Chassis M48 is used.

Difference among models

Data plate location
Data plate is located on instrument panel.

Classification: Standard B (OTCM 36841).

Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M48, w/wn, w/o</td>
<td>4-61380-00</td>
<td>2230-835-8345</td>
</tr>
<tr>
<td>M48, w/o wn, w/o</td>
<td>4-61370-00</td>
<td>2230-835-8346</td>
</tr>
</tbody>
</table>

Crew

Weight:
- Net: W/wnch: 11,130 lb, W/wnch: 11,841 lb
- Payload:
  - Off highway: 7,000 lb
  - On highway: 12,000 lb
- Gross:
  - Off highway: W/wnch: 18,430 lb, W/wnch: 18,841 lb

Length: 253½ in. Width: 90½ in.

Height:
- Normal load: 97½ in.
- No load: 40½ in.
- Pinion height, empty: 3½ in.
- Height to center of fifth wheel, empty: 51½ in.
- Height to rear of fifth wheel, empty: 59½ in.
- Fifth wheel mounted forward of bogie axle: 4½ in.
- Wheel base: 154 in.

Fuel system:
- Capacity: 50 gal
- Coolant system: 22 qt
- Crankcase, refill: 9 qt
- Transmission:
  - W/wo power take-off: 11½ qt
  - W/wo power take-off: 1½ qt
- Transfer:
  - Axle: 7 qt
- Winch:
  - Oil capacity: 2 qt
- Load capacity: 10,000 lb
- Electrical system:
  - 24 volts
- Battery:
  - Number of batteries: 2 (12 volts)
  - Type of ground: negative

Brakes:
- Manufacturer: Timken-Detroit
- Type: air hydraulic
- Parking, type: transfer
- Jockey:
  - Manufacturer: Reg. Mote, Inc.
  - Model: OA-331
  - Continental: Model COA-331

Axle:
- Gear ratio: double reduction, full floating
- Weight capacities:
  - Empty:
    - W/wnch: 5,420 lb
    - W/wnch: 5,915 lb
- Loaded, off highway:
  - W/wnch: 5,500 lb
  - W/wnch: 6,057 lb
- Loaded, on highway:
  - W/wnch: 5,227 lb
  - W/wnch: 6,720 lb

Winch:
- Oil capacity: 1 qt
- Load capacity: 10,000 lb
- Type of ground: negative

Brakes:
- Manufacturer: Timken-Detroit
- Type: air hydraulic
- Parking, type: transfer
- Jockey:
  - Manufacturer: Reg. Mote, Inc.
  - Model: OA-331
  - Continental: Model COA-331

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CHARACTERISTICS—Continued
Capacities—Continued
Engine—Continued

Type: 4-cycle, valve-in-head
Number of cylinders: (in line) 6
Displacement: 331 cu in.
Bore: 4½ in.
Stroke: 4½ in.
Compression ratio: 6.73:1
Governed speed (full load): 3,400 rpm
Brake horsepower (max w/std accessories): 260 @ 3,400 rpm
Torque (max w/std accessories): 248 lb-ft @ 1,400 rpm

Transmission:
Type: synchromesh
Forward speeds: 5
Gear ratio: High 1:1; Fourth 1.45:1; Low 7.55:1

Transfer:
Speeds: 2
Gear ratio: High 1:1; Low 1.98:1

Tires:
Size: 9.00 x 20
Ply: 8
Pressure:
Highway: 90 psi
Cross country: 45 psi
Sand: 87.5 psi
Tread, center to center, front: 67½ in.

PERFORMANCE
Computed grade ability in lowest gear, w/off-highway load ... 40 percent
Turning radius: 36 ft
Fording depth, w/o fording kit: 30 in.
Fuel consumption, loaded: 8 mpg
Cruising range, loaded: 350 mi
Allowable speed, governed: 58 mph

Maximum pintle tow:
Off highway (gross) ........................................ 17,000 lb
On highway (gross) ........................................... 36,000 lb
Maximum semitrailer, gross ................................ 25,000 lb

EQUIPMENT
Basic Issue Items: See TM 9-8022.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped uncrated.
Length: 233½ in.
Width: 93½ in.
Height: 97½ in.
Volume:
W/o winch: 1,068 cu ft
W/1winch: 1,118 cu ft

Outside Continental United States

Shipped
Length: 253½ in.
Width: 93½ in.
Height: 97½ in.
Volume: 1,118 cu ft

TRUCK, TRACTOR: 2½-TON, 6 X 6, M221, W/ AND W/O WINCH

General

TRUCK, TRACTOR: 2½-ton, 6 x 6, M221, is designed to tow a semitrailer attached to fifth wheel mounted on vehicle. Maximum towed load for tractor is 17,000 pounds for cross-country travel and 36,000 pounds on highway. Trailer brake service connections and electrical receptacle are located at rear of vehicle for trailer operation, and on a hose support (hustennas) immediately back of cab for semitrailer brake and light operation.

Vehicle has a 34-inch standard Ordnance fifth wheel with approach ramp, a flexible mast-type support for intervehicular cables and hoses, deck plates over chassis frame and fuel tank, a hand control valve on steering column for independent application of towed load air brakes.

Differences among models

Data plate location

Data plate is located on the instrument panel.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Crew: 2

Weight:

Net:
- W/o winch: 11,695 lb
- W/winches: 12,105 lb

Payload:
- Off highway: 7,000 lb
- On highway: 12,000 lb

Gross:
- Off highway, w/o winch: 19,045 lb
- Off highway, w/winches: 19,445 lb
- On highway, w/o winch: 24,045 lb
- On highway, w/winches: 24,455 lb

Length: 232½ in.
Width: 96 in.
Height: 102½ in.
Height reducible to: 78½ in.
Ground clearance: 12 in.
Fift wheel height, empty: 34½ in.
Height to center of fifth wheel, empty: 81½ in.
Fifth wheel mounted forward of bogie axle: 4 in.
Wheel base: 144 in.
Fuel octane rating: 80

Axles:
- Type: double reduction, full-floating
- Weight capacities:
  - Empty:
  - Front: W/o winches: 5,165 lb
    - W/winches: 5,635 lb

Bogie:
- W/o winches: 6,530 lb
  - W/winches: 6,470 lb
- Loaded, off highway:
  - Front: W/o winches: 5,565 lb
    - W/winches: 6,035 lb
  - Bogie: W/o winches: 13,480 lb
    - W/winches: 13,420 lb

Capacities:
- Fuel: 56 gal
- Cooling system: 22 qt
- Crankcase, refill: 8¼ qt
- Transmission: 15 qt
- Transfer: W/o power-take-off: 6¼ pt
  - W/power-take-off: 7½ pt
- Axle:
  - Front: 15½ pt
  - Intermediate: 13½ pt
  - Rear: 11½ pt

Winch:
- Oil capacity:
  - Bearing and frame housing: 1 pt
  - Worm housing: 1¼ pt
- Load capacity: 10,000 lb
- Electrical system: 24 volts
- Number of batteries: 2 (12 volt)
- Type of ground: negative

Brakes:
- Manufacturer: Bendix
- Type: air-hydraulic
- Parking: type
- Transfer

Engine:
- Manufacturer: General Motors Corp., Model 302
- Type: gasoline, valve-in-head
- Number of cylinders: 6 (in line)
- Displacement: 301.6 cu in.
- Bore: 4 in.
- Stroke: 4 in.
- Compression ratio: 7:2:1
- Governed speed:
  - Full load: 3,400 rpm
  - No load: 3,800 rpm
- Brake horsepower:
  - Maximum: w/std accessories: 130 @ 3,400 rpm
    - w/o std accessories: 145 @ 3,400 rpm
- Torque:
  - Maximum: w/std accessories: 460 lb-ft @ 1,200 rpm
    - w/o std accessories: 504 lb-ft @ 1,400 rpm

Transmission:
- Type: hydramatic
- Forward speeds: 8

Model | Line item No. | Federal stock No.
-----|---------------|----------------
M221, w/e | 4-61400-10 | 2320-834-4512
M221, w/w, w/e | 4-61430-10 | 2320-834-4513

Federal stock No.

2320-834-4512
2320-834-4513

Major item

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### CHARACTERISTICS—Continued

**Transmission—Continued**

<table>
<thead>
<tr>
<th>Gear ratio:</th>
<th>High range:</th>
<th>Low range:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High 1:1:</td>
<td>Low 4.07:1</td>
</tr>
<tr>
<td></td>
<td>High 3.82:1</td>
<td>Low 15.67:1</td>
</tr>
</tbody>
</table>

**Transfer:***

| Gear ratio: | 1.16:1 |

**Tires:**

<table>
<thead>
<tr>
<th>Size</th>
<th>9.00 x 20</th>
</tr>
</thead>
</table>
| Pressure:  | 45 psi:
| Highway    | .8        |
| Cross country | .8      |
| Sand       | .8        |
| Tread, center to center, front | .0914 in. |

### PERFORMANCE

- **Computed grade ability in lowest gear, loaded:** 52 percent
- **Turning radius:** 94 1/4 ft
- **Fording depth, w/o kit:** 30 in.
- **Fuel consumption, loaded:** 6.8 mpg
- **Cruising range, loaded:** 300 mi
- **Allowable speed, governed:** 55 mph
- **Maximum tow load allowance:**
  - Off highway: 17.000 lb
  - On highway: 30.000 lb

### EQUIPMENT

**Basic Issue Items:** See ORD 7. 8NL G740.

### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped uncrated:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
</tr>
<tr>
<td>Width:</td>
</tr>
<tr>
<td>Height:</td>
</tr>
<tr>
<td>Volume:</td>
</tr>
<tr>
<td>Area:</td>
</tr>
<tr>
<td>Gross weight:</td>
</tr>
<tr>
<td>Ship tons:</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
</tr>
<tr>
<td>Width:</td>
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<td>Height:</td>
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<td>Volume:</td>
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<tr>
<td>Area:</td>
</tr>
<tr>
<td>Gross weight:</td>
</tr>
<tr>
<td>Ship tons:</td>
</tr>
</tbody>
</table>

TRUCK, TRACTOR: 2 1/2-TON, 6 X 6, M275, W/ AND W/O WINCH

***Major item***

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M275, w/e</td>
<td>4-61400-20</td>
<td>2230-832-8609</td>
</tr>
<tr>
<td>M275, w/w, w/e</td>
<td>4-61420-20</td>
<td>2230-832-8611</td>
</tr>
</tbody>
</table>

**General**

TRUCK, TRACTOR: 2 1/2-ton, 6 x 6, M275, w/ and w/o winch, is designed to tow a semitrailer attached to fifth wheel mounted on vehicle. Maximum towed load for tractor is 17,000 pounds for cross-country travel and 36,000 pounds on highway. There is no spare tire carrier or toolbox. Tools are stowed under or behind companion seat in cab. Airbrake hose and electrical cable, for trailer brake and lighting service, are stowed on airbrake hose support, behind the cab of the vehicle. Pioneer tools are stowed just forward of fifth wheel. Vehicle has a 34-inch Ordnance standard fifth wheel with approach ramp, a flexible mast-type support for intervehicular cable and hose, deck plates over chassis frame and fuel tank, and hand control valve on steering column for independent application of towed load airbrakes.

**Difference among models**

Data plate location

Data plate is located on the instrument panel.

**Classification:** Standard A (OTCM 36841).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Crew:</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weights:</strong></td>
<td></td>
</tr>
<tr>
<td>W/o winch, lb</td>
<td>11,179</td>
</tr>
<tr>
<td>W/ winch, lb</td>
<td>11,590</td>
</tr>
<tr>
<td><strong>Payload:</strong></td>
<td></td>
</tr>
<tr>
<td>Off highway, lb</td>
<td>7,000</td>
</tr>
<tr>
<td>On highway, lb</td>
<td>12,000</td>
</tr>
<tr>
<td><strong>Gross:</strong></td>
<td></td>
</tr>
<tr>
<td>Off highway:</td>
<td></td>
</tr>
<tr>
<td>W/o winch, lb</td>
<td>18,179</td>
</tr>
<tr>
<td>W/ winch, lb</td>
<td>18,500</td>
</tr>
<tr>
<td>On highway:</td>
<td></td>
</tr>
<tr>
<td>W/o winch, lb</td>
<td>23,179</td>
</tr>
<tr>
<td>W/ winch, lb</td>
<td>23,500</td>
</tr>
<tr>
<td><strong>Length:</strong></td>
<td>228 in</td>
</tr>
<tr>
<td><strong>Width:</strong></td>
<td>94 in</td>
</tr>
<tr>
<td><strong>Height:</strong></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>97 3/16 in</td>
</tr>
<tr>
<td>Height reducible to</td>
<td>80 3/16 in</td>
</tr>
<tr>
<td><strong>Ground clearance:</strong></td>
<td>18 3/4 in</td>
</tr>
<tr>
<td><strong>Height of fifth wheel:</strong></td>
<td>50 3/8 in</td>
</tr>
<tr>
<td><strong>Fifth wheel mounted forward of bogie axle:</strong></td>
<td>4 in</td>
</tr>
<tr>
<td><strong>Wheel base:</strong></td>
<td>142 in</td>
</tr>
<tr>
<td><strong>Fuel octane rating:</strong></td>
<td>80</td>
</tr>
<tr>
<td><strong>Axle gear ratio:</strong></td>
<td>6.722:1</td>
</tr>
</tbody>
</table>

**Weight capacities:**

| Empty:                      |   |
| W/o winch, lb              | 6,275 lb |
| W/ winch, lb               | 5,770 lb |
| **Boogie:**                 |   |
| W/o winch, lb              | 5,904 lb |
| W/ winch, lb               | 5,820 lb |
| **Loaded (off highway):**   |   |
| Front:                      |   |
| W/o winch, lb              | 6,721 lb |
| W/ winch, lb               | 6,319 lb |
| **Boogie:**                 |   |
| W/o winch, lb              | 12,808 lb |
| W/ winch, lb               | 12,724 lb |

**Capacities:**

| Fuel:                       | 50 gal |
| Cooling system:             | 22 qt  |
| Crankcase, refill:          | 9 qt   |
| Transmission:               |   |
| W/o power-take-off:         | 4 1/2 qt |
| W/power-take-off:           | 5 1/2 qt |
| Transfer:                   | 7 qt   |
| Axles:                      | (each) 7 qt |
| Winch:                      |   |
| Oil capacity:               | 1 qt   |
| Load capacity:              | 10,000 lb |

**Electrical system:**

| Potential:                  | 24 volts |
| Number of batteries:        | 2 (12 volt) |
| Type of ground:             | negative |

**Brakes:**

| Manufacturer:               | Timken-Detroit |
| Type:                       | air-hydraulic transfer |

**Engine:**

| Manufacturer:               | Reo Motors Inc.   |
| Type:                       | Model OA-331, Model OA-x-331 |
| Bore:                       | 4 3/4 in |
| Stroke:                     | 4 3/4 in |
| Compression ratio:          | 6.73:1 |
| Governed speed:             |   |
| Full load:                  | 3,400 rpm |
| No load:                    | 3,600 rpm |
| Brake horsepower maximum:   |   |
| w/std accessories:          | 127 @ 3,400 rpm |
| w/o std accessories:        | 146 @ 3,400 rpm |
| Torque:                     |   |
| w/std accessories:          | 248 lb-ft @ 1,400 rpm |
| w/o std accessories:        | 270 lb-ft @ 1,400 rpm |
CHARACTERISTICS—Continued

Transmission:
Type: synchromesh
Forward speeds: 5
Gear ratio: High 1:1; Low 7.55:1

Transfer:
Speeds: 2
Gear ratio: High 1:1; Low 1.98:1

Tires:
Size: 9.00 x 20
Ply: 8
Pressure:
Highway: 45 psi
Cruising range, sand: 250 mi
Tread, center to center, front: 67% in.

PERFORMANCE
Computed grade ability in lowest gear: 67.5 percent
Fuel consumption, loaded: 7 mpg
Cruising range, loaded: 350 mi
Allowable speed, governed: 58 mph
Maximum towed load allowance:
Off highway: 17,000 lb
On highway: 35,000 lb

EQUIPMENT
Basic Issue Items: See TM 9-8022.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>228 in</td>
</tr>
<tr>
<td>Width</td>
<td>94 in</td>
</tr>
<tr>
<td>Height</td>
<td>97% in</td>
</tr>
<tr>
<td>Volume W/o winch</td>
<td>1,005 cu ft</td>
</tr>
<tr>
<td>Volume W/ winch</td>
<td>1,066 cu ft</td>
</tr>
<tr>
<td>Area W/ winch</td>
<td>152 sq ft</td>
</tr>
<tr>
<td>Area W/o winch</td>
<td>158 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons w/o</td>
<td>26.65</td>
</tr>
<tr>
<td>Ship tons w/</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

## TRUCK, TRACTOR: 5-TON, 6X6, M52 AND M52A1, W/ AND W/O WINCH

### CHARACTERISTICS

#### Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M52, w/o winch, soft top cab</td>
<td>4-61469-30</td>
<td>2320-893-5826</td>
</tr>
<tr>
<td>M52, w/ winch, soft top cab</td>
<td>4-61469-65</td>
<td>2320-893-5829</td>
</tr>
<tr>
<td>M52, w/ winch, hard top cab</td>
<td>4-61469-51</td>
<td>2320-893-8530</td>
</tr>
<tr>
<td>M52A1, w/o winch</td>
<td>4-61469-10</td>
<td>2320-893-7480</td>
</tr>
<tr>
<td>M52A1, w/ winch</td>
<td>4-61469-35</td>
<td>2320-898-7480</td>
</tr>
</tbody>
</table>

#### General

**TRUCK, TRACTOR:** 5-ton, 6x6, M52 or M52A1, w/ and w/o winch, soft or hard top cabs, are used to tow semitrailers.

Each tractor truck is designed to operate under unusual conditions, when proper cleaning, lubrication, storage and handling has been performed assuring proper functioning against excessive wear and deterioration under extreme cold and hot weather conditions, as well as in flooding operations. Each tractor-truck is equipped with 4-wheel drive.

#### Differences among models

The M52 tractor truck has a spark plus ignition engine. The M52A1 has a diesel, compression-ignition engine.

#### Data plate location

Data plate is mounted on the instrument panel to the right of the instrument cluster.

#### Classification:

- M52 w/ winch, soft top cab—Standard B (OTCM 26099)
- M52 w/ winch, soft top cab—Standard B (OTCM 26099)
- M52 w/ winch, hard top cab—Standard B (OTCM 26099)
- M52A1 w/ winch—Standard B (ANCTCM 1180)
- M52A1, w/ winch—Standard B (ANCTCM 1180)

#### Weight:

<table>
<thead>
<tr>
<th>Description</th>
<th>M52</th>
<th>M52A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/o winch:</td>
<td>18,890 lb</td>
<td>18,670 lb</td>
</tr>
<tr>
<td>Payload:</td>
<td>11,000 lb</td>
<td>12,000 lb</td>
</tr>
<tr>
<td>On/ Off highway:</td>
<td>25,000 lb</td>
<td>26,000 lb</td>
</tr>
</tbody>
</table>

#### Length:

| W/o winch | 271 in |
| W/ winch | 287 in |

#### Axles:

- Type: double-reduction, full-floating
- Front:
  | W/o winch | 21-97 |
  | W/ winch | 21-97 |
### Capacities:

<table>
<thead>
<tr>
<th>Component</th>
<th>M2</th>
<th>M2A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel tank</td>
<td>1.0 g.</td>
<td>1.5 g.</td>
</tr>
<tr>
<td>Cooling system</td>
<td>44 qt.</td>
<td>44 qt.</td>
</tr>
<tr>
<td>Crankcase, dry vol/</td>
<td>22 qt.</td>
<td>22 qt.</td>
</tr>
<tr>
<td>Transmission</td>
<td>2.2 qt.</td>
<td>2.2 qt.</td>
</tr>
<tr>
<td>W/o power take-off</td>
<td>6 qt.</td>
<td>9 qt.</td>
</tr>
<tr>
<td>W/power take-off</td>
<td>11 qt.</td>
<td>11 qt.</td>
</tr>
<tr>
<td>Transfer</td>
<td>5% qt.</td>
<td>5% qt.</td>
</tr>
<tr>
<td>Axles (rear each)</td>
<td>12 qt.</td>
<td>12 qt.</td>
</tr>
<tr>
<td>Winch</td>
<td>.12 g.</td>
<td>.12 g.</td>
</tr>
<tr>
<td>Oil capacity</td>
<td>(front) 2.6 qt; (rear) 3 qt</td>
<td>(front) 2.6 qt; (rear) 3 qt</td>
</tr>
<tr>
<td>Load capacity</td>
<td>20,000 lb</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical System:

- **Volts:** 24 volt
- **Number of batteries:** 2
- **Type of ground connection:** Negative
- **Brakes:** Bendix
- **Type:** Air-hydraulic
- **Parking type:** Transfer

### Engine:

- **Manufacturer:** Continental
- **Model:** R-6602
- **Type:** 4 cycle, valve-in-head, gasoline
- **Number of cylinders:** (in line) 6
- **Displacement:** 462 cu in
- **Bore:** 4.375 in
- **Stroke:** 3.75 in

### Performance

#### Computed gradeability in lowest gear:

- **M2** (W/off highway load): 77.18 percent
- **M2A1**: 74.3 percent

#### Turning radius:

- **W/o winch**: 19 ft. 43/4 in.
- **W/Winch**: 19 ft. 73/8 in.

#### Fuel Consumption, loaded:

- **M2**: 4.14 mpg
- **M2A1**: 5.4 mpg; CIE 5.07 mpg

#### Cruise range, loaded:

- **M2**: 300 mi
- **M2A1**: 300 mi

#### Allowable speed, governed:

- **M2**: 50 mph
- **M2A1**: 60 mph

---

**Engine Specifications:**

- **Manufacturer:** Continental
- **Model:** R-6602
- **Type:** 4 cycle, valve-in-head, gasoline
- **Number of cylinders:** (in line) 6
- **Displacement:** 462 cu in
- **Bore:** 4.375 in
- **Stroke:** 3.75 in

**Transmission:**

- **Manufacturer:** Spicer
- **Model:** M-52 6452
- **Model:** M-52A 6453
- **Type:** Synchromesh

**Speeds:**

- **Forward:** 1
- **Reverse:** 1

**Gear ratios:**

- **High:** M2: 1.1
- **Low:** M2: 2.05:1
- **Transfer:**
  - **High:** 1:1
  - **Low:** 7.35:1

**Tires:**

- **Size:** 11.00 x 20
- **Ply:** 12
- **Pressure:**
  - **Highway:** 70 psi
  - **Cross-country:** 35 psi
  - **Sand:** 16 psi
  - **Tread, center-to-center, front:** 73% in.
## STORAGE AND SHIPMENT DATA

### Within Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>W/Winch</th>
<th>W/o Winch</th>
</tr>
</thead>
<tbody>
<tr>
<td>M52</td>
<td>273 in.</td>
<td>257 1/2 in.</td>
</tr>
<tr>
<td>Length</td>
<td>97 in.</td>
<td>97 in.</td>
</tr>
<tr>
<td>Width</td>
<td>86 1/2 in.</td>
<td>86 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1,342 cu ft</td>
<td>1,246 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>154 sq ft</td>
<td>174 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>19,100 lb</td>
<td>18,400 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>31.18</td>
<td>31.18</td>
</tr>
</tbody>
</table>

### Outside Continental United States

Shipped 1 tractor truck, uncrated.

<table>
<thead>
<tr>
<th>Description</th>
<th>W/Winch</th>
<th>W/o Winch</th>
</tr>
</thead>
<tbody>
<tr>
<td>M52</td>
<td>Length</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>19,100 lb</td>
<td>18,400 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>31.18</td>
<td>31.18</td>
</tr>
</tbody>
</table>

### References:
TRUCK, TRACTOR: 10-TON, 6 X 6, M123, M123C, AND M123D

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-61640-40</td>
<td>2230-306-1875</td>
</tr>
<tr>
<td>4-61580-00</td>
<td>2320-294-9552</td>
</tr>
<tr>
<td>4-61590-01</td>
<td>2320-542-2509</td>
</tr>
</tbody>
</table>

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M123</td>
<td>4-61640-40</td>
<td>2230-306-1875</td>
</tr>
<tr>
<td>M123C</td>
<td>4-61580-00</td>
<td>2320-294-9552</td>
</tr>
<tr>
<td>M123D</td>
<td>4-61590-01</td>
<td>2320-542-2509</td>
</tr>
</tbody>
</table>

**Classification:**

M123—Standard B (OTCM 37082)  
M123C—Standard A (OTCM 37082)  
M123D—Standard B (OTCM 37215)

**General**

TRUCK, TRACTOR: 10-ton, 6 x 6, M123, M123C, and M123D, is a heavy-duty vehicle designed primarily for use with a special purpose semitrailer in combat vehicle recovery operations. A semi-automatic fifth wheel is mounted on the frame behind the cab.

The power train and systems include the transmission and transfer, propeller shafts, front and rear axles, spring suspension, and frame, steering system, brake system, cab, and winch.

**Differences among models**

The truck M123 has dual midship winches and high mounted fifth wheel; the M123C has a single midship winch and low mounted fifth wheel; and the M123D has dual midship winches and low mounted fifth wheel.

**Data plate location**

The vehicle identification plate is located on the instrument panel.

**Engine**

Manufacturer: Le Rol, Model T-H844  
Type: gasoline, valve-in-head  
Number of cylinders (V-type): 8  
Displacement: 844 cu in.  
Bore: 4.54 in.  
Stroke: 4.54 in.  
Compression ratio: 6.7:1  
Governed speed: 2,600 rpm  
Brake horsepower (max w/std accessories): 286 at 2,600 rpm

**Transmission**

Type: selective constant mesh  
Forward speeds: 8

**Brakes**

Maneuvering system: Mack parking brake, type internal expanding  
Type of ground: negative

**Pressure:**

- Highway: 55 psi
- Cross-country: 28 psi
- Sand: 15 psi

**Ground clearance:**

- 15% in.

**Fmil height, empty:**

- 35% in.

**Fuel octane rating (minimum):**

- 72

**Capacities:**

- Fuel (two tanks): 166 gal
- Cooling system: 66 qt
- Crankcase and oil filter: 22 qt
- Transmission: 22 pt
- Transfer: 20 pt

**Winch:**

- Oil capacity (each): 8½ pt
- Load capacity (each): 46,000 lb

**Electrical system:**

- Potential: 24 volts
- Number of batteries: 2 (12 volts)
- Type of ground: negative

**Crew**

- Weight: 32,250 lb

**Payload:**

- Off highway: 30,000 lb
- On highway: 35,000 lb

**Gross:**

- Off highway: 62,250 lb
- On highway: 67,000 lb

**Axle gear ratio (rear):**

- 9.02:1

**Axle load:**

- Empty:
  - Front: 13,800 lb
  - Bogie: 18,550 lb
- Loaded:
  - Off highway:
    - Front: 14,920 lb
    - Bogie: 47,330 lb
  - On highway:
    - Front: 15,140 lb
    - Bogie: 62,110 lb

**Tires:**

- Size: 14.00 x 24
- Ply: 20

**Permissible load ability in lowest gear, loaded:**

- Off highway: 80,000 lb
- On highway: 135,000 lb

**PERFORMANCE**

- Fuel consumption, loaded: 1.8 mpg
- Cruising range, loaded: 400 mi
- Allowable speed, governed: 42 mph
- Maximum towed load allowance:
  - Off highway: 80,000 lb
  - On highway: 135,000 lb

**Federal stock No.:**

- 2320-395-1875
- 2320-294-9552
- 2320-542-2509
EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
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<td>Length</td>
<td>280 in.</td>
</tr>
<tr>
<td>Width</td>
<td>114 in.</td>
</tr>
<tr>
<td>Height</td>
<td>113 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>1,602 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>221 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>28,775 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>49.08</td>
</tr>
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</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, TRACTOR: 12-TON, 6 X 6, M26A1

General

TRUCK, TRACTOR: 12-ton, 6 x 6, M26A1 tows semitrailers, 45-ton and 50-ton, 8-wheel transporters M15A1 and M15A2 as components of truck-trailer, 40-ton, tank recovery M25, for recovery and transportation of damaged tanks and materiel weighing up to 100,000 pounds. It is a self-propelled motor vehicle powered by a 6-cylinder internal combustion gasoline engine. There are two front and four rear dual wheels equipped with desert, or combat type, pneumatic tires.

The rear wheels are driven by roller type chains operating on sprockets fastened to the wheel hubs.

The tractor can be used as a recovery vehicle without the semitrailer, since it is equipped with a front mounting winch, a rear tandem winch, and a vertical lifting device. The cab is softtop.

Data plate location:

The data plate is located on the right side of the instrument panel.

Classification:

M26A—Standard B (OTCM 37119)

CHARACTERISTICS

Crew.................................................7

Weight:

Net........................................48,895 lb

Payload:

On fifth wheel........................................60,000 lb

Ground clearance........................................15 in.
Pintle height, loaded................................39 in.
Center of fifth wheel to center of jackshaft........................4 in.
Height to center of fifth wheel............................68 7/8 in.
Height of rear of fifth wheel.............................62 1/2 in.
Fuel octane rating.....................................72

Capacities:

Fuel................................................120 gal

Cooling system........................................36 qt

Crankcase, refill.......................................28 qt

Transmission:

Main........................................8 1/2 qt

Auxiliary........................................10 qt

Transfer........................................25 qt

Axles:

Front........................................20 qt

Rear........................................4 qt

Steering gear.......................................8 1/2 qt

Winch:

Oil capacity, each.....................................4 qt

Load capacity:

Front........................................35,000 lb

Rear (2 each)......................................60,000 lb

Chain oilers..........................................20 qt

Electrical system:

Potential........................................12 volts

Number of batteries..................................2 (6 volt)

Type of ground......................................negative

Engine:

Manufacturer......................................Hall Scott

Model.............................................440

Type...............................................valve-in-head, 4 cycle

Number of cylinders................................(in line) 6

Displacement........................................1,000 cu in.

Bore................................................5 1/4 in.

Stroke...............................................7 in.

Compression ratio..................................5:1

Governor speed......................................2,000 rpm

Brake horsepower (max w/ std accessories)..............240 at 2,000 rpm

Torque (max w/ std accessories)........................810 lb-ft at 1,200 rpm

Transmission:

Type...............................................constant-mesh

Gear ratio:

High..............................................1:1

Low..............................................5:5:1

21-101
CHARACTERISTICS—Continued

Auxiliary transmission speeds ........................................... 3
Transfer:
  Speeds .............................................................. 1
  Gear ratio ......................................................... 1.91:1

PERFORMANCE
Computed grade ability in lowest gear, loaded .................. 30 percent
Turning radius ...................................................... 90 ft
Fording depth ....................................................... 90 in.
Fuel consumption, w/towed load ................................... 27 mpg
Cruising range, w/towed load ...................................... 120 mi.
Allowable speed, governed .......................................... 28 mph
Maximum semitrailer gross ........................................... 117,500 lb

EQUIPMENT
Basic Issue Items: See TM 9-767

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>306 in.</td>
</tr>
<tr>
<td>Width</td>
<td>130 in.</td>
</tr>
<tr>
<td>Height</td>
<td>123 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>3,057 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>278 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, TRACTOR, WRECKER: 5-TON, 6 X 6, M246, W/WINCH, W/E

**General**

TRUCK, TRACTOR, WRECKER: 5-ton, 6 x 6, M246, w/wn, w/e, is used to salvage crashed aircraft and to perform general towing. The wrecker tractor truck M246 consists essentially of truck chassis M63C and the hydraulically-powered crane which is mounted on the rear of chassis M63C. The six-wheel truck M246 is equipped with one driving front axle and two driving rear axles. The crane has a three position extendable boom. Boom jacks are provided for support of the boom when lifting.

**Differences among models**

- **Data plate location**: The identification plate is mounted on the instrument panel to the right of the instrument cluster.

**Classification**: Standard A (OTCM 36841).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M246</td>
<td>4-01700-00</td>
<td>8320-835-8639</td>
<td></td>
</tr>
</tbody>
</table>

- **Engine**
  - Manufacturer: Continental
  - Type: 6-cylinder, valve-in-head
  - Displacement: 602 cu in.
  - Bore: 4.15 in.
  - Stroke: 5.05 in.
  - Compression ratio: 6.4:1
  - Govemned speed:
    - No load (max): 2,950 rpm
    - Full load (max): 2,800 rpm
  - Brake horsepower (max w/std accessories): 196 @ 2,800 rpm
  - Torque (max): 180 lb-ft @ 2,800 rpm

- **Electrical system**
  - Starter:
    - Manufacturer: Delco Remy
    - Voltage: 24
  - Distributor:
    - Manufacturer: Delco Remy
    - Voltage: 24
  - Generator:
    - Manufacturer: Delco Remy
    - Voltage: 24
  - Battery:
    - Manufacturer: Delco Remy
    - Voltage: 24
  - Number of batteries: 2
  - Type of ground: Negative

- **Tires**
  - Ply: 12
  - Size: 11.00 x 20
  - Pressure:
    - Highway: 75 psi
    - Cross-country: 55 psi
    - Mud, sand, snow: 15 psi

- **Transmission**
  - Manufacturer: Spicer
  - Type: Synchromesh
  - Speed: 2

- **Winch**
  - Front: 2.6 qt
  - Rear: 3 qt

**Dimensions**

- Length (overall): 352 in.
- Width (overall): 89 in.
- Height, maximum: 132 in.
- Height, reducible to: 89 in.
- Ground clearance: 11 in.
- Capacities:
  - Cooling system: 4.4 qt
  - Crankcase (dry fill): 22 qt
  - Differentials (each): 12 qt
  - Fuel tank: 78 gal
  - Transfer case: 5.5 qt
  - Transmission:
    - w/power takeoff: 11 qt
    - w/o power takeoff: 9 qt

**Weight**

- Net (w/winch): 32,830 lb
- Payload:
  - On highway: 16,000 lb
  - Off highway: 12,000 lb
- Gross:
  - On highway: 48,830 lb
  - Off highway: 44,830 lb
- Length (overall): 352 in.
- Width (overall): 89 in.
- Height, maximum: 132 in.
- Height, reducible to: 89 in.
- Ground clearance: 11 in.

**Federal stock No.**

2320-835-8639

**Model Line item No.**

M246-4-01700-00

**Model**

TRUCK, TRACTOR, WRECKER: 5-ton, 6 x 6, M246, w/winch, w/e, is used to salvage crashed aircraft and to perform general towing.

**Data plate location**

The identification plate is mounted on the instrument panel to the right of the instrument cluster.

**Classification**: Standard A (OTCM 36841).
CHARACTERISTICS—Continued

Transfer—Continued

Pintle height (rear):
Empty: 71\% in.
Loaded: 50\% in.

Loading height, empty (8th wheel): 67 in.

Crane:
Manufacturer: Austin-Western
Operation: Hydraulically
Swing: 360°
Elevation (approx): 45°

Length of boom:
Retracted: 138 in.
Extended: 312 in.

PERFORMANCE

Grade ability in lowest gear: 47.02 percent
Turning radius (max): 47 ft
Fording depth: 30 in.
Fuel consumption (loaded): 14.4 mpg
Cruising range (loaded @ 30 mph): 229 mi.

Recommended towed load, gross (max):
Semitrailer (gross weight):
Of highway: 37,500 lb
On highway: 46,000 lb
Trailer (gross weight) (max pintle tow):
Of highway: 20,000 lb
On highway: 30,000 lb

SILL \LIEFE:\

Basic Issue Item: S1, TM 3-926.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 352 in.
Width: 100 in.
Height: 40 in.
Volume: 7,490 cu ft
Gross weight: 32,930 lb
Ship tons: 44.50

Outside Continental United States

Shipped
Length:
Width:
Height:
Volume:
Gross weight:
Ship tons:

TRUCK, UTILITY: 1/4-TON 4 X 4 M38, W/E

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M38, w/winch</td>
<td>4-37291-30</td>
<td>2920-838-5817</td>
</tr>
<tr>
<td>M38, w/o winch</td>
<td>4-37288-30</td>
<td>2920-838-5818</td>
</tr>
</tbody>
</table>

General

TRUCK, UTILITY: 1/4-ton 4 x 4, M38, w/o is equipped with one front and one rear axle with four driving wheels. The design of this vehicle includes the four-cylinder gasoline engine forward of the driving compartment under the hood, and provides a four-passenger open-type body.

The vehicle is used as a general purpose personnel or cargo carrier especially designed for adaptation to general reconnaissance, command, communications, or other special duties.

The space wheel and taxi struts are on the rear of the body. Power for the vehicle is supplied by a single-gasoline engine, mounted on cushion mounts, on the frame.

The conventional drive is a rear-wheel transmission which is mounted directly on the rear of the engine and clutch assembly. Power is generated by a 54-hp, 6-cylinder engine, and stored in two aluminum battery packs.

The vehicle has a roll-over protection system. The transmission is mounted directly on the rear of the engine and clutch assembly. Power is generated by a 54-hp, 6-cylinder engine, and stored in two aluminum battery packs.

Data plate location: The identification plate is attached to the instrument panel at the right of the instrument cluster.

Classification: Standard C (OTCM 3745)

At a Glance:

<table>
<thead>
<tr>
<th>Crew</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger (including crew)</td>
<td>2</td>
</tr>
</tbody>
</table>

Weight

Net: 2,700 lb

Rated:

Off highway: 3,550 lb
On highway: 3,500 lb

Rated gas ratio: 5.88:1

Axle load:

Front: 1,482 lb
Rear: 1,218 lb

Loaded:

Off highway:

Front: 1,595 lb
Rear: 1,935 lb

On highway:

Front: 1,595 lb
Rear: 2,355 lb

Tires:

Size: 7:00 x 16

Pressure:

Highway: 50 psi
Cross-country: 50 psi
Off highway: 40 psi

Tread, center-to-center, front: 49 in.

Ground clearance (minimum, rear axle): 9 in.

Plinth height, (rear) empty: 19 in.

Transmission:

Type: 3-speed

Transfer: 3.3:1

Axle:

Front: 3.3:1
Rear: 3.3:1

Winch:

Oil capacity: 1 gal

Load capacity: 3,000 lb

Electrical system:

Potential: 24 V

Number of batteries: 2 (12 V each)

Type of ground: Negative

Brakes:

Manufacturer: Wagner-Lochheed

Type: Hydraulic

Parking brake type: Transmission

Engine:

Manufacturer: Willys Model M6C

Type: In-line, 4-cylinder

Number of cylinders: 4

Displacement (cu in): 134.2

Stroke: 3.125 in.

Compression ratio: 6.4:1

21-105
CHARACTERISTICS—Continued

Engine—Continued

Governed speed not governed
Brake horsepower (max w/std accessories) 60 at 4,000 rpm
Torque (max) 105 lb-ft at 2,000 rpm

Transmission:
Type: synchromesh
Forward speeds: 3
Gear ratio:
High: 1:1
Low: 3.86:1

Transfer:
Speeds: 2
Gear ratio:
High: 1:1
Low: 2.43:1

PERFORMANCE

Computed grade ability in lowest gear, loaded: 65 percent

Turning radius:
Right: 20 ft
Left: 19 ft

Fording depth: 74 in

Fuel consumption, loaded: 225 mi

Cruising range, recommended: 55 mph

Maximum recommended towed load, gross:
Off highway: 1,500 lb
On highway: 2,000 lb

EQUIPMENT

Basic Issue Items: See TM 9-8012.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>133 in</td>
<td>62 in</td>
<td>35 in</td>
<td>262 cu ft</td>
<td>57 sq ft</td>
<td>2,625 lb</td>
<td>6.35</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>137 in</td>
<td>65 1/4 in</td>
<td>35 in</td>
<td>235 cu ft</td>
<td>62 sq ft</td>
<td>3,713 lb</td>
<td>5.88</td>
</tr>
</tbody>
</table>

TRUCK, UTILITY: ¼-TON, 4 x 4, M38A1 AND M38A1C, W/E

Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M38A1, w/o winch</td>
<td>4-61700-35</td>
<td>2320-833-8319</td>
</tr>
<tr>
<td>M38A1, w/ winch</td>
<td>4-61721-40</td>
<td>2320-833-8320</td>
</tr>
<tr>
<td>M38A1C, w/o winch</td>
<td>4-61700-00</td>
<td>2320-141-8841</td>
</tr>
<tr>
<td>M38A1C, w/ winch</td>
<td>4-61734-00</td>
<td>2320-141-8842</td>
</tr>
</tbody>
</table>

Differences among models

The utility truck M38A1C has a split windshield to provide space for the stowage of the 105-mm rifle when it is not in use. The truck M38A1C also has the rear seat removed to provide space for the M72 or M72A1 which supports rifle M2 or M2A1, respectively. The spare tire of truck M38A1C is mounted on the right front side while the spare tire of truck M38A1 is mounted on the rear of the vehicle. Racks for ammunition are provided under mounts M72 or M72A1, and a tailgate covers the ammunition compartment of the truck M38A1C.

Data plate location: The identification plate is fastened to the right side of the instrument panel.

Classification: Standard B (OTCM 30841)

Weight of vehicle:

<table>
<thead>
<tr>
<th></th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net</td>
<td>2,665</td>
</tr>
<tr>
<td>Highway</td>
<td>2,665</td>
</tr>
<tr>
<td>Cross-country</td>
<td>2,665</td>
</tr>
<tr>
<td>Payload</td>
<td>1,200</td>
</tr>
<tr>
<td>Highway</td>
<td>1,200</td>
</tr>
<tr>
<td>Cross-country</td>
<td>1,200</td>
</tr>
</tbody>
</table>

Weight of vehicle:

<table>
<thead>
<tr>
<th></th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net</td>
<td>2,665</td>
</tr>
<tr>
<td>Highway</td>
<td>2,665</td>
</tr>
<tr>
<td>Cross-country</td>
<td>2,665</td>
</tr>
<tr>
<td>Payload</td>
<td>1,200</td>
</tr>
<tr>
<td>Highway</td>
<td>1,200</td>
</tr>
<tr>
<td>Cross-country</td>
<td>1,200</td>
</tr>
</tbody>
</table>

General

TRUCK, UTILITY: ¼-ton, 4 x 4, M38A1 and M38A1C, w/e is used to transport command, reconnaissance personnel, and light cargo (M38A1 when modified for mounting the RIFLE, 105 MILLIMETER: M27 or M27A1 is referred to as the M38A1C). Power is supplied by an F-head, 4-cylinder, 4-cycle, water-cooled, gasoline-type engine. The transmission has three forward speeds and one reverse speed, all manually selected by means of the gearshift lever. The transfer is a two-speed unit driven by the transmission and distributes power to the front and rear axles through propeller shafts. The front axle is a full-floating, single-reduction type equipped with a conventional differential with hypoid drive gears. The front suspension consists of two semi-elliptic-type leaf springs. The rear axle is a semifloating, single-reduction-type equipped with a conventional differential with hypoid drive gears. The rear suspension consists of two semi-elliptic-type leaf springs. The service brake system is hydraulically actuated. The mechanical handbrake system serves primarily as a parking brake. The electrical system is a 24-volt submersible-type equipped with two 12-volt lead-and-lead type batteries connected in series.

Electrical system:

<table>
<thead>
<tr>
<th></th>
<th>Make</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of batteries</td>
<td>2</td>
</tr>
<tr>
<td>Type of ground</td>
<td>negative</td>
</tr>
<tr>
<td>Voltage</td>
<td>24</td>
</tr>
<tr>
<td>Distributor w/coil assembly:</td>
<td>Auto-Lite</td>
</tr>
<tr>
<td>Manufacturer:</td>
<td>Auto-Lite</td>
</tr>
<tr>
<td>Model</td>
<td>CT4002</td>
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<tr>
<td>Voltage</td>
<td>24</td>
</tr>
<tr>
<td>Ignition coil:</td>
<td>Auto-Lite</td>
</tr>
<tr>
<td>Module</td>
<td>CT4002</td>
</tr>
<tr>
<td>Spark plugs:</td>
<td>Ordnance number: 8557724</td>
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<tr>
<td>Thread size:</td>
<td>8-32m</td>
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<tr>
<td>Starter:</td>
<td>Delco-Remy or Auto-Lite</td>
</tr>
<tr>
<td>Voltage</td>
<td>24</td>
</tr>
<tr>
<td>Drive</td>
<td>over-running clutch</td>
</tr>
</tbody>
</table>

Federal stock No.

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model Line Item Nu.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M38A1, w/o winch A-61790-35</td>
<td>2320-833-8319</td>
</tr>
<tr>
<td>M38A1, w/ winch A-61791-40</td>
<td>2320-833-8320</td>
</tr>
<tr>
<td>M38A1C, w/o winch A-61700-00</td>
<td>2320-141-8841</td>
</tr>
<tr>
<td>M38A1C, w/ winch A-61734-00</td>
<td>2320-141-8842</td>
</tr>
</tbody>
</table>

Differences among models

The utility truck M38A1C has a split windshield to provide space for the stowage of the 105-mm rifle when it is not in use. The truck M38A1C also has the rear seat removed to provide space for the M72 or M72A1 which supports rifle M2 or M2A1, respectively. The spare tire of truck M38A1C is mounted on the right front side while the spare tire of truck M38A1 is mounted on the rear of the vehicle. Racks for ammunition are provided under mounts M72 or M72A1, and a tailgate covers the ammunition compartment of the truck M38A1C.
CHARACTERISTICS—Continued

Generator:
Manufacturer: Delco-Remy or Auto-Lite
Model: DR-117495 or AL-GHA4802UT
Voltage: 24

Generator regulator:
Manufacturer: Delco-Remy or Auto-Lite
Model: DR-118606 or AL-VBC4002UT
Voltage: 24

Battery:
Manufacturer: Auto-Lite
Model: 2HH
Voltage: 12

Transmission:
Manufacturer: Borg-Warner Corp, Warner Gear Division
Type: synchromesh
Forward speeds: 3
Gear ratio:
High: 1:1
Low: 2.80:1

Transfer:
Manufacturer: Spicer Mfg. Corp
Speeds: 2
Gear ratio:
High: 1:1
Low: 2.43:1

Brake system:
Service brakes:
Type: hydraulic
Size: 9 x 1.5 in.
Fluid capacity: .34 pt
Master cylinder:
Type: reservoir and cylinder
Size:
Front: 1 in.
Rear: 3/4 in.
Brakeshoes:
Lining length:
Forward shoe: 10.5 in.
Rear shoe: 6.5 in.
Width: 1.5 in.
Thickness: .15 in.

Hand brake:
Type: mechanical, internal-external-clamping
Width: 1.5 in.
Thickness: .15 in.

PERFORMANCE
Grade ability (computed) in loaded gear, loaded: 60 percent
Turning radius:
Right: 232 in.
Left: 228 in.
Fording depth:
W/kit: 70 in.
W/o kit: 37.5 in.
Fuel consumption, loaded: 20 mpg
Crushing range, loaded: 280 mi
Towed load, recommended (max):
Off highway (gross): 1,500 lb
On highway (gross): 2,000 lb

EQUIPMENT
Basic Issue Items: See TM 9-8014.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped:
Length: 135 in.
Width: 60 in.
Height: 53 in.
Volume: 358 cu ft
Gross weight: 4,280 lb
Ship tons: 6.45

Outside Continental United States

Shipped:
Length: 145 in.
Width: 67 in.
Height: 53 in.
Volume: 372 cu ft
Gross weight: 4,332 lb
Ship tons: 6.83

**TRUCK, UTILITY: 1/4-TON, 4 X 4, M151, W/E**

**General**

TRUCK, UTILITY: 1/4-ton, 4 x 4, M151, w/e is a general purpose personnel or cargo-type carrier which is used over all types of roads as well as cross-country terrain. The utility truck M151 will ford hard bottom water crossings to a depth of 21 inches, and with the addition of certain special equipment it will ford hard bottom water crossings to a depth of five feet and will operate in arctic zones.

The truck M151 is powered by a four-cylinder overhead valve, in line, liquid cooled, gasoline engine, located forward of the passenger compartment under the hood. A four-speed conventional type synchromesh transmission with transfer case transmits power to the front and rear axles. Service brakes are hydraulic. All wheels have individual suspension utilizing coil springs.

The body and frame are integral, all steel welded construction, providing space for four men and equipment including driver. The windshield can be folded forward to lie flat on the hood for a low silhouette. The body can be inclosed with removable canvas top, side curtains, and doors. Space is provided in and on the body for storage of equipment.

The spare tire and wheel is mounted on the rear panel, right-hand side. A pintle hook is provided at the rear and lifting eyes at the front and rear to permit towing or lifting the vehicle.

**Differences among models**

**Data plate location:** The identification plate is fastened to the transmission housing cover.

**Classification:** Standard A (OTCM 36841).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M151</td>
<td>4-61790-01</td>
<td>2352-542-4783</td>
</tr>
</tbody>
</table>

**Weigh:**

- **Net:** 2,273 lb
- **Payload:**
  - Improved road: 1,200 lb
  - Cross-country: 800 lb
- **Gross:**
  - Improved road: 3,473 lb
  - Cross-country: 3,073 lb
- **Length (overall):** 132.0 in.
- **Width (overall):** 63.0 in.
- **Height, with top (overall) (empty):** 71.0 in.

**Height, lowest operable (empty):** 52.5 in.

**Ground clearance:**

- Improved road: 10.3 in.
- Cross-country: 80.3 in.

**Capacities:**

- **Gasoline tank:** 17.7 gal
- **Crankcase oil (w/o filter):** 4 qt
- **Crankcase oil (w/filter):** 5 qt
- **Cooling system:** 8 qt

**Engine:**

- **Design:** Ordnance
- **Cylinders:** 4
- **Displacement:** 141.5 cu in.
- **Compression ratio:** 7.5 to 1
- **Horsepower at 600°F. air:** 71 @ 4,000 rpm
- **Torque ft-lb at 600°F. air:** 128 @ 1,800 rpm
- **Fuel:** Gasoline
- **Firing order:** 1-3-4-2
- **Valve arrangement:** overhead
- **Carburetor:** Single barrel, side draft, manual
- **Fan belts:** Number: 2
- **Type:** V-wedge
- **Width:** 0.38 in.

**Fuel system:**

- **Air cleaner:** Oil bath
- **Fuel filter:** Impregnated paper
- **Fuel pump:** Electric

**Electrical system:**

- **Generator:**
  - Manufacturer: Autolite, Delco-Remy
  - Type: Shunt wound
  - Rating: 25 amp
  - Voltage: 24
- **Generator regulator:**
  - Manufacturer: Autolite
  - Current limit: 25 amp
  - Voltage limit: 28.3 @ 70°
- **Ignition distributor:**
  - Manufacturer: Autolite
  - Type of advance: Centrifugal
  - Contact gap: 0.020 in.
- **Ignition coil voltage:** 24
CHARACTERISTICS—Continued

Electrical system—Continued

Spark plugs:
Size: 14-mm
Gap: 0.029–0.032 in.

Starter motor:
Manufacturer: Autolite
Type: series wound
Voltage: 24

Cooling system:
Radiator filler cap (spring pressure): 7 psi
Thermostat:
Opening range: 180° to 202°F.
Type: spring and cartridge

Power train:
Clutch:
Type: Single, dry disc
Diameter: 8.54 in.

Transmission:
Type: selective synchronesh
Speeds: four forward; one reverse

Transfer: single speed

Tires:
Number: 5
Type: lightweight, nylon cord
Tread: non-directional cross-country
Size: 7.00 x 16
Ply: A (6 ply rating)

Wheels:
Number of mounting studs: 5
Material: magnesium alloy
Type: drop center (safety rim)

Suspension:
Type: independent, 4-wheel
Spring: coil

Front shock absorbers:
Type: hydraulic, telescopic
Action: two-way direct (jounce and rebound control)
Stops: internal hydraulic jounce and rebound

Rear shock absorbers:
Type: hydraulic, telescopic
Action: two-way direct (jounce and rebound control)
Stops: internal hydraulic rebound external jounce

Brakes:
Service brakes:
Type: hydraulic
Diameter: 9.125 in.

Width: 2.00 in.

Master cylinder (type): reservoir and cylinder
Parking brake (type): mechanical, drum and band

PERFORMANCE

Speeds (max permissible):
4th gear: 66 mph
3rd gear: 40 mph
2nd gear: 21 mph
1st gear: 11 mph
Reverse: 9 mph

Cruising range, approx (highway w/o towed load): 300 mi
Fording depth (w/o special equipment): 21 in.

EQUIPMENT

Basic Issue Items. See TM 9-2320-218-10

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States.

Shipped:
Length: 137 in.
Width: 63 in.
Height: 53 in.
Volume: 253 cu ft
Gross weight: 2,273 lb
Ship tons: 6.52

Outside Continental United States

Shipped:
Length: 31 ft
Width: 63 in.
Height: 53 in.
Volume: 253 cu ft
Gross weight: 2,300 lb
Ship tons: 6.57

TRUCK, UTILITY: 1/4-TON, 4 X 4, LIGHTWEIGHT, M422 AND M422A1

Data plate location: For location of identification plates, refer to TM 9-2320-225-10.

Differences among models

The overall length of M422 is 107 inches and of M422A1 is 113 inches.

General

TRUCK, UTILITY: 1/4-ton, 4 x 4, lightweight, M422 or M422A1, is designed as a general purpose personnel and/or cargo carrier, easily adaptable for communications or reconnaissance or other diversified uses. The vehicle is capable of operation on all types of highways, roads, and terrain. Fording operations to a maximum depth of 21 inches may be accomplished without the use of a deep water fording kit, and to a depth of 60 inches with deepwater fording kit. The vehicle is powered by a 4-cylinder, V-type, air-cooled, gasoline engine. Power is transmitted by a manually-selected transmission, with four forward speeds and one reverse speed. Transfer gear selection of either 2-wheel drive (rear) or 4-wheel (front and rear) is accomplished manually by the operator. The body is an all aluminum, unit-welded, body and fender structure. It is insulated from the steel frame by body mounting shims and cushions between the body and frame.

Differences among models

The overall length of M422 is 107 inches and of M422A1 is 113 inches.

Data plate location: For location of identification plates, refer to TM 9-2320-225-10.

Classification: M422, Standard A (OTCM) (For Marine Corps use only)

M422A1, Unassigned

CHARACTERISTICS

Crew: 1
Passengers, including crew: 4
Weight:
Net, w/o winch: 1,700 lb
Payload:
Off highway: 850 lb
On highway: 1,000 lb
Cross:
Off highway:
M422: 2,550 lb
M422A1: 2,600 lb
On highway:
M422: 2,700 lb
M422A1: 2,780 lb
Live-axle gear ratio (front and rear): 5.375:1
Axle load:
Empty, w/o winch:
Front: 664 lb
Rear: 1,036 lb
Tire:
Size: 6.00 x 16
Ply: 4
Pressure:
Highway:
Front: 20 psi
Rear: 25 psi
Cross-country:
Front: 18 psi
Rear: 22 psi
Mud and snow:
Front: 12 psi
Rear: 18 psi
Tread design: NDCC
Tread, center-to-center, front and rear: 52 in.
Ground clearance: 8.5 in
Fring height, loaded: 14.43 in
Angle of approach: 55°
Angle of departure: 47°
Turning radius:
Off highway: 15 ft, 8 in
Electrical system:
Potential: 24 volts
Number of batteries: 2
Type of batteries: ORD 2HN (12 volts)
Generator: MS-35000-1
Fuel: 25 amp
Octane rating:
Gasoline: 80
Circa:
Fuel: 13 gals
Crankcase, refill: 4 qt
Transmission: 2.75 pt
Transfer: 3.10 pt
Axles: 2.3 pt
Engine:
Manufacturer: American Motors, Model AV-108-4
Type: air-cooled, 4 cycle
Displacement: 107.8 cu in
Bore: 3.25 in
Stroke: 3.25 in
Compression ratio: 7.6:1

21-111
CHARACTERISTICS—Continued

Engine—Continued
Governed speed ...................................................... 3,600 rpm
Brake horsepower, gross (max w/std accessories) ....55 @ 3,600 rpm
Torque, gross (max w/std accessories) ..............90 ft-lb @ 2,500 rpm

Brakes:
Service:
Manufacturer .................................................... Bendix
Type .............................................................. Internal, 2-shoe
Parking:
Manufacturer .................................................... Bendix
Type .............................................................. Rear, 2-shoe

Transmission:
Manufacturer .................................................... New Process, Model 4300
Type .............................................................. Synchronesh on 2d, 3d, and 4th gears
Number of speeds .............................................. 4 forward, 1 reverse
Gear ratio:
First ............................................................. 5.24:1
Second ............................................................. 3.06:1
Third ............................................................. 1.77:1
Fourth ............................................................. 1:1
Reverse ........................................................... 5.24:1

PERFORMANCE
Maximum grade ability (lowest gear with off highway load) 60 percent
Fording depth:
W/o fording kit .................................................... 21 in
W/foring kit ...................................................... 60 in
Fuel consumption (loaded) ....................................... 19.25 mpg
Cruising range (loaded) ........................................... 225 mi
Allowable speed (governed) @ 3,600 rpm ................. 62 mph
Maximum allowable towed load:
Cross-country ................................................... 1,000 lb
Highway ......................................................... 1,500 lb

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

M422:

Within Continental United States
Shipped
Length .............................................................. 107 in
Width .............................................................. 605 in
Height .............................................................. 61 in
Volume ........................................................... 165 cu ft
Area ............................................................... 18 sq ft
Gross weight .................................................... 1,700 lb
Ship tons ......................................................... 4.12

Outside Continental United States
Shipped
Length .............................................................. 113 in
Width .............................................................. 605 in
Height .............................................................. 61 in
Volume ........................................................... 179 cu ft
Area ............................................................... 47.5 sq ft
Gross weight .................................................... 1,780 lb
Ship tons ......................................................... 4.42

M422A1:

Within Continental United States
Shipped
Length .............................................................. 113 in
Width .............................................................. 605 in
Height .............................................................. 61 in
Volume ........................................................... 179 cu ft
Area ............................................................... 47.5 sq ft
Gross weight .................................................... 1,780 lb
Ship tons ......................................................... 4.42

Outside Continental United States
Shipped
Length .............................................................. 113 in
Width .............................................................. 605 in
Height .............................................................. 61 in
Volume ........................................................... 179 cu ft
Area ............................................................... 47.5 sq ft
Gross weight .................................................... 1,780 lb
Ship tons ......................................................... 4.42

References: SNL G-843, LO 9-2320-225-10; TM 9-2320-225-10, 20, 35;
TRUCK, VAN, EXPANSIBLE, 2 1/2-TON, 6 X 6, M292

General

TRUCK, VAN, EXPANSIBLE, 2 1/2-ton, 6 x 6, M292, is intended primarily to provide a vehicle for housing and transporting various bulky technical equipment which cannot be mounted in nonexpansible vans with sufficient space remaining to accommodate operating personnel. A secondary purpose is to provide a basic vehicle for office and quarters for general officers which require sufficient space for conferences of ten or more persons. Van body has four doors, two located in rear and one each side. Van body has ten windows, four on each side and one in each rear door. Van body is aluminum and insulated. It has interior electric outlets on 110/208-volt ac current. Cab is of conventional open type for three persons.

Differences among models

The winch equipped truck, van, has somewhat longer overall length.

Data plate location: An identification plate is mounted on the instrument panel.

Classifications: M292 w/e

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M292 w/e</td>
<td>4-61828-10</td>
<td>2320-325-6571</td>
</tr>
<tr>
<td>M292 w/wn, w/e</td>
<td>4-61829-01</td>
<td>2320-342-4144</td>
</tr>
</tbody>
</table>

CHARACTERISTICS

Weight:
- W/o front winch: 25,600 lb
- W/ front winch: 28,300 lb

Length:
- W/o front winch: 28 ft
- W/ front winch: 30 ft

Engine:
- Fuel: Gasoline
- Cylinders: 6
- Max hp at 3,400 rpm: 127

Transmission:
- Type: Manual
- Speeds: 4

Transfer transmission:
- Speeds: 2

Front axle:
- Engagement: Automatic

Rear axle data:
- Drives, conventional: 2
- Type: Single speed

Rear wheels:
- Dually: 4

Brakes:
- Service: Air-hydraulic

Parking:
- Power takeoff: 1

Electrical data:
- Starting: 12v
- Ignition and light: 12v

Underwater fording:
- Sealed system: Yes

Towing:
- Tiltle hook: Yes

Expansible body:
- Retracted:
  - Overall width: 96 in.
  - Inside width: 80 in.
- Expanded:
  - Overall width: 168 in.
  - Inside width: 150 in.

Ventilation: Electric fan

Air conditioning: Yes

Heating and cooling system: Yes

Tires:
- Size: 10-16.5
- Pressure: 80 psi

PERFORMANCE

Approach angle with winch: 39°
Departure angle: 20°
Turning radius with winch:
- Cross-country: 6,000 lb
- Highway: 10,000 lb

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped Length</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped Length</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, VAN: SHOP, 2 1/2-TON, 6 X 6, M109, M109A1, M109C, AND M109D, W/E

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M109, w/winch</td>
<td>4-01836-25</td>
<td>2320-289-0173</td>
</tr>
<tr>
<td>M109, w/winch</td>
<td>4-01834-25</td>
<td>2320-835-8512</td>
</tr>
<tr>
<td>M109, w/winch</td>
<td>2320-706-2225</td>
<td></td>
</tr>
<tr>
<td>M109A1, w/winch</td>
<td>4-01841-26</td>
<td>2320-608-8352</td>
</tr>
<tr>
<td>M109A1, w/winch</td>
<td>2320-706-2222</td>
<td></td>
</tr>
<tr>
<td>M109C, w/winch</td>
<td>4-01854-27</td>
<td>2320-030-2129</td>
</tr>
<tr>
<td>M109C, w/winch</td>
<td>2320-706-2229</td>
<td></td>
</tr>
<tr>
<td>M109D, w/winch</td>
<td>2320-706-2224</td>
<td></td>
</tr>
<tr>
<td>M109D, w/winch</td>
<td>4-01854-20</td>
<td>2320-706-2224</td>
</tr>
</tbody>
</table>

General

TRUCK, VAN: Shop 2 1/2-ton, 6 x 6, M109, M109A1, M109C, and M109D, provides mobile facilities for maintenance and repair for various services. The shop van truck consists of the chassis M11 and a 12-foot van body. The body is wired for 24-volt-dc and 115-volt-ac power. Folds up, by which completely loaded body may be lifted, are installed at upper corners. Heating and ventilating accessories are available to provide satisfactory working conditions in temperatures from +45° F to -25° F. The body is waterproof for fording a depth of 8 feet. All M109 vehicles are equipped with hard top cab enclosure. Have 154-inch wheelbase, and 9 x 20 dual tires.

Differences among models

Hard top cab:

M109, w/winch | 2320-706-2226
M109, w/winch | 2320-706-2225
M109A1, w/winch | 2320-706-2222
M109A1, w/winch | 2320-706-2223

Soft top cab:

M109A1, w/winch | 2320-706-2224
M109A1, w/winch | 2320-706-2224

Data plate location: The identification plate (nameplate) is fastened to the instrument panel above the right of the instrument cluster.

Classification: M109—Standard B (OTCM 366411)
M109A1—Standard A (OTCM 366765)
M109, w/winch—Standard B (OTCM 366411)
M109C, w/winch—Standard B (OTCM 366765)
M109D, w/winch—Standard B (OTCM 366765)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Crew</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Net:</td>
<td></td>
</tr>
<tr>
<td>W/o front winch</td>
<td>13,231 lb</td>
</tr>
<tr>
<td>W/ front winch</td>
<td>15,400 lb</td>
</tr>
<tr>
<td>Payload</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td>3,340 lb</td>
</tr>
<tr>
<td>Highway</td>
<td>3,300 lb</td>
</tr>
<tr>
<td>Gross</td>
<td>20,581 lb</td>
</tr>
</tbody>
</table>

Length (overall):

W/o winch winch | 237 in
W/o front winch | 203 in

Width (overall) | 99 in

Height (overall) (empty, as supplied for travel) | 180 in

Floor height (empty) | 34 in

Ground clearance | 15° 1/2 in

Capabilities:

Cooling system | 22 qt
Crankcase (refill) | 9 qt
Differential (each) | 7 qt
Fuel tank | 50 gal

Transmission:

W/o transmission power take-off | 8 1/4 pt
W/ transmission power take-off | 10 1/4 pt
Transfer | 7 qt
Transfer power takeoff (initial chassis coming) | 1 1/2 pt
Front winch:

W/o winch | 1 1/2 pt

Fuel system:

Fuel tank | 277 in
Fuel tank | 237 in

Electrical system:

24 volts

Number of batteries | 2
Type of ground | negative
Voltage | 12.5 sa

Engine:

Manufacturer: Reo Motors Inc.
Model OA-331

Type: Continental(Model OA-331)

Type: Model OAO-331

Type: overhead valves

Number of cylinders | 6

Bore (above) | 4 1/4 in.

Stroke | 4 1/4 in.

Piston displacement | 331 cu in

Compression ratio | 6.73:1

Governing speed, max (no load) | 3,000 rpm

Engine speed, max (full load) | 3,000 rpm

Idle speed | 1,500 rpm

Brake horsepower (max):

W/o accessories | 127 @ 3,000 rpm
W/ accessories | 147 @ 4,000 rpm

Torque (max):

W/o accessories | 218 lb-ft @ 1,400 rpm
W/ accessories | 270 lb-ft @ 1,400 rpm

Transmission:

Manufacturer: Sperry Mfg Co
Type: synchromesh

Gear ratios:

Reverse | 7.76:1.00
First | 7.25:1.00
Second | 4.18:1.00
Third | 2.45:1.00
Fourth | 1.45:1.00
Fifth | 1.00:1.00
CHARACTERISTICS—Continued

Transfer:

Man. actuator: ...........................................Wisconsin axle
Type: ..................................................two-speed, constant-axle
Gear ratio: 
High: ..................................................1:1
Low: ...................................................1.98:1

Tires
Size: ..................................................5.00 x 10
 ply: ..................................................8
Press.: ..................................................70 psi 45 psi

Fuel Octane rating: ........................................70 to 80

Axle gear ratio ...........................................5.722:1

Axle:
Weight capacities:
  Empty: ..................................................5,486 lb
  Full: ..................................................5,855 lb

Approach angle:
  W/ front winch ........................................46°

Departure angle:
  W/ front winch ........................................48°

Turning circle:
  W/ front winch ..........................................71 ft

Towed load:
  Cross-country .........................................6,000 lb
  Highway ..............................................10,000 lb

PERFORMANCE

Speed (max):
  Transfer in HIGH range:
  1st gear ............................................8 mph
  2nd gear .........................................14 mph
  3rd gear .........................................25 mph
  4th gear .........................................42 mph
  5th gear .........................................60 mph
  Reverse ..............................................8 mph

Transfer in LOW range:
1st gear ............................................1 mph
2nd gear ............................................2.5 mph
3rd gear .............................................4 mph
4th gear .............................................4 mph
5th gear .............................................6 mph
Reverse ..............................................1 mph

Cruising speed: ........................................33 to 50 mph
Fuel consumption (cas): 33 to 50 mph

Transfer range (loaded) 33 to 46 mph

Fording depth:
  Unequipped vehicles (top of wave) ................................50 in.
  Equipped and prepared (max) ....................................72 in.
  Front winch capacity (max) ..................................1,000 lb

EQUIPMENT

Basic issue items: See TM 9-8022.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

Length ..................................................127 in
Width ...............................................39 in
Height ...............................................160 in
Volume ..............................................2,653 cu ft
Gross weight .........................................4,586 lb
Ship tons .............................................71.38

Outside Continental United States

Shipped

Length ..................................................127 in
Width ...............................................39 in
Height ...............................................160 in
Volume ..............................................2,653 cu ft
Gross weight .........................................4,586 lb
Ship tons .............................................71.38


21-115
TRUCK, VAN: SHOP, 2½-TON, 6 X 6, M220, M220C, AND M220D

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

Major items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M220 w/o winch</td>
<td>4-16834-30</td>
<td>2220-525-8900</td>
</tr>
<tr>
<td>M220C</td>
<td>4-16834-33</td>
<td>2220-706-2237</td>
</tr>
<tr>
<td>M220D w/o winch</td>
<td>2220-702-8942</td>
<td></td>
</tr>
</tbody>
</table>

General

TRUCK, VAN: shop, 2½-ton, 6 x 6, M220, M220C, and M220D provide mobile facilities for maintenance and repair for various services. They are equipped with one driving front axle and two driving rear axles. Power is supplied by a GMC-type 302, gasoline six-cylinder in line, valve-in-head engine.

A hydraulic transmission, mounted directly to engine, has four automatic forward speeds and one reverse in each of two ranges, high and low. A single-speed transfer, mounted to rear of transmission, transmits power through propeller shafts to front and rear axles.

A manually operated lever permits transfer to be placed in neutral or driving position.

These vehicles are equipped with hard-top cab and shop van-type body. The body is fully enclosed and equipped with access doors at rear. All windows at side and front are equipped with exterior sliding blackout panels. Single front and dual rear tires are used. The vehicles are furnished without winch equipment.

Differences among models

Date plate location: The identification plates are located on instrument panel.

Classification: M220 | Standard A (OTCM 36841)
M220C | Standard B (OTCM 36876)
M220D | Standard C (OTCM 33976)

CHARACTERISTICS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Net</td>
<td>15,085 lb</td>
</tr>
<tr>
<td>Payload:</td>
<td></td>
</tr>
<tr>
<td>Off highway</td>
<td>8,000 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>7,500 lb</td>
</tr>
<tr>
<td>Gross</td>
<td>20,535 lb</td>
</tr>
<tr>
<td>Off highway</td>
<td>22,305 lb</td>
</tr>
<tr>
<td>On highway</td>
<td></td>
</tr>
<tr>
<td>Axle ratio</td>
<td>6.166:1</td>
</tr>
<tr>
<td>Axle load:</td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>5,380 lb</td>
</tr>
<tr>
<td>Bogie</td>
<td>6,780 lb</td>
</tr>
<tr>
<td>Loaded:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>5,706 lb</td>
</tr>
<tr>
<td>Bogie</td>
<td>14,749 lb</td>
</tr>
</tbody>
</table>

Tires:

| Size                   | 9.00 x 20 |
| Ply                    | 8         |
| Pressure:              |           |
| Highway                |           |
| Cross-country          |           |
| Sand                   |           |
| Tread, center-to-center, front. | 681/2 in. |
| Ground clearance        | 12 in.    |
| Pin tales, empty        | 941/2 in. |
| Loading height, empty   | 911/4 in. |
| Fuel octane rating      | 80        |

 Capacities:

| Fuel                    | 56 gal     |
| Cooling system          | 22 qt      |
| Crankcase, refill       | 85 qt      |
| Transmission            | 13 qt      |
| Transfer:               |            |
| Without power takeoff   | 61/2 qt    |
| With power takeoff      | 71/2 qt    |
| Axle:                   |            |
| Front                   | 151/2 pt   |
| Intermediate            | 131/2 pt   |
| Rear                    | 111/2 pt   |

Electrical system:

| Potential              | 24 volts   |
| No. of batteries (12 volt) | 2       |
| Type of ground:        | negative   |

Brakes:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Bendix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>air/hyd axle</td>
</tr>
<tr>
<td>Parking brake type</td>
<td>transfer</td>
</tr>
</tbody>
</table>

Engine:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>General Motors Corp., Model 302</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>gasoline, valve-in-head</td>
</tr>
<tr>
<td>No. of cylinders (in line)</td>
<td>6</td>
</tr>
<tr>
<td>Displacement</td>
<td>301.6 cu in.</td>
</tr>
<tr>
<td>Bore</td>
<td>4 in.</td>
</tr>
<tr>
<td>Stroke</td>
<td>4 in.</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>7:2:1</td>
</tr>
<tr>
<td>Governor speed</td>
<td></td>
</tr>
<tr>
<td>Full load</td>
<td>3,600 rpm</td>
</tr>
<tr>
<td>No load</td>
<td>3,600 rpm</td>
</tr>
<tr>
<td>Brake horsepower:</td>
<td></td>
</tr>
<tr>
<td>Maximum with standard accessories</td>
<td>138 at 3,400 rpm</td>
</tr>
<tr>
<td>Maximum without standard accessories</td>
<td>113 at 3,400 rpm</td>
</tr>
<tr>
<td>Torque:</td>
<td>Maximum with standard accessories</td>
</tr>
<tr>
<td>Maximum without standard accessories</td>
<td>404 lb-ft at 1,100 rpm</td>
</tr>
<tr>
<td>Transmission:</td>
<td>Type</td>
</tr>
<tr>
<td>Forward speeds</td>
<td></td>
</tr>
</tbody>
</table>

21-116
CHARACTERISTICS—Continued

Engine—Continued

Transmission—Continued

Gear ratio:

<table>
<thead>
<tr>
<th>Range</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>1:1</td>
</tr>
<tr>
<td>Low</td>
<td>4.076:1</td>
</tr>
</tbody>
</table>

Low range:

<table>
<thead>
<tr>
<th>Range</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>3.82:1</td>
</tr>
<tr>
<td>Low</td>
<td>15.07:1</td>
</tr>
</tbody>
</table>

Transfer:

<table>
<thead>
<tr>
<th>Speeds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.16:1</td>
</tr>
</tbody>
</table>

PERFORMANCE

Computed grade ability in lowest gear, loaded: 106 percent

Turning radius:

| Without kit | 30 in          |
| With kit    | 80 in          |

Fuel consumption, loaded: 5.4 mpg

Cruising range, loaded: 300 mi

Allowable speed, governed: 55 mph

On highway: 8,000 lb

Maximum tow load allowance:

On highway: 6,000 lb

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>266 in</td>
<td>96 in</td>
<td>130 in</td>
<td>1,040 cu ft</td>
<td>178 sq ft</td>
<td></td>
<td>48.50</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic Issue Items: See TM 9-8024.

TRUCK, WRECKER: CRANE, 2½-TON, 6 X 6, M108, W/WINCH, W/E

General

TRUCK, WRECKER: crane, 2½-ton, 6 x 6, M108, w/wn, w/e is used to tow, salvage, and recover disabled vehicles and equipment and for numerous repair operations in accordance with the safe load data plate.

The wrecker truck M108 has a body platform with a hydraulic crane mounted on chassis M45*. The platform is a steel frame surfaced with welded and bolted safety-tread plate. The crane is positioned in an opening in center of platform and is secured to both platform and chassis frames. Sockets are provided along sides of platform for installation of top bows and tarpaulin with end curtains for camouflage purposes, when necessary. Four outriggers are attached to platform frame, two on each side, to remove load weight from truck springs and wheels during lifting of heavy loads. The truck has engine auxiliary governor to hold engine speed at 1,700 rpm during crane operation. Hydraulic pressure for crane is supplied by hydraulic pump driven from transfer power takeoff.

Differences among models

Data plate location: The identification plates are located on the extreme left portion of cab dash panel.

Classification: M108—Standard A (OTCM 36841)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUCK, WRECKER: crane, 2½-ton, 6 x 6, M108, w/wn, w/e</td>
<td>M108</td>
<td>4-61855-10</td>
<td>2320-835-8336</td>
</tr>
</tbody>
</table>

Transmission: 4.25 qt
Transfer: 7 qt
Axles (each): 7 qt

Winds:
- Oil capacity: 1 qt
- Load capacity (1st layer): 10,000 lb

Electrical system:
- Potential: 24 volts
- Number of batteries: 2 (12 volt)
- Type of ground: negative

Brakes:
- Manufacturer: Timken-Detroit
- Type: air/hydraulic
- Parking brake, type: transfer

Engine:
- Manufacturer:
  - Reo Motors Inc
  - Continental
- Model:
  - OA-331
  - COA-331
- Type: 4-cycle, valve-in-head
- Number of cylinders: 6
- Displacement: 331 cu in
- Bore: 4.125 in
- Stroke: 4.125 in
- Compression ratio: 6.73:1
- Governed speed:
  - Full load: 3,400 rpm
  - No load: 3,400 rpm

Brakes horsepower (max):
- W/std accessories: 127 at 3,400 rpm
- W/o std accessories: 148 at 3,400 rpm

Torque:
- Maximum:
  - W/std accessories: 248 lb-ft at 1,400 rpm
  - W/o std accessories: 270 lb-ft at 1,400 rpm

Transmission:
- Type: synchronesh
- Forward speeds: 5
- Gear ratio:
  - High: 1.1
  - Low: 7.55:1

Transfer:
- Speeds: 2
- Gear ratio:
  - High: 1.1
  - Low: 1.98:1

* For characteristics and data, see item on page 21-21.
PERFORMANCE

<table>
<thead>
<tr>
<th>Performance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computed grade ability in lowest gear, loaded</td>
<td>63 percent</td>
</tr>
<tr>
<td>Transmission ratio</td>
<td>3.735 ft</td>
</tr>
<tr>
<td>Towing depth:</td>
<td></td>
</tr>
<tr>
<td>Without kit</td>
<td>20 in.</td>
</tr>
<tr>
<td>With kit</td>
<td>72 in.</td>
</tr>
<tr>
<td>Fuel consumption, loaded</td>
<td>7 mpg</td>
</tr>
<tr>
<td>Cruising range, loaded</td>
<td>350 mi</td>
</tr>
<tr>
<td>Allowable speed, governed</td>
<td>62 mph</td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic issue items: See TM 9-8022.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>302\frac{1}{2} in.</td>
</tr>
<tr>
<td>Width</td>
<td>96 in.</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>1860 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>201.4 sq ft</td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, WRECKER: LIGHT, 2½-TON, 6 X 6, M60, W/Winch, W/E

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M60</td>
<td></td>
<td>2320-835-8343</td>
</tr>
</tbody>
</table>

General

TRUCK, WRECKER: Light, 2½-ton, 6 x 6, M60, w/wn, w/e is used to tow, salvage, and recover disabled vehicles and equipment and for numerous repair operations in accordance with the safe load data plate. The wrecker truck M60 consists of the chassis truck M45C and a hydraulically-operated crane which is mounted on the rear of the chassis. The crane consists of the crane body, hydraulic pump and relief valve assembly, base plate and pivot post assembly, swing motor, boom, and outriggers.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841)

CHARACTERISTICS

Crew: 2

Weight:

Net: 23,960 lb

Payload:

Off highway: 1,500 lb
On highway: 3,500 lb

Gross:

Off highway: 24,460 lb
On highway: 25,960 lb

Axle gear ratio: 6.72:1

Axle load:

Empty:

Front: 6,880 lb
Bogie: 17,080 lb

Loaded:

Front: 7,246 lb
Bogie: 20,564 lb

Tires:

Size: 9.00 x 20
Ply: 8
Pressure: Highway: 50 psi, Country: 40 psi, Sand: 30 psi

Ground clearance: 10 in.

Windshield height, loaded: 31 in.

Fuel octane rating: 87 (octane no.)

Capacities:

Fuel: 50 gal
Cooling system: 22 qt
Crankcase refill: 9 gal
Transmission (w/power takeoff): 5.5 gal
Transfer: 7 gal
Axles (each): 7.64 gal
Winch:

Oil capacity: 1 gal
Load capacity (1st layer): 10,096 lb
Crank lift capacity (max): 8,096 lb

Electrical system:

Potential: 24 volts
Number of batteries: 2 (12 volt)
Type of grounds: Negative

Brakes:

Motor:

Manufacturer: McKinley-Detroit
Type: Air hydraulically
Parking:

Type: Dual drum
At transfer: 17 x 3

Engine:

Manufacturer:

RCA-Motors Inc.: Model OA-331
Continental: Model COA-331

Type: 6-cylinder, valve-in-head

Number of cylinders: 6 (in line)

Displacement: 331 cu in.

Bore: 4.5 in.

Stroke: 4.5 in.

Compression ratio: 6.7:1

Governed speed:

Full load: 3,400 rpm
No load: 3,000 rpm

Brake horsepower (max):

W/std accessories: 127 at 3,400 rpm
W/o std accessories: 127 at 3,400 rpm

Torque:

Maximum:

W/std accessories: 248 lb-ft at 1,400 rpm
W/o accessories: 207 lb-ft at 1,400 rpm
CHARACTERISTICS—Continued

TRANSMISSION
Type

Forward speeds

Gear ratio:

High

Low

Transfer

Speeds

Gear ratio:

High

Low

Crane

Swing

Booms

Angle (max.)

Extension

Lift:

Basic

Standard

8 to 16 ft

PERFORMANCE
Computed grade ability in lowest gear

Turning radius

Fording depth:

Without kit

With kit

Fuel consumption, loaded

Cruising range, loaded

Allowable speed, governed at 3,400 rpm

Maximum recommended towed load:

Off highway

On highway

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

Length

Width

Height

Volume

Area

Gross weight

Ship tons

Outside Continental United States

Shipped

Length

Width

Height

Volume

Area

Gross weight

Ship tons

References:

TRUCK, WRECKER: MEDIUM, 5-TON, 6 X 6, M62 AND M62E1 W/WINCH, W/E

General

TRUCK, WRECKER: medium, 5-ton, 6 x 6, M62 or M62E1, w/winch, w/e, is used to tow, salvage, and recover disabled vehicles and equipment and for numerous repair operations in accordance with the safe load data plate. The wrecker truck M62 consists of truck chassis M40C and the hydraulically-operated crane which is mounted on the rear of the chassis. The hydraulic system is powered by the truck engine.

The lift cylinder assembly used to lower and raise the shipper and boom assembly, is of heavy steel construction.

Differences among models

The M62E1 is the same as the M62 except for the crane which is an improved M1A1 type.

Data plate location

The identification plate is mounted on the instrument panel to the right of the instrument cluster.

Classification: M62—Standard B (OTCM 37676)
M62E1—Standardization pending.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Model M62</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4-61983-20</td>
<td>2920-835-022</td>
</tr>
<tr>
<td></td>
<td>M62E1</td>
<td>4-61983-30</td>
<td>2920-835-924</td>
</tr>
</tbody>
</table>

Crew

| Weight:     | Net | 38,675 lb |
| Payload:   | Off highway | 7,000 lb |
|            | On highway  | 12,080 lb |
| Gross:     | Off highway | 41,055 lb |
|            | On highway  | 46,025 lb |
| Live-axle gear ratio | 4.442:1  |
| Axle load: | Empty Front  | 9,225 lb |
|            | Rear (each) | 14,175 lb |
|            | Off highway | 9,225 lb |
|            | Front      | 5,246 lb  |
|            | Rear (each) | 17,889 lb |

Classification: M62—Standard B (OTCM 37676)
M62E1—Standardization pending.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Model M62</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M62E1</td>
<td>4-61983-30</td>
<td>2920-835-924</td>
</tr>
</tbody>
</table>

Crew

| Weight:     | Net | 38,675 lb |
| Payload:   | Off highway | 7,000 lb |
|            | On highway  | 12,080 lb |
| Gross:     | Off highway | 41,055 lb |
|            | On highway  | 46,025 lb |
| Live-axle gear ratio | 4.442:1  |
| Axle load: | Empty Front  | 9,225 lb |
|            | Rear (each) | 14,175 lb |
|            | Off highway | 9,225 lb |
|            | Front      | 5,246 lb  |
|            | Rear (each) | 17,889 lb |

Model

| Classification: M62—Standard B (OTCM 37676)
| M62E1—Standardization pending. |

* For characteristics and data, see item on page 21-33.
CHARACTERISTICS—Continued

Transmission:
Type: Synchronesh
Forward speeds:
Gear ratio:
High: 1.00:1
Fourth: 1.43:1
Low: 7.31:1

Transfer:
Speeds: 2
Gear ratio:
High, front: 1.068
Low, front: 2.163
High, rear: 1.000
Low, rear: 2.004

PERFORMANCE
Computed grade ability in lowest gear (with towed load, off highway): 36.38 percent
Turning radius: 41.58 ft
Fording depth, maximum w/fording equipment: 78 in.
Fuel consumption, loaded (at 30 mph, off highway): 2.74 mpg
Cruising range, loaded: 214 mi
Allowable speed, governed: 52.6 mph
Maximum recommended towed load, gross:
Off highway: 20,000 lb
On highway: 30,000 lb

EQUIPMENT
Basic issue Items: See TM 9-8028.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 309 in.
Width: 97 in.
Height: 102 in.
Volume: 1,780 cu ft
Area: 208 sq ft
Gross weight: 34,790 lb
Ship tons: 44.50

Outside Continental United States

Shipped
Length: 309 in.
Width: 97 in.
Height: 102 in.
Volume: 1,780 cu ft
Area: 208 sq ft
Gross weight: 34,790 lb
Ship tons: 44.50

TRUCK, WRECKER: MEDIUM, 5-TON, 6 X 6, M543, W/FORNT WINCH

**General**

TRUCK, WRECKER: Medium, 5-ton, 6 x 6, M543, w/front winch, is used to tow, salvage, and recover disabled medium vehicles and equipment. It consists of the wrecker crane which is mounted on a truck chassis M40C.

**Differences among models**

Data plate location: An identification plate is mounted on the instrument panel to the right of the instrument cluster.

Classification: Standard A (OTCM 27676)

**CHARACTERISTICS**

Wrecker crane:
- Manufacturer: Gar Wood
- Type: Hydraulic
- Capacity rating: 10,000 lb

**PERFORMANCE**

**EQUIPMENT**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

<table>
<thead>
<tr>
<th>Data item</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Data item</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TRUCK, VAN: SHOP, 2½-TON, 6 X 6, M512, M512C, M512D, M512F, AND M512G

NOTE: All DIMENSIONS SHOWN ARE IN INCHES

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M512</td>
<td></td>
<td>2320-446-7541</td>
</tr>
<tr>
<td>M512C</td>
<td></td>
<td>2320-446-7542</td>
</tr>
<tr>
<td>M512D</td>
<td></td>
<td>2320-446-7543</td>
</tr>
<tr>
<td>M512F</td>
<td></td>
<td>2320-446-7544</td>
</tr>
<tr>
<td>M512G</td>
<td></td>
<td>2320-446-7545</td>
</tr>
</tbody>
</table>

General

TRUCK, VAN: shop, 2½-ton, 6 x 6, M512, M512C, M512D, M512F, and M512G, is a van-type field maintenance truck, so designed as to transport electronic and/or other equipment for use in the ground vehicle support of the LACROSSE MISSILE SYSTEM.

Current models of the shop van bodies are mounted upon the 2½-ton, 6 x 6, M45 truck chassis. Bodies are wired for three electrical circuits, 115-volt ac, 208-volt ac, and 24-volt dc.

Differences among models

Power connector inlet box, van body location: M512, on right side panel toward the front, M512C, on front panel at lower right corner, M512D, on right side panel toward rear, M512F and M512G, on right side panel nearer the front than on M512.

Transformer-rectifier air inlet, van body location: M512, on right side panel toward front, M512C, on front panel at lower left.

Transformer-rectifier air inlet, van body location: M512D only, two inlets side by side on right side panel toward front.

Hydraulic test stand exhaust, van body location: M512D only, one exhaust located on front panel at lower right.

Antenna receptacle, van body location: M512C only, on left side panel, above the transformer-rectifier air inlet.

The M512 has an additional 115-volt ceiling light over the regular three.

The M512C only, has a cable access door located on the van body right side panel, below rub rail, toward the front.

Data plate location

An identification plate is located on instrument panel to right of instrument cluster.

Classification: Standard B (OTCM 37828).
### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crew</td>
<td>2</td>
</tr>
<tr>
<td>Length, overall</td>
<td>268 in.</td>
</tr>
<tr>
<td>Width, overall</td>
<td>96% in.</td>
</tr>
<tr>
<td>Height, overall</td>
<td>128% in.</td>
</tr>
<tr>
<td>Empty (as supplied for travel)</td>
<td>128% in.</td>
</tr>
<tr>
<td>Fully loaded</td>
<td>127% in.</td>
</tr>
<tr>
<td>Height, leading</td>
<td></td>
</tr>
<tr>
<td>Unloaded</td>
<td>45% in.</td>
</tr>
<tr>
<td>Loaded</td>
<td>45% in.</td>
</tr>
<tr>
<td>Pintle height</td>
<td>84 in.</td>
</tr>
<tr>
<td>Approach angle</td>
<td>48 deg</td>
</tr>
<tr>
<td>Departure angle</td>
<td>48 deg</td>
</tr>
<tr>
<td>Turning radius</td>
<td>96 ft</td>
</tr>
<tr>
<td>Towed load</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td>6,000 lb.</td>
</tr>
<tr>
<td>Highway</td>
<td>8,000 lb.</td>
</tr>
<tr>
<td>Heater system power supply:</td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>115 volts, ac, 60 cycle</td>
</tr>
<tr>
<td>Output</td>
<td>24 volt dc</td>
</tr>
<tr>
<td>Heater system fuel pump:</td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>24 volt dc</td>
</tr>
<tr>
<td>Air conditioner</td>
<td></td>
</tr>
<tr>
<td>Air output (maximum)</td>
<td>1300 cfm</td>
</tr>
<tr>
<td>Temperature (maximum)</td>
<td>126°F</td>
</tr>
<tr>
<td>Temperature (minimum)</td>
<td>68°F</td>
</tr>
<tr>
<td>Power</td>
<td>3-phase, 115 volts ac, 60-cycle</td>
</tr>
<tr>
<td>Space heater:</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>single phase, 115-volt ac, 60 cycle</td>
</tr>
<tr>
<td>Output</td>
<td>60,000 BTU/hr.</td>
</tr>
<tr>
<td>Wheel base</td>
<td>144 in.</td>
</tr>
<tr>
<td>Tires</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>9x20 dual in rear</td>
</tr>
<tr>
<td>Ply</td>
<td></td>
</tr>
<tr>
<td>Pressure</td>
<td>Single Dual</td>
</tr>
<tr>
<td>Highway</td>
<td>70 gr.</td>
</tr>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
<tr>
<td>Unloaded</td>
<td>45% in.</td>
</tr>
<tr>
<td>Loaded</td>
<td>45% in.</td>
</tr>
<tr>
<td>Mud, snow and sand</td>
<td>15 15</td>
</tr>
<tr>
<td>Engine</td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Reo</td>
</tr>
<tr>
<td>Type</td>
<td>6 cylinders, overhead valve</td>
</tr>
<tr>
<td>Bore (stroke)</td>
<td>4 3/8 in.</td>
</tr>
<tr>
<td>Stroke</td>
<td>4 3/8 in.</td>
</tr>
<tr>
<td>Piston displacement</td>
<td>381 cu in.</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>8.78:1</td>
</tr>
<tr>
<td>Governed speed, max (no load)</td>
<td>3,800 rpm</td>
</tr>
<tr>
<td>Engine speed, max (full load)</td>
<td>4,400 rpm</td>
</tr>
<tr>
<td>Idle speed</td>
<td>450 rpm</td>
</tr>
<tr>
<td>Brake horsepower (max)</td>
<td>121 @ 4,400 rpm</td>
</tr>
<tr>
<td>W/ std accessories</td>
<td>147 @ 4,400 rpm</td>
</tr>
<tr>
<td>Torque (max)</td>
<td>248 lb-ft @ 1,400 rpm</td>
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<tr>
<td>W/ std accessories</td>
<td>270 lb-ft @ 1,400 rpm</td>
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<tr>
<td>Manufacturer</td>
<td>Spicer Mfg Co.</td>
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<tr>
<td>Type</td>
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<tr>
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<tr>
<td>Reverse</td>
<td>7.86:1.00</td>
</tr>
<tr>
<td>First</td>
<td>4.13:1.00</td>
</tr>
<tr>
<td>Second</td>
<td>2.48:1.00</td>
</tr>
<tr>
<td>Third</td>
<td>1.46:1.00</td>
</tr>
<tr>
<td>Fourth</td>
<td>1.00:1.00</td>
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<tr>
<td>Fifth</td>
<td>1.00:1.00</td>
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### PERFORMANCE

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<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<td>Speed (max)</td>
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<tr>
<td>Transfer in HIGH range:</td>
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</tr>
<tr>
<td>1st gear</td>
<td>6 mph</td>
</tr>
<tr>
<td>2nd gear</td>
<td>14 mph</td>
</tr>
<tr>
<td>3rd gear</td>
<td>28 mph</td>
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<tr>
<td>4th gear</td>
<td>48 mph</td>
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<tr>
<td>5th gear</td>
<td>64 mph</td>
</tr>
<tr>
<td>Reverse</td>
<td>8 mph</td>
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<tr>
<td>Transfer in LOW range:</td>
<td></td>
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<tr>
<td>1st gear</td>
<td>4 mph</td>
</tr>
<tr>
<td>2nd gear</td>
<td>9 mph</td>
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<tr>
<td>3rd gear</td>
<td>12 mph</td>
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<td>5th gear</td>
<td>80 mph</td>
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<tr>
<td>Reverse</td>
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<tr>
<td>Cruising speed</td>
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<tr>
<td>Fuel consumption (loaded)</td>
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<td>Cruising range (loaded)</td>
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<td>Equipped and prepared (max)</td>
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### EQUIPMENT

Basic Issue Items: See TN 9-5022.

#### INSTRUCTIONAL MATERIAL

#### STORAGE AND SHIPMENT DATA

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</tr>
<tr>
<td>Height</td>
<td>128% in.</td>
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<tr>
<td>Volume</td>
<td>1,922 cu ft</td>
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<tr>
<td>Area</td>
<td>181.2 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>15,360 lb</td>
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<tr>
<td>Ship tons</td>
<td>46</td>
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Outside Continental United States

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<tr>
<td>Length</td>
<td>268 in.</td>
</tr>
<tr>
<td>Width</td>
<td>96 in.</td>
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<tr>
<td>Height</td>
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<td>Volume</td>
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<tr>
<td>Gross weight</td>
<td>15,360 lb</td>
</tr>
<tr>
<td>Ship tons</td>
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SECTION 22
TRAILERS
(CLASS 2330)
(Includes semitrailer chassis, trailer chassis, trailer dollies, semitrailers, and trailers)
SEMIMTRAILER, TANK TRANSPORTER: 45-ton, 8-wheel, M15A1, w/e; SEMIMTRAILER, TANK TRANSPORTER: 50-ton, 8-wheel, M15A2, w/e;.................................................................................. 22-39
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TRAILER, CARGO: 1½-ton, 2-wheel, M105, M105A1, and M105A2 ..................................................................... 22-61
TRAILER, FLAT BED: 10-ton, 4-wheel, M345 ........................................................................................................... 22-62
TRAILER, FLAT BED: fire control/acquisition radar, 2-ton, 4-wheel, M243 .......................................................... 22-64
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CHASSIS, SEMITRAILER: 6-TON, 4-WHEEL, M295 AND M295A1

**General**

CHASSIS, SEMITRAILER: 6-TON, 4-WHEEL M295 and M295A1, is a 4-wheel vehicle designed to be towed by the TRUCK, TRACTOR: 2½-ton, 8x8, M221 or M276. The main purpose of the semitrailer chassis is to receive the body of a van semitrailer, and provide a mobile shop for the Army and for use as a field spare parts carrier.

The semitrailer chassis has a standard Ordnance kingpin for use with Ordnance fifth wheel and pintle for towing purposes. The chassis has been designed for fording hard bottom water crossings deep enough to submerge the running gear of the semitrailer chassis.

The frame is the main supporting member for mounting the assemblies which comprise the chassis. The chassis has a single point, two spring, tandem axle suspension which utilizes parallelogram type linkage. When properly connected, the service brake pedal on the towing vehicle operates the brakes on both the trailer and the semitrailer chassis. The wheels are the offset disk-type rim with split-type retaining side ring. Lights on the semitrailer chassis are controlled by the light switch on the instrument board of the towing vehicle. A retracting crank type adjustable landing gear is used to support the chassis when not coupled to a towing vehicle. A spare wheel and tire carrier is mounted on the left side of the frame, midway between the tandem suspension and the landing gear.

**Differences among models**

M295A1 is a component of the Engineer's Electrical Repair Shop, Semitrailer Mounted, Set No. 4.
M295A1 is a component of Semitrailer, Van, Shop, Folding Side, 6-ton, 4-wheel, M447 and of Semitrailer, Van; expandable, 4-ton, 4-wheel, M313.

**Data plate location**

Two plates are located on the right-hand side of the frame at the midpoint of the side rail.

**Classification:** M295—STANDARD B (OTCM 37347)
M295A1—STANDARD A (OTCM 37348)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Line Item No.</td>
<td>Federal stock No.</td>
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<td>M295A1</td>
<td>3330-840-9121</td>
<td>3330-840-8551</td>
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<tr>
<td>M295A1</td>
<td>3330-840-9121</td>
<td>3330-840-8551</td>
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**Towing facilities**

<table>
<thead>
<tr>
<th>Item</th>
<th>Kingpin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height empty</td>
<td>86 in.</td>
</tr>
<tr>
<td>To centerline of axle</td>
<td>244 in.</td>
</tr>
<tr>
<td>To centerline of landing gear</td>
<td>244 in.</td>
</tr>
<tr>
<td>Minimum ground clearance</td>
<td>11 in.</td>
</tr>
<tr>
<td>Departure angle</td>
<td>66°</td>
</tr>
<tr>
<td>Forging depth</td>
<td>44 in.</td>
</tr>
<tr>
<td>Overall length</td>
<td>8174/16 in.</td>
</tr>
<tr>
<td>Overall width</td>
<td>92%</td>
</tr>
<tr>
<td>Kingpin to front</td>
<td>18 in.</td>
</tr>
<tr>
<td>Kingpin to center of axle bogie</td>
<td>244 in.</td>
</tr>
<tr>
<td>Tandem axle spacing</td>
<td>48 in.</td>
</tr>
</tbody>
</table>

**Overall height:**

| Loaded                      | 6249/16 in.     |
| Empty                       | 86%             |

**Tire:**

| Diameter                    | 72 in.          |
| Axle:                       | 4½ in.          |

**Parking brake**

<table>
<thead>
<tr>
<th>Make</th>
<th>Wagner Electric Corp.</th>
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</table>

**Service brakes**

<table>
<thead>
<tr>
<th>Actuation</th>
<th>air-over-hydraulic</th>
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**Make:**

<table>
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<tr>
<th>Diameter</th>
<th>15 in.</th>
</tr>
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</table>

**Landing gear:**

<table>
<thead>
<tr>
<th>Diameter</th>
<th>8½1/4 in.</th>
</tr>
</thead>
</table>

**Operating air pressure:**

| Air-over-hydraulic           | 180 psi.             |

**Type:**

| Collapsible and adjustable  | Wagner Electric Corp. |

**Clearance above ground with gear retracted:**

| 20%                |

**Drop below ground line with rear extended:**

| 4½ in.             |

**Lights:**

| Voltage              | 24v                 |

**Tires:**

<table>
<thead>
<tr>
<th>Size</th>
<th>9.00 x 20</th>
</tr>
</thead>
</table>

| Type              | 8         |

| Tire inflation     | Military pneumatic |

<table>
<thead>
<tr>
<th>Highway</th>
<th>40 psi</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cross-country</th>
<th>48 psi</th>
</tr>
</thead>
</table>

| Sand               | 92 psi    |

*For characteristics and data, see Item 212.
INSTRUCTIONAL MATERIAL

PERFORMANCE

Chassis with applicable body and payload shall be capable of operating for extended periods, without damage to chassis or body resulting, at sustained speeds up to:

- Highways and improved roads: 45 mph
- Unimproved roads and trails: 20 mph
- Belgian block test course: 10 mph

Slope operation:
- Side slope: 20 percent
- Fordability: 

Completely submerged: 15 min

EQUIPMENT

Basic Issue Items: See TM 9-2330-238-14, appendix III.

STORAGE AND SHIPMENT DATA

<table>
<thead>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume (uncrated)</td>
<td>1060.4 cu. ft.</td>
<td>204.6 sq. ft.</td>
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<tr>
<td>Area</td>
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<tr>
<td>Cross weight</td>
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</tr>
<tr>
<td>Ship tons</td>
<td></td>
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References: TM 9-2330-238-14, TM 9-2350-238-24P, TM 9-2360-228-20P.
CHASSIS, SEMITRAILER: 6-TON, 4-WHEEL, XM539

General

CHASSIS, SEMITRAILER: 6-ton, 2-wheel, XM539 is used as the semitrailer chassis for the organizational maintenance test station and the field maintenance test station of the SERGEANT artillery guided missile system.

The chassis with serial numbers 6001, 6002, 6004, and 6007 are equipped with trailing arm suspension units. All other chassis bearing serial numbers in the 6000 series are equipped with torsion bar suspension units.

The chassis equipped with torsion bar suspension units is also a component of SEMITRAILER, LOW BED: 6-ton, 4-wheel, XM527.

Differences among models

Data plate location

The identification plate is located on the front right side of the gooseneck structure of the chassis.

Classification:

CHARACTERISTICS

Weight:
Net:
Trailing arm suspension chassis 4,800 lb
Torsion bar suspension chassis 4,950 lb
Payload 15,200 lb
Gross:
Trailing arm suspension chassis 20,600 lb
Torsion bar suspension chassis 20,150 lb

Empty:
Fifth wheel
Rear wheels
Loaded:
Fifth wheel
Rear wheels

Length, overall 383 in.
Kingpin to front 378 in.
Kingpin to center of axle
Width, overall .96 in.
Height, overall 61 in.
Loading height, empty 84 in.
Fifth wheel height 51 in.
Ground clearance 20 in.
Angle of departure:
Trailing arm suspension chassis 34 deg
Torsion bar suspension chassis 39 deg

Brakes:
Manufacturer air-over-hydraulic
Type
Parking, type mechanical

Tires:
Number 4
Size 11.00 x 20
Ply 12
Pressure:
Highway 76 psi
Cross-country 86 psi
Sand 15 psi

PERFORMANCE

Maximum towed speed:
Cross-country 20 mph
Highway 55 mph

PRIME MOVER

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 chassis:
Length
Width
Height
Volume
Area
Gross weight
Ship tons

Outside Continental United States

Shipped 1 chassis:
Length
Width
Height
Volume
Area
Gross weight
Ship tons


AGO 5093A
CHASSIS, SEMITRAILER: 12-TON, 4-WHEEL, M126, M126A1, AND M126AIC

Major item

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<tr>
<th>Model</th>
<th>Line item No.</th>
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<td>M126A1</td>
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<td>2330-141-8233</td>
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<tr>
<td>M126A1C</td>
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<td>2330-762-9749</td>
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</table>

General

CHASSIS, SEMITRAILER, 12-TON, 4-WHEEL, M126, M126A1 and M126A1C, is designed to be towed by the TRUCK, TRACTOR: 5-ton 6 x 4, M52 or similar vehicle equipped with fifth wheel, air supply, and a 24-volt electrical system. The M126, M126A1, and M126A1C are the chassis models used for SEMITRAILER, STAKE: 12-ton, 4-wheel, M127, M128, and M129 and the various modified models.

The semitrailer chassis consists of a frame assembly, tandem suspension assembly, four dual wheels, landing gear assembly, electrical system, and a spare wheel and tire carrier. The chassis has a standard Ordnance kingpin for use with Ordnance fifth wheel for towing purposes. The chassis has been designed for fording hard bottom water crossings deep enough to submerge the running gear of the semitrailer chassis.

The frame is the main supporting member for mounting the assemblies which comprise the semitrailer chassis. The frame is a welded unit consisting of two siderails, crossmembers, and a plate and channels to support the kingpin. Mounting holes are provided to attach the taillights, spare wheel and tire carrier landing gear, light wiring, braking system components, and rear bumper pads.

Differences among models

The semitrailer chassis M126 is equipped with an airbrake system.

The semitrailer chassis M126A1 and M126A1C is equipped with an air-over-hydraulic brake system.

Chassis M126 is equipped with four S-cam, 2-shoe, double anchor, expanding type wheel brake assemblies, while chassis M126A1 is equipped with four hydraulically operated, self-centering, "FR26-" type wheel brake assemblies.

Data plate location: The data plate is located on the right side of the front end of the chassis frame beam over the fifth wheel upper plate.

Classification:

<table>
<thead>
<tr>
<th>Model</th>
<th>Classification</th>
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<tbody>
<tr>
<td>M126</td>
<td>Standard B (OTCM 36876)</td>
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<tr>
<td>M126A1</td>
<td>Standard A (OTCM 30870)</td>
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</table>

CHARACTERISTICS

Weight:

- Net:
  - M126: 8,470 lb
  - M126A1: 9,300 lb
  - M126A1C: 8,470 lb

- Gross including body and payload (M127 body):
  - Off highway: 37,500 lb
  - On highway: 49,500 lb

Weight distribution:

- Kingpin: 1,440 lb
- Axle: 6,940 lb
- Landing gear: 2,730 lb

Tires:

- Number: 8
- Size: 11.0 x 20
- Type: NDCC military
- No. of plies: 12

Tire inflation:

- Highway: 50 psi
- Cross-country driving: 50 psi
- Sand driving: 15 psi

Angle of departure (loaded): 50°

Vehicle dimensions:

- Ground clearance: 17 in.
- Height of kingpin (landing gear fully extended): 48 in

Electrical system:

- 24 v

Brakes:

- Drum size: 16½ dia x 5½ w
- Type: 2-shoe-cam-action

Wheels:

- Type: dual, military disk
- Rim size: 20 x 7.5
- No. of studs: 10
- Dia of stud circle: 11¼ in.

Landing gear:

- Type: vertical, two legs, with feet
- Manufacturer: Fruehauf Trailer Co.
- Length, to top of floor: 3 ft. 9 in.
- Extended: 5 ft
- Operation: hand crank, two speed
- Width, at feet (overall): 4 ft. 2½ in.

Frame (main frame and body frame combined):

- Type: welded pressed and structural steel
- Length: 28 ft. 8⁷⁄₈ in.
- Width: 8 ft
- Main beams (depth): 12 in.
- Side rails, body frame (depth): 6⅜ in.

PERFORMANCE

Maximum towing speed:

- Off highway: 30 mph
- On highway: 55 mph

Fording depth: 55 in.

EQUIPMENT


INSTRUCTIONAL MATERIAL
### Storage and Shipment Data

**Within Continental United States**

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<th>M196</th>
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<td>Height</td>
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<tr>
<td>Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
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</table>

References: TM 9-2330-207-14, TM 9-2330-207-24P

---

**Outside Continental United States**

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<th>M126</th>
<th>M126A1</th>
<th>M126A1C</th>
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<td></td>
<td></td>
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</tr>
<tr>
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<td>Area</td>
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<tr>
<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
<td></td>
<td></td>
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References: TM 9-2330-207-14, TM 9-2330-207-24P
### CHASSIS, TRAILER: 1/4-TON, 2-WHEEL, M115

**General**

CHASSIS, TRAILER: 1/4-ton, 2-wheel, M115, is designed to support a general purpose cargo carrier M103 capable of carrying a load of 500 pounds. The prime mover is a TRUCK, UTILITY: 1/4-ton, M38 series.

The chassis is composed of the springs and shock absorbers, axle, wheels and tires, parking brake electrical system, drawbar, and support leg.

The frame is suspended on two semielliptical leaf-type springs with double wrapped eyes. The shock absorbers are direct-acting, two-way control units, mounted on rubber bushings. The axle is of a one-piece tubular design, fastened to the springs by means of U-shaped clips and the spring clip plates. The wheels are of the two-piece riveted steel construction and are fastened to the wheel hub by five wheel bolts and nuts. The brake system is a hand-operated internal expanding, double anchor, two-shoe type parking brake with cable control. The trailer electrical system consists of two taillights and their wiring harness. The A-frame drawbar is bolted to the trailer frame. The lunette eye is spring mounted in the front support bracket. The support leg is mounted on the bracket so that it can be swiveled into position up in the A-frame when the trailer is in operation or straight down when the trailer is parked.

**Differences among models**

Data plate location

**Classification:** Standard B (OTCM 37709)

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
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<tbody>
<tr>
<td>M115</td>
<td></td>
<td>2930-335-8590</td>
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</tbody>
</table>

**Axle:***

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Liggett Spring and Axle Co.</th>
<th>Ordinance part No.</th>
<th>7237636</th>
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<tbody>
<tr>
<td>Type</td>
<td>Tubular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road clearance</td>
<td>13.5 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheel bearings</td>
<td>tapered roller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking brake</td>
<td>internal expanding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drum size</td>
<td>9 in. dia x 2 in. wide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuation</td>
<td>manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>axle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective slope</td>
<td>30 percent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Springs:**

| Length-centerline of eyes | 37½ in.       |
| Width                  | 1½ in.        |
| No. of leaves           | 10            |
| Pivot bolt              | front         |
| Shackle U-bolt          | rear          |

**Shock absorbers:**

| Type             | single-acting |
| Length (compressed) | 10.97 in.    |
| Length (extended)   | 16.43 in.    |
| Adjustable         | no            |
| Refillable         | no            |

**Taillights:**

| Voltage   | 24-28 volt |
| Lamp sizes | 32 candlepower and 3 candlepower |

**Wheels:**

| Type           | automotive, riveted construction |
| Rim size       | 16 x 4.50 |
| No. of bolts   | 5        |

### PERFORMANCE

| Departure angle | 30° |
| Minimum ground clearance | 0½ in. |
| Fording depth      | submersible |
| Maximum towing speed |
| Cross-country      | 18 mph |
| Highway             | 80 mph |

### EQUIPMENT

Basic Issue Items: See ORD 7-9 SNL C-747.

### INSTRUCTIONAL MATERIAL
### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross Weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.18 cu ft</td>
<td>.380 lb</td>
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**Outside Continental United States**

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<thead>
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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross Weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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</table>

**References:** SNL G-747 and TM 9-871A (includes chassis M115 components).
CHASSIS, TRAILER: 1/4-TON, 2-WHEEL, M569 (XM569)

General

CHASSIS, TRAILER: 1/4-ton, 2-wheel, M569 (XM569) is the basic chassis for TRAILER, CARGO: 1/4-ton, 2-wheel, M416.* The chassis consists of a frame secured to a one-piece axle by semi-elliptical springs. A drawbar is attached to the front of the chassis. The towing end of the drawbar assembly is equipped with a lunette which receives the pintle hook of the towing vehicle. A retractable riveted front support leg attached to the drawbar bracket can be swung down to support the front of the trailer when it is uncoupled from the towing vehicle.

Differences among models

Data plate location

Classification: Standard A (OTCM 37760).

CHARACTERISTICS

Weight
Length
Width
Height
Ground clearance
Angle of approach
Angle of departure
Lunette height (empty) 2 position, 23 in. and 26 in.
Electrical system
Axle:
Type
Length
Diameter
Spindle
Springs:
Type
Width
Number of leaves
Wheels:
Manufacturer
Rim size
Number of studs
Tires:
Size
Ply

Pressure:
Highway
Cross-country
Sand
Tread, center to center
Handbrake:
Actuation
Hand lever assembly:
Location
Number

PERFORMANCE

Maximum towed speed:
Cross-country
Highway
Fording depth

EQUIPMENT

Basic Issue Items: See TM 9-2390-251-14P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 chassis.

Length
Width
Height
Volume
Area
Gross weight
Ship tons

Outside Continental United States

Shipped 1 chassis.

Length
Width
Height
Volume
Area
Gross weight
Ship tons

Reference: TM 9-2390-251-14P.

* For characteristics and data, see item on page 22-91.
CHASSIS, TRAILER: ¾-TON, 2-WHEEL, M116

General

CHASSIS, TRAILER: ¾-ton, 2-wheel, M116, consists essentially of a heavy-duty frame secured to a one-piece axle by semielliptical springs. The center of each spring is bolted to the axle. The ends of the first spring leaves are bolted to the spring front and rear hangers on the chassis. Two rubber tired wheels are mounted on the axle. This chassis is used for mounting cargo body to make TRAILER, CARGO: ¾-ton, M101.

A drawbar assembly is attached to the front of the chassis. The towing end of the drawbar assembly is equipped with a lunette which receives the pintle hook of the towing vehicle. A retractable riveted front support leg attached to the drawbar bracket can be swung down to support the front of the trailer when it is uncoupled from the towing vehicle. A spring loaded plunger locks the support leg in the raised or lowered position. Two hand brake levers at the front of the chassis are connected by a suitable linkage to a separate parking brake for each wheel.

Three taillights are mounted at the rear of the chassis. These lights are connected to the towing vehicle by an intervehicular cable and are operated from the towing vehicle.

Differences among models

Data plate location

Identification plates are furnished with each vehicle and riveted to the front panel of the trailer body, which is assembled to the chassis. This assembled unit is ¾-ton, 2-wheel, cargo trailer, M101.

Classification: Standard A (OTCM 3684)
**EQUIPMENT**

Basic Issue Items: See ORD 7-8 SNL G-748.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

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<th>Area</th>
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<tr>
<td>Gross weight</td>
<td>Ship tons</td>
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*Outside Continental United States*

<table>
<thead>
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<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
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</table>

References: TM 9-2330-256-14, TM 9-874A
CHASSIS, TRAILER: 1-TON, 2-WHEEL, M514 (XM389E1)

Model Line item No. Federal stock No. M514

General
CHASSIS, TRAILER: 1-ton, 2-wheel, M514 (XM389E1), consists essentially of a heavy-duty frame supported by an independent trailing arm suspension, and a retractable swivel caster at the front. The frame is rectangular shape, with an "A" shaped extension at the front for mounting the caster and lunette, and has welded, watertight, box type members. The chassis is equipped with three leveling jacks, two in the front and one at the rear.

Differences among models

Data plate location
The identification plate is attached to the front of the chassis channel crossmember.

Classification: Limited production (OTCM 3734).

CHARACTERISTICS

Weight:
Net 2280 lb
Payload 2460 lb
Gross 4740 lb

Empty:
Lunette eye 500
Wheels 1800

Load landing leg
Lunette eye 478
Wheels 4162

Length 171.1/16 in.
Width 94 in.
Height (to top of leveling jacks) 631/16 in.
Height (highest, top of frame to ground) 32 in.
Ground clearance 13 in.
Angle of approach 13 deg
Angle of departure 28 deg
Lunette height (empty) 4 way adjustable, 22, 26, 30, and 34 in.

Electrical system 24 volts

Tires:
Size 9.00 x 20
Number 8
Pressure Highway 45 psi
Crown country

Maximum towed speed:
Cross-country 25 mph
Highway 40 mph

Performance:

Equipment


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Area
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Area
Gross weight
Ship tons


AGO 5093A
CHASSIS, TRAILER: 1-TON, 2-WHEEL, XM545

Model: XM545

General

CHASSIS, TRAILER: 1-ton, 2-wheel, XM545, consists essentially of a heavy-duty frame supported by an independent trailing arm suspension, and a retractable swivel caster at the front. The frame is rectangular shape, with an "A" shaped extension at the front for monitoring the caster and lunette, and has welded watertight box type members. The trailer is equipped with three leveling jacks, two in the front and one in the rear. The chassis is essentially the same chassis as the M514 except that the fenders and tool box assemblies are removed and new 4-inch C channels are welded to the top of the frame to provide a flush equipment mounting surface.

Differences among models

Data plate location

The identification plate is attached to the front of the chassis channel crossmember.

Classification: Standard A (OTCM 37240).

CHARACTERISTICS

Weight:

Net: 
Payload: 
Gross: 
Empty: 
Lunette eye: 
Wheel: 
Landing leg: 

Length: 171-7/16 in.
Width: 86-1/2 in.
Height (empty): 67 in.
Height (loaded, top of frame to ground): (min) 14 in.
Ground clearance: 
Angle of approach: 28 deg
Angle of departure: 
Lunette height: 4-way adjustable, 22, 26, 30, and 34 in.
Electrical system: 24 volt

Tires:

Size: 9-00 x 20
Ply: 8
Number: 2
Pressure:
Highway: 41 psi
Cross-country: 45 psi
Sand: 40 psi
Tread, center to center: 80 in.

Wheels:

Manufacturer: 
Km. size: 30 x 7.125
Number of stud holes: 6

Brakes (service):

Actuation: 
Hand lever assembly:
Location: under lunette extension
Number: 

PERFORMANCE

Maximum towed speed:
Cross-country: 45 mph
Highway: 50 mph

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 chassis

Length:
Width:
Height:
Volume:
Area:
Gross weight:
Ship tons:

AGO 5093A
### Outside Continental United States

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<tr>
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<tbody>
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<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
</tbody>
</table>

**Volume**

**Area**

**Gross weight**

**Ship tons**

### General

CHASSIS, TRAILER: 1 1/2-ton, 2-wheel, M102, M102A1, M102A2, M102A3, and M102A3C is suitable for mounting various bodies or equipment to provide trailers suitable for towing by single-tired truck CARGO: 2 1/4-ton 6 x 6, M84 on M132.

The chassis frame consists of pressed steel channel side rails, reinforced by six pressed steel channel crossmembers and two steel gussets, all welded into a single unit.

Main spring hangers and auxiliary spring contacting brackets are riveted to the frame side rails. Front and side lifting bars, tie-down loops, air brake hose coupling bracket, light brackets, and caster mounting bracket are welded to the nose of the frame.

The chassis is composed of a clean, flat top surface frame, drawbar, lunette with nonrotating, invertible, offset shank, landing gear composed of cross type landing wheel to support drawbar and permit movement of trailer when uncoupled from truck, service and parking brakes, tires and wheels, and an electrical system. The associated equipment includes safety chains, lifting handles, rear landing leg, and provisions for storage.

### Differences among models

CHASSIS, TRAILER: M102A1 is used to complete TRAILER.

CARGO: 1 1/4-ton 2-wheel, M104A1.

CHASSIS, TRAILER: M102A2 is used to complete TRAILER.

TANK: water, 1 1/2-ton, 2-wheel, 400 gal, M104A2.

CHASSIS, TRAILER: M102 is used to complete TRAILER, WATER TANK: 1 1/4-ton, 2-wheel, M104** and TRAILER, CARGO: 1 1/4-ton, 2-wheel, M104**.

### Data plant location

Identification plates are located on the right forward section of the steel channel side rails.

### Classification

<table>
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<tr>
<th>Model</th>
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<td>M102A1</td>
<td>2390-095-2531</td>
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<td>M102A2</td>
<td>2390-096-2532</td>
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<td>M102A3</td>
<td>2390-096-2532</td>
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<tr>
<td>M102A3C</td>
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### Characteristics

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<td>M102A3C</td>
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<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>Net</td>
</tr>
<tr>
<td></td>
<td>Gross</td>
</tr>
<tr>
<td>Off highway</td>
<td>8,200 lb</td>
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<tr>
<td>On highway</td>
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### Tires

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<th>Size</th>
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<tbody>
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<td>11.00 x 20 in.</td>
<td>12</td>
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### Pressure

<table>
<thead>
<tr>
<th>Pressure</th>
<th>High</th>
<th>Cross-country</th>
<th>Sand-driving</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>09% in.</td>
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</tbody>
</table>

### Ground clearance

<table>
<thead>
<tr>
<th>Ground clearance</th>
<th>17% in.</th>
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</thead>
</table>

### Lunette height (empty)

<table>
<thead>
<tr>
<th>Lunette height (empty)</th>
<th>31 1/2 or 35 1/2 in.</th>
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</thead>
</table>

### Electrical system

<table>
<thead>
<tr>
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<th>24 volts</th>
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</table>

### Brakes

<table>
<thead>
<tr>
<th>Brakes</th>
<th>Air-hydraulic</th>
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</thead>
<tbody>
<tr>
<td>Drum size</td>
<td>15 dia. x 3</td>
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<tr>
<td>Parking brakes</td>
<td>Mechanical</td>
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<tr>
<td>Recommended towing vehicle</td>
<td>Truck, 2 1/4-ton 6 x 6</td>
</tr>
</tbody>
</table>

### Performance

<table>
<thead>
<tr>
<th>Maximum towing speed</th>
<th>25 mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off highway</td>
<td></td>
</tr>
<tr>
<td>On highway</td>
<td></td>
</tr>
<tr>
<td>Capacity (payload and body allowance)</td>
<td>4,500 lb</td>
</tr>
<tr>
<td>Cross-country (max)</td>
<td>6,000 lb</td>
</tr>
<tr>
<td>Highway (max)</td>
<td>45°</td>
</tr>
<tr>
<td>Angle of departure</td>
<td></td>
</tr>
<tr>
<td>Slope operation</td>
<td>60 percent</td>
</tr>
<tr>
<td>Longitudinal</td>
<td></td>
</tr>
<tr>
<td>Side (min)</td>
<td>20 percent</td>
</tr>
<tr>
<td>Effective slope (parking brakes)</td>
<td>30 percent</td>
</tr>
</tbody>
</table>

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For characteristics and data, see items in section 21.

** For characteristics and data, see items on pages 22-30 and 22-46.
**EQUIPMENT**

Basic Issue Items: See ORD 7-8 SCN 0-754

<table>
<thead>
<tr>
<th>Storage and Shipment Data</th>
<th>M102A2</th>
<th>M102A1</th>
<th>M102</th>
</tr>
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<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>Shipped Width</td>
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<tr>
<td>Shipped Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>326 cu ft</td>
<td>326 cu ft</td>
<td>326 cu ft</td>
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<tr>
<td>Area</td>
<td></td>
<td></td>
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</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Gross weight</th>
<th>M102A2</th>
<th>M102A1</th>
<th>M102</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ship tons</td>
<td>1,640 lb</td>
<td>1,640 lb</td>
<td>1,640 lb</td>
</tr>
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</table>

References: SCN 0-754, TM 9-8226
CHASSIS, TRAILER: 1 1/2-TON, 2-WHEEL, M103, M103A1, M103A2, M103A3, M103A3C, AND M103A4

**General**

CHASSIS, TRAILER: 1 1/2-ton, 2-wheel, M103, is suitable for mounting various bodies or equipment to provide trailers suitable for towing by dual rear-tired 2 1/2-ton, 6 x 6-series trucks.

The chassis frame consists of pressed steel channel side rails, reinforced by six pressed steel channel crossmembers and two steel gussets, all welded into a single unit.

Main spring hangers and auxiliary spring contacting brackets are riveted to the frame side rails. Front and side lifting bars, tie-down loops, air brake hose coupling bracket, light brackets, and caster mounting bracket are welded to the nose of the frame.

The chassis is composed of a clean, flat top surface frame, drawbar lunette with nonrotating, invertible, offset shank, landing gear composed of caster type landing wheel to support drawbar and permit movement of trailer when uncoupled from truck, service and parking brakes, tires and wheels, and an electrical system.

**Differences among models**

CHASSIS, TRAILER: M103A1 is used to complete TRAILER, CARGO: 1 1/4-ton, 2-wheel, M105A1.*

The M103A2 is basically the same chassis as the M103A1 with the exception of 6 additional holes for mounting of water tank to complete TRAILER, TANK: water, M107A1.*

CHASSIS, TRAILER: M103A3 is used to complete TRAILER, CARGO: 1 1/4-ton, 2-wheel, M105A2.*

CHASSIS, TRAILER: M103A4 is basically the same chassis as the M103A2 with the same exceptions for mounting of water tank to complete TRAILER, TANK: water, M107A2.*

**Data plate location**

Identification plates are located on the forward section of the steel channel right-side rail.

**Classification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
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<tbody>
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<td>M103A3</td>
<td></td>
<td>2330-141-8032</td>
</tr>
<tr>
<td>M103A3C</td>
<td></td>
<td>2330-842-2181</td>
</tr>
<tr>
<td>M103A4</td>
<td></td>
<td>2330-141-8051</td>
</tr>
</tbody>
</table>

* For characteristics and data, see items on pages 22-30 and 22-71.

**Weight**

M103A1, M103A2: Net 1,560 lb
M103A3, M103A4: Net 1,660 lb

**Characteristics**

Weight:

- Off highway: 5,415 lb
- On highway: 7,050 lb

Weight distribution (empty):

- Lunette eye: 300 lb
- Axle M103, M103A1, M103A2: 1,380 lb
- M103A3, M102A1: 1,472 lb
- Landing gear: 240 lb

**Tires**

- Size: 9.00 x 0.0
- Pressure: 50 psi
- Ply: 8
- Tread: 0.075 in.

**Vehicle Dimensions**

- Ground Clearance: 14 1/2 in.
- Lunette height (empty): 30 1/4 in. or 34 1/4 in.

**Electrical system**

- System: 24 V

**Brakes**

- Type: air-hydraulic
- Drum size: 15 dia x 3
- Parking brakes (type): mechanical

**Recommended towing vehicle**

- Truck, 2 1/4-ton, 6 x 6

**Performance**

- Maximum towing speed:
  - Off highway: 35 mph
  - On highway: 35 mph
- Capacity (payload and empty weight): 4,500 lb
- Maximum speed (max): 6,000 mph
- Angle of departure: 45°
- Slope operation:
  - Longitudinal: 25 percent
  - Side (Minimum): 20 percent
  - Effective slope (parking brakes): 30 percent

---

**22-13**
EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Item</th>
<th>M103A3</th>
<th>M103A4</th>
<th>M103A2</th>
<th>M103A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross weight</td>
<td>1,560 lb</td>
<td>1,560 lb</td>
<td>1,560 lb</td>
<td>1,560 lb</td>
</tr>
<tr>
<td>Ship tons...</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>M103A3</th>
<th>M103A4</th>
<th>M103A2</th>
<th>M103A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>164 in.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80 in.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39 in.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>310 cu ft</td>
<td>310 cu ft</td>
<td>310 cu ft</td>
<td>310 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: SNL G-754, TM 9-2226, TM 9-2230-245-24P
CHASSIS, TRAILER: 2½-TON, 2-WHEEL, M454

General

CHASSIS, TRAILER: 2½-ton, 2-wheel, M454 consists essentially of a heavy duty frame supported by an axle through leaf springs and a retractable caster at the front. The frame is rectangular in shape with an "A" shaped extension at the front for monitoring, the caster and lunette. Fenders over the two wheels are hinged, and the tops of the fenders may be turned outward and down to a position so they are located outside the upper portion of the tires. The chassis is used as a component of Radar Set AN/MPQ-4.

Differences among models

Data plate location

The identification plate is located on each side of the "A" frame near the front end.

Classification: Standard A (OTCM 36876).

CHARACTERISTICS

Prime mover

Weight:

Net ............................................. 2,160 lb
Payload ............................................. 2,160 lb
Gross ............................................. 2,160 lb

Length, overall ............................................. 182.12 in.
Width ............................................. 94 in.
Height (cleared) (to top of tire) ............................................. 39 in.
Lunette height ............................................. 2 way adjustable
Ground clearance ............................................. 
Angle of approach ............................................. 16 deg
Angle of departure ............................................. 30 deg
Tread, center to center ............................................. 80 in.

Axle:

Manufacturer ............................................. Visioneering Co.
Number ............................................. 1
Type ............................................. tubular
Diameter ............................................. 4½ in.

Service brake:

Actuation ............................................. air/hydraulic
Manufacturer .............................................
Type .............................................
Size ............................................. 15 in. dia x 3 in. wide
Relay emergency valve ............................................. Bendix Westinghouse

Hand brakes:

Actuation ............................................. manual
Levers assemblies:

Location ............................................. under frame 34 inches from lunette eye
Manufacturer ............................................. Brigham Stamping Div
Number ............................................. 2
Brake valve ............................................. Bendix Westinghouse

Springs:

Manufacturer .............................................
Type ............................................. semieliptical, leaf
Length, overall at free height ............................................. 2.5 in.
Number of leaves ............................................. 14
Rate of deflection .............................................

Wheels:

Manufacturer ............................................. Motor Wheel Corp
Rim size ............................................. 20 x 7.5 in.
Number of stud holes ............................................. 8

Tires:

Number ............................................. 2
Type ............................................. military
Size ............................................. 9.00 x 20
Ply ............................................. 3
Pressure:

Highway ............................................. 45 lb
Cross-country ............................................. 35 lb
Sand ............................................. 15 lb

Electrical system ............................................. 24 volt
Tailights ............................................. 32 cp and 3 cp
Clearance lights ............................................. 3 cp

Caster:

Manufacturer ............................................. Saginaw Products Co.
Type ............................................. modified-single wheel

PERFORMANCE

Maximum speed (w/maximum payload):

Highway .............................................
Unimproved roads .............................................
Cross-country .............................................

EQUIPMENT

Basic Issue Items:

AGO 5093A
### STORAGE AND SHIPMENT DATA

**Within Continental United States**

- Shipped 1 chassis
- Length
- Width
- Height
- Volume
- Area
- Gross weight
- Ship tons

**Outside Continental United States**

- Shipped 1 chassis
- Length
- Width
- Height
- Volume
- Area
- Gross weight
- Ship tons

CHASSIS, TRAILER: 3-TON, 4-WHEEL, XM113E1 AND XM113E2

Model | Line item No. | Federal stock No. |
---|---|---|
XM113E1 | 2330-541-3935 |
XM113E2 | 2330-546-7438 |

General

CHASSIS, TRAILER: 3-ton, 4-wheel. XM113E1 or XM113E2 consists of a front frame, rear frame, two tubular axles with single wheels and spring suspension. The chassis also has a drawbar and lunette for attachment to a vehicle equipped with towing pintles.

The chassis is designed for mounting a removable van body or low-bad deck, and to be towed by TRUCK, CARGO: 2½-ton, 6x4. M35 or M211, or similar vehicle equipped with electrical outlet and airbrake hose couplings.

Differences among models

The springs for the XM113E1 consists of six leaves. The springs for the XM113E2 consist of eight leaves.

Data plate location

The identification plate is mounted on the front cross member of the rear frame.

Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Prime mover</th>
<th>TRUCK, CARGO: 2½-ton, 6x4. M35 or M211, or equal</th>
</tr>
</thead>
</table>
Weight:
Net: XM113E1 | 3,860 lb |
XM113E2 | 4,020 lb |
Payload: XM113E1 | 7,620 lb |
XM113E2 | 8,820 lb |
Gross: XM113E1 | 11,500 lb |
XM113E2 | 12,640 lb |
Length (w/o drawbar): XM113E1 | 28½ in |
XM113E2 | 29½ in |
Kingpin to rear axle: XM113E1 | 84 in |
XM113E2 | 96 in |
Height: XM113E1 | 52 in |
XM113E2 | 52 in |
Ground clearance: XM113E1 | 11½ in |
XM113E2 | 11½ in |
Angle of approach: XM113E1 | 63 deg |
XM113E2 | 63 deg |
Width: XM113E1 | 96 in |
XM113E2 | 96 in |
Axle:
Manufacturer: Visioneer Co. Inc |
Number | 2 |
Type | Tubular |
Diameter | 4½ in |
Spindle (diameter) | 2½ in |
Service brake:
Actuation: air-over-hydraulic |
Design: Wagner-Midland |
Type: 2 shoe, self-centering, expanding double cylinder actuation |
Size: 16 in. dia x 3 in. wide |
Operating air pressure (min): 66 psi |
Parking brake:
Actuation: mechanical (hand levers) |
Location: front and rear frame |
Manufacturer: Oetzel Brake Lever Mfg Co. |
Number | 2 |
Springs:
Manufacturer: Spring Perch Co., Inc |
Type: semicircular, leaf |
Length overall at free height of 1 in. (XM113E1): 51½ in |
Length overall at free height of 2½ in. (XM113E2): 52½ in |
Width: 31½ in |
Number of leaves: XM113E1 | 6 |
XM113E2 | 8 |
Thickness of leaves:
Leaves 1-2 (XM113E1): 0.032 in |
Leaves 3-6 (XM113E1): 0.031 in |
Leaves 1-8 (XM113E2): 0.032 in |
Rate of deflection: .475 lb per in |
Wheels:
Manufacturer: Budd Co |
Rim size: 20 x 7.5 in |
Number of stud holes: .6 |
Tires:
Number: 4 |
Type: military pneumatic |
Size: 9.00 x 20 |
Ply: 8 |
Pressure: Highway: 45 psi |
Cross-country: |
Sand: |
**PERFORMANCE**

Maximum speed (w/maximum payload):
- Highway: 50 mph
- Unimproved roads: 25 mph
- Cross-country: 15 mph

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>M113E1</th>
<th>M113E2</th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>689</td>
<td>689</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>3880</td>
<td>4020</td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outside Continental United States</th>
<th>L113E1</th>
<th>L113E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>689</td>
<td>689</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>3880</td>
<td>4020</td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Model** 
XM456

**General**

**CHASSIS, TRAILER: 5-ton, 4-wheel, XM456** consists of a front frame, rear frame, two tubular axles with single wheels and spring suspension. The chassis also has a drawer and lunette for attachment to a vehicle equipped with towing plate.

The chassis is designed for mounting a removable van body or low-bed deck, and to be towed by TRUCK, CARGO: 21/2-ton, 4x4, M35 or M211, or similar vehicle equipped with electrical outlet and airbrake hose couplings.

**Differences among models**

The identification plate is mounted on the front cross member of the rear frame.

**Classification:**

**CHARACTERISTICS**

- **Prime mover**: TRUCK, CARGO: 21/2-ton, 4x4, M35 or M211, or equal

- **Weight:**
  - Net
  - Payload
  - Gross
  - Length (w/o drawer)
  - Kingpin to rear axle
  - Width
  - Height
  - Ground clearance
  - Angle of approach
  - Angle of departure
  - Tread

- **Axles:**
  - Manufacturer: Visioneer Co., Inc.
  - Type: tubular
  - Diameter: 4 1/2 in.
  - Spindle (diameter): 2 5/8 in.

- **Service brake:**
  - Actuation: air-over-hydraulic

- **Design**: Wagner-Midland
  - Type: 2 shoe, self-centering, expanding double cylinder actuation
  - Size: 18 in. dia x 3 in. wide
  - Operating air pressure (min): 65 psi

- **Parking brake:**
  - Actuation: mechanical (hand lever)
  - Lever assemblies:
    - Location: front and rear frame
    - Manufacturer: Orschein Brake Lever Mfg Co.
    - Number

- **Springs:**
  - Manufacturer: Spring Perch Co., Inc.
  - Type: semielliptical, leaf
  - Width
  - Length overall at free height of 5 5/8 in.
  - Number of leaves
  - Rate of deflection: 1,525 lb per in.

- **Wheels:**
  - Manufacturer: Budd Co.
  - Rim size: 20 x 7.6 in.
  - Number of stud holes: 10

- **Tires:**
  - Type: military pneumatic ozone
  - Size: 11.00 x 20
  - Ply: 12
  - Pressure:
    - Highway: 70 psi
    - Cross-country
  - Number:
  - Electrical system: 24 volt
  - Taillights: 32 cp and 3 cp
  - Blackout stoplight: 3 cp

**PERFORMANCE**

- **Maximum speed (w/maximum payload):**
  - Highway: 50 mph
  - Unimproved roads: 25 mph
  - Cross-country: 16 mph

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped 1 chassis</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Shipped 1 chassis

Length

Width

Height

Volume

Area

Gross weight

Ship tons

4280 lb

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped 1 chassis</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Shipped 1 chassis

Length

Width

Height

Volume

Area

Gross weight

Ship tons

4280 lb

References: TM 9-2330-239-14, TM 9-2330-239-24P.
CHASSIS, TRAILER: 5-TON, 4-WHEEL, XM525

(Illustration will be added at a later date)

Differences among models

Data plate location

The identification plate is mounted on the front cross member of the rear frame.

CHARACTERISTICS

Prime mover: TRUCK, CARGO: 21/2-ton, 6 x 6, M35 or M211, or equal

Weight:
- Net: 4,400 lb
- Payload: 11,620 lb
- Gross: 16,020 lb

Length (w/o drawbar): 2331/2 in.

Kingpin to rear axle: 1741/2 in.

Width: 96 in.

Height: 531/2 in.

Ground clearance: 171/2 in.

Angle of approach: 63 deg

Angle of departure: 63 deg

Tread: 80 in.

Axle:
- Manufacturer: Visioneering Co., Inc
- Number: 2
- Type: tubular
- Diameter: 41/2 in.
- Spindle (diameter): 21/2 in.

Service brake:
- Actuation: air-over-hydraulic
- Design: Wagner-Midland
- Type: 2 shoe, self-centering, expanding double cylinder actuation
- Size: 15 in. dia x 3 in. wide
- Operating air pressure (min): 65 psi

Parking brake:
- Actuation: mechanical (hand levers)
- Lever assemblies:
  - Location: front and rear frame
  - Manufacturer: Orschein Brake Lever Mfg Co
  - Number: 2

Springs:
- Manufacturer: Spring Perch Co., Inc
- Type: semielliptical, leaf
- Length overall at free height of 531/2 in.: 5931/2 in.

For characteristics and data, see item in section 21.

Number of leaves: 10
Rate of deflection: 1,525 lb per in.

Wheels:
- Manufacturer: Budd Co.
- Rim size: 20 x 7.5 in.
- Number of stud holes: 6
- Tires:
  - Number: 4
  - Type: military pneumatic ozone
  - Size: 11.00 x 20
  - Ply: 12
- Pressure:
  - Highway: 70 psi
  - Cross-country: 60 psi
  - Sand: 50 psi
- Electrical system: 24 volt
- Taillights: 32 cp and 3 cp
- Blackout stoplight: 3 cp

PERFORMANCE

Maximum speed (w/max payload):
- Highway: 50 mph
- Unimproved roads: 25 mph
- Cross-country: 15 mph

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 chassis.

Length ----------
Width ----------
Height ----------
Volume ----------
Area ----------
Gross weight ----------
Ship tons ----------

Outside Continental United States

Shipped 1 chassis.

Length ----------
Width ----------
Height ----------
Volume ----------
Area ----------
Gross weight ----------
Ship tons ----------

References: TM 9-2330-239-14, TM 9-2330-239-24P.
CHASSIS, TRAILER: GENERATOR, 2½-TON, 2-WHEEL, M200 and M200A1

**Major item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M200 w/e</td>
<td>4-05638-10</td>
<td>2330-833-8096</td>
</tr>
<tr>
<td>M200A1 w/e</td>
<td>4-06638-20</td>
<td>2330-331-2307</td>
</tr>
</tbody>
</table>

**General**

CHASSIS, TRAILER: generator, 2½-ton, 2-wheel, M200 and M200A1 consists of a frame onto which are secured two generator mounting support assemblies, which are used for mounting a generator; two step jacks extending downward from the rear of the frame: a retractable landing leg assembly used for support of the front end or nose of the vehicle when uncoupled; and a conventional tubular trailer axle with dual wheels and a spring suspension. The chassis is further provided with a lunette at the front end of the frame for attachment to a vehicle equipped with a drawbar or towing pintle.

The trailer chassis has been designed to be towed over prepared roads with loads of 6,200 pounds at speeds as high as 55 mph and to be towed over unimproved roads, trails, and open rolling terrain with loads to 6,200 pounds at speeds as high as 30 mph. Also, it has been designed for fording hard-bottom water crossings. The chassis is designed to be towed by the TRUCK, CARGO: 2½-ton 6 x 6 M34 or similar vehicle. The lunette end of the trailer chassis is in the front and the step jacks are in the rear.

**Differences among models**

The early type chassis M200 is equipped with a commercial axle and has air brakes. The late type chassis M200A1 is equipped with an Ordnance axle and has air-over-hydraulic brakes.

**Data plate location**

The identification plate for the chassis is located on the right front of the frame side rail. The service plate is located on the right front of the frame side rail, just to the front of the data plate.

**Classification**

<table>
<thead>
<tr>
<th>M200</th>
<th>Standard B (OTCM 30841)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M200A1</td>
<td>Standard A (OTCM 30841)</td>
</tr>
</tbody>
</table>

**CHARACTERISTICS**

- **Weight:**
  - Net: 2,410 lb
  - Payload: 7,000 lb
  - Gross: 9,410 lb
- **Angle of departure:** 30°
- **Center of gravity from ground:**
  - Empty: 1 ft, 10½ in.
  - Loaded: 3 ft, 6 in.
  - Lunette height (adjustable): 3 ft, 6 in. and 2 ft, 10 in.

*For characteristics and data, see item in section 21.*
**TM9-500**

### PERFORMANCE

<table>
<thead>
<tr>
<th>Payload</th>
<th>6,200 lb</th>
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</thead>
<tbody>
<tr>
<td>Towing speed</td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td>55 mph</td>
</tr>
<tr>
<td>Unimproved roads</td>
<td>30 mph</td>
</tr>
</tbody>
</table>

### EQUIPMENT

Basic Issue Items: See ORD 7-8 SNL G-756

### INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
<td>63 in</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>166 in</td>
</tr>
<tr>
<td>Width</td>
<td>93 in</td>
</tr>
<tr>
<td>Height</td>
<td>40 in</td>
</tr>
</tbody>
</table>

| Gross weight | 2,150 lb |
| Ship tons    | 9         |

### References: SNL G-756, TM 9-8210, TM 5-9057
DOLLY, TRAILER CONVERTER: 6-TON, 2-WHEEL, M197 AND M197A1

The dolly M197 is equipped with a commercially designed axle and has air brakes. Dolly M197A1 is equipped with an Ordnance designed axle and has air-over-hydraulic brakes.

The data identification plate is attached to the side frame near the front end of the dolly.

**Characteristics**

<table>
<thead>
<tr>
<th>Weight:</th>
<th>Net:</th>
<th>2,070 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Payload:</td>
<td>12,000 lb</td>
</tr>
<tr>
<td></td>
<td>Gross:</td>
<td>14,070 lb</td>
</tr>
</tbody>
</table>

**Weight distribution:**

| Empty: | Axle 2,730; lunette 240 lb |
|        | Loaded: | Axle 14,374; lunette 296 lb |

**Tires:**

| Ply: | 8 |
|      | Size: | 9.00 x 20 |

**Brakes:**

| Manufacturer: | Midland |
| Type: | 8 ram, 2 shoe |
| Parking brake: | None |

**Tire inflation:**

| Highway driving: | 45 psi |
| Cross country driving: | 45 psi |
| Snow, mud, and sand driving: | 15 psi |

**Performance**

**Equipment**

**Storage and shipment data**

**Within Continental United States**

<table>
<thead>
<tr>
<th>M197</th>
<th>M197A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
<td>112 in.</td>
</tr>
<tr>
<td>Width:</td>
<td>93 in.</td>
</tr>
<tr>
<td>Height:</td>
<td>30 in.</td>
</tr>
<tr>
<td>Volume:</td>
<td>312 cu ft</td>
</tr>
<tr>
<td>Gross weight:</td>
<td>2,070 lb</td>
</tr>
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</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
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<tr>
<td>Width:</td>
</tr>
<tr>
<td>Height:</td>
</tr>
<tr>
<td>Volume:</td>
</tr>
<tr>
<td>Gross weight:</td>
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</tbody>
</table>

**References:** SNL G-800, TM 9-820, TAI 9-2330-203-14.
DOLLY, TRAILER CONVERTER: 8-TON, 2-WHEEL, M198 AND M198A1

NOTE: All DIMENSIONS SHOWN ARE IN INCHES

DOLLY, TRAILER CONVERTER: 8-ton, 2-wheel, M198 and M198A1, is used to convert semitrailers into 4-wheel 20- to 25-ton capacity trailers. The dollies are designed with a fifth wheel for attachment to the front underside of a semitrailer. A lunette at the front of the dolly provides an attachment to the towing vehicle. The dollies can be towed over prepared roads and rough terrain with a load of 16,000 pounds. They are designed for fording hard-bottom water crossings where the dolly may be completely submerged.

Each dolly contains two air hose and electrical intervehicular cables in a stowage compartment. Each dolly is equipped with a landing gear assembly and hand crank, two safety chains, and four reflectors.

### Differences among models

Dolly M198 is equipped with a commercially designed axle and has air brakes. Dolly M198A1 is equipped with an Ordnance designed axle and has air-over-hydraulic brakes.

### Data plate location

The data identification plate is attached to the side frame near the front end of the dolly.

### Classification

M198—STANDARD B (OTCM 36876)
M198A1—STANDARD A (OTCM 36876)

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M198</td>
<td>4-12625-10</td>
<td>2320-287-5203</td>
</tr>
<tr>
<td>M198A1</td>
<td>4-12625-20</td>
<td>2330-563-7248</td>
</tr>
</tbody>
</table>

### General

**Brakes:**
- Manufacturer: Midland
- Type: S cam 2 shoe

**Tire Inflation:**
- Highway driving: 50 psi
- Cross country driving: 35 psi
- Snow, mud, and sand driving: 20 psi

### PERFORMANCE EQUIPMENT

**Basic Issue Items:** See ORD 7-8 SNL G-800.

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross Weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross Weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

### References

- TM 9-8202
- TM 9-2330-303-14
- SNL G-800
DOLLY, TRAILER CONVERTER: 18-TON, 4-WHEEL, M199

General
DOLLY, TRAILER CONVERTER: 18-ton 4-wheel, M199, is used to convert a semitrailer into a full trailer and permit transporting by any prime mover. The trailer converter dolly M199 consists of a frame, mounting a fifth wheel for coupling to the semitrailer, and is mounted on dual tandem axles with dual wheels and spring chassis. A drawbar and lunette are provided at the front of the frame for towing the vehicle either independently or coupled to a semitrailer. No landing gear is required. The dolly is equipped with airbrake system and electrical system.

Differences among models
Data plate location
Name and service plates are mounted on the left side of frame.

Classification: STANDARD B (OTCM 37251)

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>M199</td>
<td>4-12658-10</td>
<td>2330-850-8876</td>
</tr>
</tbody>
</table>

**CHARACTÉRISTIQUES**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curb weight</td>
<td>7,700 lb</td>
</tr>
<tr>
<td>Weight distribution</td>
<td></td>
</tr>
<tr>
<td>Axle</td>
<td>4,700 lb</td>
</tr>
<tr>
<td>Gross weight including body and payload:</td>
<td></td>
</tr>
<tr>
<td>Cross country</td>
<td>31,700 lb</td>
</tr>
<tr>
<td>Highway</td>
<td>4,700 lb</td>
</tr>
<tr>
<td>Lunette data</td>
<td></td>
</tr>
<tr>
<td>Height empty</td>
<td>38 in.</td>
</tr>
<tr>
<td>To centerline of axle or bogie</td>
<td>95 in.</td>
</tr>
<tr>
<td>To fifth wheel center</td>
<td>95 in.</td>
</tr>
<tr>
<td>Bogie wheel base</td>
<td>52 in.</td>
</tr>
<tr>
<td>Minimum ground clearance</td>
<td>19 in.</td>
</tr>
<tr>
<td>Tread, center-to-center</td>
<td>52 in.</td>
</tr>
<tr>
<td>Springs</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>6 x 591/4 in.</td>
</tr>
<tr>
<td>No of leaves</td>
<td>12</td>
</tr>
<tr>
<td>Wheels</td>
<td>duals</td>
</tr>
<tr>
<td>Tires</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>14.00 x 20</td>
</tr>
<tr>
<td>Ply</td>
<td>12</td>
</tr>
<tr>
<td>Tread design</td>
<td>NDCC</td>
</tr>
<tr>
<td>Recommended pressure</td>
<td>85 psi</td>
</tr>
</tbody>
</table>

Service brakes:
- Drum size: 18 1/4 in x 7.5 in
- Actuation: air
- Emergency relay valve: external
- Air reservoir: external

Parking brake:
- Actuation: air
- Mounting: axle
- Max towing speed (mph):
  - Cross-country: variable
  - Highway: variable

Electrical system (volts): 24 volts

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7-8 SNL G-811.

**STORAGE AND SHIPMENT DATA**

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume (Uncrated)</th>
<th>Area (Uncrated)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100 in.</td>
<td>115 in.</td>
<td>58 in.</td>
<td>579 cu ft</td>
<td>120 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-8228, SNL G-811.

**CHARACTERISTICS**

**PERFORMANCE**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 front trailer dolly per box.

- Length...
- Width...
- Height...
- Volume...
- Area...
- Gross weight...
- Ship tons...

**Outside Continental United States**

Shipped 1 front trailer dolly per box.

- Length...
- Width...
- Height...
- Volume...
- Area...
- Gross weight...
- Ship tons...

**References:** TM 9-2330-212-14, TM 9-2330-312-24P

*For characteristics and data, see items on pages 22-16, 22-73 through 22-80.

General
DOLLY, TRAILER, REAR: M430, M430A1, M430C, M430A1C, M430D, M430A1D, M430F, M430A1F, M430G, M430A1G, M430H, M430A1H, M430K, M430A1K, M430N, or M430A1N, is used to support the rear end of the nonreversible trailer. The rear trailer dolly, M430 series consists of a welded steel A-frame, rear wheel spring suspension, wheel assemblies, brakes, tires, and tubes. A spare wheel is mounted on the A-frame. A mechanical parking brake located in the A-frame is used to actuate the brakes when the trailer is emplaced on at-the-halt. Brakes are controlled by the operator in the towing vehicle.

If the trailer be­comes disconnected from the towing vehicle during travel, the brakes are applied automatically. Each rear dolly requires four 9.00 by 16 (8-ply rating), rib-treated highway design type tires, mounted on dual-wheel rims.

The rear trailer dolly M430 or M430A1 is a component of TRAILER, VAN: fire control mount, 3-ton, 4-wheel, M242 or M242A1,* M430C or M430A1C is a component of TRAILER, VAN: fire control, 2-ton, 4-wheel, M242 or M242A1,* M430D or M430A1D is a component of TRAILER, VAN: radar tracking, control, M238 or M238A1,* M430F or M430A1F is a component of TRAILER, VAN: director station, M239 or M259A1,* M430G or M430A1G is a component of TRAILER, LOW-BED: antenna mount, M260 or M260A1,* M430H or M430A1H is a component of TRAILER, FLAT BED: guided missile, M261 or M261A1,* M430K, M430A1K, or M430A1G is a component of TRAILER, VAN: launching control, M292, M262A1 or M262A1C,* and M430N or M430A1N is a component of TRAILER, VAN: electric shop, 2½-ton, 4-wheel, M359 or M359A1.*

Differences among models
* For characteristics and data, see items on pages 22-60, 22-73 through 22-80.

Data plate location
Classification
M430 — Standard B (OTCM 36841)
M430A1 — Standard B (OTCM 36841)
M430C — Standard B (OTCM 36841)
M430A1C — Standard B (OTCM 36841)
M430D — Standard A (OTCM 36841)
M430A1D — Standard A (OTCM 36841)
M430G — Standard A (OTCM 36841)
M430A1G — Standard A (OTCM 36841)
M430H — Standard B (OTCM 36841)
M430A1H — Standard A (OTCM 36841)
M430K — Standard B (OTCM 36841)
M430A1K — Standard A (OTCM 36841)
M430N — Standard B (OTCM 36841)
M430A1N — Standard A (OTCM 36841)

CHARACTERISTICS*

PERFORMANCE

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 rear trailer dolly per box.

Length: __________________________
Width: __________________________
Height: __________________________
Volume: _________________________
Area: ____________________________
Gross weight: ____________________
Ship tons: ________________________

Outside Continental United States

Shipped 1 rear trailer dolly per box.

Length: __________________________
Width: __________________________
Height: __________________________
Volume: _________________________
Area: ____________________________
Gross weight: ____________________
Ship tons: ________________________

References: TM 9-2330-202-14, TM 9-2330-212-24P

22-21
DOLLY, TRAILER, FRONT: M431

General

DOLLY, TRAILER, FRONT: M431 is designed to support the front end of TRAILER, FLAT BED: fire control/acquisition radar, 2-ton, 4-wheel, M243.*

Trailer dolly M431 is similar in design to DOLLY, TRAILER, FRONT: M429.* The dolly is equipped with electric brakes.

Differences among models

Data plate location

Classification: Standard B (OTCM 36841)

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic issue items:

INSTRUCTIONAL MATERIAL

* For characteristics and data, see items on pages 22-20 and 22-64.

Storage and shipment data

Within Continental United States

Shipped

Length.......................................................... 
Width..........................................................
Height.........................................................
Volume ....................................................... 
Area...........................................................
Gross weight.............................................. 
Ship tons....................................................

Outside Continental United States

Shipped

Length..........................................................
Width..........................................................
Height.........................................................
Volume ....................................................... 
Area...........................................................
Gross weight.............................................. 
Ship tons....................................................

References: TM 9-2330-212-34P

*22-22
DOLLY, TRAILER, REAR: M432

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M432</td>
<td></td>
<td>2330-626-3379</td>
</tr>
</tbody>
</table>

**General**

DOLLY, TRAILER, REAR: M432 is designed to support the rear end of TRAILER, FLAT BED: fire control/acquisition radar, 2-ton, 4-wheel, M433.

Dolly M432 is similar in design to DOLLY, TRAILER, REAR: M430. The dolly is equipped with electric brakes.

**Differences among models**

**Data plate location**

Classification: Standard B (OTCM 36841).

**CHARACTERISTICS**

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items:

* For characteristics and data, see items on pages 22-21 and 22-46.
SEMI TRAILER, LOW BED: 6-TON, 4-WHEEL, XM527, W/E

**General**

SEMI TRAILER, LOW BED: 6-ton, 4-wheel, XM527 is used for transporting missile sections.

**Differences among models**

Data plate location

The identification plate is located on the front right side of the gooseneck structure of the semitrailer.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight:</th>
<th>Net</th>
<th>Payload</th>
<th>Gross</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fifth wheel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear wheels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loaded: Fifth wheel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear wheels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length, overall</td>
<td>383 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kingpin to front</td>
<td>373 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width, overall</td>
<td>86 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height, overall</td>
<td>62 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leading height, empty</td>
<td>34 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tread, center to center</td>
<td>70 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical system</td>
<td>24 volt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brakes: Manufacturer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>air-over-hydraulic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking, type</td>
<td>mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tires: Number</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>11.00 x 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ply</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pressure:**

- Highway: 75 psi
- Cross-country: 95 psi
- Sand: 15 psi

**PERFORMANCE**

Towed speed (max):

- Cross-country: 20 mph
- Highway: 85 mph

**PRIME MOVER**

**EQUIPMENT**

Basic Issue Item: See TM 9-2330-300-14.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 semitrailer, uncrated.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**Outside Continental United States**

Shipped 1 semitrailer, uncrated.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

SEMITRAILER, LOW-BED: WRECKER, 12-TON, 4 WHEEL, M270 AND M270A1, W/E

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M270</td>
<td>4-38835-20</td>
<td>2880-385-1877</td>
</tr>
<tr>
<td>M270A1</td>
<td>4-38845-25</td>
<td>2880-280-7215</td>
</tr>
</tbody>
</table>

General

SEMITRAILER, LOW-BED: wrecker, 12-ton, 4-wheel, M270 and M270A1, w/e, is designed to be towed by a vehicle equipped with fifth wheel (lower coupler) and is used for transporting new or salvaged aircraft, and is suitable for general purpose hauling.

Each semitrailer has two axles at the rear mounted on a leaf-spring suspension. A fifth-wheel upper plate under the front end or nose of the semitrailer includes a kingpin which is fitted into the fifth wheel on a towing vehicle to permit the semitrailer to be towed.

A foot-type landing gear supports the front end of the semitrailer when not coupled to a towing vehicle. The spare tire is carried on a winch-type spare wheel and tire carrier assembly under the right side of the chassis frame. Lights on each semitrailer are supplied with current by and operated from the towing vehicle.

Differences among models

The early-type semitrailer M270 is equipped with commercially-designed axles, with air-brakes. The late-type semitrailer M270A1 is equipped with Ordnance-designed axles, with air-over-hydraulic brakes.

Data plate location

Identification plates are located on the right side of the front end or nose of the chassis frame to the rear of the fifth-wheel upper plate.

Classification:

M270—Standard B (OTCM 36876).

M270A1—Standard A (OTCM 36876).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major Item</th>
<th>M270</th>
<th>M270A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>17,500 lb</td>
<td>17,600 lb</td>
</tr>
<tr>
<td>Payload</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On inferior roads</td>
<td>24,000 lb</td>
<td>24,000 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>40,000 lb</td>
<td>40,000 lb</td>
</tr>
<tr>
<td>Gross</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On inferior roads</td>
<td>41,500 lb</td>
<td>41,500 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>57,600 lb</td>
<td>57,600 lb</td>
</tr>
<tr>
<td>Kingpin load (w/payload distributed uniformly)</td>
<td>12,900 lb</td>
<td>12,900 lb</td>
</tr>
<tr>
<td>On inferior roads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On highway</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground clearance</td>
<td>18 in.</td>
</tr>
<tr>
<td>Loading height</td>
<td>49 in.</td>
</tr>
<tr>
<td>Height of fifth wheel plate above ground</td>
<td>54 in.</td>
</tr>
<tr>
<td>Overall dimensions:</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>590% in.</td>
</tr>
<tr>
<td>Width</td>
<td>96% in.</td>
</tr>
<tr>
<td>Height, landing gear retracted, reducible to</td>
<td>80 in.</td>
</tr>
<tr>
<td>Brakes:</td>
<td></td>
</tr>
<tr>
<td>Manufacturer:</td>
<td>Bendix-Westinghouse</td>
</tr>
<tr>
<td>Type:</td>
<td>air-over-hydraulic</td>
</tr>
<tr>
<td>Parking, type:</td>
<td>none</td>
</tr>
<tr>
<td>Tires:</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>11/00 x 12</td>
</tr>
<tr>
<td>Ply</td>
<td>12</td>
</tr>
<tr>
<td>Pressure:</td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
</tr>
<tr>
<td>Tread</td>
<td>72 in.</td>
</tr>
</tbody>
</table>

Federal Stock No.

2880-385-1877

2880-280-7215

22-24A
PERFORMANCE
Towing speed (max):
Prepared roads (20-ton load) ........................................ 50 mph
Unimproved roads (12-ton load) ...................................... 30 mph

EQUIPMENT
Basic Issue Items: See TM 9-8240

INSTRUCTIONAL MATERIAL

PRIME MOVER
TRUCK, TRACTOR: ..................................................... M246, M52, or equal

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped
Length ................................................................. 591 in.
Width ................................................................. 97 in.

Outside Continental United States

References: TM 9-8240, SNL G-802
SEMI TRAILER, LOW-BED: WRECKER, 12-TON, 4-WHEEL, M269 AND M269AI

General

SEMI TRAILER, LOW-BED: wrecker, 12-ton, 4-wheel, M269 and M269AI, is designed to be towed by a TRUCK TRACTOR: 5-ton, 6 x 6, M32* or similar vehicle equipped with a fifth wheel.

The vehicles are intended primarily for use by the Air Force for transporting new or salvaged aircraft, and for general purpose hauling.

Each semitrailer has two axles at the rear mounted on a leaf-spring suspension, a fifth wheel upper plate under the front end, a foot-type landing gear which supports the front end when not coupled to a towing vehicle, two chock blocks located in brackets welded to the chassis frame beams near the rear end, a spare tire carried on a winch-type spare wheel and tire carrier assembly located under the right side of the chassis frame, a storage compartment and tool box mounted on top of the front end of the chassis frame above the fifth wheel upper plate, an air operated brake mechanism controlled from the towing vehicle, stake pockets welded to the inside of the body frame outer rails for hardwood stakes, and a 24-volt receptacle, 12-volt socket, and 6-volt socket located at the front end.

Power source and operation for lighting of semitrailers is supplied by the towing vehicle.

General

SEMI TRAILER, LOW-BED: wrecker, 12-ton, 4-wheel, M269 and M269AI, is designed to be towed by a TRUCK TRACTOR: 5-ton, 6 x 6, M32* or similar vehicle equipped with a fifth wheel.

Each semitrailer has two axles at the rear mounted on a leaf-spring suspension, a fifth wheel upper plate under the front end, a foot-type landing gear which supports the front end when not coupled to a towing vehicle, two chock blocks located in brackets welded to the chassis frame beams near the rear end, a spare tire carried on a winch-type spare wheel and tire carrier assembly located under the right side of the chassis frame, a storage compartment and tool box mounted on top of the front end of the chassis frame above the fifth wheel upper plate, an air operated brake mechanism controlled from the towing vehicle, stake pockets welded to the inside of the body frame outer rails for hardwood stakes, and a 24-volt receptacle, 12-volt socket, and 6-volt socket located at the front end.

Power source and operation for lighting of semitrailers is supplied by the towing vehicle.

Differences among models

Data plate location

The data plate is located on the right side of the front of the chassis frame to the rear of the fifth wheel upper plate.

Classification

M269 — Standard B (OTCM 30876)
M269AI — Standard A (OTCM 30879)

CHARACTERISTICS

Weight:

<table>
<thead>
<tr>
<th>Description</th>
<th>Net</th>
<th>Payload</th>
</tr>
</thead>
<tbody>
<tr>
<td>On inferior roads</td>
<td>14,200 lb</td>
<td></td>
</tr>
<tr>
<td>On highway</td>
<td>14,200 lb</td>
<td></td>
</tr>
</tbody>
</table>

* For characteristics and data, see items in section 21.

Performance

Equipment

Basic Issue Items: ORD 7-8 SNL G-802.
<table>
<thead>
<tr>
<th>Storage and Shipment Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Continental United States</strong></td>
</tr>
<tr>
<td>Shipped uncrated:</td>
</tr>
<tr>
<td>Length:</td>
</tr>
<tr>
<td><strong>Outside Continental United States</strong></td>
</tr>
<tr>
<td>Shipped:</td>
</tr>
<tr>
<td>Length:</td>
</tr>
<tr>
<td>References: SNL G-802, TM 9-8240</td>
</tr>
</tbody>
</table>
SEMITRAILER, LOW-BED: 15-TON, 4-WHEEL, M172, W/E
SEMITRAILER, LOW-BED: 25-TON, 4-WHEEL, M172A1, W/E

Major item

<table>
<thead>
<tr>
<th>Shown:  M172</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>172</td>
<td>4-38940-00</td>
<td>2830-729-9026</td>
</tr>
<tr>
<td>172A1</td>
<td>4-38943-00</td>
<td>2830-347-6448</td>
</tr>
</tbody>
</table>

General

SEMITRAILER, LOW-BED: 15-ton, 4-wheel, M172, w/e, and 25-ton, 4-wheel M172A1, w/e, is a 4-wheel, dual axle, dual-tired vehicle which is used to transport general cargo. The two tubular axles, mounted at the rear, are of walking beam-type suspension.

A fifth-wheel upper plate under the front end of the gooseneck structure bears a reversible kingpin that is accessible through a hinged cover on top of the gooseneck. The double-end kingpin, proper size down, is fitted into the fifth wheel of the towing vehicle to permit the semitrailer to be towed.

Two mechanically actuated retractable, shoe-typed, landing gear legs, one located on the left side and one on the right side, are provided to support the front end of the semitrailer when the semitrailer is not coupled to the towing vehicle. The landing gear has a low-speed gearbox with a low and a high gear. The two retractable support legs are operated by a ratchet-type handcrank, located on right side of gooseneck structure. The frame structure is the load bed of the semitrailer. The frame is of rigidly welded structural steel construction.

Differences among models

The early type semitrailer M172 is equipped with commercially designed axles and air brakes. The late type semitrailer M172A1 is equipped with an Ordnance standard axle, air-over-hydraulic brakes, and a modified gooseneck kingpin arrangement.

Data plate location

The identification plate (nameplate) is mounted on the right side of the gooseneck.

Classification

M172 — Standard B (OTCM 37119)
M172A1 — Standard A (OTCM 37119)

CHARACTERISTICS

SEMITRAILER M172:

<table>
<thead>
<tr>
<th>Weight:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net</td>
<td>11,500 lb</td>
<td></td>
</tr>
<tr>
<td>Payload</td>
<td>30,000 lb</td>
<td></td>
</tr>
<tr>
<td>Gross</td>
<td>41,500 lb</td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fifth wheel</td>
<td>14,650 lb</td>
<td></td>
</tr>
<tr>
<td>Rear wheels</td>
<td>10,850 lb</td>
<td></td>
</tr>
</tbody>
</table>

SEMITRAILER M172A1:

<table>
<thead>
<tr>
<th>Weight:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net</td>
<td>14,860 lb</td>
<td></td>
</tr>
<tr>
<td>Payload</td>
<td>50,000 lb</td>
<td></td>
</tr>
<tr>
<td>Gross</td>
<td>64,860 lb</td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fifth wheel</td>
<td>4,500 lb</td>
<td></td>
</tr>
<tr>
<td>Rear wheels</td>
<td>10,000 lb</td>
<td></td>
</tr>
</tbody>
</table>

Ground clearance: 35 in.
Length, overall: 406 in.
Width, overall: 115 in.
Height, overall: 68 in.
Electrical system: 24 volts

Brakes:
- Manufacturer: Bendix-Westinghouse
- Type: air-over-hydraulic
- Parking: none

Tires:
- Size: 11.00 x 15
- Ply: 20
- Pressure: Highway — air
- Cross country: none
- Sand:
- Tread: 82 in.
### PERFORMANCE

**Towing speed** (max):
- **Cross country**: 10 mph
- **Highway**: 30 mph

### EQUIPMENT

**Basic Issue Items**: See TM 9-2330-211-14.

### INSTRUCTIONAL MATERIAL

**PRIME MOVER**

**TRUCK, TRACTOR**: M52

### STORAGE AND SHIPMENT DATA

**M172**:

<table>
<thead>
<tr>
<th><strong>Within Continental United States</strong></th>
<th><strong>Outside Continental United States</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
<td><strong>Shipped</strong></td>
</tr>
<tr>
<td><strong>Length</strong></td>
<td><strong>Length</strong></td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td><strong>Width</strong></td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td><strong>Height</strong></td>
</tr>
<tr>
<td><strong>Volume</strong></td>
<td><strong>Volume</strong></td>
</tr>
<tr>
<td><strong>Area</strong></td>
<td><strong>Area</strong></td>
</tr>
<tr>
<td><strong>Gross weight</strong></td>
<td><strong>Gross weight</strong></td>
</tr>
<tr>
<td><strong>Ship tons</strong></td>
<td><strong>Ship tons</strong></td>
</tr>
<tr>
<td></td>
<td><strong>References</strong>: TM 9-2330-211-14, TM 9-2330-211-24P.</td>
</tr>
</tbody>
</table>
SEMITRAILER, LOW BED: 60-TON, 8-WHEEL, M162A1, W/E

Illustration will be added at a later date)

General

SEMITRAILER,LOW BED: 60-ton,8-wheel, M162A1 is used to transport heavy construction equipment such as cranes, rollers, scrapers, and tractors in the 30-60 ton class, and serves as an emergency transporter for 50-60 ton combat vehicles pending development of a special transporter.

Differences among models

Data plate location

Classification: Standard B (OTCM 37119).

CHARACTERISTICS

Weight:
Net
Payload
Gross
Empty:
Fifth wheel
Rear wheels
Loaded:
Fifth wheel
Rear wheels
Length, overall
Kingpin to front
Kingpin to center of axle
Width, overall
Height, overall
Loading height, empty
Fifth wheel height
Ground clearance
Angle of departure
Tread:
Center to center
Outside to outside
Electrical system
Brakes:
Manufacturer
Type
Parking type
Tires:
Number
Size

Pressure:
Highway
Cross-country
Sand

PERFORMANCE

Towed speed (max):
Cross-country
Highway

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

PRIME MOVER

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 semitrailer, uncrated:
Length
Width
Height
Volume
Area
Gross weight
Ship tons

Outside Continental United States

Shipped 1 semitrailer, uncrated:
Length
Width
Height
Volume
Area
Gross weight
Ship tons

References:
SEMITRAILER, MAINTENANCE: WEAPON, MECHANICAL UNIT, M457, W/E

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped uncrated

Length

Width

Height

Volume

Area

Gross weight

Ship tons

Outside Continental United States

Shipped uncrated

Length

Width

Height

Volume

Area

Gross weight

Ship tons

Characteristics

Performance

Equipment

Basic Issue Items:

* For characteristics and data, see items on pages 22-31, 22-32, and 22-50.
SEMITRAILER, MAINTENANCE: WEAPON, ELECTRICAL UNIT, M458, W/E

General

SEMITRAILER, MAINTENANCE: weapon, electrical unit, M458, is a modified SEMITRAILER VAN: shop, 6-ton, 2-wheel, M508, with electrical equipment installed for performing maintenance and servicing of Ordnance special weapons units. Semitrailer M458 and SEMITRAILER, MAINTENANCE: mechanical unit, M457, are connected together by SEMITRAILER, MAINTENANCE: weapon connecting unit, M459, to form a unit for shop operation.

Differences among models

Data plate location

Classification: Standard A (OTCM 26805)

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items:

* For characteristics and data, see items on pages 22-31, 22-32, and 22-50
SEMITHRAILER, MAINTENANCE: WEAPON, CONNECTING UNIT, M459, W/E

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M459</td>
<td></td>
<td>2339-021-3263</td>
</tr>
</tbody>
</table>

**General**

SEMITHRAILER MAINTENANCE: weapon connecting unit, M459, is a modified SEMITHRAILER, VAN: shop. 6-ton, 2-wheel, M508C* with specific equipment installed for performing maintenance and servicing of Ordinance special weapons units. Semitrailer M459 connects SEMITHRAILER MAINTENANCE, weapon electrical unit, M458* and SEMITHRAILER MAINTENANCE: weapon mechanical unit, M457* to form a unit for shop operation.

**Differences among models**

**Data plate location**

Classification, standardized X (OTCM 36003).

**CHARACTERISTICS**

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped uncrated:

- Length: ..................................................
- Width: ..................................................
- Height: ..................................................
- Volume: ..................................................
- Area: ..................................................
- Gross weight: ..........................................
- Ship tons: .............................................

**Outside Continental United States**

Shipped uncrated:

- Length: ..................................................
- Width: ..................................................
- Height: ..................................................
- Volume: ..................................................
- Area: ..................................................
- Gross weight: ..........................................
- Ship tons: .............................................

**References:** TM 9-2330-210-14

* For characteristics and data, see items on pages 22-31, 22-32, and 22-30.

22-32
SEMITRAILER, STAKE: 6-TON, 2-WHEEL, M118 AND M118A1, W/E

**Major item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M118</td>
<td>4-26905-10</td>
<td>2330-835-8120</td>
</tr>
<tr>
<td>M118A1</td>
<td>4-35005-16</td>
<td>2330-572-5221</td>
</tr>
</tbody>
</table>

**General**

SEMITRAILER, STAKE: 6-ton, 2-wheel, M118 and M118A1, w/e, is cargo carrier intended for use on the highway or cross-country. The semitrailers M118 and M118A1 consist of a stake rack body mounted on a CHASSIS, SEMITRAILER: 6-ton, 2-wheel, M117 and M117A1.* The racks are of various sizes. They are each made of eight 1-inch boards bolted to vertical stakes, which fit into stake pockets on the sides, front, and rear of the body. The chassis semitrailers M117 and M117A1 have an undercarriage at the rear and landing gear assemblies near the forward end. The rack body of semitrailers M118 and M118A1 are equipped with a sheet metal box for stowage of the tarpaulin when not in use.

**Differences among models**

The early semitrailer M118 is equipped with commercially designed axle and air brakes. The suspension assembly (dolly) of semitrailer M118A1 is readily removable for air transport. The semitrailer M118 has air-operated brakes and the semitrailer M118A1 has air-over-hydraulic brakes. The identification plate (nameplate) is fastened to the outer member of the chassis frame at the forward end above the pickup plate.

**Data plate location**

The identification plate is fastened to the crossmember of the chassis frame at the forward end above the pickup plate.

**Classification**

M118 — Standard B (OTCM 30870)
M118A1 — Standard A (OTCM 37110)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight: Net: 7,140 lb</th>
<th>Payload: Cross-country: 12,000 lb</th>
<th>Cross: Highway: 10,200 lb</th>
</tr>
</thead>
</table>

**PERFORMANCE**

Towing speed (max):
- Cross-country: 30 mph
- Highway: 50 mph

**EQUIPMENT**

Basic Issue Items: See TM 9-2330-210-14

**INSTRUCTIONAL MATERIAL**

**PRIME MOVER**

TRUCK TRACTOR: 2½-ton, 6 x 6, M48

---

* Characteristics and data will be added at a later date.
## STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Shipment plans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.550 cu ft</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Shipment plans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-2300-210-14
SEMITRAILER, STAKE: 12-TON, 4-WHEEL, M127, M127A1, AND M127A1C, W/E

General

SEMITRAILER, STAKE: 12-ton, 4-wheel, M127, M127A1, and M127A1C, w/e is used to transport general cargo, and consists essentially of a body frame of welded construction mounted on the CHASSIS, SEMI­ TRAILER: 12-ton, 4-wheel, M126, M126A1 and M126A1C.

The body frame, consisting of pressed steel side rails, crossmembers, and short crossmembers, is welded together with the chassis frame forming one integral unit.

The semitrailer chassis M126, M126A1, and M126A1C consists of two drop-frame I-section longitudinal frame rails and intermediate crossmem­ bers along with an upper fifth wheel plate, kingpin, two axles at the rear mounted on a leaf-spring suspension, taillights, brakes, and foot-type landing legs.

Differences among models

Stake semitrailers M127 and M127A1 have similar body frame con­ struction, except that semitrailer M127A1 is equipped with chains which support the panels and also lifting rings for hoisting the semitrailer.

Semitrailers M127A1 and M127A1C are similar except the M127A1C is equipped with a voltage control box mounted on the underside of the body.

Data plate location

The identification plate (nameplate) is located on the right side of the front end of the chassis longitudinal frame rail.

Classification

M127 — Standard B (OTCM 36876)
M127A1 — Standard A (OTCM 87119)
M127A1C—Standard A

CHARACTERISTICS

Type: .................. semitrailer rack body
Weight:
Net:
M127 .................. 13,500 lb
M127A1 .................. 14,400 lb
M127A1C .................. 14,400 lb

Payload:
Hard surface roads .................. 36,000 lb
Cross country .................. 24,000 lb

Crane:
M127:
Hard surface roads .................. 49,500 lb
Cross country .................. 37,500 lb
M127A1 and M127A1C:
Hard surface roads .................. 50,400 lb
Cross-country .................. 38,400 lb

Length (overall): .................. 344.4 in.
Width (overall): .................. 96.3 in.
Height (overall): .................. 11.5 in.
Ground clearance: .................. 11.6 in.
Tread (center-to-center): .................. 72 in.

Landing gear:
Manufacturer: .................. Fruehauf Trailer Co.
Type: .................. handcrank, 2-speed
Length to top of floor:
Retracted .................. 45 in.
Extended .................. 60 in.

Width as feet (overall): .................. 50.3 in.

Tires:
Quantity .................. 8
Size: .................. 11.00 x 20
Ply: .................. 12
Type: .................. NDCC military
Pressure:
Highway .................. 50 psi
Cross country .................. 50 psi
Sand .................. 15 psi

Brakes:
Type:
M127 .................. air
M127A1, M127A1C .................. air-over-hydraulic
Manufacturer:
M127 .................. Timken-Detroit

Brakes:
Parking, type: .................. wheel chocks
Electrical system:
Potential: .................. 24 v dc
Lamps:
Right:
Blackout taillight .................. 3 cp
Blackout stoplight .................. 3 cp
Left:
Blackout taillight .................. 3 cp
Service taillight .................. 3 cp
Service stoplight .................. 32 cp
Clearance lights .................. 3 cp

22-35
CHARACTERISTICS—Continued

Electrical system—Continued

Axles:

<table>
<thead>
<tr>
<th>Type</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubular</td>
<td>Timken Detroit Axle Co.</td>
</tr>
<tr>
<td>M127</td>
<td>Standard Forge and Axle Co.</td>
</tr>
<tr>
<td>M127A1</td>
<td>Standard Forge and Axle Co.</td>
</tr>
</tbody>
</table>

Wheels:

<table>
<thead>
<tr>
<th>Type</th>
<th>Manufacturer</th>
<th>Rim size</th>
<th>Tire retention and removal</th>
<th>Bearing type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual, military disk</td>
<td>Budd Co.</td>
<td>20 x 7.5</td>
<td>Split lock ring</td>
<td>Tapered roller</td>
</tr>
</tbody>
</table>

Spare tire carrier:

<table>
<thead>
<tr>
<th>Type</th>
<th>Manufacturer</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>One man, cable lift</td>
<td>Nash</td>
<td>Wheel nut wrench</td>
</tr>
</tbody>
</table>

PERFORMANCE

Towing speed (max):

<table>
<thead>
<tr>
<th>Highway</th>
<th>Cross-country</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 mph</td>
<td>30 mph</td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic issue items: See TM 9-2330-207-14

* For characteristics and data, see item in section 21.
SEMITRAILER, TANK: GASOLINE, 12-TON, 4-WHEEL, M131, M131A1, AND M131A2; SEMITRAILER, TANK: FUEL, 5,000-GALLON, 4-WHEEL, M131A4, AND M131A5; SEMITRAILER, TANK: FUEL SERVICING, 5,000-GALLON, 4-WHEEL, M131A3C, AND M131A4C

**Characteristics**

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight: Net</th>
<th>Payload: Hard surface roads</th>
<th>Cross-country</th>
</tr>
</thead>
<tbody>
<tr>
<td>M131</td>
<td>14,850 lb</td>
<td>30,540 lb</td>
<td>19,620 lb</td>
</tr>
<tr>
<td>M131A1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M131A2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M131A3C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M131A4C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Classifications**

- M131—Limited Standard (AMCTC item 1419)
- M131A1—Limited Standard (AMCTC item 1419)
- M131A2—Standard C (AMCTC item 1419)
- M131A3—Obsolete
- M131A4—Standard A (AMCTC item 1419)
- M131A4C—Standard A (AMCTC item 1419)
- M131A6—Standard A (AMCTC item 3170)

**Data Plate Location:**
The semitrailer identification plate (nameplate) is located on the lower-right side of the nose of the vehicle.
CHARACTERISTICS—Continued

**M131**—Continued

**Loaded:**

<table>
<thead>
<tr>
<th>Highway</th>
<th>Fifth wheel</th>
<th>12,750 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle</td>
<td>21,710 lb</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cross-country</th>
<th>Fifth wheel</th>
<th>17,460 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle</td>
<td>27,910 lb</td>
<td></td>
</tr>
</tbody>
</table>

**Tire:**

<table>
<thead>
<tr>
<th>Size</th>
<th>11.00 x 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ply</td>
<td>12</td>
</tr>
<tr>
<td>Pressure</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Highway</th>
<th>50 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-country</td>
<td>50 psi</td>
</tr>
<tr>
<td>Sand</td>
<td>15 psi</td>
</tr>
</tbody>
</table>

**Type** | NDCC Military

**Ground clearance** | 11 3/16 in.

**Height of fifth wheel, landing gear down** | 56 in.

**On inferior roads:**

<table>
<thead>
<tr>
<th>Fifth wheel</th>
<th>12,710 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle</td>
<td>21,710 lb</td>
</tr>
</tbody>
</table>

**On highway:**

<table>
<thead>
<tr>
<th>Fifth wheel</th>
<th>17,500 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle</td>
<td>27,915 lb</td>
</tr>
</tbody>
</table>

**M131A3:**

**Weight:**

<table>
<thead>
<tr>
<th>Net</th>
<th>14,280 lb</th>
</tr>
</thead>
</table>

**Payload:**

<table>
<thead>
<tr>
<th>Hard surface roads</th>
<th>30,500 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-country</td>
<td>19,645 lb</td>
</tr>
</tbody>
</table>

**Gross:**

<table>
<thead>
<tr>
<th>Hard surface roads</th>
<th>44,780 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-country</td>
<td>33,925 lb</td>
</tr>
</tbody>
</table>

**Empty:**

<table>
<thead>
<tr>
<th>Fifth wheel</th>
<th>2,940 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle</td>
<td>11,360 lb</td>
</tr>
</tbody>
</table>

**Loaded:**

<table>
<thead>
<tr>
<th>Fifth wheel</th>
<th>12,355 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle</td>
<td>21,570 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fifth wheel</th>
<th>17,265 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle</td>
<td>27,515 lb</td>
</tr>
</tbody>
</table>

**Ground clearance** | 11 3/16 in.

**Height of fifth wheel, landing gear down** | 56 in.

**Tire:**

<table>
<thead>
<tr>
<th>Size</th>
<th>11.00 x 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ply</td>
<td>12</td>
</tr>
<tr>
<td>Pressure</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Highway</th>
<th>50 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-country</td>
<td>50 psi</td>
</tr>
<tr>
<td>Sand</td>
<td>15 psi</td>
</tr>
</tbody>
</table>

**Type** | NDCC Military

**M131A4:**

**Weight:**

<table>
<thead>
<tr>
<th>Net</th>
<th>12,930 lb</th>
</tr>
</thead>
</table>
CHARACTERISTICS—Continued

M131A4—Continued

Payload:
- Hard surface roads: 35,250 lb
- Cross-country: 23,250 lb

Gross:
- Hard surface roads: 48,150 lb
- Cross-country: 36,155 lb

Empty:
- Kingpin: 5,000 lb
- Axle: 12,800 lb

Loaded:
- On inferior roads:
  - Fifth wheel: 17,000 lb
  - Axle: 78,600 lb
- On highway:
  - Fifth wheel: 17,000 lb
  - Axle: 78,600 lb

Tires:
- Size: 11.00 x 20
- Ply: 12
- Pressure:
  - Highway: 50 psi
  - Cross-country: 50 psi
  - Sand: 15 psi

Type: NDCC Military

Ground clearance: 11-3/16 in.

Height of fifth wheel, landing gear down: 56 in.

Loading height, empty (to top of walkway guardrail): 8 ft, 11/8 in.

Length (tank length 29 ft, 4-1/8 in. plus 8-1/2 in. overall dummy coupling): 39-5/8 in.

Tank capacity: 5,000 gal

Pump: centrifugal, portable, engine driven, capacity: 300 gpm

Brakes:
- Manufacturer: Timken-Detroit Axle Co.
- Type: air-over-hydraulic
- Parking, type: wheel chock blocks

M131A5:

Weight:
- Net: 12,900 lb
- Payload:
  - Hard surface roads: 30,520 lb
  - Cross-country: 19,645 lb
- Gross:
  - Hard surface roads: 47,200 lb
  - Cross-country: 36,050 lb

Empty:
- Kingpin: 8,220 lb
- Axle: 8,840 lb

Loaded:
- On inferior roads:
  - Fifth wheel: 11,750 lb
  - Axle: 21,120 lb
- On highway:
  - Fifth wheel: 17,000 lb
  - Axle: 27,400 lb

Tires:
- Size: 11.00 x 20
- Ply: 13
- Pressure:
  - Highway: 50 psi
  - Cross-country: 35 psi
  - Sand: 15 psi

Type: NDCC Military

Ground clearance (from bottom of radius rods): 11-3/16 in.

Height of fifth wheel, landing gear down: 56 in.

Loading height, empty (to top of walkway guardrail): 8 ft, 11-3/8 in.

Length, overall (includes truck, tractor, M52): 45 ft

Width (max): 96 in.

Height (max): 107-1/2 in.

Angle of departure: 72 deg

Tanks:
- Type: 5,000-gallon capacity, excluding 3 percent outage; corrosion-resistant steel material.

Brakes:
- Manufacturer: Timken-Detroit Axle Co.
- Type: air-over-hydraulic
- Parking, type: wheel chock blocks

PERFORMANCE

M131 and M131A1:

Sustained speed:
- Cross-country: 20 mph
- Highway (governed): 52 mph

Fording depth: 24 in.

Pump: centrifugal, portable, engine driven, capacity: 225 gpm

M131A2:

Sustained speed:
- Cross-country: 20 mph
- Highway: 52 mph

Pump fording depth: 24 in.

Pump: 225 gpm
**PERFORMANCE—Continued**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sustained speed:</th>
<th>Pump fording depth</th>
<th>Pump...</th>
</tr>
</thead>
<tbody>
<tr>
<td>M131A3C</td>
<td>Cross-country: 20 mph</td>
<td>24 in.</td>
<td>30 gpm</td>
</tr>
<tr>
<td>M131A4 and M131A4C</td>
<td>Cross-country: 23 mph</td>
<td>27 in.</td>
<td>30 gpm</td>
</tr>
<tr>
<td>M131A5</td>
<td>Cross-country: 20 mph</td>
<td>not required</td>
<td>300 gpm</td>
</tr>
</tbody>
</table>

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**PRIME MOVER**

TRUCK, TRACTOR: 5-ton, 6 x 6

**STORAGE AND SHIPMENT DATA**

Shipped—tank semitrailer uncrated. Within and Outside Continental United States

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>M131</td>
<td>352 7/8 in.</td>
<td>96 1/4 in.</td>
<td>110 in.</td>
<td>1,196.4 cu ft</td>
<td>236 sq ft</td>
<td>14,850 lb</td>
<td>54.91</td>
</tr>
<tr>
<td>M131A1</td>
<td>351 1/8 in.</td>
<td>96 3/4 in.</td>
<td>115 1/4 in.</td>
<td>2,286.8 cu ft</td>
<td>222 sq ft</td>
<td>14,280 lb</td>
<td>56.4</td>
</tr>
</tbody>
</table>

**References:** LO 9-2330-208-12, SM ORD 9 SNL G-745, SM 9-4-5180-V13, SM 9-4-5180-V17, TB 55-12, TM 9-2330-208-15, TM 9-2330-208-24P.

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*For characteristics and data, see Item in section 21.*

22-38.1B AGO 5716A
SEMITRAILER TANK: WATER, 2,000-gallon, 2-WHEEL, M586

General
SEMITRAILER, TANK: water, 2,000-gallon, 2 wheel, M586 is used for the transporting and storing of drinking water. It has a two-compartment aluminum tank with a heating system and two and one-half inches of sheet fiber glass for insulation. To protect the fiber glass against wear and tear, lagging (referred to as the outer shell) covers the entire tank and consists of thin spot-welded sheets of aluminum.

The main heater for the M586 is an electrically operated gasoline-fired, 60,000-BTU unit of the forced draft type. The M586 is also supplied with a gasoline wick-type emergency heater that does not need electric power.

Differences among models

Data plate location
Classification: Standard A (AMCTC 261).

CHARACTERISTICS

Weight:
Net: 6,424 lb
Payload:
Hard surface roads 16,600 lb
Cross-country
Gross:
Hard surface roads 23,024 lb
Cross country
Empty:
Fifth wheel
Bogie
Loaded:
Fifth wheel 3,690 lb
Bogie 13,894 lb
Tires:
Type: non-directional, cross-country
Size: 9.00 x 20
Ply: 10
Pressure:
Highway 19
Cross-country
Sand
Tread: 17 in.
Ground clearance
Height of fifth wheel, land gear down
Loading height, empty
Length: 247.5 in.
Width: 90 in.
Height: 94.5 in.

Tank capacity 197 in.
Wheelbase
Brakes:
Manufacturer: Air
Type
Parking, type
Heater: electric operated, gasoline fired, 60,000 BTU

PERFORMANCE
Towing speed (max):
Highway: 50 mph
Secondary roads: 35 mph
Cross-country: 10 mph
Fording depth: 15 in.

EQUIPMENT

2½ or 5-ton truck tractor

INSTRUCTIONAL MATERIAL

PRIME MOVER

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 semitrailer:
Length
Width
Height
Volume
Area
Gross weight
Ship tons

Outside Continental United States

Shipped 1 semitrailer:
Length
Width
Height
Volume
Area
Gross weight
Ship tons

References:

AGO 5098A
SEMITRAILER, TANK TRANSPORTER: 45-TON, 8-WHEEL, M15A1, W/E
SEMITRAILER, TANK TRANSPORTER: 50-TON, 8-WHEEL, M15A2, W/E

**General**

SEMITRAILER, TANK TRANSPORTER: 45-ton, 8-wheel, M15A1, w/e and SEMITRAILER, TANK TRANSPORTER: 50-ton, 8-wheel, M15A2, w/e transport damaged tanks and materiel up to weights of 90,000 and 100,000 pounds on improved roads, respectively.

The semitrailer is designed to be pulled by a tractor truck and consists of a low drop frame having a low bed-type platform. Eight single wheels with pneumatic tires support the semitrailer. Brakes on the semitrailer wheels are actuated by compressed air supplied from the truck tractor.

**Differences among models**

The differences between the semitrailers M15A1 and M15A2 lie in the extensive modifications applied to the M15A1, which make the M15A2. These modifications include heavy reinforcement of the trailer frame, wider body to accept the larger tracks of the later heavier tanks, installation of truck guides, and removal of large stowage compartments on forward end of the trailer. The weight distribution is as indicated under "CHARACTERISTICS."

**Data plate location**

Classification: Standard B (OTCM 37110)

**CHARACTERISTICS**

**M15A1:**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td>Net</td>
<td>42,370 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Payload</td>
<td>90,000 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gross</td>
<td>132,370 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empty</td>
<td>14,170 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fifth wheel</td>
<td>14,170 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear bogie</td>
<td>28,200 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loaded:</td>
<td>57,400 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fifth wheel</td>
<td>74,870 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear bogie</td>
<td>75,570 lb</td>
<td></td>
</tr>
</tbody>
</table>

**M15A2:**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td>Net</td>
<td>42,600 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Payload</td>
<td>100,000 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gross</td>
<td>142,600 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empty:</td>
<td>18,100 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fifth wheel</td>
<td>18,100 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear bogie</td>
<td>29,500 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loaded:</td>
<td>44,780 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fifth wheel</td>
<td>44,780 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear bogie</td>
<td>97,820 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ground clearance (min)</td>
<td>13 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Height, loading</td>
<td>403/4 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Height of fifth wheel, landing gear down</td>
<td>67 3/4 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brakes:</td>
<td>Fruehauf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type</td>
<td>air</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parking</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Tires:</td>
<td>Size</td>
<td>14.00 x 24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ply</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pressure</td>
<td>90 psi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Highway</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cross country</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Band</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PERFORMANCE**

| Towed speed (max): | Improved road: | 36 mph |

**EQUIPMENT**

Basic Issue Items: See TM 9-767.

**INSTRUCTIONAL MATERIAL**

**PRIME MOVER**

TRUCK, TRACTOR: 12-ton, 6 x 6, M26 or M26A1*
TRUCK, TRACTOR: 10-ton, 6 x 6, M123*

* For characteristics and data, see items on pages 21-76 and 21-77.
## STORAGE AND SHIPMENT DATA

### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>


**References:** TM 9-767, SNL G-160
SEMITRAILER, VAN: CARGO, 12-TON, 4-WHEEL, M128A1 AND M128A1C, W/E

**CHARACTERISTICS**

**Type:** Semitrailer van body

**Weight:**

- Net weight
  - Highway: 19,910 lb
  - Cross country: 14,990 lb

- Fifth wheel
  - Highway: 31,940 lb
  - Cross country: 24,887 lb
  - Highway: 31,840 lb
  - Cross country: 24,887 lb
  - Highway: 30,489 lb

**Fifth wheel:**

- Height empty: 48 in
- Height to centerline of axle: 24 in
- Height to centerline of landing gear: 78 in
- Ground clearance (min): 10 1/4 in
- Departure angle (loaded): 60°

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M128A1</td>
<td>4-39008-02</td>
<td>2330-670-5581</td>
</tr>
<tr>
<td>M128A1C</td>
<td>4-39006-10</td>
<td>2330-752-0751</td>
</tr>
</tbody>
</table>

General

SEMITRAILER, VAN: cargo, 12-ton, 4-wheel, M128A1 and M128A1C, w/e, consists essentially of a van-type body mounted on the chassis M128A1 or M128A1C* respectively and provides a van-type semitrailer in the 12-ton class for carrying military cargo and supplies.

The body frames are made of square steel tubing.

Access to the interior of the vans is provided by two doors located on the rear of the body.

A step ladder is provided to aid in entering and leaving the semitrailers.

The interior of both semitrailers is covered with 14''-inch plywood.

The semitrailers are used as cargo carriers over rough terrain or paved highways.

Differences among models

The M128A1C differs from the M128A1 in that it is equipped with turn signal lamps, mud flaps, and dock bumpers.

Data plate location

The identification plate is located on the right side of the front end of the chassis frame rail.

Classification

M128A1 - Standard B
M128A1C - Standard A

EQUIPMENT

Basic Issue Items: See Table 9-2330-207-14.

**PERFORMANCE**

- Forging depth: 55 in
- Maximum towing speed:
  - Cross country: 60 mph
  - Highway: 70 mph

**INSTRUCTIONAL MATERIAL**

TRUCK, TRACTOR: 5-ton, 6 x 6, M32**
<table>
<thead>
<tr>
<th><strong>Storage and Shipment Data</strong></th>
<th><strong>Outside Continental United States</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Continental United States</strong></td>
<td><strong>Shipped</strong></td>
</tr>
<tr>
<td><strong>Shipped</strong></td>
<td><strong>Length</strong></td>
</tr>
<tr>
<td></td>
<td>350 in.</td>
</tr>
<tr>
<td><strong>References:</strong></td>
<td><strong>References:</strong></td>
</tr>
</tbody>
</table>
SEMIA TRAILER, VAN: ELECTRONIC, 3-TON, 2-WHEEL, M348A1 AND M348A2; SEMI TRAILER, VAN: ELECTRONIC, 6-TON, 2-WHEEL, M348A2C, M348A2D, M348A2F, AND M348A2G

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M348A1</td>
<td>4-30012-25</td>
<td>3380-086-0605</td>
</tr>
<tr>
<td>M348A2</td>
<td>4-30013-05</td>
<td>3380-678-3858</td>
</tr>
<tr>
<td>M348A2C</td>
<td>4-30018-10</td>
<td>3380-660-0774</td>
</tr>
<tr>
<td>M348A2D</td>
<td>4-30013-15</td>
<td>3380-090-7725</td>
</tr>
<tr>
<td>M348A2F</td>
<td>4-30013-20</td>
<td>3380-090-7726</td>
</tr>
<tr>
<td>M348A2G</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General

SEMIA TRAILER, VAN: electronic, 3-ton, 2-wheel, M348A1, and M348A2 SEMI TRAILER, VAN: electronic, 6-ton, 2-wheel, M348A2C, M348A2D, M348A2F, and M348A2G have an integral body and frame, fully insulated, and are designed to transport electronic equipment and other similar delicate items on either highway or cross country, using a 2½-ton, 6 x 6 truck tractor or equivalent as the towing vehicle. The semitrailers are provided with an easily removable undercarriage to facilitate air transport.

The undercarriage consists of wheels and tires, hubs and brake drums, springs and axle, and a suspension frame assembly. The trailer have a pin on the rear of the suspension assembly to provide for tandem towing.

The landing gear assemblies are attached near the forward end of the chassis. Each assembly consists of a ratchet crank, upper leg assembly, and lower leg assembly. Each landing gear assembly is individually operated by the ratchet crank which is stored under the chassis and secured with a chain. Each landing gear assembly is manually operated through a 2-speed gear box. The high-speed gear is provided for fast raising and lowering of the feet or wheels when there is no load on them. The low speed gear serves to furnish greater power for raising the front end of the vehicle when the feet or wheels are in contact with the ground.

Jack assemblies are attached to the suspension assembly at each rear corner. A spare tire carrier, ladder assembly, tarpaulin and bows, shock blocks, and an electrical system are also provided.

Differences among models

All models have a curbside personnel door and an access door in the rear. The semitrailers M348A1C, M348A2D, and M348A2F also have an access door in the front end. Semitailer M348A1 has a front partition; the M348A2C, M348A2D, and M348A2F have no inside partition. Semitailers M348A2C, M348A2D, and M348A2F have the spare tire carrier mounted on the suspension dolly, while the semitailer M348A1 has the spare tire carrier hinged under the right side of the chassis. The semitailer M348A1 has 11-leaf springs; the springs for semitrailers M348A2C, M348A2D, and M348A2F are 9-half. The lower leg assembly of semitrailer M348A1 has a foot pad; the semitrailer M348A2 has a wheel. The tarpaulin for semitrailer M348A1 is kept inside when not in use; the tarpaulin for semitrailers M348A2C, M348A2D, and M348A2F is stored in a compartment in the underside of the chassis. The two triangular shock blocks for semitrailer M348A1 are stowed ahead of the rear wheels and for semitrailers M348A2C, M348A2D, and M348A2F they are stowed behind the wheels. Semitailer M348A1 has one personnel ladder, and semitrailers M348A2C, M348A2D, and M348A2F have two ladders. A 12-foot access ladder is mounted under the center of the chassis on semitrailers M348A2C, M348A2D, and M348A2F only.

Data plate location

The identification plate (nameplate) for semitailer M348A1 is located on the outer right wall just above the landing gear. The identification plate for semitrailers M348A2, M348A2D, and M348A2F is located under the trailer on the chassis near the left landing gear.

Classification

M348A1—Standard B (OTCM 37317)
M348A2—Standard A (OTCM 37317)
M348A2C—Standard A (OTCM 37317)
M348A2D—Standard A (OTCM 37317)
M348A2F—Standard A (OTCM 37317)
M348A2G—

CHARACTERISTICS

3-ton semitrailers M348A1 and M348A2:

<table>
<thead>
<tr>
<th>Type</th>
<th>semitailer van body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td>8,650 lb</td>
</tr>
<tr>
<td>Payload:</td>
<td></td>
</tr>
<tr>
<td>Cross country</td>
<td>6,000 lb</td>
</tr>
<tr>
<td>Highway</td>
<td>10,000 lb</td>
</tr>
<tr>
<td>Gross:</td>
<td></td>
</tr>
<tr>
<td>Cross country</td>
<td>18,650 lb</td>
</tr>
<tr>
<td>Highway</td>
<td>28,650 lb</td>
</tr>
<tr>
<td>Length (overall)</td>
<td>318½ in</td>
</tr>
<tr>
<td>Width (overall)</td>
<td>95½ in</td>
</tr>
<tr>
<td>Height (overall)</td>
<td>132 in</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>10½ in</td>
</tr>
<tr>
<td>Angle of departure (from horizontal)</td>
<td>44°</td>
</tr>
</tbody>
</table>

AXIS:

| Type               | 43 tons, tubular, single bearing |
|--------------------| 4,000 lb |
CHARACTERISTICS—Continued
3-ton semitrailers M348A1 and M348A2—Continued

Landing gear:
Manufacturer: Austin Equipment Co.
Type: two-2 speed vertical screws

Tires:
Size: 9.00 x 20
Ply: 8
Pressure:
Highway: 50 psi
Cross country: 50 psi
Sand and snow: 15 psi
Brakes:
Service: air-hydraulic
Parking: chock blocks

Electrical system:
Potential: 24 volt
Tail lamps: LH and RH: 8378785
Blackout lamps: ORD Nos. 8741645, 7261916, 7261917, 7261918, and 7261919
Clearance lights: ORD Nos. 7261916, 7261917, 7261918, and 7261919

6-Ton semitrailers M348A2C, M348A2D, M348A2F, and M348A2G:

Type: semitrailer van body
Weight:
Net: 8,770 lb
Payload: 12,000 lb
Gross: 20,770 lb
Length (overall): 318½ in.
Width (overall): 95¼ in.
Height (overall): 132 in.
Length (inside): 313½ in.
Width (inside): 89½ in.
Height (inside): 79½ in.
Ground clearance: 16½ in.
Track (tread, center-to-center of tires): 70 in.
Angle of departure: 41°

Landing gear:
Manufacturer: Austin Trailer Equipment Co.
Type: ratchet
Wheels, type: offset disk with removable split rings
Tires:
Size: 9.00 x 20
Ply: 8
Pressure:
Highway: 50 psi
Cross country: 35 psi
Sand: 15 psi
Brakes:
Service: air-over-hydraulic
Parking: none

Electrical system:
Tailights: LH and RH: 8378785
Blackout stoplight: ORD No. 8741645
Clearance lights: ORD No. 7261919

PERFORMANCE
3-ton semitrailers:
Towing speed (max):
Cross country: 80 mph
Highway: 50 mph
6-ton semitrailers:
Towing speed (max):
Cross country: 80 mph
Highway: 50 mph

EQUIPMENT
Basic issue items: See TM 9-2330-246-14.

INSTRUCTIONAL MATERIAL

PRIME MOVER
3-ton semitrailers:
Truck tractor: 2½ ton, 6 x 6
6-ton semitrailers:
Truck tractor: 5 ton, 6 x 6

STORAGE AND SHIPMENT DATA
3-ton semitrailer:
Shipped
Within Continental United States:
Length: 324 in.
Width: 96 in.
Height: 131 in.
Volume (uncrated): 2,376 cu ft
Gross weight:
Ship tons: 59.4

Outside Continental United States:
Shipped
Length: 324 in.
Width: 96 in.
Height: 131 in.
Volume:
Gross weight:
Ship tons:

6-ton semitrailer:
Shipped
Within Continental United States:
Length: 324 in.
Width: 96 in.
Height: 131 in.
Volume:
Gross weight:
Ship tons:

Outside Continental United States:
Shipped
Length: 324 in.
Width: 96 in.
Height: 131 in.
Volume:
Gross weight:
Ship tons:

References: SNL G-848, TM 9-2330-246-14
SEMITRAILER, VAN: ELECTRONIC, 3-TON, 2-WHEEL, M373A1; SEMITRAILER, VAN: ELECTRONIC, 6-TON, 2-WHEEL, M373A2C

Tires:
Size: 9.00 x 20
Ply: 8
Number: 4
Pressure:
Highway: 50 psi
Cross country: 50 psi
Sand driving: 15 psi

Electrical system:
Potential: 24 volt

Taillights:
Left and right: 2
Center (blackout stop): 1

Clearance Lights:
Front: 4
Rear: 4

Services brakes: Air-over-hydraulic
Clearances: 16 in.

Length:
M373A1: 372 in.
M373A2C: 369 3/8 in.

Width:
M373A1: 95 1/2 in.
M373A2C: 95 1/2 in.

Height:
M373A1: 120 in.
M373A2C: 92 1/8 in.

Weight:
Curb weight:
M373A1: 9,500 lb
M373A2C: 9,700 lb

Loaded:
M373A1: 15,500 lb
M373A2C: 21,700 lb

PERFORMANCE
Forcing depth same as towing vehicle.

EQUIPMENT

INSTRUCTIONAL MATERIAL

PRIME MOVER
TRUCK, TRACTOR: 6 x 6, 2½- or 6-ton.*

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Area
Volume

Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Area
Volume
Gross weight
Ship tons

SEMITRAILER, VAN: ELECTRONIC, 10-TON, 4-WHEEL, XM557

General

SEMITRAILER, VAN: electronic, 10-ton, 4-wheel, XM557 is a special purpose vehicle designed to house equipment employed for missile monitoring. The semitrailer has seven access panels and a personnel door on the right side, eleven access panels on the left side, and a personnel door at the rear.

Differences among models

Data plate location

Classification:

CHARACTERISTICS

Weight:

Net: 18,070 lb
Payload: 14,740 lb
Gross: 27,810 lb

Empty:

Fifth wheel
Rear wheels

Loaded:

Fifth wheel
Rear wheels

Length overall: 375 in.
Kingpin to center of axle load: 2623/4 in.
Width overall: 96 in.
Height overall: 86 in.

Clearance lights: 41 deg

Tires:

Number: 8
Size: 9.00 x 20
Ply: 4
Pressure: Highway: 70 psi
Cross-country: Sand

Brakes:

Manufacturer: Air-over-hydraulic
Parking: None

Electrical system:

21 volt

Taillight:

Manufacturer: Left
Right

Clearance lights:

PERFORMANCE

Towed speed (max): Highway

Prime Mover

Equipment

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 semitrailer, uncrated.
Length
Width
Height
Volume
Area

Outside Continental United States

Shipped 1 semitrailer, uncrated.
Length
Width
Height
Volume
Area

SEMIMTRAILER, VAN: ELECTRONIC. 10-TON, 4-WHEEL, XM558

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES.

CHARACTERISTICS

Weight:
Net ................................................. 18,210 lb
Payload ........................................... 14,710 lb
Gross ................................................ 35,820 lb

Empty:
Fifth wheel ........................................
Rear wheels ........................................

Loaded:
Fifth wheel ........................................
Rear wheels ........................................

Length overall .................................... 375 in.
Kingpin to front ................................... 18 in.
Kingpin to center of axle bogie .................. 292-1/2 in.
Width overall ..................................... 96 in.
Height overall ..................................... 132 in.
Fifth wheel height ................................ 65 in.
Ground clearance ................................... 31/2 in.
Angle of departure ................................ 41 deg

Tire:
Center to center .................................... 93 in.
Outside to outside .................................. 28 in.

Brakes:
Manufacturer ......................................
Type ..................................................
Parking ............................................ None

Electrical system .................................. 24 volt

Taillight:
Manufacturer ......................................
Left ...................................................
Right ............................................... 15
Clearance lights ...................................

PERFORMANCE

Towed speed (max):
Highway ............................................
Cross-country ....................................

PRIME MOVER

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped: 1 semitrailer, uncrated

Length ............................................
Width .............................................
Height ............................................
Volume ........................................... 2,750 cu ft
Area ............................................... 
Gross weight .....................................
Ship tons ........................................

Outside Continental United States
Shipped: 1 semitrailer, uncrated

Length ............................................
Width .............................................
Height ............................................
Volume ........................................... 2,750 cu ft
Area ............................................... 
Gross weight .....................................
Ship tons ........................................


22-46A
SEMITRAILER, VAN: ELECTRONIC SHOP, 6-TON, 2-WHEEL, XM555

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES.

Model: XM555

General
SEMITRAILER, VAN: electronic shop, 6-ton, 2-wheel, XM555 is a special purpose vehicle designed as a mobile electronic shop used to support a missile monitoring system. The semitrailer has an access panel, a personnel door, and an exhaust opening on the right side, a personnel door at the rear, and an access panel on the left side.

Differences among models
Data plate location
Classification:

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>Net</th>
<th>Payload</th>
<th>Gross</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10,920 lb</td>
<td>7,193 lb</td>
<td>18,020 lb</td>
</tr>
</tbody>
</table>

Empty:
- Fifth wheel
- Rear wheels

Loaded:
- Fifth wheel
- Rear wheels

Length overall: 375 in.
- Kingpin to front: 18 in.
- Kingpin to center of axle: 306 3/8 in.
- Fifth wheel height: 55 in.
- Ground clearance: 13 3/4 in.
- Angle of departure: 41 deg.

Tread:
- Center to center: 93 in.
- Outside to outside: 93 in.

Landing gear:
- Manufacturer
- Type: 2-speed, non-retracting
- Tires:
  - Number: 4
  - Size: 9.00 x 20
  - Ply: 8
  - Pressure: Highway: 70 psi

Cross-country:
- Sand

Brakes:
- Manufacturer
- Type: Disc 
- Parking type
- Electrical system: 24 volt

Taillights:
- Manufacturer
- Left
- Right
- Clearance lights: 12

PERFORMANCE

Towed speed (max):
- Highway
- Cross-country

PRIME MOVER

EQUIPMENT

Basic Issue Items: See TM 9 2300 257-14.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 semitrailer, uncrated
- Length
- Width
- Height
- Volume: 2,700 cu ft
- Area
- Gross weight
- Ship tons

Outside Continental United States
Shipped 1 semitrailer, uncrated
- Length
- Width
- Height
- Volume: 2,700 cu ft
- Area
- Gross weight
- Ship tons

SEMITRAILER, VAN: ELECTRONIC SHOP, 6-TON, 2-WHEEL, XM556

General

XM556 is a special purpose vehicle designed as a mobile electronic shop used in support of a missile monitoring system. The semitrailer has an access panel, a personnel door, and an exhaust opening on the right side, and a personnel door at the rear.

Differences among models

Data plate location

Classification:

**CHARACTERISTICS**

Weight:
- Net: 10,700 lb
- Payload: 10,680 lb
- Gross: 21,280 lb

Empty:
- Fifth wheel
- Rear wheels

Loaded:
- Fifth wheel
- Rear wheels

Length overall: 375 in.
Kingspin to front: 18 in.
Kingspin to center of axle: 306 in.
Width, overall: 96 in.
Height overall: 132 in.
Fifth wheel height: 55 in.
Angle of departure: 41 deg

Tire:
- Center to center: 93 in.
- Outside to outside: 103 in.

Landing gear:
- Manufacturer
- Type: 2 speed, retreating
- Number
- Size: 9.00 x 20
- Ply: 8
- Pressure: Highway 70 psi
- Cross-country

Brakes:
- Manufacturer
- Type: air-over-hydraulic
- Parking: type

Electrical system: 24 volt

Tailights:
- Manufacturer
- Type

Clearance lights: 12

**PERFORMANCE**

Towed speed (max):
- Highway
- Cross-country

**PRIME MOVER**

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 semitrailer, uncrated:
- Length
- Width
- Height
- Volume: 2,750 cu ft
- Area
- Gross weight
- Ship tons

**Outside Continental United States**

Shipped 1 semitrailer, uncrated:
- Length
- Width
- Height
- Volume: 2,750 cu ft
- Area
- Gross weight
- Ship tons

SEMIRAILER, VAN: MEDICAL, 3-TON, 2-WHEEL, M394

General

SEMIRAILER, VAN: medical, 3-ton, 2-wheel, M394, is used to provide a mobile unit for housing and transporting medical equipment and supplies on highway and cross country.

Semitrailer has a curbside personnel door and a front partition.

Semitrailer has a 21-volt electrical system supplied with current from the truck tractor and also a 110-volt electrical system which provides for power for fluorescent lights and various wall receptacles. It is also provided with an auxiliary engine-generator unit which can be used to supply 110-volt power.

Semitrailer has an internal body and frame, and is provided with an easily removable undercarriage to facilitate air transport. It has a landing gear near the forward end, and a jack assembly is attached to each corner of rear frame.

Name Plate Location

- Name plate is located on the outer right wall just above the landing gear and apneity plate is located on the right side of the chassis under the nameplate. Dolly removal instruction plate is located on the rear, right side of the chassis, and landing gear operation plate on the right side of the chassis under the nameplate.

Classification: Standard A (OTCM 36041).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Item</th>
<th>Left Side No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>M394</td>
<td>2230-229-6950</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearance lights:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>4 x 4</td>
</tr>
<tr>
<td>Rear</td>
<td>4 x 4</td>
</tr>
<tr>
<td>Length</td>
<td>872 in.</td>
</tr>
<tr>
<td>Width</td>
<td>281/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>131 in.</td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>Net</td>
<td>7,000 lb</td>
</tr>
<tr>
<td>Payload</td>
<td>15,000 lb</td>
</tr>
<tr>
<td>Gross</td>
<td>22,000 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE

Fording depth: (Same as towing vehicle)

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

PRIME MOVER

TRUCK, TRACTOR: 2½-ton, 6 x 6.

STORAGE AND SHIPMENT DATA

Domestic Pack

Shipped:

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>2,728 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>16,500 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>68</td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
</tbody>
</table>

Oversea Pack

Shipped:

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
</tbody>
</table>

Reference: TM 9-2230-228-16.

* For characteristics and data, see item in section 21.
Semitrailer, Van: Refrigerator, 7½-ton, 2-wheel, M349 and M349A1

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M349</td>
<td></td>
<td>2330-030-2120</td>
</tr>
<tr>
<td>M349A1</td>
<td></td>
<td>2330-436-7709</td>
</tr>
</tbody>
</table>

General

The SEMITRAILER, VAN: refrigerator, 7½-ton, 2-wheel, M349 and M349A1 is used to provide refrigerated storage space for perishable items, both fresh and frozen, under all weather conditions. The aluminum body and subframe is mounted on a steel undercarriage supported by semielliptical springs attached to a dual wheel standard 14,000-pound load rated Ordinance axle. The semitrailer has a vertical screw-type front landing gear, interior and exterior lighting system, braking system, spare wheel, fixed ladders and platform, toolboxes, battery box, and auxiliary equipment.

Differences among models

Data plate location

Data plate is located on the lower right front sill of the vehicle.

Classification

M349 — Standard B (OTCM 36841)
M349A1—Standard A (OTCM 36841)

Characteristics

<table>
<thead>
<tr>
<th>Body type</th>
<th>van</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight, M349</td>
<td>(net) 7,970 lb</td>
</tr>
<tr>
<td>M349A1</td>
<td>(net) 8,000 lb</td>
</tr>
<tr>
<td>Payload, M349, M349A1</td>
<td>15,000 lb</td>
</tr>
<tr>
<td>Length, overall, M349</td>
<td>284 in.</td>
</tr>
<tr>
<td>M349A1</td>
<td>277 in.</td>
</tr>
<tr>
<td>Width, overall, M349</td>
<td>96½ in.</td>
</tr>
<tr>
<td>M349A1</td>
<td>96 in.</td>
</tr>
<tr>
<td>Height (unloaded), M349</td>
<td>129½ in.</td>
</tr>
<tr>
<td>M349A1</td>
<td>129½ in.</td>
</tr>
<tr>
<td>Track (c-to-c of tires), M349</td>
<td>70 in.</td>
</tr>
<tr>
<td>M349A1</td>
<td>70 in.</td>
</tr>
</tbody>
</table>

Tires:

M349 and M349A1, w/spare ................................ 5
Size: .................................................. 9 x 20
Ply: .................................................. 8
Pressure:
Highway: ........................................ 65 psi
M349A1 ........................................ 70 psi
Cross country: ................................... M349A1 65 psi
M349 ........................................ 50 psi
Sand: .................................................. M349A1 35 psi
M349 ........................................ 25 psi
Brakes: .................................................. M349A1
M349 ........................................ air
M349A1 ........................................ air-over-hydraulic
Lights:
Exterior ............................................... 24 volts
Interior ............................................. 12 volts

Prime Mover

Truck, Tractor: 5-ton, 6 x 6, M52* or similar vehicle with 5th wheel.

Performance

Towing speed:
On highway: ........................................ M349 ........................................ 55 mph
M349A1 ........................................ 55 mph
Off highway: ....................................... M349 ........................................ 25 mph
M349A1 ........................................ 30 mph

Equipment

Basic Issue Items:
M349 ........................................ See TM 9-8244
M349A1 ........................................ See TM 9-8244

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped:
Length ............................................... 284 in.
Width .................................................. 96½ in.
Height ............................................. 129½ in.
### STORAGE AND SHIPMENT DATA—Continued

#### Within Continental United States—Continued

<table>
<thead>
<tr>
<th>Volume:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M349 (w/o refrigerator unit)</td>
<td>1,980 cu ft</td>
<td></td>
</tr>
<tr>
<td>M349A1</td>
<td>1,080 cu ft</td>
<td></td>
</tr>
<tr>
<td>Area:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M349</td>
<td>169 sq ft</td>
<td></td>
</tr>
<tr>
<td>M349A1</td>
<td>169 sq ft</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td>22,970 lb</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>49.50</td>
<td></td>
</tr>
</tbody>
</table>

#### Outside Continental United States

| Ship tons | 49.50 |

| Outside Continental United States |
| --- | --- |
| Length | 284 in. |
| Width | 96½ in. |
| Height | 129½ in. |
| Volume | 1,980 cu ft |
| Area | 169 sq ft |
| Gross weight | 22,970 lb |
| Ship tons | 49.50 |

SEMITRAILER, VAN: CARGO, 6-TON, 2-WHEEL, M119 AND M119A1, W/E

General

SEMITRAILER, VAN: cargo, 6-ton, 2-wheel, M119 and M119A1, w/e, is cargo carrier intended for use on highway or cross country. The semitrailers M119 and M119A1 consist of a van body mounted on a 6-ton, 2-wheel, chassis semitrailer M117. The frames (body and chassis), springs, axles, wheels, brake systems, landing gears, rear step assembly, towing facilities, and spare tire carriers of both semitrailers are identical. The body of the semitrailer consists of the van (constructed of angle iron framework and covered on the outside with sheet metal and on the inside with plywood lining panels), floor assembly, bolsters, outriggers, crossmembers, and side members. The chassis of the semitrailer consists of the chassis frame supported by semicircular springs mounted on an axle, which is supported by dual wheels.

Differences among models

Semitrailer M119 has air-operated brakes. Semitrailer M119A1 has air-over-hydraulic brakes.

Data plate location

The identification plates (nameplates) on each semitrailer are fastened to the crossmember of the chassis frame just above the pickup plate.

Classification:

M119 —Standard B (OTCM 36876)
M119A1—Standard A (OTCM 37119)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Net</td>
</tr>
<tr>
<td></td>
<td>Payload:</td>
</tr>
<tr>
<td></td>
<td>Cross-country</td>
</tr>
<tr>
<td></td>
<td>Highway</td>
</tr>
<tr>
<td></td>
<td>Gross</td>
</tr>
<tr>
<td></td>
<td>Cross-country</td>
</tr>
</tbody>
</table>

*For characteristics and data, see item in section 21.

AGO 5716A
### Storage and Shipment Data

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>2,023 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>58.375</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-2530-210-14, TM 9-2530-210-25P.
SEMİTRAİLER, VAN: SHOP, 6-TON, 2-WHEEL, M146, M146C, AND M146F

General

SEMİTRAİLER, VAN: SHOP, 6-TON, 2-WHEEL, M146, M146C, AND M146F, is designed to provide quarters for field shop equipment. They are intended for use on highway or cross-country with TRUCK TRACTOR: 2½-TON, 6 X 6, M48* or equivalent towing vehicle.

The SEMİTRAİLER, VAN, M146, is provided with a fully closed van body. A personnel door is located in the right side, and a double loading door is located in the rear end. Each door contains a window. In addition to the door windows, there are four windows on the right side and five on the left side. All windows are provided with sliding blackout panels.

The SEMİTRAİLER, VAN, M146C, is similar to the M146, but without windows.

The SEMİTRAİLER, VAN, M146F, is a general purpose vehicle within the Sergeant Missile System. This semitrailer is designed to accept various kits, consisting of racks which provide storage space for spare parts, subassemblies, and assemblies required for performance of direct and general support maintenance (formerly 3d and 4th echelon).

Differences among models:

The M146F is similar to the basic M146 except that the windows and side door are eliminated, floor is improved, and the interior electrical system is modified to be compatible with the Sergeant kit requirements.

Data plate location:

The identification plate is located on the outer right wall just above the landing gear. The agency plate is located below the identification plate.

Classification:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M146</td>
<td>4-39021-10</td>
<td>2330-569-9372</td>
</tr>
<tr>
<td>M146C</td>
<td>4-39021-11</td>
<td>2330-542-4505</td>
</tr>
<tr>
<td>M146F</td>
<td>4-39022-01</td>
<td>2330-815-6500</td>
</tr>
</tbody>
</table>

*For characteristics and data, see item 1h section 21.
**CHARACTERISTICS—Continued**

**M146—Continued**

**Brakes:**
- Manufacturer: None
- Type: Air-over-hydraulic
- Parking, type: None
- Electrical system: 24-volt

**Tailights:**
- Left: Combination blackout service and stop
- Right: Combination blackout service and stop
- Clearance lights: 12

**PERFORMANCE**

**Towed speed (max):**
- Highway: 50 mph
- Cross-country: 15 mph

**PRIME MOVER**

**TRUCK TRACTOR:** 2 1/2-ton, 6 x 6, M48 or similar vehicle.

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>268-13/16 in.</th>
<th>Width</th>
<th>96 in.</th>
<th>Height</th>
<th>132 in.</th>
<th>Volume</th>
<th>2021.7 cu ft</th>
<th>Area</th>
<th>165 sq ft</th>
<th>Gross weight</th>
<th>23,620 lb</th>
<th>Ship tons</th>
<th>50.6</th>
</tr>
</thead>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>268-13/16 in.</th>
<th>Width</th>
<th>96 in.</th>
<th>Height</th>
<th>132 in.</th>
<th>Volume</th>
<th>2021.7 cu ft</th>
<th>Area</th>
<th>165 sq ft</th>
<th>Gross weight</th>
<th>23,620 lb</th>
<th>Ship tons</th>
<th>50.6</th>
</tr>
</thead>
</table>

**References:** TM 9-2330-227-14, TM 9-2330-227-24P, TM 9-2300-233-227P.
SEMITRAILER, VAN: SHOP, 6-TON, 2-WHEEL, M508 AND M508C

NOTE: All dimensions shown are in inches

General

SEMITRAILER, VAN: shop, 6-ton, 2-wheel, M508 and M508C, is basically similar to the standard SEMITRAILER, VAN: cargo, M119 except for modifications to house and transport technical equipment necessary for conducting the maintenance and servicing activities for Ordnance special weapons units.

The M508 with mechanical equipment installed is identified as SEMITRAILER, MAINTENANCE: mechanical unit, M457. The M508 with electrical equipment installed is identified as SEMITRAILER, MAINTENANCE: electrical unit, M508 and M508C with specific equipment installed is identified as SEMITRAILER, MAINTENANCE: connecting unit, M509. Each semitrailer is designed to be towed by TRUCK, TRACTOR: 21/2-ton, 6 x 6, M275 or any truck tractor of sufficient capacity and equipped with a conventional semiautomatic fifth wheel.

For shop operation, the semitrailers M457, M458, and M459 are connected together to form a unit.

Differences among models

The M508 semitrailers have full length doors at the rear while the M508C has two removable doors, one on each side. The M508C also has five air inlet doors underneath the body, an exhaust port door on the lower front body panel, and a filter access door on the left front upper panel near the roof.

Data plate location

The identification (name) and data plate is located on the crossmember of the chassis at the front above the pickup plate (upper fifth wheel plate).

Classification: Standard A (OTCM 27086).

*For characteristics and data, see item in section 21.

AGD 6716A

CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>No load</th>
<th>Cross-Country</th>
<th>Highway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td>Net</td>
<td>7,180 lb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Payload</td>
<td>12,000 lb</td>
<td>14,200 lb</td>
</tr>
<tr>
<td>Gross (including body and payload):</td>
<td>Cross-country</td>
<td>24,000 lb</td>
<td>24,000 lb</td>
</tr>
<tr>
<td></td>
<td>Highway</td>
<td>23,380 lb</td>
<td></td>
</tr>
</tbody>
</table>

Distributions:

|                  | King pin | 2,585 lb | 7,405 lb | 9,325 lb |
|                  | Axle     | 4,925 lb | 11,770 lb | 14,160 lb |
| Landing gear     | 3,490 lb | 12,000 lb | 12,200 lb |
|                  | 3,690 lb | 7,180 lb | 11,174 lb |

Length:

- Cross-country: 274 in.
- Highway: 224 in.

Width:

- Cross-country: 96 in.
- Highway: 96 in.

Height:

- Cross-country: 132 in.
- Highway: 132 in.

Type:

- Van body

Kingpin:

- Height empty from ground: 140 in.
- To centerline of axle: 204 in.
- To centerline of landing gear: 72 in.

Clearance:

- Ground: min. 15 in.
- Departure angle: 20°
- Fording depth: 6 in.
- Tread: 70 in.

Landing gear:

- Manufacturer: Homan & Co
- Type: retractable—3 speed

Axle:

- Type: Ordnance standard—14,000-lb cap.
<table>
<thead>
<tr>
<th>CHARACTERISTICS—Continued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring:</td>
</tr>
<tr>
<td>Type:</td>
</tr>
<tr>
<td>No. of leaves:</td>
</tr>
<tr>
<td>Auxiliary springs:</td>
</tr>
<tr>
<td>No. of leaves:</td>
</tr>
<tr>
<td>Wheels:</td>
</tr>
<tr>
<td>Type:</td>
</tr>
<tr>
<td>Tires:</td>
</tr>
<tr>
<td>Size:</td>
</tr>
<tr>
<td>Ply:</td>
</tr>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Pressure:</td>
</tr>
<tr>
<td>Highway</td>
</tr>
<tr>
<td>Cross-country</td>
</tr>
<tr>
<td>Sand-driving</td>
</tr>
</tbody>
</table>
CHARACTERISTICS—Continued

Tires—Continued
Tread design: NDCC
Pressure (cool): 40 psi

Brakes:
Service:
- Drum size: 15 dia x 3 wide
- Actuation: air operated
- Emergency relay valve: yes
- Air reservoir: yes
Parking:
- Actuation: hand-lever-operated
- Mounting: on slack adjuster

Towing speed (recommended):
- Cross country: max 15 mph
- Highway: max 50 mph

Electrical system:
Potential (4 circuits): 208 volts

Circuits:
- Clearance lights
- Test equipment outlets
- Service lights and outlets
- Climatic unit, hoist, and outlets

PERFORMANCE

PRIME MOVER

TRUCK, TRACTOR: 21/4-ton, 6 x 6, M275* ...

* For characteristics and data, see item in section 21.
SEMITRAILER, VAN: SUPPLY, 12-TON, 4-WHEEL, M129A1 AND M129A1C

Major item

Shown: M129A1

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M129A1</td>
<td>4-39027-05</td>
<td>2330-629-1673</td>
</tr>
<tr>
<td>M129A1C</td>
<td></td>
<td>2530-752-0752</td>
</tr>
</tbody>
</table>

General

SEMITRAILER, VAN: supply, 12-ton, 4-wheel, M129A1 and M129A1C, is used to provide a mobile type unit in the 12-ton class for carrying military supply. Each has a total of seven windows to provide ventilation and light. Sides and roof are insulated and landing legs are supplied.

The towing vehicle supplies the 24-volts current to operate ventilation fan, dome lights, clearance lights, and the 12-volt clearance and taillights. The 110-volt ac dome lights receive their current from an outside source.

Differences among models

M129A1C is essentially the same as M129A1, except that it is equipped with turn signals, mud flaps, and dock bumpers.

Data plate location

An identification plate is located on the right side of the front end of the chassis longitudinal frame rail.

A service plate is located just to the rear of the identification plate.

Classification

M129A1 =
M129A1C—Standard A

CHARACTERISTICS

Length: 28 ft. 8 in.
Width: 8 ft
Height: 11 ft. 7 7/8 in.
Weight:
M129A1: 16,020 lb
M129A1C: 16,020 lb
Payload:
Hard surface roads: 36,000 lb
Cross country: 24,000 lb
Angle of departure: 50°
Electrical system:
De: 12 and 24 volts
Ac: 110 volts

Brakes:
M129A1: air-hydraulic
M129A1C: air-hydraulic

Wheels:
M129A1: dual
M129A1C: dual

Tires:
Quantity: 8
Size: 11.00 x 20
Type: NDCC
Ply: 12
Pressure:
Highway: 50 psi
Cross country: 50 psi
Sand driving: 15 psi

PERFORMANCE

The semitrailer is designed to be towed over prepared roads with loads up to 18 tons at speeds as high as 50 mph and to be towed over unimproved roads, trails, and open rolling terrain with loads up to 12 tons at speeds as high as 30 mph.

PRIME MOVER

TRUCK, TRACTOR: 4-ton, 8 x 6, M52*

EQUIPMENT

Basis issue Items: See TM 9-2330-207-14, appendix III

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped:
Length: 28 ft. 8 in.
Width: 8 ft
Height: 11 ft. 7 7/8 in.
Volume: 2,688 cu ft
Gross weight: 36,020 lb
Ship tons: 0.75

Outside Continental United States

Shipped:
Length: 28 ft. 8 in.
Width: 8 ft
Height: 11 ft. 7 7/8 in.
Volume: 2,688 cu ft
Gross weight: 36,020 lb
Ship tons: 0.75

References: TM 9-2330-207-14, TM 9-2330-207-241

* For characteristics and data, see item in section 21.
TRAILER, AMMUNITION: 1 1/2-TON, 2-WHEEL, M332, W/E

General

TRAILER, AMMUNITION: 1 1/2-ton, 2-wheel, M332, consists essentially of a frame supported by an axle assembly with leaf spring suspension and a retractable support at the front end.

Differences among models

Data plate location

Classification: Standard A (OTCM 3153).

Characteristics

Weight:

- Net: 2,800 lb
- Payload: 3,000 lb
- Gross: 5,000 lb

- Empty: Lunette: 570 lb
- Wheels: 2,360 lb

- Loaded: Lunette: 640 lb
- Wheels: 5,000 lb

- Length, overall: 148 in.
- Width, overall: 95 in.
- Height: 53 1/4 in.

- Lunette height: two-way adjustable 31 1/4 in. or 35 1/4 in.

- Ground clearance: 8 in.

- Angle of approach:

- Angle of departure:

- Trend, center to center: 80 in.

- Tires:

- Size: 9.00 x 20

- Ply: 8

- Pressure:
- Highway: 35 psi
- Cross country: 25 psi

- Brakes:

- Manufacturer:
- Type: air-over-hydraulic
- Parking brake, type: mechanical

Body, inside dimensions:

- Length
- Width
- Height

- Cargo space cu ft: 435

- Electrical system: 24 volts

Performance

Maximum towed speed:

- Highway: 50 mph
- Cross-country: 25 mph

Equipment

Basic Issue Items: See TM 9-2330-231-14P.

Storage and shipment data

Within Continental United States

- Shipped 1 trailer:

  - Length
  - Width
  - Height

  - Volume: 435 cu ft
  - Area
  - Gross weight
  - Ship tons

Outside Continental United States

- Shipped 1 trailer:

  - Length
  - Width
  - Height

  - Volume: 435 cu ft
  - Area
  - Gross weight
  - Ship tons

References: TM 9-2330-231-14P.
TRAILER, AMPHIBIOUS: CARGO, 1/4-TON, 2-WHEEL, M100, W/E

General

TRAILER, AMPHIBIOUS: cargo, 1/4-ton, 2-wheel, M100, w/e, is a two-wheel general purpose cargo carrier designed to carry a load of 500 pounds cross-country on land, or water. The body and frame are of one-piece welded construction mounted on a trailer chassis M115.

Two drain valves are provided, one in the front, and one in the rear of the floor.

The trailer is equipped with two taillights which are operated from the towing vehicle. A cable is provided for connecting the trailer electrical system with that of the towing vehicle.

The support leg is a movable support which is used to keep the trailer upright when the trailer is not connected to a towing vehicle. A canvas paulin, which fastens to hooks welded to the body, is provided to cover the trailer top, and is stowed in a metal box, mounted on the left-front body panel, when not in use. A hand lever is mounted on the right-front body panel and is used to lock the brakes when parking the trailer.

Differences among models

Data plate location

The identification plate is located on the front body panel.

Classification: Standard B

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M100</td>
<td>1-57110-20</td>
<td>2330-732-8227</td>
</tr>
</tbody>
</table>

Tires:

<table>
<thead>
<tr>
<th>Size</th>
<th>Ply</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Performance

Equipment

Basic Issue Items: See ORD 7-8, SNL G-747, Sec 1

Instructional Material

Prime Mover

Storage and Shipment Data

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>106-1/2</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>60-1/2</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>40-1/2</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-500, SNL G-747

42-53
TRAILER, BOLSTER: POLE HANDLING, 3½-TON, 2-WHEEL, M271 AND M271A1

General

TRAILER, BOLSTER: pole handling, 3½-ton, 2-wheel, M271 and M271A1, is designed primarily to carry large poles, on highways and/or cross country, and cargo.

The extension tongue is adjustable to two positions.

The entire load of poles is held in position at the rear of the winch cable.

The frame of the trailer is mounted on the main spring leaves and auxiliary spring leaves.

Air-over-hydraulic brakes are provided for each wheel. Parking brakes, one for each wheel, are mounted on the left and right sides of each wheel.

Differences among models

Data plate location

The identification plates (nameplates) are located on the right frame member about 1 inch to the rear of the front bumper bracket.

Classification

M271 — Standard B (YTCM 371141)
M271A1 — Standard A (YTCM 371141):

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Type:</th>
<th>2.130 lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel type:</td>
<td>tubular, single</td>
</tr>
<tr>
<td>Axle type:</td>
<td>single</td>
</tr>
<tr>
<td>Spring type:</td>
<td>semielliptical</td>
</tr>
<tr>
<td>Spring rate:</td>
<td>820 lb per in.</td>
</tr>
<tr>
<td>Wheels:</td>
<td>single or duals</td>
</tr>
<tr>
<td>Tire size:</td>
<td>11.00 x 20</td>
</tr>
<tr>
<td>Pressure:</td>
<td>12 psi</td>
</tr>
<tr>
<td>Service brakes:</td>
<td>air-hydraulic</td>
</tr>
<tr>
<td>Emergency relay valve:</td>
<td>none</td>
</tr>
<tr>
<td>Air reservoir:</td>
<td>none</td>
</tr>
<tr>
<td>Parking brake:</td>
<td>manual</td>
</tr>
<tr>
<td>Effective slope:</td>
<td>30 percent</td>
</tr>
<tr>
<td>Maximum towing speed (mph):</td>
<td>55</td>
</tr>
<tr>
<td>Electrical system:</td>
<td>21 volts</td>
</tr>
<tr>
<td>Tail lamps and blackout lamps:</td>
<td>ORD No. (di) 7760006</td>
</tr>
<tr>
<td>reflectors:</td>
<td>ORD No. (ch) 7760007</td>
</tr>
<tr>
<td>Service blackout:</td>
<td>ORD No. 506101</td>
</tr>
</tbody>
</table>

PERFORMANCE

Basic issue items: See ORD 7-8 XM, G-782

INSTRUCTIONAL MATERIAL

PRIME MOVER
## Storage and Shipment Data

### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.271 in.</td>
<td>.821 in.</td>
<td>.621 in.</td>
<td>.575.9 cu ft</td>
<td>110.6 sq ft</td>
<td></td>
<td></td>
</tr>
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</table>

### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-8212, SNL G-782
TRAILER, BOMB: 2-TON, 4-WHEEL, M143 AND M143A1, W/E

**Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M143</td>
<td>1-57130-30</td>
<td>3330-835-8640</td>
</tr>
<tr>
<td>M143A1</td>
<td>1-57130-20</td>
<td>3330-683-7247</td>
</tr>
</tbody>
</table>

**General**

TRAILER, BOMB: 2-ton, 4-wheel M143 and M143A1, w/e, transports bombs on highway or cross country. It is designed to ford hard bottoms and water crossings which are capable of being forded by the towing vehicle.

The rear end of the trailer is attached to the rear springs and the front end rides on a 2-wheel dolly. Two compartments with hinged doors are located at the rear of the trailer and act as houses for the rear wheels. A tool box is located in the rear of each compartment. Bombs are carried on the drop-down portion of the trailer and are held in place on the bomb racks by check blocks and chains.

**Differences among models**

Both models are identical except the length of M143A1 is shorter.

**Data plate location**

The identification plate is located on the left side between the platform and drop-center portion of the trailer.

**Classification**

M143 - Standard B (TCM 86550)
M143A1 - Standard A (TCM 86550)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Type</th>
<th>wagon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight distribution</td>
<td>no load, cross country-highway, axle (front) 2,500 lb, 5,000 lb</td>
</tr>
<tr>
<td>Weight distribution</td>
<td>axle (rear) 2,000 lb, 5,000 lb</td>
</tr>
<tr>
<td>Gross weight including body and payload</td>
<td>10,100 lb</td>
</tr>
<tr>
<td>Cross country, highway</td>
<td>9,100 lb</td>
</tr>
<tr>
<td>Length, overall</td>
<td>325 in</td>
</tr>
<tr>
<td>Width, overall</td>
<td>88 in</td>
</tr>
<tr>
<td>Height, overall</td>
<td>60 in</td>
</tr>
<tr>
<td>Ladder data</td>
<td>Height, center</td>
</tr>
<tr>
<td></td>
<td>Height, loaded</td>
</tr>
<tr>
<td></td>
<td>Maximum ground clearance</td>
</tr>
<tr>
<td></td>
<td>Departure angle</td>
</tr>
<tr>
<td></td>
<td>Turn of center-in-center</td>
</tr>
</tbody>
</table>

**Axle type:** w/summer axle (Ord No. 872942)

**Spring type:** semi-elliptical (Ord No. 86361)

**Rate:** 600 lb/in

**Wheels:** (Ord No. 738692)

**Tires:**

<table>
<thead>
<tr>
<th>Size</th>
<th>Ply</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00 x 20</td>
<td>8</td>
</tr>
</tbody>
</table>

**Pressure:**

| Highway | 65 psi |
| Cross-country | 35 psi |
| Sand | 20 psi |

**Tread design:** NDCC

**Brakes, service Ord No. 8074210**

| Drum size | 15 in x 3 |
| Actuation | air-hydraulic |
| Emergency relay valve | ORD No. 8325051 |
| Air reservoir | ORD No. 7411078 |

**Brakes, parking:**

| Drum size | 15 in x 3 |
| Actuation | manual |

**Effective slope:** 30 percent

**Maximum towing speed:**

| Cross-country | 30 mph |
| Highway | 50 mph |

**Electrical system Ord No. 8747330**

| Potential | 24 volts |
| Tail lamps | LEFT hand | ORD No. 8378786 |
| Right hand | ORD No. 7261917 |
| Blackout lamps | ORD No. 506101 |
| Reflectors | ORD No. 506102 |

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7-8 SNL G-798

**INSTRUCTIONAL MATERIAL**

**PRIME MOVER**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

| Shipped Length | 336 in |
| Length M143 | 336 in |
| Length M143A1 | 326 in |
| Width | 105 in |
| Volume | 1073.4 cu ft |
| Area | 1073.4 sq ft |
| Gross weight | |
| Ship tons | |

Outside Continental United States

| Shipped Length | 336 in |
| Length | 336 in |
| Width | 105 in |
| Volume | 1073.4 cu ft |
| Area | 1073.4 sq ft |
| Gross weight | |
| Ship tons | |

References: TM 9-8206, SNL G-798.
TRAILER, CABLE REEL: 3½-TON, 2-WHEEL, M310 (SIGNAL CORPS MODEL K-37-B)

General
TRAILER, CABLE REEL: 3½-ton, 2-wheel, M310 (Signal Corps Model K37-B). is used by Signal Corps for construction and maintenance of telephone and telegraph pile lines and field lines. Trailer M310 has been designed for fording hard bottom water crossings where the trailer will be completely submerged.

The trailer has two different types of axles: a lower and two axle stubs. The trailer has air-over-hydraulic service brakes controlled from the towing vehicle and two parking brake levers.

Differences among models
Data plate location
The identification is located on a bracket at the outer side of tongue right channel.

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight:</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net: 2,520 lb</td>
<td>2030-395-1878</td>
<td></td>
</tr>
<tr>
<td>Payload: 7,000 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross: 9,520 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axle: 2,175 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunette: 845 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loaded:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axle:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunette: 3,146 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunette: 380 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tires:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size: 11.00 x 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ply: 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross country:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ground clearance: 12 in
Laxicat height, copies: 26 in
Brakes: Wagner
Type: air
Parking, type: mechanical

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

PRIME MOVER

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Within Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
<td>149 in.</td>
</tr>
<tr>
<td>Width:</td>
<td>88.54 in.</td>
</tr>
<tr>
<td>Height:</td>
<td>68.5 in.</td>
</tr>
<tr>
<td>Volume:</td>
<td>363 cu ft</td>
</tr>
<tr>
<td>Area:</td>
<td>92 sq ft</td>
</tr>
<tr>
<td>Gross weight:</td>
<td></td>
</tr>
<tr>
<td>Ship tons:</td>
<td></td>
</tr>
</tbody>
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Shipped

<table>
<thead>
<tr>
<th>Length:</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width:</td>
<td></td>
</tr>
<tr>
<td>Height:</td>
<td></td>
</tr>
<tr>
<td>Volume:</td>
<td></td>
</tr>
<tr>
<td>Area:</td>
<td></td>
</tr>
<tr>
<td>Gross weight:</td>
<td></td>
</tr>
<tr>
<td>Ship tons:</td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-8236, SNL G-813.
TRAILER, CARGO: ¾-TON, 2-WHEEL, M101, W/E

**General**

TRAILER, CARGO: ¾-ton, 2-wheel. M101. w/e. transports varied types of loads on highways and cross country. The tailgate is hinged to the body. Two handbrake levers at the front of the body and a drawbar assembly is attached to the front of the chassis. A retractable pivoted front support leg is attached to the drawbar bracket, and two taillights are mounted at the rear of the CHASSIS TRAILER: ¾-ton, 2-wheel M101* underneath the body of the trailer.

**Differences among models**

**Data plate location**

Identification plates (nameplate) are riveted to the front panel of the trailer body.

**Classification:** Standard B (OTCM 37839).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M101</td>
<td>4-57190-00</td>
<td>2330-738-000</td>
</tr>
</tbody>
</table>

**Weight:**

- Net: 1,240 lb
- Payload:
  - Off highway: 1,500 lb
  - On highway: 2,250 lb
- Gross:
  - Off highway: 2,840 lb
  - On highway: 3,360 lb
- Empty:
  - Lunette: 99 lb
  - Axle: 1,241 lb
- Loaded:
  - Off highway:
    - Lunette: 172 lb
    - Axle: 2,960 lb
  - On highway:
    - Lunette: 197 lb
    - Axle: 3,303 lb

**Tires:**

- Size: 9.00 x 16
- Ply: 8

**Pressures:**

- Highway
- Cross country
- Sand

- Ground clearance: 14 in.
- Loading height, empty: 35 in.
- Lunette height, w/body horizontal: 21¾ in.

**Body inside dimensions:**

- Length: 96 in.
- Width: 83 in.
- Height: 50 in.

**CargO space:** 175 cu ft

**Parking brake, type:** Mechanical

**PERFORMANCE**

**EQUIPMENT**

Basic issue items: See ORD 7-8 SNL G-748.

**INSTRUCTIONAL MATERIAL**

**PRIME MOVER**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped:
  - Length: 147 in.
  - Width: 73¼ in.
  - Height: 83 in.
  - Volume: 625 cu ft
  - Area: 74 sq ft
  - Gross weight:
  - Ship tons:

**Outside Continental United States**

- Shipped:
  - Length:
  - Width:
  - Height:
  - Volume:
  - Area:
  - Gross weight:
  - Ship tons:

**References:** TM 9-874A, SNL G-748.
TRAILER, CARGO: 1½-TON, 2-WHEEL, M104, M104A1, AND M104A2, W/E

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M104</td>
<td>4-37220-40</td>
<td>2330-754-0069</td>
</tr>
<tr>
<td>M104A1</td>
<td>4-37220-43</td>
<td>2330-835-8330</td>
</tr>
<tr>
<td>M104A2</td>
<td>4-37220-46</td>
<td>2330-879-0609</td>
</tr>
</tbody>
</table>

General

TRAILER, CARGO: 1½-ton, 2-wheel, M104, M104A1, and M104A2, w/e, provides transportation for general cargo. These trailers have been designed for fording hardbottom water crossings where the trailers will be completely submerged.

The trailer has a long-side body of welded plate construction. The wheel housing are welded integral with the body. The body has a front and a rear tailgate. They are hinged at the floor line and are latched in closed position by hooks of the welded tailgate chains.

Differences among models

Cargo trailer M104 uses CHASSIS, TRAILER: 1½-ton, 2-wheel, M102.* TRAILER, CARGO: 1½-ton, 2-wheel M104A1 uses CHASSIS, TRAILER: 1½-ton, 2-wheel, M102A1.* and TRAILER, CARGO: 1½-ton, 2-wheel, M104A2 uses CHASSIS, TRAILER: 1½-ton, 2-wheel M102A3.* The TRAILER, CARGO: 1½-ton, 2-wheel, M104A1 is the same as TRAILER, CARGO: 1½-ton, 2-wheel M104 except that the M104A1 does not have a front tailgate; the body has quarter-type posts at sides and a tapered box type at the front and rear; the caster can be raised and locked in a mounting bracket which is welded to the nose of the chassis frame and has a locking handle.

Data plate location

Identification plates (nameplate) for trailer M104 and under M104A1 are located on the right side of the vehicle chassis frame.

Classification

M104 .................................. Standard B (OTCM 30841)
M104A1 .................................. Standard B (OTCM 30841)
M104A2 .................................. Standard B (OTCM 37141)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net: M104</td>
<td>2,100 lb</td>
</tr>
<tr>
<td>M104A1</td>
<td>2,730 lb</td>
</tr>
<tr>
<td>Payload: On highway</td>
<td>3,900 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>3,900 lb</td>
</tr>
</tbody>
</table>

*For characteristics and data, see item on page 22-11.
CHARACTERISTICS—Continued

Brakes:
Manufacturer: Timken-Detroit
Type: air-hydraulic
Parking brake, type: mechanical
Recommended towing speed:
Off highway: 35 mph
On highway: 30 mph

PERFORMANCE

EQUIPMENT
Basic Issue Items: See ORD 7-8 SNL G-784.

INSTRUCTIONAL MATERIAL

PRIME MOVER
TRUCK, CARRO: 2½-ton, 6 x 6*, M34 or similar

* For characteristics and data, see item in section 21

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>M104</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Area</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

| Shipped |
| Length |
| Width |
| Height |
| Volume |
| Area |
| Gross weight |
| Ship tons |

References: TM 9-8226, SNL G-754.
TRAILER, CARGO: 1 1/2-TON, 2-WHEEL, M105, M105A1, AND M105A2

TRAILER, CARGO: 1 1/2-ton, 2-wheel, M105, M105A1, and M105A2, is used to transport general cargo on and off highways. The body is box type with lattice type side extensions, with tailgate, flat platform, fixed bed, and straight front. It is equipped with tarp bows and tarpaulin.

Differences among models
Except for less ample overall dimensions M105A1 is essentially the same as M105. The body construction of M105A2 is wood and steel as against all steel for the other models. The M105A2 is without support legs or jacks.

Data plate location
Instruction plate is located on the right side of the vehicle chassis frame. Service plate is mounted on right of the chassis frame, just to the rear of the instruction plate.

Classification
M105............................................ Standard B (OTCM 36841)
M105A1........................................ Standard B (OTCM 36841)
M105A2........................................ Standard A (OTCM 37119)

CHARACTERISTICS
Weight:
Net.............................................. 2,650 lb
Payload:
Off highway.................................... 3,000 lb
On highway..................................... 4,500 lb
Gross:
Off highway.................................... 5,500 lb
On highway..................................... 7,150 lb
Lunette w/payload.............................. 360 lb
Axle w/payload.................................. 290 lb
Landing gear w/payload........................ 480 lb
Axle w/payload.................................. 517 lb

Tires:
Ply................................................. 8
Size............................................. 9.00 x 20
Number......................................... 2
Pressure:
Highway......................................... 45 psi
Cross-country.................................. 45 psi

* For characteristics and data, see item in section 21

Ground clearance.................................. 16 1/2 in.
Electrical system................................ 24 volts
Brakes:
Drum size....................................... 15 in.
Type:............................................. air/hydraulic
Parking brake................................... mechanical

Dimensions:
Overall length:
M105............................................. 182 in.
M105A1 and M105A2........................... 166 in.
Overall width:
M105............................................. 96 in.
M105A1 and M105A2........................... 83 in.
Height:
M105 and M105A2.............................. 98 in.
M105A1........................................... 98 in.

PERFORMANCE

EQUIPMENT
TRUCK, CARGO: 2 1/2-ton, 6 x 6

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped:
Length...........................................
Width...........................................
Height.......................................... 430 cu ft
Volume...........................................
Area............................................ 85.5 sq ft
Gross weight..................................
Ship tons.....................................

Outside Continental United States
Shipped:
Length...........................................
Width...........................................
Height.......................................... 430 cu ft
Volume...........................................
Area............................................ 85.5 sq ft
Gross weight..................................
Ship tons.....................................

References: SNL G-784, TM 9-8226.
TRAILER, FLATBED: 10-TON, 4-WHEEL, M345

NOTE All DIMENSIONS SHOWN ARE IN INCHES

Differences among models

Classification: Standard A (OTCM 36876).

CHARACTERISTICS

Type: Flat platform bed
Curbweight: 11,240 lb

Weight:
Empty:
Lunette eye: 820 lb
Axle: 10,131 lb
Cross-country:
Lunette eye: 1,828 lb
Axle: 29,432 lb
Highway:
Lunette eye: 2,128 lb
Axle: 35,182 lb
Gross (including body and payload):
Cross-country: 31,200 lb
Highway: 37,200 lb

Lunette data, height (empty): 29 in.

Landing gear:
Manufacturer: Hornan & Co., Inc
Type: Swing-mounted adjustable, front and rear

Axle:
Type: Tandem
Manufacturer: Warnen Electro
Tubular diameter: 51/2 in.

Spring:
Type: Semi-elliptical (ORD No. 8733785)
Size: 59 1/2 x 1 x 5 in.
No. of leaves: 13

Auxiliary springs: None

Shock absorbers type: None

Wheels:
Type: Offset disk, with removable splined retaining rings
Sing, or duals: Duals

Tires:
Size: 11.00 x 20
Ply: 12

Tread design (Military): NDCC

Pressure:
Highway: 50 psi
Cross-country: 35 psi
Sand, snow, and mud: 15 psi

Tread:
Center-to-center: 72 in.

Out:
90 in.

Brakes, service:
Manufacturer: Wagner Electric
Type: Two-shoe expanding
Drum size: 16.485 dia x 51/2 wide

Actuation: Air-over-hydraulic

Emergency relay valve: 1

Air reservoir: 1

Parking brake: Chock blocks only

Maximum towing speed:
Cross-country: 30 mph
Highway: 55 mph

Electrical system, potential: 24 volts

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

PRIME MOVER

Any vehicle of sufficient tonnage equipped with a pintle hook and air supply.
<table>
<thead>
<tr>
<th>Within Continental United States</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>Shipped</td>
</tr>
<tr>
<td>Length: 27 ft 9 in.</td>
<td>Length:</td>
</tr>
<tr>
<td>Width: 4 ft 2 in.</td>
<td>Width:</td>
</tr>
<tr>
<td>Height: 8 ft 6 1/4 in.</td>
<td>Height:</td>
</tr>
<tr>
<td>Volume: 1,063 cu ft</td>
<td>Volume:</td>
</tr>
<tr>
<td>Area:</td>
<td>Area:</td>
</tr>
<tr>
<td>Gross weight:</td>
<td>Gross weight:</td>
</tr>
<tr>
<td>Ship tons:</td>
<td>Ship tons:</td>
</tr>
</tbody>
</table>

References: TM 9-8242; SNL 816.
TRAILER, FLATBED: FIRE CONTROL/ACQUISITION RADAR, 2-TON, 4-WHEEL, M243

**General**

The TRAILER, FLATBED: fire control/acquisition radar, 2-ton, 4-wheel, M243 is used to transport the acquisition radar antenna. It has four single wheels and a pivoting front dolly assembly. A triangular drawbar attached to the front dolly is used to connect the trailer to the towing vehicle. Two types of service brake systems are found on these trailers; early models are equipped with electric brake systems, later models have air-over-hydraulic systems.

The trailer is equipped with DOLLY, TRAILER, FRONT, M143* and DOLLY, TRAILER, REAR M432.*

**Difference among models**

**Data plate location**

Classification: Standard B (OTCM 3681).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>236 in.</td>
</tr>
<tr>
<td>Width</td>
<td>95 in.</td>
</tr>
<tr>
<td>Height</td>
<td>84.1/4 in.</td>
</tr>
<tr>
<td>Wheel base</td>
<td>172 1/4 in.</td>
</tr>
<tr>
<td>Weight (gross)</td>
<td>5,548 lb</td>
</tr>
<tr>
<td>Weight (net)</td>
<td>3,986 lb</td>
</tr>
<tr>
<td>Tread, center-to-center</td>
<td>30 in.</td>
</tr>
<tr>
<td>Ply</td>
<td>8</td>
</tr>
<tr>
<td>Size</td>
<td>9.00 x 16</td>
</tr>
<tr>
<td>Number</td>
<td>4</td>
</tr>
<tr>
<td>Pressure</td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
</tr>
<tr>
<td>Ground clearance</td>
<td>141/2 in.</td>
</tr>
<tr>
<td>Loading height</td>
<td>457 in.</td>
</tr>
<tr>
<td>Lunette height (adjustable)</td>
<td>27 in.</td>
</tr>
<tr>
<td>Pintle height</td>
<td>none</td>
</tr>
</tbody>
</table>

**Fifth wheel:**

- Height: 39 1/4 in.
- Size: 38 in.
- Type: kingpin w/ drawbar

**Brakes:**

- Type: 6-volt electric or air-over-hydraulic
- Manufacturer: electric brakes
- Warner
- Parking: hand operated

**TRUCK, CARGO:** 2-ton, 6 x 0.**

**PERFORMANCE**

Recommended towing speed (max):

- Off highway: 15 mph
- On highway: 50 mph

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>1,100 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>204 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-2330-212-24P and TM 9-2330-212-14

* For characteristics and data, see item on pages 22-22 and 22-23.
** For characteristics and data, see item in section 21.
TRAILER, FLATBED: GUIDED MISSILE, M261 AND M261A1, W/E

NOTE. ALL DIMENSIONS SHOWN ARE IN INCHES

Data plate location

Differences among models

Trailer M261 is equipped with DOLLY, TRAILER, FRONT: M290H* and DOLLY TRAILER, REAR: M430H.* Trailer M261A1 is equipped with DOLLY, TRAILER, FRONT: M290A1H* and DOLLY, TRAILER, REAR: M430A1H.* Trailer M461 uses electric service brakes while trailer M261A1 uses air-hydraulic service brakes.

Data plate location

Classification: Standard B (OTCM 36876).

Characteristics

**Weight:**
- Net: 7,084 lb
- Payload: 3,245 lb
- Gross: 10,939 lb

**Tires:**
- Size: 11.00 x 16
- Ply: 8
- Pressure:
  - Highway: low
  - Cross country: low
  - Sand: low

**Ground clearance:** 11/16 in.

**Brakes:**
- Type: electric
- Parking brake, type: hand-operated, electric

**Towing vehicle:** TRUCK, CARGO: 254-ton, 6 x 6

Recommended towing speed (max):
- Off highway: 15 mph
- On highway: 50 mph

Performance equipment

Basic issue items: See TM 9-2330-212-14.

Special:

Extension ramps:
- Vehicle equipped with two telescoping-type extension ramps.
- When the ramps are retracted, between the trailer and the loading rack, the launching and transporting rail (with or without the missile and booster) can be rolled off the trailer across the extension ramps and onto the loading rack.

Missile hoist beam:
- This hoist beam, when attached to mobile crane, is used to lift missile from transporting rail and place it on universal-handling dolly for draining of the fuel and oxidizer tank.

Handling-ring segments:
- Each trailer is equipped with eight handling-ring segments, when assembled, form two complete rings by which the missile is handled.

Universal-handling dolly:
- The purpose of this dolly is to hold the missile for emergency draining of fuel or oxidizer tank.

Instructional material

Storage and shipment data

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross Weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>308 in</td>
<td>.95 ft</td>
<td>.461 ft</td>
<td>788 cu ft</td>
<td>.305 sq ft</td>
<td>6,780 lb</td>
<td>19.67</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross Weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>308 in</td>
<td>.95 ft</td>
<td>.461 ft</td>
<td>788 cu ft</td>
<td>.305 sq ft</td>
<td>6,780 lb</td>
<td>19.67</td>
</tr>
</tbody>
</table>


* For characteristics and data, see items 22-20 and 22-21.
TRAILER, LOW-BED: ANTENNA MOUNTED, M260 AND M260A1, W E

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M260</td>
<td>8-57256-10</td>
<td>2330-865-8636</td>
</tr>
<tr>
<td>M260A1</td>
<td>8-57256-20</td>
<td>2330-048-7820</td>
</tr>
</tbody>
</table>

General

TRAILER, LOW-BED: antenna mount, M260 and M260A1, W E, is used to accommodate and transport target tracking radar equipment. The trailer consists of a pivoting front dolly assembly, fixed rear dolly assembly, a drop-bed type body, dual-wheel assemblies, brakes, electrical system, bumper group, and wheel chocks.

Differences among models


Data plate location

The identification plate is located to the right of the bumper group on the rear portion.

Classification: Standard H (UTCRI8411)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Classification: Standard H (UTCRI8411)</th>
</tr>
</thead>
</table>

* For characteristics and data see item on pages 22-20 and 22-21

Performance

Towing speed:

<table>
<thead>
<tr>
<th>Off highway</th>
<th>45 mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>On highways</td>
<td>50 mph</td>
</tr>
</tbody>
</table>

EQUIPMENT

Base issue items: See TM 9-2330-212-14

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped:

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Width</td>
<td>Height</td>
</tr>
<tr>
<td>22 ft</td>
<td>86 ft</td>
<td>85 in</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped:

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Width</td>
<td>Height</td>
</tr>
<tr>
<td>22 ft</td>
<td>86 ft</td>
<td>85 in</td>
</tr>
</tbody>
</table>

References: TM 9-2330-212-11

* For characteristics and data see item on pages 22-20 and 22-21

22-66
TRAILER, ROCKET TRANSPORTER: 762-MM ROCKET, M329 AND M329A1, W/E

### Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M329</td>
<td>4-17525-06</td>
<td>2330-046-1733</td>
</tr>
<tr>
<td>M329A1</td>
<td>4-17525-05</td>
<td>2330-508-1483</td>
</tr>
</tbody>
</table>

### General

TRAILER, ROCKET TRANSPORTER: 762-mm rocket, M329 and M329A1, w/e, is a 4-wheel vehicle designed to transport the 762-mm rocket from the assembly area to the launching site and serve as an assembly platform for the rocket. Basically each of the two trailers consists of a frame and reach assembly, a tandem suspension assembly, "air-over-hydraulic" service brakes, parking brakes (rear axle only), four wheels, a landing jack assembly, a lighting system, an auxiliary electrical system, and a front, center, and rear saddle assembly onto which the rocket is loaded.

Each model of the vehicle has been designed for loading hard-bottom water containers where the trailer will be completely submerged. Dependent furling information on the generator set is not currently available.

### Differences among models

In addition to the "General" description, the trailer M329A1 has a rocket fin storage hood, a spare tire and a tire carrier assembly, and an attachable taillight receptacle.

### Data plate location

The identification plate (nameplate) for Model M329, is located on the rear of the frame on the left side adjacent to the left taillight.

The identification plate (nameplate) for Model M329A1, is located on the forward right side of the reach.

### Classification

M329 — Standard B (OTCM 37119).
M329A1 — Standard B (OTCM 36878).

### CHARACTERISTICS

**M329**:  
Type: frame and reach assembly  
Curbweight: 5,000 lb

- Weight, including body and payload (gross): 11,000 lb
- Height, overall (empty): 78¾ in.
- Length, overall: 301½ in.
- Width, overall: 96 in.
- Landing jack, type: hinged, screw, adjustable, retracting crank
- Axle type: tubular, Timken double-row

**M329A1**:  
Type: frame and reach assembly  
Curbweight: 6,000 lb

- Weight, including body and payload (gross): 12,000 lb
- Height, overall (empty): 84 in.
- Length, overall: 330 in.
- Width, overall: 96 in.
- Tread, center-to-center of tires: 80 in.
- Landing jack, type: hinged, screw, adjustable, retracting crank
- Axle type: tubular, Timken double-row

<table>
<thead>
<tr>
<th>Spring type</th>
<th>No. of leaves</th>
<th>Wheels</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>semilenticular</td>
<td>10</td>
<td>divided rim or offset disk</td>
<td>single</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tires</th>
<th>Single or dual</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-00 x 20</td>
<td>single</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure</th>
<th>NDCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tread design</th>
<th>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brakes service</th>
<th>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Make</th>
<th>ONAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Models</td>
<td>305ACK-99E, 547H</td>
</tr>
<tr>
<td></td>
<td>305ACK-99E/10/GC</td>
</tr>
</tbody>
</table>

| M329A1 |  
Type: frame and reach assembly  
Curbweight: 6,000 lb

- Weight, including body and payload (gross): 12,000 lb
- Height, overall (empty): 84 in.
- Length, overall: 330 in.
- Width, overall: 96 in.
- Tread, center-to-center of tires: 80 in.
- Landing jack, type: hinged, screw, adjustable, retracting crank
- Axle type: tubular, Timken double-row

<table>
<thead>
<tr>
<th>Spring type</th>
<th>No. of leaves</th>
<th>Wheels</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>semilenticular</td>
<td>10</td>
<td>divided rim or offset disk</td>
<td>single</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tires</th>
<th>Single or dual</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-00 x 20</td>
<td>single</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure</th>
<th>NDCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tread design</th>
<th>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brakes service</th>
<th>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Make</th>
<th>ONAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Models</td>
<td>305ACK-99E, 547H</td>
</tr>
<tr>
<td></td>
<td>305ACK-99E/10/GC</td>
</tr>
</tbody>
</table>
CHARACTERISTICS—Continued

M329A1—Continued

Tires:

<table>
<thead>
<tr>
<th>Size</th>
<th>0.00 x 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ply</td>
<td>10</td>
</tr>
<tr>
<td>Tread design</td>
<td>NDCC</td>
</tr>
</tbody>
</table>

Pressure:

<table>
<thead>
<tr>
<th>Highway</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
</tr>
</tbody>
</table>

Service brakes, Wagner Electric Corp.:

<table>
<thead>
<tr>
<th>Drum size</th>
<th>15 x 31/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuation</td>
<td>air-over-hydraulic</td>
</tr>
</tbody>
</table>

Parking brakes, Fruehauf:

<table>
<thead>
<tr>
<th>Drum size</th>
<th>15 dia x 31/4 w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuation</td>
<td>hand operated</td>
</tr>
</tbody>
</table>

Electrical system potential:

| 24 volts      |            |

Gasoline engine and generator set—3125:

<table>
<thead>
<tr>
<th>Make</th>
<th>ONAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td></td>
</tr>
<tr>
<td>Old</td>
<td>305ACK/90E/557B</td>
</tr>
<tr>
<td>New</td>
<td>305ACK/99Y/1050C</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Item: See ORD 7-8 SNL G-821.

INSTRUCTIONAL MATERIAL

PRIME MOVER

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>M329: Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Area</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>M329A1: Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Area</td>
</tr>
<tr>
<td>Gross Weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

TRAILER, TANK: WATER, 1 1/2-TON, 2-WHEEL, 400-GAL, M106, M106A1, AND M106A2

General
TRAILER, TANK: water, 1 1/2-ton, 2-wheel, 400 gal, M106, M106A1, and M106A2, is used to transport, store, and dispense drinking water. Each trailer is designed to be towed over prepared roads with loads of 5,500 pounds and to be towed over unimproved roads, trails, and open rolling terrain with loads to 3,000 pounds at speeds as great as 30 mph. Each trailer has been designed for fording hard-bottom water crossings where the trailer will be completely submerged, and to be towed by TRUCK, CARGO: 2-ton, 6 x 6, M35 or similar vehicle. Each trailer is equipped with a 400-gallon capacity aluminum water tank of elliptical cross section. Two fenders, one on each side, are provided with extensions in front and rear. The fenders and extensions have nonslip horizontal surfaces.

Differences among models
M106 can be used only with a towing vehicle having an air supply, such as the M34. M106 is equipped with hand water pump and 25-foot suction hose for filling.
M106 has a wood-slat-floored extension at the front of the tank for storing a bell strainer with hose. The extension is flanked on either side by a welded metal faucet box.
On M106A1 a piping cover plate is located over the piping between the two welded metal faucet boxes at the front of the tank.
Front caster on Model M106 is not interchangeable with front caster on M106A1 and M106A2. Caster wheel with bearings is interchangeable. M106A1 and M106A2 caster is raised and locked in a mounting bracket welded to nose of chassis frame and has locking handle.
The support leg is standard equipment on the M106 only.
M106A2 employs two hydraulic wheel cylinders for each wheel service brake.
The M106 lunette is mounted into the boss welded to the nose of the chassis frame.
The M106A1 lunette is mounted into a casting welded to the nose of the chassis frame.

Data plate location
Instruction plate is located on the right side of the vehicle chassis frame. Service plate is mounted on right side of the chassis frame, just to the rear of instruction plate.

Classification
M106
M106A1
M106A2

CHARACTERISTICS
Weight:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI06</td>
<td>A-57495-20</td>
<td>2330-724-0538</td>
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<tr>
<td>M106A1</td>
<td>A-57495-25</td>
<td>2330-835-8632</td>
</tr>
<tr>
<td>M106A2</td>
<td>A-57495-26</td>
<td>2330-679-6603</td>
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PERFORMANCE

<table>
<thead>
<tr>
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<th>Size</th>
<th>Number</th>
<th>Pressure:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.00 x 20</td>
<td>2</td>
<td>Highway</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50 lb</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cross-country</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sand</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>105 lb</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Capacity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>400 gal</td>
</tr>
</tbody>
</table>

INSTRUCTIONAL MATERIAL
### Storage and Shipment Data

#### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

#### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL G-754, TM 9-8226.
TRAILER, TANK: WATER, $\frac{1}{2}$-TON, 2-WHEEL, 400 GAL, M107, M107A1, AND M107A2

**General**

TRAILER, TANK: water, $\frac{1}{2}$-ton, 2-wheel, 400 GAL, M107, M107A1, and M107A2, is used to transport, store, and dispense drinking water.

Each trailer is designed to be towed over prepared roads with loads of 5,500 pounds at speeds as high as 50 mph and to be towed over unimproved roads, trails, and open rolling terrain with loads to 3,000 pounds at speeds as high as 30 mph. Each trailer has been designed for fording hard bottom water crossings, where the trailer will be completely submerged, and to be towed by a TRUCK, CARGO: 2$\frac{1}{2}$-ton, 6 x 6, M34* or similar vehicle.

Each trailer is equipped with a 400-gallon capacity aluminum water tank of elliptical cross section.

Two fenders, one on each side are provided with extensions in front and rear. The fenders and extensions have nonslip horizontal surfaces.

**Differences among models**

M107 can be used only with a towing vehicle having an air supply, such as the TRUCK, CARGO: 2$\frac{1}{2}$-ton, 6 x 6, M34.

M107 is equipped with hand water pump and 25-foot suction hose for filling.

M107 has a wood-slat-floored extension at the front of the tank for storing a bell strainer with hose. The extension is flanked on either side by a welded metal faucet box.

On M107A1 and M107A2, a piping cover plate is located over the piping between the two welded metal faucet boxes at the front of the tank.

Front caster on M107 is not interchangeable with front caster on M107A1 and M107A2. Caster wheel with bearings is interchangeable. M107A1 and M107A2 caster is raised and locked in a mounting bracket welded to nose of chassis frame and has locking handle.

The support leg is standard equipment on M107 only.

The M107 lunette is mounted into the boss welded to the nose of the chassis frame.

The M107A1 and M107A2 lunette is mounted into a casting welded to the nose of the chassis frame.

M107A2 employs two hydraulic wheel cylinders for each wheel service brake.

**Data plate location**

Instruction plate is located on the right side of the vehicle chassis frame. Service plate is mounted on right of the chassis frame, just to the rear of the instruction plate.

* For characteristics and data, see item in section 21.

---

**Classification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M107</td>
<td>4-57405-30</td>
<td>2330-835-840</td>
</tr>
<tr>
<td>M107A1</td>
<td>4-57410-35</td>
<td>2330-835-8633</td>
</tr>
<tr>
<td>M107A2</td>
<td>4-57405-40</td>
<td>2330-144-9040</td>
</tr>
</tbody>
</table>

**Characteristics**

**Weight:**

<table>
<thead>
<tr>
<th>Net:</th>
<th>M107</th>
<th>M107A1</th>
<th>M107A2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2,280 lb</td>
<td>2,280 lb</td>
<td>2,280 lb</td>
</tr>
</tbody>
</table>

**Gross including body and payload:**

<table>
<thead>
<tr>
<th>M107</th>
<th>Off highway: 5,613 lb</th>
<th>On highway: 5,613 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>M107A1</td>
<td>Off highway:</td>
<td>On highway:</td>
</tr>
<tr>
<td>M107A2</td>
<td>Off highway:</td>
<td>On highway:</td>
</tr>
</tbody>
</table>

**Length:**

| M107         | 170 in. |
| M107A1       | 165 in. |
| M107A2       |         |

**Width:**

| M107         | 88 in. |
| M107A1       | 82 in. |
| M107A2       |        |

**Height:**

| M107         | 75 in. |
| M107A1       | 77 in. |
| M107A2       |        |

**Ground clearance:**

| M107         | 14$\frac{1}{4}$ in. |
| M107A1       |                    |
| M107A2       |                    |

**Tires:**

| Ply         | 8 |
| Site:       | 0.00 x 20 |
| Number:     | 2 |

**Pressure:**

<table>
<thead>
<tr>
<th>Highway:</th>
<th>Cross-country:</th>
</tr>
</thead>
</table>

**Towing speed (recommended):**

| Off highway | 15 mph |
| On highway  | 55 mph  |

**Electrical system:**

| Potential: | 24 volts |

---

*For characteristics and data, see item in section 21.*
CHARACTERISTICS—Continued

Brakes:
- Service, type: air-hydraulic
- Parking brake, type: mechanical
- Capacity: 400 gal

PERFORMANCE
- Fording depth: complete submersion

EQUIPMENT
- Basic Issue Items: See ORD 7-8 SNL G-754, Sec. 1.

INSTRUCTIONAL MATERIAL
- STORAGE AND SHIPMENT DATA
  - Within Continental United States
    - Shipped Length: ...........................................
    - Shipped Width: ...........................................
    - Shipped Height: .......................................... 93 1/2 sq ft
    - Volume: .................................................. 567 cu ft
    - Gross weight: ........................................... 15 tons

  - Outside Continental United States
    - Shipped Length: ...........................................
    - Shipped Width: ...........................................
    - Shipped Height: ...........................................
    - Volume: .................................................. 567 cu ft
    - Gross weight: ........................................... 15 tons

References: TM 9-8226, SNL G-754.
TRAILER, TANK: water, 1½-TON, 2-WHEEL, 400 GAL., M149, W/E

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M149, w/e</td>
<td>4-5749-05</td>
<td>2330-042-2039</td>
</tr>
</tbody>
</table>

**General**

TRAILER, TANK: water, 400-gal., 1½-ton, 2-wheel, M149 is used to transport, store, and dispense drinking water.

**Differences among models**

**Data plate location**

The data plates are attached to the right front side of the "A" frame extension.

**Classifications:** Standard A (OTCM 36934).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net</td>
<td></td>
</tr>
<tr>
<td>Gross including body and payload</td>
<td>161 in.</td>
</tr>
<tr>
<td>Length</td>
<td>81½ in.</td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height:</td>
<td></td>
</tr>
<tr>
<td>Empty</td>
<td>76½ in.</td>
</tr>
<tr>
<td>Loaded</td>
<td>72½ in.</td>
</tr>
<tr>
<td>Lunette height</td>
<td>43 in.</td>
</tr>
<tr>
<td>Tread, center to center</td>
<td>49 in.</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>17 in.</td>
</tr>
<tr>
<td>Angle of approach</td>
<td>0° deg</td>
</tr>
<tr>
<td>Angle of departure</td>
<td></td>
</tr>
<tr>
<td>Springs:</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>semi-elliptical laminated leaf</td>
</tr>
<tr>
<td>Length (free)</td>
<td>32 in.</td>
</tr>
<tr>
<td>Number of leaves</td>
<td>8</td>
</tr>
<tr>
<td>Width of leaves</td>
<td>3½ in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wheels:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Budd Co.</td>
</tr>
<tr>
<td>Type</td>
<td>Military offset disk</td>
</tr>
<tr>
<td>Rim size</td>
<td>30 x 7.5</td>
</tr>
<tr>
<td>Tire retention</td>
<td>split-type retaining side ring</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tires:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>pneumatic combat</td>
</tr>
<tr>
<td>Ply</td>
<td>8</td>
</tr>
<tr>
<td>Size</td>
<td>9.00 x 20</td>
</tr>
<tr>
<td>Pressure:</td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
</tr>
</tbody>
</table>

**Brakes:**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Wagner Electric Co.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>air-over-hydraulic mechanical</td>
</tr>
<tr>
<td>Parking type</td>
<td>mechanical</td>
</tr>
<tr>
<td>Electrical system</td>
<td>24 volt</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

<table>
<thead>
<tr>
<th>Maximum towed speed:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
</tbody>
</table>

**EQUIPMENT**

| Basic Issue Items: See TM 9-2330-267-14P. |

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>1 trailer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

*Outside Continental United States*

<table>
<thead>
<tr>
<th>Shipped</th>
<th>1 trailer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**References:** TM 9-2330-267-14P.
TRAILER, VAN: DIRECTOR STATION, M259, M259A1, M259AIC, AND M259C

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M259</td>
<td>2330-815-8935</td>
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</tr>
<tr>
<td>M259A1</td>
<td>2330-804-7814</td>
<td></td>
</tr>
<tr>
<td>M259AIC</td>
<td>2330-704-8415</td>
<td></td>
</tr>
<tr>
<td>M259C</td>
<td>2330-704-8444</td>
<td></td>
</tr>
</tbody>
</table>

General

TRAILER, VAN: director station, M259, M259A1, M259AIC, and M259C, is used to house a computer, a telephone, the battle control console, and plotting and recording equipment.

Each trailer is designed to be towed by a TRUCK CARGO, 2½-ton 6 x 6.*

The body is made up of magnesium panels with paper honeycomb core.

It has one door in the rear and a tailgate.

The trailer is provided with gasoline personnel heater and ducts.

Power is supplied to the chassis lighting system and electric brake system by the generator on the towing vehicle.

Four manually operated jacks are provided with each trailer, hinged to underside of chassis.

Differences among models

M259 requires a prime mover equipped with an electric brake controller to operate the trailer brakes.

M259A1 requires a prime mover equipped with an air brake controller for operating the trailer brakes and the proper connection for attaching the trailer.

DOLLY, TRAILER, FRONT: M430F** and DOLLY, TRAILER, REAR: M430F** used on M259 trailer.

DOLLY, TRAILER, FRONT: M430AIF** and DOLLY, TRAILER, REAR: M430AIF** used on M259A1 trailer.

Data plate location

Identification plate (nameplate) is located in the rear above floor level at the right corner of rear body.

Instruction and caution plates are located at pertinent points.

Classification

M259          Standard B (OTCM 36820)
M259A1        Standard B (OTCM 36806)
M259AIC       Standard B (OTCM 36820)
M259C         Standard B (OTCM 36811)

* For characteristics and data, see item in section 21.
** For characteristics and data, see items on pages 22-20 and 22-21.

CHARACTERISTICS

Weight:

W/director ....................................... gross 12,015 lb
W/o director ...................................... net 6,860 lb

Tires:

Fly: .............................................. 8
Size: ............................................. 9.00 x 16
Number: .......................................... 8
Pressure: ........................................

Highway: ........................................
Cross-country: ..................................
Sand: ...........................................

Length: .......................................... 214½ in.
Width: ............................................ 96 in.
Height: .......................................... 128½ in.
Ground clearance: ............................... 11¾ in.
Loading height: ................................. 46 in.
Drawbar height (adjustable) ................. 27 in.

Components:

Brakes (trailer M259) ......................... electric 6 volts
Brakes (trailer M259A1) ....................... air-over-hydraulic
Brakes (trailer M259AIC) .....................
Brakes (trailer M259C) .........................

Lights (clearance and stop) ................. 24 volts
Lights (equipment, operating) .............. 120 volts
Fifth wheel:

Size: ............................................. 38½ in.
Type: ............................................. kingpin w/drawbar
Weight: .......................................... 39½ lb

Heater, personnel (Hunter): ................. 50,000

Towing facility: ................................. drawbar

Recommended towing speed (max):

Off highway: .................................... 10 mph
On highway: ..................................... 50 mph

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL
<table>
<thead>
<tr>
<th>Shipped</th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>Volume</td>
</tr>
<tr>
<td>Area</td>
<td>Area</td>
</tr>
<tr>
<td>Gross weight</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>Ship tons</td>
</tr>
<tr>
<td></td>
<td>References: TM 9-2330-212-14, TM 9-2330-212-24P.</td>
</tr>
</tbody>
</table>

Within Continental United States

Shipped

Length: 1,704 cu ft
Area: 218 sq ft
Gross weight: 45 tons
Ship tons: 45 tons
TRAILER, VAN: ELECTRONIC SHOP, 2½-TON, 4-WHEEL, M359 AND M359A1

General
TRAILER, VAN: electronic shop, 2½-ton, 4-wheel, M359 and M359A1, is used to transport and house electronic equipment for guided missile system.

Each trailer is designed to be towed by a TRUCK, CARGO: 2½-ton 6 x 6.
The body is made up of magnesium panels with paper honeycomb core.
There is a door in the rear and a tailgate.
Trailer is provided with gasoline personnel heater and ducts.
Power is supplied to the chassis lighting system and electric brake system by the generator on towing vehicle.

Four manually operated jacks are provided with each trailer, hinged to underside of chassis.

Differences among models
On M359 electric brakes are employed (6 volt).
On M359A1 air-over-hydraulic brakes are used.
M350 is equipped for DOLLY, TRAILER, FRONT: M420N* and DOLLY, TRAILER, REAR: M430N.*
M359A1 is equipped for DOLLY, TRAILER, FRONT: M420AIN* and DOLLY, TRAILER, REAR: M430AIN.

Brakes, service:
Actuation:
- M359: electric, all-over-hydraulic
- M350: all-over-hydraulic
- M359A1: none
- M359A1: none

Emergency relay valve:
- M359: none
- M359A1: none

Air reservoir:
- M359: none
- M359A1: none

Data plate location
Instruction and caution plates are located at pertinent points.
Identification is stamped into frame in ½-inch high letters in the rear at the right side.

Classification: Standard B (OTC 30670).

CHARACTERISTICS

Tires
Ply:
Size (heavy duty): 9.00 x 16

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped per
Length: 2:25 in
Width: 95 in
Height: 126 in
Volume: 1,022 cu ft
Area: 148.4 sq ft
Cross weight: 11,989 lb
Ship tons: 41

Outside Continental United States

Shipped per
Length
Width
Height
Volume
Area
Cross weight
Ship tons

TRAILER, VAN: FIRE CONTROL, 2-TON, 4-WHEEL, M244 AND M244A1

**General**

TRAILER, VAN: fire control, 2-ton, 4-wheel, M244 and M244A1, is used to transport components of the acquisition antenna assembly and spare parts and to serve as a work space for the FIRE CONTROL SYSTEM, ANTI-AIRCRAFT, M33C.

Each trailer is designed to be towed by a TRUCK CARGO, 2 1/2-ton 6 x 6.

The body is made up of magnesium panels with paper honeycomb core. There is a door in the rear and a tailgate. Trailer is provided with gasoline personnel heater and ducts.

Power is supplied to the chassis lighting system and electric brake system by the generator on towing vehicle.

Four manually operated jacks are provided with each trailer, hinged to underside of chassis.

**Differences among models**

On M244 electric brakes are employed.

On M244A1 air-hydraulic brakes are employed.

Parking brakes are manual on M244 and electric on M244A1.

M244 is equipped for DOLLY, TRAILER, FRONT, M428C* and DOLLY, TRAILER, REAR, M430C.*

M244A1 is equipped for DOLLY, TRAILER, FRONT, M428A1C* and DOLLY, TRAILER, REAR, M430A1C.*

**Data plate location**

Instruction and caution plates are located at pertinent points. Identification is found in the rear on the right side stamped into frame.

**Classification:** Standard B (OTCM 30876).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Net</th>
<th>7,122 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payload</td>
<td>4,930 lb</td>
<td></td>
</tr>
<tr>
<td>Gross</td>
<td>12,052 lb</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ply</td>
</tr>
<tr>
<td>Size</td>
</tr>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Pressure</td>
</tr>
<tr>
<td>Highway</td>
</tr>
<tr>
<td>Cross country</td>
</tr>
<tr>
<td>Sand</td>
</tr>
</tbody>
</table>

**Length** | 320 in. |
**Width** | 97 in. |
**Height** | 127 in. |
**Ground clearance** | 143/4 in. |

**Fifth wheel, type:** Kingpin with drawer

**Electrical system:**

- **Trailer:** 24 volts
- **Emergency:** 24 volts
- **Equipment operation:** 110 volts

**Brakes:**

- **Service:**
  - M244: electric
  - M244A1: air-hydraulic
- **Parking**
  - M244: electric
  - M244A1: manual

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Width</td>
<td>Height</td>
<td>Volume</td>
<td>Area</td>
<td>Gross weight</td>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Width</td>
<td>Height</td>
<td>Volume</td>
<td>Area</td>
<td>Gross weight</td>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Reference: TM 9-2350-212-211

* For characteristics and data, see items in section 13 and 21, and on pages 22-20 and 22-24.
TRAILER, VAN: FIRE CONTROL MOUNT, 3-TON, 4-WHEEL, M242 AND M242A1

**Major item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M242</td>
<td></td>
<td>2330-520-9205</td>
</tr>
<tr>
<td>M242A1</td>
<td></td>
<td>2330-542-4058</td>
</tr>
</tbody>
</table>

**General**

TRAILER, VAN: fire control mount, 3-ton, 4-wheel. M242 and M242A1 are used to transport and house antiaircraft fire control equipment.

Each trailer is designed to be towed by a TRUCK, CARGO: 2½-ton, 6 x 6.

The body is made up of aluminum panels with paper honeycomb core. There is a door in the rear and a tailgate.

Trailer is provided with gasoline personnel heater and ducts.

Power is supplied to the chassis lighting system and electric brake system by the generator of towing vehicle.

Four manually operated jacks are provided with each trailer, hinged to underside of chassis.

Rear dolly has manually operated parking brakes.

**Differences among models**

M242 is equipped with DOLLY, TRAILER, FRONT: M426 and DOLLY, TRAILER, REAR: M430.


On M242 electric brakes are employed. On M242A1 air-hydraulic brakes are employed.

M242A1 is equipped with air reservoir and emergency relay valve.

**Data plate location**

Instructions and caution plates are located at pertinent points. Identification plate (nameplate) is found in the rear on the right side.

**Classification:** Standard II (OTCM 36876).

**CHARACTERISTICS**

**Weight:**

- Curb weight: 7,370 lb
- Gross weight, including body and payload:
  - Cross-country: 13,760 lb
  - Highway: 13,760 lb

**Tires:**

- Ply: 8
- Size: 9.00 x 16
- Number: 8
- Pressure: Highway:

**Brakes:**

- Service:
  - M242 electric
  - M242A1 air-over-hydraulic with air reservoir
- Parking: manual on rear dolly

**Electrical system:**

- Trailer: 24 volts
- Equipment: 120 volts

**PERFORMANCE**

- Fording depth: same as towing vehicle

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped per:
  - Length: 244 in.
  - Width: 96 in.
  - Height: 135 in.
  - Volume: 2,486 cu ft
  - Area: ______________________
  - Gross weight: ______________________
  - Ship tons: 62

**Outside Continental United States**

- Shipped per:
  - Length: ______________________
  - Width: ______________________
  - Height: ______________________
  - Volume: ______________________
  - Area: ______________________
  - Gross weight: ______________________
  - Ship tons: ______________________

Reference: TMI 9-2330-212-24P.

* For characteristics and data, see item in section 21 and on pages 22-23 and 22-21.
TRAILER, VAN: LAUNCHING CONTROL, M262, M262A1, AND M262AIC

General
TRAILER, VAN: launching control, M262, M262A1, and M262AIC, is used to house the launcher control console, telephone switchboard, miscellaneous communications equipment, heating, and ventilating unit.

Each trailer is designed to be towed by a TRUCK, CARGO: 21/2-ton 6x6.*

The body is made up of magnesium panels with paper honeycomb core. There is a door in the rear and a tailgate.

Trailer is provided with gasoline personnel heater and ducts.

Power is supplied to the chassis lighting system and electric brake system by the generator on towing vehicle.

Four manually operated jacks are provided with each trailer, hinged to underside of chassis.

Differences among models
Trailer M262AIC is equipped with DOLLY, TRAILER, FRONT: M420AIG* and DOLLY, TRAILER, REAR: M430AIG.*

Data plate location
Instructions and caution plates are located at pertinent points.

Identification plate (nameplate) is found in front near bottom of frame just left of refrigeration exhaust on attached plate.

Classification
M262 ....................................................... Standard B (OTC 30811)
M262A1 ..................................................... Standard B (OTC 30810)
M262AIC

CHARACTERISTICS

Weight:
Net: .......................................................... 6,800 lb
Gross: ...................................................... 12,400 lb

" res: Plv: ......................................................... 8
Size: .......................................................... 9.00 x 16
Number: ...................................................... 8
Pressure:
Highway: .....................................................
Cross-country: ...........................................
Sand: .........................................................

Ground clearance:
Front dolly: ................................................. 17 in
Rear dolly: ................................................... 16 in
Drawbar height (adjustable) ......................... 27 in

Fifth wheel:
Size: .......................................................... 38", in
Type: .......................................................... kingpin w/drawbar
Height: ....................................................... 39½ in

Lights:
Trailer ....................................................... 21 volts
Equipment .................................................. 120 volts

Brakes:
M262 .......................................................... 6-volt electric
M262A1 and M262AIC ........................................ air hydraulic

Length:
M262 and M262A1 .......................................... 225 in
M262AIC ..................................................... 237½ in

Width: ......................................................... 80 in

Height: M262 and M262A1 .................................. 120½ in
M262AIC ..................................................... 128½ in

PERFORMANCE

Fording depth ............................................ same as towing vehicle

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
M262 and M262A1

Within Continental United States

<table>
<thead>
<tr>
<th></th>
<th>per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>1,622 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>208 sq ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 21 and on pages 22-29 and 22-21

22-78
### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>per</th>
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<tbody>
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<td>Length</td>
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<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**M262A1C:**

### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
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<tr>
<td>Height</td>
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</tr>
</tbody>
</table>

**References:** TM 9-2330-212-14, TM 9-2330-212-24P.
TRAILER, VAN: RADAR TRACKING CENTRAL, M258 AND M258A1

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M258</td>
<td>2530-832-8634</td>
<td></td>
</tr>
<tr>
<td>M258A1</td>
<td>2330-047-3614</td>
<td></td>
</tr>
</tbody>
</table>

**General**

TRAILER, VAN: radar tracking central, M258 and M258A1, is used to house radar control equipment. Each trailer is designed to be towed by a TRUCK, CARGO: 2 1/2-ton 6 x 6.

- The body is made up of magnesium panels with paper honeycomb core.
- There is a door in the rear and a tailgate.
- Trailer is provided with gasoline personnel heater and ducts.
- Power is supplied to the chassis lighting system and electric brake system by the generator on towing vehicle.
- Four manually operated jacks are provided with each trailer, hinged to underside of chassis.

**Differences among models**

- Emergency brake switch is found only on M258.

**Data plate location**

- Instructions and caution plates are located at pertinent points.
- Identification plate (nameplate) is found in rear on right side of tailgate near floor level on the frame.

**Classification:** Standard B (OTCM 38676).

**CHARACTERISTICS**

- Weight: Net = 6,850 lb, Gross = 11,049 lb
- Tires: Ply = 8, Size = 8.00 x 16, Number = 8
- Pressure: Highway = 70 psi, Sand = 60 psi
- Length = 245 3/4 in., Width = 95 in., Height = 128 1/2 in.

**Ground clearance:**

- Height = 14 1/2 in.
- Fifth wheel:
  - Size = 38 3/4 in.
  - Type = kingpin w/drawbar
  - Height = 39 1/4 in.

**Electrical system:**

- Trailer = 24 volts
- Equipment = 120 volts
- Brakes:
  - M258 = 6-volt electric
  - M258A1 = air-over-hydraulic

**PERFORMANCE**

- Forging depth = same as towing vehicle

**EQUIPMENT**


**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,794 cu ft</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:** TM 9-2330-212-14, TM 9-2330-212-24P.

*For characteristics and data, see item in section 21.
CHASSIS, SEMITRAILER: 6-TON, 2-WHEEL, M117 AND M117A1

General

CHASSIS, SEMITRAILER: 6-ton, 2-wheel, M117 is basic chassis for the TRAILER, STAKE: 6-ton, 2-wheel, M118, and SEMITRAILER, VAN: cargo, 6-ton, 2-wheel, M119. M117A1 is basic chassis for the SEMITRAILER, STAKE: 6-ton, 2-wheel, M118A1 and SEMITRAILER, VAN: shop, 6-ton, 2-wheel, M119A1. M117 or M117A1 is a 2-wheel vehicle designed to be towed by the TRUCK, TRACTOR: 2Y₂-ton, 6x6, M48, or similar vehicle of sufficient capacity, on highway or cross country. Towing facilities are provided by a pickup plate and king pin, and if necessary the chassis can be equipped with a conventional semiautomatic fifth wheel. The chassis frame is made of two pressed steel channel side rails reinforced by 13 pressed steel channel cross members. All members are welded together at right angles to form an integral frame assembly. The spring front and rear supporting beams and the pickup plate are welded to the underside of the frame. Spring front and rear hangers are welded to the spring supporting beams on the M117 only. On the M117A1, the spring front and rear hangers are welded directly to the frame main rails. In addition, miscellaneous brackets are welded to the frame. The chassis is equipped with service brakes, parking brakes, and a retracting landing gear assembly which is used to support the chassis when not coupled to a towing vehicle. The chassis has a spring suspension, and a spare wheel and the tire carrier assembly. Wheels are the dual, pressed-steel type, mounted by hub studs.

Differences among models

M117 has air brakes, and 10-leaf main spring and 5-leaf auxiliary spring assemblies. M117A1 has air-over-hydraulic brakes, an 11-leaf spring assembly, a suspension assembly which is readily removable for air transport, and differs in spring hanger bracket and landing gear design. The M117A1 does not have a hand brake; instead, chock blocks are provided.

Data plate location

The identification plate is located on the right main rail of the chassis frame at the forward and above the pickup plate.

Classification:

M117 Standard B (OTCM 36876)
M117A1 Standard A (OTCM 37119)

CHARACTERISTICS

Weight:

Net ........................................... 7,180 lb

Payload:

Cross-country ................................ 12,000 lb

Highway ...................................... 16,200 lb

Gross including body and payload:

Cross-country:

M118, M118A1, body ...................... 19,140 lb

M119, M119A1, body .................... 19,180 lb

Highway:

M118, M118A1, body .................... 23,340 lb

M119, M119A1, body .................... 23,380 lb

Towing facilities ........................... Pickup plate and kingpin

*For characteristics and data, see item in section 21.
**For characteristics and data, see item on pages 22-23 and 22-49.
Minimum ground clearance: 19% in.
Kingpin to front:
- M117: 18 in.
- M117A1: 17% in.
Length:
- M117: 275% in.
- M117A1: 275% in.
Width: 92% in.
Height platform floor, loaded: 44 ft, 7 in.

Brakes:
- Service: M117: air-operated M117A1: air-over-hydraulic
  Operating air pressure: 100 lb
- Parking: M117: hand lever operated M117A1: chock blocks

Landing gear:
- Type: vertical, retractable
- Legs: 2
- Operation: manual, cranking handle
- Gear box: 2-speed

Tires:
- Number (1 spare): 5
- Type: military pneumatic
- Size: 9.00 x 20
- Ply: 8
- Tire inflation:
  - Highway: 50 psi
  - Cross-country: 35 psi
  - Sand: 15 psi
- Tread:
  - Center-to-center between duals: 70 in.
  - Outside-to-outside: 92% in.

Axle:
- Type: dual, pressed-steel
- Mounting: hub studs
- Spring assembly:
  - M117: 10 leaves
  - Auxiliary spring: 5 leaves
  - M117A1: 11 leaves

Frame:
- Type: welded pressed and structural steel
- Length: 270% in.
- Width: 8 in.

*For characteristics and data, see Item 21.

Beam depth:
- Main side rails: 30% in.
- Channel crossmembers:
  - Main: 10 in.
  - Forward end: 6 in.

Manufacturer: Electrical system:
- Potential: 24 volt
- Tailights:
  - Manufacturer: Standard Ordnance
  - Left: service tail and stop and blackout
  - Right: blackout tail and stop

PERFORMANCE
Towing speed (max):
- Highways and improved roads: 50 mph
- Cross-country: 40 mph
- Sand:

Fording depth:

EQUIPMENT
Basic issue items: See TM 9-2300-210-14, appendix III.

INSTRUCTIONAL MATERIAL
PRIME MOVER
TRUCK, TRACTOR: 2½-ton, 6x6, M48*

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 1 semitrailer chassis
- Length: 275% in.
- Width: 92% in.
- Height:
- Volume (uncrated): 177.5 sq ft.
- Area:
- Gross weight:
- Ship tons

Outside Continental United States
Shipped 1 semitrailer chassis
- Length: 275% in.
- Width: 92% in.
- Height:
- Volume (uncrated):
- Area: 177.5 sq ft.
- Gross weight:
- Ship tons

CHASSIS, TRAILER: 2-TON, 2-WHEEL, XM390, M390, AND M390C

General
CHASSIS, TRAILER: 2-ton, 2-wheel, XM390, M390, and M390C are general purpose vehicles. The XM390 and M390 are for transporting various types of electronic equipment and M390C for transporting a pallet which contains a cluster of three missiles. The vehicles are for use in the ground vehicle support of the Hawk Missile System.

Each chassis consists essentially of a frame, deck plates (except M390), suspension system, two-wheels, air-over-hydraulic service brakes, individually operated hand brakes (for each wheel), 24-volt electrical system, retractable support assembly (landing gear), leveling support jacks, mud guards, blackout lighting, and a towing lunette.

Differences among models
These chassis are different in the deck plating, and in the number of leveling jacks.

Data plate location
Identification plates are located on the right side of the "A" frame drawbar.

Classification:
XM390          No type classification
M390          No type classification
M390C         No type classification

CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>XM390</th>
<th>M390</th>
<th>M390C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (overall)</td>
<td>195 in.</td>
<td>185 in.</td>
<td>185 in.</td>
</tr>
<tr>
<td>Width:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implanted</td>
<td>111 in.</td>
<td>111 in.</td>
<td>111 in.</td>
</tr>
<tr>
<td>Mobile</td>
<td>97¾ in.</td>
<td>97¾ in.</td>
<td>97¾ in.</td>
</tr>
<tr>
<td>Height (overall):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loaded</td>
<td>44¾ in.</td>
<td>44¾ in.</td>
<td>44¾ in.</td>
</tr>
<tr>
<td>Empty</td>
<td>36¾ in.</td>
<td>36¾ in.</td>
<td>36¾ in.</td>
</tr>
<tr>
<td>Curbweight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XM390</td>
<td>3,770 lb</td>
<td>3,770 lb</td>
<td>3,660 lb</td>
</tr>
<tr>
<td>M390</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M390C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manufacturer
Eidal Manufacturing Co., Inc.
### PERFORMANCE

- **Maximum towing speed:**
  - Cross country: 35 mph
  - Highway: 60 mph

- **Angle of departure:** 60 deg
- **Fording depth:** Completely submerged

### EQUIPMENT

**EQUIPMENT STORAGE AND SHIPMENT DATA**

**Within Continental United States:**

- **Shipped 1 chassis uncrated per car.**
- **Length:** 188 1/2 in.
- **Height:** 41 1/2 in.
- **Volume:**
- **Area:**
- **Gross weight:**
- **Ship tons:**

**Outside Continental United States:**

- **Shipped 1 chassis per car.**
- **Length:**
- **Width:**
- **Height:**
- **Volume:**
- **Area:**
- **Gross weight:**
- **Ship tons:**

CHASSIS, TRAILER: 3½-TON, 2-WHEEL, M353

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M353</td>
<td>4-06565-06</td>
<td>2350-545-2631</td>
</tr>
</tbody>
</table>

**General**

CHASSIS, TRAILER: 3½-ton, 2-wheel, M353 is designed to mount various type bodies. It consists essentially of a heavy-duty frame, supported by an offset axle assembly with leaf spring suspension and two retractable swivel casters at the front. The frame is rectangular shape with a raised “A” shaped extension at the front for mounting the lunette. The tires are 11.00 x 20, mounted on 20-inch wheels. Each wheel is covered by a welded fender assembly. Air over hydraulic service brakes are operated by air from the towing vehicle through an air filter, air chamber assembly, and master cylinder assembly. For parking, the brakes may be applied by a brake lever assembly positioned on the frame near the wheels. Two casters, positioned at each side on the front of the vehicle, are mounted on 4.00 x 8 rubber tires and are used to support the front end of the trailer when trailer is not attached to a towing vehicle. The casters are secured in either raised or lowered positions by a gravity pin and chain assembly. The handling bars are provided at the front of the frame so the trailer can be raised to connect and/or disconnect the lunette from the pintle of the towing vehicle. Safety chains are also provided and are welded to each side of the frame.

**Differences among models**

**Data plate location**

The nameplate, showing vehicle nomenclature, federal stock number, model number, publications, and data, is attached to the right front side of the “A” frame extension.

**Classification: Standard A (OTCM 37252)**

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net:</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>Payload:</td>
</tr>
<tr>
<td>Cross-country</td>
</tr>
<tr>
<td>Highway</td>
</tr>
</tbody>
</table>

**Towing facilities:**

<table>
<thead>
<tr>
<th>Type</th>
<th>lunette coupler, 2-way adjustable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height:</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td></td>
</tr>
<tr>
<td>Minimum ground clearance</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>25 in.</td>
</tr>
<tr>
<td>Width</td>
<td>95½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>187½ in.</td>
</tr>
</tbody>
</table>

**Brakes:**

<table>
<thead>
<tr>
<th>Service:</th>
<th>air-over-hydraulic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuation:</td>
<td></td>
</tr>
<tr>
<td>Type:</td>
<td>2-shoe, double cylinder</td>
</tr>
<tr>
<td>Operating air pressure</td>
<td>100 psi</td>
</tr>
</tbody>
</table>

**Parking hand lever assembly:**

<table>
<thead>
<tr>
<th>Hand lever:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Location:</td>
</tr>
<tr>
<td>Actuation:</td>
</tr>
</tbody>
</table>

**Tires:**

<table>
<thead>
<tr>
<th>Type</th>
<th>military, non-directional, cross-country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>11.00 x 20</td>
</tr>
<tr>
<td>Ply</td>
<td>2</td>
</tr>
<tr>
<td>Manufacturer:</td>
<td>Saginaw Products Corp.</td>
</tr>
</tbody>
</table>

**Casters:**

<table>
<thead>
<tr>
<th>Type</th>
<th>military, rubber, retractable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>4.00 x 8</td>
</tr>
<tr>
<td>Ply</td>
<td>2</td>
</tr>
</tbody>
</table>

**Tire inflation:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure:</td>
<td>70 psi</td>
</tr>
<tr>
<td>Cross-country</td>
<td></td>
</tr>
<tr>
<td>Pressure:</td>
<td>50 psi</td>
</tr>
<tr>
<td>Sand</td>
<td></td>
</tr>
<tr>
<td>Pressure:</td>
<td>65 psi</td>
</tr>
<tr>
<td>Caster</td>
<td></td>
</tr>
</tbody>
</table>
**Axles**
- Type: drop, tube type
- Load maximum: 10,000 lb.
- Diameter: 5 in.

**Wheels:**
- Type: pressed steel single
- Mounting:
  - Hub studs
  - Diameter of stud circle: 8 3/4 in.
  - Number of stud holes: 6
  - Rim size: 7.5 x 20
- Manufacturer: Budd Co.

**Suspension:**
- Type: leaf spring
- Number of leaves: 15
- Manufacturer: Utility Tool and Body Co.

**Frame:**
- Type: welded pressed and structural steel, low bed
- Length: 173 1/4 in.
- Width: 49 in.
- Beam depth:
  - Main side rails:
    - Length: 116 1/2 in.
    - Channel: 8 x 2 1/2 in.
    - Thickness: 5/16 in.
  - Crossmembers:
    - Length: 48 1/4 in.
    - Width: 10 5/16 in.
    - Height: 2 1/2 in.
    - Thickness: 1/8 in.
- Manufacturer: Utility Tool and Body Co.

**Electrical System:**
- Power source: 24v
- Operation: towing vehicle light switch
- Lights:
  - Right: Blackout service, tail, and stoplight
  - Blackout stoplight
  - Left: Blackout service, tail, and stoplight

**Performance**
- Towing speed (recommended):
  - Highways and improved roads: 60 mph
  - Unimproved roads and trails: 25 mph
  - Sand: 27 in.

**Equipment**

**Instructional Material**

**Storage and Shipment Data**

**Within Continental United States**
- Shipped 1 trailer chassis
  - Length: 187 1/2 in.
  - Width: 96 in.
  - Height: 48 in.
  - Volume (uncrated): 510 cu. ft.
  - Area: 427 sq. ft.
  - Gross weight: 12 tons

**Outside Continental United States**
- Shipped 1 trailer chassis
  - Length: 187 1/2 in.
  - Width: 96 in.
  - Height: 48 in.
  - Volume: 510 cu. ft.
  - Area: 427 sq. ft.
  - Gross weight: 12 tons
  - Ship tons: 12

SEMITRAILER, VAN: EXPANSIBLE, 6-TON, 4-WHEEL, M313

General

SEMITRAILER, VAN: expansible, 6-ton, 4-wheel, M313, is designed to provide a mobile semitrailer van shop with expanding sides for the installation of maintenance shop sets to be used by personnel maintaining and repairing military equipment in the field. It consists of the expansible van body mounted on the CHASSIS, SEMITRAILER: 6-ton, 4-wheel, M313, and is towed by the TRUCK, TRACTOR: 5-ton, 6 x 6, M52, or similar vehicle. The van body consists of two sections, an outer aluminum skin and an inner plywood covering and is temperature insulated between the inner and outer wall members. The van body is designed to expand to approximately twice the volume it encloses when in the retracted or traveling position. This is achieved by expanding side panels actuated by expanding and retracting mechanisms, and counterbalanced hinged roof and floor sections, which form extensions of the floor and of the roof when the van body is in the expanded position. The van body is provided with electrical system lights and service receptacles, two gasoline-burning heaters, stabilizing or leveling jacks, and two aluminum ladders. It has double doors in the rear wall. A blackout relay is actuated by the door-operated switches to provide blackout protection when the doors are opened.

Differences among models

Data plate location

The identification plate is located on the lower front corner of the right side of the van.

Classification: Standard A (OTCM 37347)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M313</td>
<td>439015</td>
<td>2330-779-6772</td>
</tr>
</tbody>
</table>

**For characteristics and data, see item on page 22-3.**

**For characteristics and data, see item in section 21.**
### PERFORMANCE

<table>
<thead>
<tr>
<th>Towing speed:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-country</td>
<td>20 mph</td>
</tr>
<tr>
<td>Highway</td>
<td>45 mph</td>
</tr>
</tbody>
</table>

### Towing Facilities
- **Number:** 2
- **Manufacturer:** Hunter
- **Model:** UH-68
- **Output:** 60,000 btu/hr
- **Temperature rise (air):** 140° F.

### Heaters
- **Manufacturer:**
  - York
- **Model:** V-81
- **Output:** 24,000 btu/hr
- **Temperature range:**
  - Minimum: 68° F.
  - Maximum: 92° F.

### Electrical System:
- **External lights:**
  - Potential: 24 v dc
- **Front:**
  - Clearance: amber
  - Blackout: amber
- **Left:**
  - Clearance: amber
  - Blackout: amber
- **Right:**
  - Clearance: red
  - Blackout: red
- **Rear:**
  - Clearance: red
  - Blackout: red

### Internal lights and power:
- Ceiling lights, service receptacles, heater units: 110 v ac
- Air-conditioning unit: 220 v ac
- Power source: external

### Side slope: 20 percent
- Departure angle: 65 deg
- Fording depth: 44 in.
- Fordability, chassis submerged: 15 min.
- Performing temperatures:
  - Maximum: +125° F.
  - Minimum: -55° F.

### STORAGE AND SHIPMENT DATA

#### Within Continental United States
- **Shipped 1 van semitrailer**
  - Length: 324 in.
  - Width: 96 in.
  - Height: 182 in.
  - Volume: 2376 cu ft
  - Area: 216 sq ft
  - Gross weight: 14,700 lb
  - Ship tons: 59.49

#### Outside Continental United States
- **Shipped 1 van semitrailer**
  - Length: 324 in.
  - Width: 96 in.
  - Height: 182 in.
  - Volume: 2376 cu ft
  - Area: 216 sq ft
  - Gross weight: 14,700 lb
  - Ship tons: 59.49

### References:
- TM 9-2350-288-14, TM 9-2380-288-24P.

*For characteristics and data, see item in section 21.*
SEMITRAILER, VAN: SHOP, FOLDING SIDES, 6-TON, 4-WHEEL, M447 AND M447C

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M447</td>
<td></td>
<td>2330-542-5709</td>
</tr>
<tr>
<td>M447C</td>
<td></td>
<td>2330-477-9999</td>
</tr>
</tbody>
</table>

**General**

SEMITRAILER, VAN: shop, folding sides, 6-ton, 4-wheel, M447 and M447C is designed to provide a mobile semitrailer van shop with folding sides for the Army and for use as a field spare parts carrier. It is intended for the installation of maintenance shop sets to be used by personnel maintaining and repairing military equipment in the field, for use on highway or cross-country. It is mounted on CHASSIS, SEMITRAILER: 6-ton, 4-wheel, M295 or M295A1* and is towed by the TRUCK, TRACTOR: 5-ton, 6x6, M52, .. or similar vehicle. It is composed of a van body constructed of electrically welded angle iron frame which has double rear doors, and two full length side doors which are sectioned longitudinally so that the lower half hinges downward to form an extension of the floor and the upper half hinges upward to form a roof extension. Protection from the weather is achieved when canvas side curtains are attached. The van body is provided with electrical system lights and power outlets, two heated, stabilizing or leveling jacks, guardrails, and ladder, and is fully temperature insulated.

**Differences among models**

The M447C is the same as the M447 except that the M447C is equipped with an air conditioner.

**Data plate location**

The identification plate is located on the lower front side of the right side door.

**Classification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard A (OTCM 36876)</th>
<th>Standard A (OTCM 37991)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M447</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M447C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Gross including body and payload:**

<table>
<thead>
<tr>
<th></th>
<th>Highway</th>
<th>Cross-country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>332 in.</td>
<td>332 in.</td>
</tr>
<tr>
<td>Width, sides folded</td>
<td>94 1/2 in.</td>
<td>94 1/2 in.</td>
</tr>
<tr>
<td>Out</td>
<td>177 in.</td>
<td>177 in.</td>
</tr>
<tr>
<td>Height (loaded)</td>
<td>131 1/4 in.</td>
<td>131 1/4 in.</td>
</tr>
<tr>
<td>Ground clearance (with gear retracted)</td>
<td>20 1/2 in.</td>
<td>20 1/2 in.</td>
</tr>
<tr>
<td>Tread (center-to-center between duals)</td>
<td>12 in.</td>
<td>12 in.</td>
</tr>
</tbody>
</table>

**Landing gear:**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Type</th>
<th>Pressed steel, collapsible and adjustable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Axle:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type</td>
<td>tubular Ordnance-standard 10,000 lb</td>
</tr>
<tr>
<td></td>
<td>Diameter</td>
<td>4 1/4 in.</td>
</tr>
</tbody>
</table>

**Suspension system:**

<table>
<thead>
<tr>
<th>Number of springs:</th>
<th>Main</th>
<th>Helper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Wheels, type:**

<table>
<thead>
<tr>
<th>Number of plies:</th>
<th>Type</th>
<th>Cross-country</th>
<th>Sand</th>
<th>Military pneumatic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>32</td>
<td>15</td>
</tr>
</tbody>
</table>

**Tires:**

<table>
<thead>
<tr>
<th>Number of tires:</th>
<th>Size</th>
<th>Operating pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20,000 lb</td>
<td>40 psi</td>
</tr>
<tr>
<td></td>
<td>48 psi</td>
<td>60 psi</td>
</tr>
<tr>
<td></td>
<td>32 psi</td>
<td>80 psi</td>
</tr>
</tbody>
</table>

**Brakes:**

<table>
<thead>
<tr>
<th>Type of brake:</th>
<th>Actuation</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>air-over-hydraulic</td>
<td></td>
</tr>
</tbody>
</table>

**Parking chock blocks:**

<table>
<thead>
<tr>
<th>Towing facilities:</th>
<th>Kingpin</th>
</tr>
</thead>
</table>

---

*For characteristics and data, see item on page 22-3.
**For characteristics and data, see item in section 21.
PERFORMANCE

Heaters:
- Number: 2
- Manufacturer: Hunter
- Model: UH-63
- Temperature rise (air): 140°F.

Electrical system:
- External lights:
  - Potential: 24 v
  - Right:
    - Blackout clearance: amber
    - Service: amber
  - Left:
    - Blackout clearance: amber
    - Service: amber
  - Rear:
    - Eight: Blackout clearance: red
    - Service: red
    - Left:
      - Blackout clearance: red
      - Service: red

Internal lights and power:
- Potential: 120/208 v ac 3-phase, 4-wire
- Power source: external

Towing speed:
- Gross-country: 20 mph
- Highway: 45 mph
- Side slope: 20 percent
- Departure angle: 25 deg
- Fording depth: 44 in.
- Fordability, chassis submerged: 10 min

Performing temperatures:
- Maximum: +125°F.
- Minimum: -65°F.

EQUIPMENT

Basic Issue Items: See TM 9-2330-238-14.

INSTRUCTIONAL MATERIAL

PRIME MOVER

TRUCK, TRACTOR: 5 ton, 6x6, M52*

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 van semitrailer
- Length: 823 in.
- Width: 94 in.
- Height: 131 in.
- Volume: 2344 cu ft
- Area: 213 sq ft
- Gross weight: 58.60 tons

Outside Continental United States

Shipped 1 van semitrailer
- Length: 823 in.
- Width: 94 in.
- Height: 131 in.
- Volume: 2344 cu ft
- Area: 213 sq ft
- Gross weight: 88.60 tons

References: TM 9-2330-238-14, TM 9-2330-238-24P.
### Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M416</td>
<td>4-97110-68</td>
<td>2230-704-5465</td>
</tr>
</tbody>
</table>

#### General

TRAILER, CARGO: 1/4-ton, 2-wheel, M416, is a 2-wheel general purpose cargo carrier designed to carry a load of 500 pounds cross-country. The body is of one piece welded construction, bolted to the CHASSIS, TRAILER: 1/4-ton, 2-wheel, M608 at 14 lug locations. The body is watertight and will float the trailer and a 500-pound load in flooding operations. Two drain valves are provided, one in the left front, and one in the right rear of the floor. The trailer is equipped with two taillights which are operated from the towing vehicle. An intervehicular cable is provided for connecting the trailer electrical system with that of the towing vehicle and directional signal lights are provided. An "A" frame drawbar is bolted to the frame side members. It serves as a mount for the towing connections and the support leg. The support leg is a movable support which is used to keep the trailer upright when the trailer is not connected to a towing vehicle. A canvas tarpaulin, which fastens to hooks welded to the body, covers the trailer cargo. The trailer is designed to be towed by TRUCK, UTILITY: 1/4-ton, 4x4, M422.

#### Differences among models

##### Data plate location

The data plate is located on the right rear of the body.

##### Classification: Standard A (OTCM 37760)

#### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net</td>
<td>570 lb</td>
</tr>
<tr>
<td>Payload:</td>
<td></td>
</tr>
<tr>
<td>Off highway</td>
<td>500 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>760 lb</td>
</tr>
<tr>
<td>Gross:</td>
<td></td>
</tr>
<tr>
<td>Off highway</td>
<td>1070 lb</td>
</tr>
<tr>
<td>On highway</td>
<td>1320 lb</td>
</tr>
</tbody>
</table>

*For characteristics and data, see item in section 21.*

**Characteristics and data will be added at a later date.**

#### Weight distribution:

<table>
<thead>
<tr>
<th>Empty:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing leg</td>
<td>88 lb</td>
</tr>
<tr>
<td>Axle</td>
<td>482 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Loaded:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Off highway:</td>
<td></td>
</tr>
<tr>
<td>Landing leg</td>
<td>110 lb</td>
</tr>
<tr>
<td>Axle</td>
<td>960 lb</td>
</tr>
<tr>
<td>On highway:</td>
<td></td>
</tr>
<tr>
<td>Landing leg</td>
<td>113 lb</td>
</tr>
<tr>
<td>Axle</td>
<td>1200 lb</td>
</tr>
</tbody>
</table>

| Length overall | 108 in. |
| Width overall | 89 3/8 in. |
| Height overall | 42 in. |

##### Body inside dimensions:

| Length | 96 in. |
| Width | 41 in. |
| Height | 21 in. |

| Lunette height (two position) | 28 in. |

##### Departure angle (loaded):

| Center of gravity forward of rear axle: | 20 deg |
| Empty | 23 in. |
| Loaded | 61 3/4 in. |

##### Tires:

| Size | 7.00 x 16 |
| Ply | 6 |
| Pressure (psi): |  |
| Highway | 25 |
| Cross-country | 22 |
| Sand | 18 |

| Tread | 25 3/4 in. |
| Parking brake, type | mechanical |
| Springs: |  |
| Type | semielliptical |
| Length (centerline of eyes - flat) | 38 3/4 in. |
| Width | 7 5/8 in. |
| Number of leaves | 10 |

#### Electrical system

24 volt
**PERFORMANCE EQUIPMENT**

Basic issue items: See TM 9-2330-251-14P.

**INSTRUCTIONAL MATERIAL**

**PRIME MOVER**

TRUCK, UTILITY: 1/2-ton, 4x4, M151
TRUCK, UTILITY: 1/2-ton, 4x4, lightweight, M422

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>3 ft. 7 3/8 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>159 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>3.97</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

*Outside Continental United States*

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped Length</td>
<td></td>
</tr>
<tr>
<td>Shipped Width</td>
<td></td>
</tr>
</tbody>
</table>

TRAILER, LOW BED: GUIDED MISSILE, 7-TON, 4-WHEEL, XM529

Model XM529

General
TRAILER, LOW BED, GUIDED MISSILE, 7-TON, 4-WHEEL: XM529, is a special-purpose vehicle designed to load, unload, and transport guided missiles used in the NIKE-AJAX/HERCULES Guided Missile System.
The trailer has a welded steel box-type chassis mounted on a front and rear dolly, the front dolly being steerable. Both dollies are equipped with spring compressing systems and the chassis is equipped with special equipment for handling the guided missiles.
The towing vehicle should have the proper connections for the trailer draw bar, electrical system and air-over-hydraulic brake system.

Caution: This vehicle exceeds the dimensions limitations permitted under AR 700-105. Advance planning will be required in the selection of routes in respect to bridge capacities, and underpass and road clearances involved.

Differences among models
Data plate location
Data plate is located on the right side of the trailer chassis to the rear of the front fender.
The nameplate is located in front of the data plate.

Classification: Limited production (OTCM 37361).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Model No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XM529</td>
<td>2330-720-051</td>
<td></td>
</tr>
</tbody>
</table>

Performance

Cross-country (Front) .................................................. 26 psi
Cross-country (Rear) ................................................... 45 psi
Brake system ......................................................... air-over-hydraulic
Parking brake ......................................................... Rear Dolly, Manual
Jack assembly ......................................................... Mechanical, Telescoping

Power source:
Towing vehicle electric system .................................. 24 volt dc
Accessory electric system: ...........................................
Voltage ......................................................... 120 volt ac
Frequency ................................................... 60 cps
Power .................................................... 3 kw
Source .................................................. engine-driven generator set
Angle of departure .................................................. 20 degrees

Maximum grade ..................................................... 40 degrees

Equipment


STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 trailer per flat car.

Length ................................................. 54'9½" in.
Width ................................................. 100 in.
Height ............................................... 60½ in.
Volume ............................................. 1343 cu ft
Area ................................................ 286 sq ft
Gross weight ......................................
Ship tons ........................................ 31

Outside Continental United States

Shipped 1 trailer per flat car.

Length ................................................. 54'9½" in.
Width ................................................. 100 in.
Height ............................................... 60½ in.
Volume ............................................. 1343 cu ft
Area ................................................ 286 sq ft
Gross weight ......................................
Ship tons ........................................

TRAILER, VAN: SHOP, FOLDING SIDE, 1⅓-TON, 2-WHEEL, M448

**General**

TRAILER, VAN: shop, folding side, 1⅓-ton, 2-wheel, M448, is designed to provide a mobile trailer van shop with folding sides. It is a component of various aircraft maintenance shops, for use on highway or cross-country. It is composed of an aluminum body, which is mounted on and is removable from CHASSIS, TRAILER: 1⅓-ton, 2-wheel, M103A3.* Rear doors are practically full width and height of body, side shelf-type doors are practically full length of body. Stabilizing jacks are provided for use at each rear corner and at the front near the lunette. A drawbar assembly is attached to the front of the chassis, provided with a lunette with nonrotating, invertible offset shank, and landing gear component of castor-type landing wheel to support drawbar and permit movement of trailer when uncoupled from truck. The van trailer M448 is towed by TRUCK, CARGO: 2⅓-ton, 6x6, M35.**

**Differences among models**

**Data plate location**

**Classification:** Standard A (OTCM 36876).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td></td>
<td>2330-691-5692</td>
</tr>
</tbody>
</table>

**General**

- **Type:** trailer van body
- **Manufacturer:** Boyertown Auto Body Works
- **Weight:**
  - Net: 2,360 lb
  - Payload:
    - Cross-country: 3,000 lb
    - Highway: 4,500 lb
  - Gross:
    - Cross-country: 5,960 lb
    - Highway: 7,460 lb
- **Weight distribution:**
  - Coupled to truck:
    - No load:
      - Lunette eye: 252 lb
      - Axle: 2,708 lb

*For characteristics and data, see item on page 22-13.
**For characteristics and data, see item in section 21.
Size:
- Diameter: 16 in.
- Width: 3 in.
- Operating air pressure: 100 lb

Lunette:
- Height from ground: 20½ in.
- Maximum: 34½ in.
- Departure angle: 30 deg
- Temperature rise (air): *F.

Electrical system:
- Internal lights: none
- Power source: external
- Operating air pressure: 24 volts
- Potential: 110-115 ac 3-phase
- External lights:
  - Right: blackout service, tail and stoplight
  - Left: blackout, service, tail and stoplight

Performance:
- Towing speed (recommended):
  - Highways and improved roads: 55 mph
  - Unimproved roads and trails: mph
  - Sand: mph

Heaters:
- Number: none
- Make:
- Model:
- Output: BTU/hr

Reference: TM 9-2300-228-20P.

**For characteristics and data, see item in section 21.**
SECTION 23
TANKS AND SELF-PROPELLED WEAPONS
(Class 2350)
(Includes self-propelled guns, howitzers, mortar, and rifles; combat tanks)

GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED: twin 40-mm, M42 and M42A1 ............. 23-2
GUN, ANTITANK, SELF-PROPELLED: 90-mm, M66 ......................................................... 23-6
GUN, FIELD ARTILLERY, SELF-PROPELLED: 155-mm, M53 (T97) ........................................ 23-8
GUN, FIELD ARTILLERY, SELF-PROPELLED: 175-mm, M107 (T235E1) (See page 23-37) ........ 23-10
HOWITZER, HEAVY, SELF-PROPELLED: full tracked, 8-inch M56 (T108) ............................ 23-2-10
HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M110 (T236E1) (See page 23-39) ................... 23-12
HOWITZER, LIGHT, SELF-PROPELLED: full tracked, 105-mm, M37 ........................................ 23-14
HOWITZER, LIGHT, SELF-PROPELLED: full tracked, 105-mm, M52 and M52A1 ..................... 23-16
HOWITZER, LIGHT, SELF-PROPELLED: 105-mm, T185E1 (See page 23-41) ............................ 23-18
HOWITZER, MEDIUM, SELF-PROPELLED: full tracked, 155-mm, M44 and M44A1 .................. 23-20
HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, T196E1 (See page 23-43) ......................... 23-22
MORTAR, INFANTRY, SELF-PROPELLED: full tracked, 107-mm (formerly 4.2-inch) M84 ........... 23-24
RIFLE, SELF-PROPELLED, FULL TRACKED: multiple, 106-mm, M50 ....................................... 23-26
TANK, COMBAT, FULL TRACKED: 76-mm, M41, M41A1, M41A2, and M41A3 ........................... 23-28
TANK, COMBAT, FULL TRACKED: 90-mm gun, M47 ............................................................. 23-30
TANK, COMBAT, FULL TRACKED: 90-mm gun, M48 and M48C .............................................. 23-32
TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A1 .......................................................... 23-34
TANK, COMBAT, FULL TRACKED: 105-mm gun, M60 ............................................................ 23-36
TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 and M103A1 ........................................ 23-38
TANK, COMBAT, FULL TRACKED: flamethrower, M37 and M37A1 (See page 23-45) ............... 23-40
GUN, ANTI-AIRCRAFT ARTILLERY, SELF-PROPELLED: TWIN 40-MM, M42 AND M42A1

Differences among models

The M42A1 is similar to the M42 in appearance, the difference being in the fuel injection system utilized on the engine of the M42A1.

Data plate location

The data plate is located on the bullet wall, to the left of the driver's seat.

Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M42, w/e</td>
<td>4-17224-00</td>
<td>2350-706-8600</td>
</tr>
<tr>
<td>M42A1, w/e</td>
<td>4-17224-40</td>
<td>2350-043-4791</td>
</tr>
</tbody>
</table>

Armament:

CANNON, 40 MILLIMETER DUAL AUTOMATIC

GUN: M2A1

MOUNT, GUN: 40-mm, twin, M4

MACHINE GUN, CALIBER .30: Browning, M1919A4, flexible

Tracks, width

Center of front road wheel to center of rear road wheel

Tread (center to center of track)

Outside to outside of track

Angle of approach

Angle of departure

Type of fuel

Center of gravity above ground

Weight of vehicle:

Crew and equipment

Empty

Length of track on ground

Ground contact area—0-inch penetration

Ground clearance

Ground pressure

Pintle height, loaded

Vehicle, above ground

Front of vehicle to center of turret

Front of gun to center of turret

Electrical system:

No. of volts

No. of batteries

Type of batteries

Fuel octane rating

Capacities:

Fuel (total)

Crankcase, refill (without cooler and lines)

Transmission, cross-drive, refill (without cooler, core, and lines)

Final drive

Brakes:

Type

Operation

Transmission:

Manufacturer

Model

Type

No. of ranges:

Forward

Reverse

*For characteristics and data, see item in section 8.
**CHARACTERISTICS—Continued**

Transmission—Continued

<table>
<thead>
<tr>
<th>Torque converter output shaft to final drive flange:</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio from torque converter output shaft to final drive flange:</td>
<td>1.4:1</td>
<td>5.34:1</td>
</tr>
<tr>
<td>Final reduction</td>
<td>4.25:1</td>
<td></td>
</tr>
<tr>
<td>Differential-drive gear ratio</td>
<td>4.20:1</td>
<td></td>
</tr>
</tbody>
</table>

**Engine**

- **Manufacturer:** Continental or Lycoming
- **Model:**
  - M42: AOS-895-3
- **Type:** Horizontally opposed, air-cooled, supercharged
- **Displacement:** 968.9 cu in
- **No. of cylinders:** 6
- **Bore:** 0.70 in
- **Stroke:** 0.70 in
- **Compression ratio:** 6.0:1
- **Max governed speed (full load):** 2,800 rpm
- **Brake horsepower, gross (max w/std accessories):** 550 at 2,800 rpm
- **Torque, gross (max w/std accessories):** 955 ft-lb at 2,400 rpm
- **Type of ignition, magneto:** 2

**Auxiliary engine-generator:***

- **Manufacturer:** General Motors Corp
- **Model:** A41-1 or A41-2

**AMMUNITION**

- **40-mm:** 480 rounds
- **Cal .30:** 1,750 rounds
- **Hand grenades:** 8
- **Rockets:** 4

**PERFORMANCE**

- **Maximum grade ability:** 60 percent
- **Turning radius:** 40 in.
- **Fuel consumption (average conditions):** 0.7 mpg
- **Allowable speed, recommended:** 45 mph
- **Maximum allowable towed load, gross:** 5,000 lb
- **Cruising range average (average conditions):** 100 mi

**EQUIPMENT**

- **Communication:** Radio set AN/VRC-8, 9 or 10, or AN/VRC-46 and AN/GRR-9
- **Intercommunication set:** AN/UYC-1
- **Sighting and fire control:**
  - PERISCOPE: M13 and M19
  - QUADRANT, FIRE CONTROL: elevation, M1
  - SIGHT, COMPUTING: M38 (T184)
  - SIGHT, REFLEX: M24C

**Basic Issue Items:** See TM 9-7218.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- **Shipped**
  - **Length:** M42: 243.7 in, M42A1: 244 in
  - **Width:** 129 in
  - **Height:** M42: 111.3 in, M42A1: 112 in
  - **Volume:** 2,028 cu ft
  - **Area:** 218 sq ft
  - **Gross weight:** 44,500 lb
  - **Ship tone:** 50.57

**Outside Continental United States**

- **Shipped**
  - **Length:** M42: 243.7 in, M42A1: 244 in
  - **Width:** 129 in
  - **Height:** M42: 111.3 in, M42A1: 112 in
  - **Volume:** 2,028 cu ft
  - **Area:** 218 sq ft
  - **Gross weight:** 44,500 lb
  - **Ship tone:**

**References:** TM 9-7218-1, TM 9-7218, TM 9-2350-202-20P.

**For characteristics and data, see item in sections 12, 14, 18, and 27.**
Deleted by C 1.
Deleted by C l.
GUN, ANTITANK, SELF-PROPELLED: 90-MM, M56

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

- **General**
  - GUN, ANTITANK, SELF-PROPELLED: 90-mm, M56, is a highly maneuverable, light weight, full track, front drive combat vehicle, with a forward mounted air cooled, fuel injection engine. Power is transmitted to the final drives through a cross-drive transmission. The vehicle is used in airborne operations. The vehicle chassis is made of aluminum and is unarmored. The gun assembly is protected by an armored shield. The vehicle, light weight enables it to be transported in a heavy assault glider or cargo aircraft and to be air-dropped.

  - The vehicle is supported by coil springs, eight road wheels, fitted with pneumatic tires and 20-inch unconventional tracks, consisting of two rubber fabric and steel cables of equal width. Torsion bars and shock absorbers are also provided.

  - The vehicle hull is composed of two major compartments; forward and rear. The forward compartment is enclosed and houses the power plant and engine accessories. The rear compartment is open and houses the fuel tank, top carriage, CANNON, 90-MMILIMETER GUN: M54; MOUNT, 90-mm, M88,* driver’s instrument panel, and vehicle controls and seats the crew.

- **Differences among models**
  - Data plate location
    - The data plate is located in the driver’s compartment.
  - Classification: Standard A (OTCM 36841)

- **CHARACTERISTICS**

  - **Model**
    - **Line item No.**
      - M56, w/e: 4-17220-00
    - **Federal stock No.**
      - 2350-338-1050
  - **Angle of approach**: 88 in.
  - **Angle of departure**: 87 in.
  - **Center of gravity above ground**: 26 in.
  - **Weight of vehicle**: 15,500 lb
    - Crew and equipment: 12,750 lb
      - Empty: 12,750 lb
  - **Length of track on ground**: 15 ft.
  - **Ground contact area—6-inch penetration**: 15 sq ft.
  - **Ground pressure**: 4.5 psi
  - **Height of gun**: 66 in.
  - **Height of vehicle**: 91½ in.
  - **Height of gun to center of vehicle**: 141½ in.
  - **Height of vehicle to center of vehicle**: 14½ in.
  - **Type of fuel**: Gasoline
  - **Type of batteries**: 2 HN or 6 TN
  - **Electric system**: Volts 24
    - Number of batteries: 2 (12 volts)
  - **Fuel octane rating**: 80
  - **Capacities**: Fuel (total) 55 gal
    - Crankcase, refill (without cooler, cores, and lines): 11 qt
    - Transmission, cross drive refill (without cooler, cores and lines): 15 qt
  - **Final drive, each**: 4.8:1
  - **Type of tires**: 20 in.
    - Type: Wet, multiple disk
  - **Operation**: Mechanical, foot pedal
  - **Transmission**: Cross-drive, torque converter
    - Number of ranges: Forward: 2
      - Reverse: 1
      - Final reduction: 4.8:1
  - **Engine**
    - **Displacement**: 492 cu in.
    - **Type**: Continental
    - **Air-cooled, opposed, fuel injection
      - **No. of cylinders**: 6
      - **Bore**: 1.625 in.
      - **Stroke**: 4.000 in.
  - **Compression ratio**: 6.9:1

* For characteristics and data, see item in section 4.
CHARACTERISTICS—Continued

Engine—Continued
Maximum governed speed (full load)........... 28 mph
Brake horsepower, gross (max w/std accessories)... 200 at 3,000 rpm
Torque gross (max w/std accessories)........... 355 ft-lb at 2,750 rpm
Type of ignition.........................................magnets
Elevating and traversing mechanism..................manual

AMMUNITION
90-MM.................................................. 28 rounds
Cal .30.................................................. 240 rounds
Grenades...................................................8

PERFORMANCE
Maximum grade ability.............................. 60 percent
Turning radius..........................................9 ft
Fording depth:
W/deep-water fording kit............................42 in.
W/deep-water fording kit.............................60 in.
Maximum vertical obstacle vehicle can climb......30 in.
Maximum width of ditch vehicle can cross......48 in.
Fuel consumption (average conditions)...........4.5 gpm
Allowable speed recommended..........................75 mph
Cruising range (average conditions)..............140 mi
Maximum allowable towed load, gross..............

EQUIPMENT
Communications:
Transradio set AN/PRC-10............................AN/PRC-10
Amplifier and power supply AM-598/U................AM-598/U

Sighting and Fire Control:
Mount, Telescope: M111(T219)
Quadrant Fire Control: M1A1
Telescope: M814(T118)
Fuzee Setter: M37(T40)

Basic Issue Items: See TM 9-2350-213-10.

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1
Length..................................................241 in.
Width..................................................38 in.
Height..................................................38 in.
Volume..................................................1,077 cu ft
Gross weight.........................................12,000 lb
Ship tons..............................................62.42

Outside Continental United States

Shipped
Length..................................................Width...........................................
Height..................................................Volume...........................................
Gross weight.........................................Ship tons...........................................

GUN, FIELD ARTILLERY, SELF-PROPELLED: 155-MM, M53(T97)

**General**

GUN, FIELD ARTILLERY, SELF-PROPELLED: 155-mm, M53 (T97), is a lightly-armored front sprocket driven full-tracked-laying vehicle. The M53 provides mobility for the 155-mm gun, which is enclosed in an armored cab, and crew protection in offensive combat. The vehicle is powered by a 90-degree V-type, air-cooled engine. Power is transmitted to the final drives through a cross-drive transmission, which is combined with the differential and steering unit.

The vehicle utilizes the torsion-bar suspension system incorporating seven road wheels on each side, shock absorbers, track support rollers, and tracks. Trailing idler wheels, mounted on eccentric shafts, maintained constant tension on the tracks when the vehicle is in motion.

The vehicle hull is a welded steel structure divided into four compartments: engine, fuel tank, turret support, and stowage. The engine compartment is decked over to provide protection against enemy fire and other elements. The turret, mounted in the turret support compartment, houses the combination MOUNT, GUN: 155-mm, M86,* which supports the CANNON, 155 MILLIMETER GUN: M46*. A gas-hydraulic equilibration system simultaneously balances the gun and turret.

**Differences among models**

**Data plate location**

The data plate is located on the turret front wall above and to the right of the driver's seat.

**Classification**: Standard B (OTCM 56411)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M53(T97), w/e</td>
<td>4-1722-20</td>
<td>2350-739-3480</td>
</tr>
</tbody>
</table>

**Length, overall** 402 in.

**Width, overall** 141 in.

**Height, overall** 140 in.

**Armament**

CANNON, 155 MILLIMETER GUN: M46; MOUNT:

GUN: 155-mm, M86, 1

MACHINE GUN, CALIBER 50: Browning, M2, heavy barrel, flexible, 1

**Tracks, width** 28 in.

* For characteristics and data, see item in section 4.

---

**Note**: All dimensions shown are in inches.
CHARACTERISTICS—Continued

Engine:
Manufacturer: Continental
Model: AV-1740-5B, 5C, or 5D
Type: 60-degree, V-type, air-cooled
Displacement: 1791.75 cu in.
No. of cylinders: 12
Bore: 3.75 in.
Stroke: 3.75 in.
Compression ratio: 6.5:1
Max governed speed (full load): 2,800 rpm
Brake horsepower, gross (max w/std accessories): 704 at 2,800 rpm
Torque, gross (max w/std accessories): 1,440 ft·lb at 2,000 rpm
Type of ignition: magneto (2)
Track rubber (interchangeable): T84EI
Track steel: T80E6
Auxiliary engine, generator:
Manufacturer: General Motors Corp
Model: A4-1

AMMUNITION
155-mm: 20 rounds
Cal .50: 900 rounds
Cal .45: 180 rounds
Cal .30: 900 rounds

PERFORMANCE
Maximum grade ability: 60 percent
Turning radius: pivot
Fording depth:
wp/deep-water fording kit: 48 in.
w/deep-water breasting kit: 40 in.
Maximum width of ditch vehicle can cross: 80 in.
Fuel consumption (average conditions): 0.43 mpg
Maximum vertical obstacle vehicle can climb: 40 in.
Maximum allowable covered load, gross: 5,000 lb
Cruising range (average conditions): 160 mi

EQUIPMENT
Communications:
Radio set, AN/VRC 8, 9, or 10: AN/VRC-16; or AN/VRC-9 or 25
Intercommunications set: AN/CIC-1

Sighting and Fire Control:
BINOCULAR: M17A1
INDICATOR, AZIMUTH: T27
FUZE SETTER: M26 or M27
MOUNT, TELESCOPE: M99AIC (T179E5)
MOUNT, TELESCOPE: M101 (T181)
PERISCOPE: M17, M18A1, and M13
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: gunner's, M1 or M1A1, w/CASE, carrying
TELESCOPE: M99 (T120)
TELESCOPE, PANORAMIC: M100 (T140E1)
TRIPOD, SURVEYING: 6675-240 (issued w/POST, AIMING: M1 series when issued for Arctic use) (issued by Corps of Engineers)
Basic Issue Items: See ORD 7 SNL C-259.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped Length: 325 in.
Width: 140 in.
Height: 117 in.
Volume: 3,073 cu ft
Gross weight: 93,000 lb
Ship tons: 76.87
Area: 315 sq ft

Outside Continental United States

Shipped Length: 325 in.
Width: 140 in.
Height: 117 in.
Volume: 3,073 cu ft
Gross weight: 93,000 lb
Ship tons: 76.87

HOWITZER, HEAVY, SELF-PROPELLED: FULL TRACKED, 8-INCH M55 (T108)

General
HOWITZER, HEAVY, SELF-PROPELLED, FULL TRACKED, 8-inch, M55(T108), is a lightly armored, front sprocket-driven, full-tracklaying vehicle. The M55 provides mobility for the 8-inch howitzer and crew protection in offensive combat. The vehicle is powered by a 90-degree, V-type, air-cooled engine. Power is transmitted to the final drives through a cross-drive transmission, which is a combined transmission, differential, and steering unit.

The vehicle utilizes the torsion bar suspension system, incorporating seven individually sprung road wheels on each side, shock absorbers, track support rollers, and tracks. Trailer idler wheels, mounted on eccentric shafts, maintain constant tension on the tracks when the vehicle is in motion.

The vehicle hull is divided into four compartments: engine, fuel tank, turret support, and stowage. The engine compartment is decked over to provide protection against enemy fire and other elements. The turret support compartment mounts the turret, which houses the CANNON, 8-INCH HOWITZER: M47; MOUNT, GEN., 8-inch howitzer, M86.

The turret also houses the driving controls.

Differences among models
Data plate location
The data plate is located on the turret front wall, above and to the left of the driver's seat.

Classification: Standard A (OTCM 30841)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Crew</th>
<th>Length, overall</th>
<th>Width, overall</th>
<th>Height, overall</th>
<th>Ground to top of commanders cupola</th>
<th>Ground to top of turret</th>
<th>Armament:</th>
</tr>
</thead>
<tbody>
<tr>
<td>M55, w/e</td>
<td>6</td>
<td>311 1/2 in.</td>
<td>141 in.</td>
<td>146 in.</td>
<td>100 1/2 in.</td>
<td>123 in.</td>
<td>CANNON, 8-INCH HOWITZER: M47; MOUNT, GEN.; 8-inch howitzer, M86.</td>
</tr>
<tr>
<td>M56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MACHINE GUN, CALIBER .50: Browning, M2, heavy barrel, flexible.</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 6

SUBMACHINE GUN, CALIBER .45: M3A1

CARBINE, CALIBER .30: M1

Tracks, width: 60 in.

Length of vehicle: 281 1/2 in.

Length of vehicle: 281 1/2 in.

Height: 146 in.

Width: 141 in.

Ground contact area: 8-inch penetration: 132 in.

Ground clearance: 12 in.

Height of howitzer: 133 in.

Front of vehicle to center of turret: 133 in.

Front of howitzer to center of turret: 138 in.

Electrical system:

Number of volts: 24

Number of batteries: 4 (12 volts)

Type of batteries: 6 TN

Fuel octane rating: 80

Capacities:

Fuel (total): 380 gal

Crankcase, refill (without cooler, cores, and lines): 34 qt

Transmission, cross-drive, refill (without cooler, cores, and lines): 72 qt

Final drive each: 5 qt

Brakes:

Type: Wet friction disk

Operation: Hydraulic cylinders

Transmission:

Manufacturer: General Motors Corp (Allison Div)

Type: CD-890-4, 4A, or 4B

No. of ranges:

Forward: 2

Reverse: 1

Final reduction: 5.0769:1

Differential-drive gear ratio: 1
CHARACTERISTICS—Continued

Engine:
Manufacturer: Continental
Model: AV-1790-5B, 5C, or 5D
Type: 90-degree, V-type, air-cooled
Displacement: 1,791.5 cu in.
No. cylinders: 12
Bore: 5.75 in.
Stroke: 5.75 in.
Compression ratio: 6.5:1
Brake horsepower, gross (max w/std accessories): 704 at 2,800 rpm
Torque, gross (max w/std accessories): 1,440 ft-lb at 2,000 rpm
Type of ignition: magneto (2)
Auxiliary engine-generator GMC—Model: A41-1
Elevating mechanism: manual and hydraulic
Tracks, steel: T80E6
Tracks, rubber (interchangeable): T84E1

AMMUNITION
8-inch: 10 rounds
Cal. .50: 900 rounds
Cal. .45: 180 rounds
Cal. 30: 900 rounds
Hand grenades: 8

PERFORMANCE
Maximum grade ability: 60 percent
Turning radius: pivots
Fording depth:
wo/deep-water fording kit: 48 in.
w/deep-water fording kit:...
Maximum vertical obstacle vehicle can climb: 40 in.
Maximum width of ditch vehicle can cross: 89 in.
Fuel consumption (average conditions): 0.45 mpg
Allowable speed recommended: 30 mph
Maximum allowable towed load, gross: 5,000 lb
Cruising range (average conditions): 160 mi

EQUIPMENT
Communications:
Radio set: AN/PRC-9 or 25 and AN/BCM-50/1
Intercommunications set: AN/UIC-1

Sighting and Fire Control:
BINOCULAR: M17A1
INDICATOR, AZIMUTH: T-27
FUZE, SETTER: M26 AND M27
FUZE, SETTER: M28
MOUNT, TELESCOPE: M69A1C (T1791-3)
MOUNT, TELESCOPE: M101 (T161)
PERISCOPE: M17, M16A1 and M13
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: gunner's M1 or M1A1, w/CASE, carry ing
TELESCOPE PANORAMIC: M100
TELESCOPE, M96 (T1591-1)
TRIPOD, SURVEYING: 6675-240-1881 (issued w/POST, AIMING: M1 series when issued for Arctic use) (issued by Corps of Engineers)

INSTRUCTIONAL MATERIAL
Basic Issue Items:

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped: Length: 325 in.

Outside Continental United States

Shipped: Length: Width: 140 in.

References: SNI, G-235, TM 9-7213, TM 9-2350-210-12, TM 9-2350-210-20
HOWITZER, LIGHT, SELF-PROPELLED: FULL TRACKED, 105-MM, M37

**General**

**HOWITZER, LIGHT, SELF-PROPELLED:** full tracked, 105-mm, M37, is a full-tracked, self-propelled, armored vehicle. The M37 provides mobility for the 105-mm howitzer and crew protection in offensive combat. The howitzer assembly is protected by square box-like armor mounted to the rear of the hull. The M37 is constructed on a light tank M24 chassis. The vehicle is powered by two 90-degree, V-type, liquid-cooled engines. Power is transmitted to the final drive through two hydromatic transmissions.

The vehicle utilizes the torsion bar suspension system, incorporating road wheels, track support rollers, shock absorbers, and tracks. Track wheels and suspension arm cushion stops are also provided.

The vehicle is designed with three compartments. They are: driving compartment at the front, fighting compartment in the center, and engine compartment at the rear. The 105-mm howitzer cannon is mounted in the fighting compartment. Additional firing support is provided by a machinegun mounted on a fixed turret located on the right front corner of the hull adjacent to the assistant driver's hatch.

**Differences among models**

**Data plate location**

The data plate is located on the left front hull wall, in the driver's compartment.

**Classification:** Limited standard (OTCM 27179)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M37, w/e</td>
<td>4-18420-30</td>
<td>2330-833-8007</td>
</tr>
</tbody>
</table>

**Armament:**

- Howitzer, 105-mm
- Machine Gun, Caliber 30
- Carbine, Caliber 30: M1

- Tracks, width: 16 in.
- Tread (center to center of track): 90 in.
- Outside to outside of track: 112 in.

**Type of fuel:**

Center of gravity above ground:

**Weight of vehicle:**

- Crew and equipment: 46,000 lb
- Empty:...
- Length of track on ground:
- Ground contact area: 0-inch penetration...
- Ground clearance:...
- Ground pressure:...
- Fintle height (loaded):...
- Height of howitzer:
- Front of vehicle to center of turret:
- Front of howitzer to center of turret:
- Electrical system:
  - No. of volts:...
  - No. of batteries: 4
  - Type of batteries: 2-H
  - Fuel octane rating: 70
  - Capacities:
    - Fuel (total): 110 gal
    - Crankcase, refill (each engine): 8 qt
    - Transmission (each): 15 qt
    - Final drive (each): 2 qt
  - Brakes:
    - Type: controlled differential
    - Operation: mechanical
  - Transmission (two used):
    - Manufacturer: General Motors Corp
    - Model:...
    - Type: hydromatic
    - No. of ranges:
      - Forward: 2
      - Reverse: 1
    - Final reduction: 2.94:1
    - Differential-drive gear ratio:
  - Engine (two used):
    - Manufacturer: Cadillac
    - Model:...
    - Type: 90-degree, V-type, liquid-cooled
    - Displacement: 340 cu in.
    - No. of cylinders: 8
    - Bore: 3.5 in.
    - Stroke: 4.5 in.
    - Compression ratio: 7.06:1
    - Maximum governed speed (full load):...
    - Brake horsepower, gross (max w/std accessories): 110 at 3,400 rpm
    - Torque, gross (max w/std accessories): 240 ft-lb at 1,200 rpm
    - Type of ignition: battery-distributor

For characteristics and data, see item in section 4.
AMMUNITION
105-mm .............................................. 20 rounds
Cal .50 .............................................. 990 rounds
Cal .30 .............................................. 750 rounds
Hand grenades ........................................ 8

PERFORMANCE
Maximum grade ability ........................................ 90 percent
Turning radius ........................................... 90 pivots
Fording depth:

w/ deep-water fording kit ................................ 32 in.
w/ deep-water fording kit ................................ 32 in.
Maximum vertical obstacle vehicle can climb .................. 30 in.
Maximum width of ditches vehicle can cross .................. 108 in.
Fuel consumption (average conditions) ....................... 55 mpg
Allowable speed, recommended ......................... 90 mph
Maximum allowable towed load, gross ...................... 10,000 lb
Cruising range (average conditions) .................. 100 mi

EQUIPMENT
Communications:
Radio set ........................................... AN/PRC-9 or AN/PRC-25
Intercommunication set ................... AN/UIC-1

Sighting and Fire Control:
FUXE SETTER: M26 and M28
MOUNT, TELESCOPE: M78
MOUNT, TELESCOPE: M77
PERISCOPE: M13 or M4
POLE AIMING: M1A2
QUADRANT, FIRE CONTROL: elevation, M12
QUADRANT, FIRE CONTROL: gunner's, M1 or M1A1,
w/ CASE, carrying

* For characteristics and data, see items in section 14, 18, and 27.

TELESCOPE, PANORAMIC: M12 or M12A2
TELESCOPE: M76G
TRIPOD, SURVEYING: 6075-240-1881 (issued w/ Pole, AIMING: M1 series when issued for Arctic use) (issued by Corps of Engineers)

Basic Issue Items: See ORD 7 SNL G-238.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 per
Length ........................................... 230 in.
Width ........................................... 112 in.
Height ........................................... 96 in.
Volume ........................................... 1,424 cu ft
Gross weight ..................................... 37,066 lb
Ship tons ........................................ 37
Area .............................................

Outside Continental United States
Shipped 1 per
Length ........................................... 230 in.
Width ........................................... 112 in.
Height ........................................... 96 in.
Volume ........................................... 1,424 cu ft
Gross weight ..................................... 37,066 lb
Ship tons ........................................ 37
Area .............................................

References: SNL G-238, TM 9-717.
HOWITZER, LIGHT, SELF-PROPELLED: FULL TRACKED, 105-MM, M52 AND M52A1

General
HOWITZER, LIGHT, SELF-PROPELLED: full tracked, 105-mm, M52 and M52A1, is a lightly armored full-track-laying vehicle, designed to provide highly mobile and maneuverable 105-mm howitzer to give close support to both rapidly moving armored columns and standard infantry divisions. An armored cab incloses the howitzer assembly and crew. The vehicle may be identified by its high silhouette. The vehicles are powered by opposed cylinder, supercharged, air-cooled engine, with power being transmitted to the final drives through cross-drive transmissions. The transmissions are combined with the differential and steering units. The vehicles are equipped with torsion bar suspension incorporating six road wheels on each side, with the rear wheels acting as track idlers. Tracks, track support rollers, bumper springs, and shock absorbers are also provided. The hull of both vehicles is divided into two compartments: the power plant, located at the front, and the crew, located at the rear. The turret, mounted over the crew compartment, houses the MOUNT, HOWITZER: 105-mm, M89 (T67E1)* which supports the CANNON, 105 MILLIMETER HOWITZER: M49.*

Differences among models
The M52A1 is similar in appearance to the M52. The difference being the modification of the M52 so that a fuel injection engine can be utilized in the M52A1.

Data plate location
The data plate is located on the turret wall, in the driver's compartment, directly in front of the driver.

Classification
M52 .................................................. Standard B (OTCM 30841)
M52A1 .................................................. Standard A (OTCM 30841)

CHARACTERISTICS
Crew .................................................. 5
Length, overall ................................... 228½ in.
Length of vehicle ................................ 228½ in.
Width, overall ..................................... 123½ in.
Height, overall ................................... 130½ in.
Height (ground to machine gun mount) ....... 120½ in.

Armament:
Howitzer, 105-mm, M49 .................................. 20
MACHINEGUN, CALIBER .50: M2 .................. 20
CARBINE, CALIBER .30: M2 ......................... 4
SUBMACHINEGUN, CALIBER .45: M3A1 ........ 1

Tread (center to center of track) ................. 102¾ in.
Outside to outside of track ....................... 123¾ in.

Angle of approach ...................................
Angle of departure ...................................
Type of fuel .........................................
Center of gravity above ground .................
Weight of vehicle:
Crew and equipment ................................. 53,000 lb
Empty ................................................... 49,200 lb

Length of track on ground ....................... 149¾ in.
Ground contact area—0-inch penetration ....
Ground clearance ...................................

Ground pressure ...................................
Pintle height (loaded) ............................
Height of howitzer ...................................

Front of vehicle to center of vehicle .........
Front of howitzer to center of vehicle .......

Electrical system:
No. of volts ......................................... 24
No. of batteries ..................................... 4
Type of batteries .................................. 6 TN

Fuel octane rating ...................................
Capacities:
Fuel (total) ......................................... 179 gal
Crankcase, refill (without cooler, core, and lines) ................ 44 qt
Transmission, cross-drive, refill (without cooler, core, and lines) ........ 44 qt
Final drive ......................................... 5 qt

Brakes:
Type .................................................. wet, multiple disk
Operation ...........................................

Transmission:
Manufacturer ........................................ Gen. Motors Corp. (Allison Div)
Model .................................................. CD-500-3
Type .................................................. cross-drive
No. of ranges:
Forward ............................................
Reverse ............................................

Final reduction ...................................
Differential-drive gear ratio ..................... 4.75:1

* For characteristics and data, see item in section 4.
Engine:
Manufacturer: Continental
Model: M52, M52A1
Type: opposed, air-cooled
Displacement: 895 cu in.
No. of cylinders: 6
Bore: 5.4 in.
Stroke: 5.4 in.
Compression ratio: 5.5:1
Maximum governed speed (full load): 2,850 rpm
Brake horsepower, gross (max w/std accessories): 500 at 2,800 rpm
Torque, gross (max w/std accessories): 975 ft-lb at 2,400 rpm
Type of ignition: magneto
Auxiliary engine: GMC Model A41-1
Traversing and Elevating mechanism: manual

AMMUNITION
105-mm: 105 rounds
Cal .50: 900 rounds
Cal .45: 180 rounds
Cal .30: 720 rounds
Grenades: 8

PERFORMANCE
Maximum grade ability: 60 percent
Turning radius: pivots
Fording depth:
wo/deep-water fording kit: 48 in.
w/deep-water fording kit: 36 in.
Maximum vertical obstacle vehicle can climb: 48 in.
Maximum width of ditch vehicle can cross: 72 in.
Fuel consumption (average conditions): 17 mpg
Allowable speed recommended:
M52: 30 mph
M52A1: 42 mph
Maximum allowable towed load, gross: 1,000 lb
Cruising range (average conditions): 100 mi

* For characteristics and data, see item in sections 14, 18, and 27.
HOWITZER, MEDIUM, SELF-PROPELLED: FULL TRACKED, 155-MM, M44 AND M44A1

The data plate is located on the steering bar support plate to the left of and below the instrument panel.

General
HOWITZER, MEDIUM, SELF-PROPELLED: full tracked, 155-mm, M44 and M44A1, is an armored, full-track-laying vehicles, designed to provide armored, highly mobile 155-mm howitzer to give close support to both rapidly moving and standard infantry columns. The hull of the vehicles is a completely welded structure except for portions such as cover plates and grilles which are removable for service and maintenance. The vehicles may be identified by the enclosed howitzer, front and two sides. The vehicles are powered by air-cooled opposed cylinder engines. Power is transmitted to the final drives through cross-drive transmissions.

The hull of the vehicle is divided into two compartments: the engine compartment located at the front and the crew compartment located at the rear. The turret consists of an armored upper turret bolted to the lower turret in which the CANNON, 155 MILLIMETER HOWITZER: M45; MOUNT, HOWITZER: 155-mm, M80* are mounted. Ammunition is stored on swing-out doors located as the rear of the vehicles.

Differences among models
The M44A1 is similar in appearance to the M44. The difference being the modification of the M44 so that a fuel injection engine can be utilized in the M44A1.

Data plate location
The data plate is located on the steering bar support plate to the left of and below the instrument panel.

Classification:
M44 __________________________ Standard B (OTCM 30841)
M44A1 ________________________ Standard A (OTCM 30841)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M44, w/e</td>
<td>4-18423-20</td>
<td>2350-588-5000</td>
</tr>
<tr>
<td>M44A1, w/e</td>
<td>4-18423-25</td>
<td>2350-588-7990</td>
</tr>
</tbody>
</table>

ARMAMENT:
CANNON, 155 MILLIMETER HOWITZER: M45; MOUNT,
HOWITZER: 155-mm, M80. ____________________________ 1
MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel. 1
SUBMACHINEGUN, CALIBER .45: M3A1. 1
CARBINE, CALIBER .30: M2 ___________ 4

Weight of vehicle:
Crew and equipment: M44 ___________ 62,500 lb
M44A1 ___________ 64,000 lb
Empty: M44 ___________ 58,000 lb
M44A1 ___________ 
Length of track on ground: M44 ___________ 149 in
M44A1 ___________ 
Ground clearance—0-inch penetration ___________ 18 in
Ground pressure ___________ 9.4 psi
Pintle height (loaded). ___________ 127 in
Front of vehicle to ___________ 127 in
Front of howitzer to ___________ 126 in
Front of howitzer to rear of recoil spade ___________ 235 in

Electrical system:
No. of volts ___________ 24
No. of batteries ___________ 4
Type of batteries ___________ 6 TN
Fuel octane rating ___________ 80

Capacities:
Fuel (total) ___________ 150 gal
Crankcase, refill (without cooler, core, and lines) ___________ 44 qt
Transmission, cross-drive, refill (complete system) ___________ 64 qt
Final drive ___________ 6 qt

Brakes:
Type ___________ multiple disk, wet

Manufacturer: General Motors Corp (Allison Div)
Model ___________ CD-500-3
Type ___________ cross-drive

* For characteristics and data, see item in section 5.
### CHARACTERISTICS—Continued

**Transmission—Continued**

<table>
<thead>
<tr>
<th>No. of ranges:</th>
<th>Forward</th>
<th>Reverse</th>
<th>Final reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.69:1</td>
</tr>
</tbody>
</table>

**Differential-drive gear ratio:**

<table>
<thead>
<tr>
<th>Engine: Manufacturer</th>
<th>Continental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model:</td>
<td>M44</td>
</tr>
<tr>
<td></td>
<td>M44A1</td>
</tr>
</tbody>
</table>

**Type:** air-cooled, opposed cylinders

**Displacement:** 895 cu in.

**No. of cylinders:** 6

**Bore:** 5.75 in.

**Stroke:** 5.75 in.

**Compression ratio:** 5.5:1

**Maximum governed speed (full load):** 2,800 rpm

**Brake horsepower, gross (max w/ std accessories):**

<table>
<thead>
<tr>
<th>M44</th>
<th>600 ft-lb at 2,400 rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>M44A1</td>
<td>975 ft-lb at 2,400 rpm</td>
</tr>
</tbody>
</table>

**Type of ignition:** magneto

**Auxiliary engine-generator, model:** MIC-4-41-2

**Turret traversing and howitzer elevating system:** power and manual

### AMMUNITION

**155-mm:** 24 rounds

**Cal .50:** 900 rounds

**Cal .30:** 720 rounds

**Cal .45:** 180 rounds

### PERFORMANCE

**Maximum grade ability:** 60 percent

**Turning radius:** 26 ft

**Fording depth:**

1. With deep-water fording kit: 42 in.
2. Without deep-water fording kit: 30 in.

**Maximum vertical obstacle vehicle can climb:** 10 in.

**Maximum width of ditch vehicle can cross:** 32 in.

**Fuel consumption (average conditions):** 0.5 mpp

*For characteristics and data, see item in sections 14 and 18.*

### EQUIPMENT

**Communications:**

- Radio set: AN/PRC-8, 9, or 10, or AN/PRC-25
- Intercommunication set: AN/UIC-1

**Sighting and Fire Control:**

- FUZE SETTER: M26 and M28
- MOUNT, TELESCOPE: M95 and M96
- FIRE, AIMING: M1A2
- QUADRANT, FIRE CONTROL: M1A1
- TELESCOPE: M12A7K and M93
- TRIPOD, SURVEYING: AN, 4675-188-1881 (issued w/ POST, AIMING: M1 series when issued for Arctic use) (issued by Corps of Engineers)

**Basic Issue Items:** See TM 9-7004.

### INSTRUCTIONAL MATERIAL

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- **Length:** 325 in.
- **Width:** 140 in.
- **Height:** 134 in.
- **Volume:** 2,200 cu ft
- **Gross weight:** 86,000 lb

**Outside Continental United States**

- **Volume:** 2,900 cu ft
- **Gross weight:** 90,000 lb

| Reference: | SNL G-279, TM 9-7004, TM 9-2350-203-20P. |

**Allowable speed recommended:** 35 mph

**Maximum allowable towed load, gross:**

**Cruising range (average conditions):** 76 mi

**Fuel consumption (average conditions):** 0.5 mpp

**References:** SNL G-279, TM 9-7004, TM 9-2350-203-20P.
MORTAR, INFANTRY, SELF-PROPELLED: FULL TRACKED,
107-MM (FORMERLY 4.2 INCH) M84

General
MORTAR, INFANTRY, SELF-PROPELLED: full tracked, 107-mm
(formerly 4.2 inch) M84, is a full track, lightly armored, fully enclosed
amphibious vehicle, designed to provide mobility for the 4.2-inch mortar
and crew protection. Fully loaded, the M84 can traverse inland water
ways under its own power without any special preparation or equipment.
The vehicle is powered by two water-cooled, inline cylinder engines.
Power is transmitted to the final drives through two hydromatic trans­
misions.
The M84 is supported by a suspension system consisting of road wheels,
torsion bars, idler wheels, and shock absorbers. The vehicle is also
equipped with tracks T91E3, which provides propulsion and steering in
water as well as on land. The vehicles even distribution of weight results
in uniform loading of suspension on land and level trim on water. The
M84 is identified by its high box like hull, on which a rectangular metal
plate (trim vane) is mounted on the forward slope.
The vehicle hull is divided into seven compartments: the driver's and the
commander's compartment in front, a personnel compartment in the rear,
and a power plant on each side. A crew escape door is located in the right
side of the rear loading ramp. When fully equipped, the mortar base plate
assembly for ground operation is mounted on the outside of the rear loading
ramp to the left of the escape door. The MORTAR, 107 MILLIMETER:
M30* is floor mounted in the crew compartment. The armored top of the
crew compartment may be opened to obtain a greater degree of elevation
for the floor mounted mortar.

Differences among models

Data plate location
The data plate is located on the drive tunnel wall to the left of the
driver's seat.

Classification: Standard A (OTCM 38841)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model M84, w/e</td>
<td>4-38647-00</td>
<td>2350-348-8593</td>
</tr>
</tbody>
</table>

Crew
Length, overall: 221 in.
Width, overall: 123 1/4 in.
Height:
Overall: 103 in.
Ground to top of cupola: 103 in.
Ground to: 94 in.

For characteristics and data, see item in section 4.

Front of vehicle to center of drive sprocket: 18 1/4 in.
Center of drive sprocket to center of front road wheel: 20 1/4 in.
Wheel base: 121 1/4 in.

Armament:
MACHINEGUN, CALIBER .30: Browning, M1919A4 flexible
MACHINEGUN, CALIBER .50: Browning, heavy barrel.
CARBINE, CALIBER .30: M1
5.5 inch rocket launcher.
Cal 30 rifle M1
MORTAR, 107 MILLIMETER: M30
SUBMACHINEGUN, CALIBER .45: M3A1

Tracks, width: 21 in.
Tread (center to center of track): 103 in.
Outside to outside of track: 124 in.

Angle of approach
Angle of departure

Type of fuel

Center of gravity above ground

Weight of vehicle:
Crew and equipment: 47,100 lb
Empty: 41,122 lb

Length of track on ground: 123 in.
Ground contact area—0-inch penetration: 18 in.
Ground clearance: 8 in.
Ground pressure: 8 psi
Pintle height (loaded): 28 1/4 in.
Front of vehicle to center of vehicle:

Electrical system:
No. of volts: 24
No. of batteries: 2
Type of batteries: 6 TN

Fuel octane rating: 80

Capacities:
Fuel (total): 136 1/4 gal
Cooling system (each engine): 26 qt
Crankcase (each engine): 11 qt
Transmission (each): 14 qt
Controlled differential (including oil cooler): 24 qt
Final drive: 15/4 qt

Brakes:
Type: mechanical
Operation: hand lever controlled, controlled differential
CHARACTERISTICS—Continued

Transmission (two):
Manufacturer: General Motors Corp
Model: 301 MG
Type: Hydromatic
Number of ranges:
Forward: 4
Reserve: 1
Final reduction: 4.25:1
Differential-drive gear ratio:

Engine (two):
Manufacturer: General Motors Corp
Model: 301
Type: Water cooled, in-line
Displacement: 301.6 cu in.
No. of cylinders: 6
Bore: 4 in.
Stroke: 4 in.
Compression ratio: 7.2:1
Maximum governed speed (full load): 3,400 rpm
Brake horsepower, gross (max w/std accessories): 127 at 3,350 rpm
Torque, gross (max w/std accessories): 254 ft-lb at 1,800 rpm
Type of ignition: Battery-Distributor

AMMUNITION
4.2-inch mortar: 88 rounds
Cal .50: 2,205 rounds
3.5-inch rocket: 10 rounds
Cal .50: 3,000 rounds
Cal .30: 64 rounds
Cal .30 carbine: 360 rounds

PERFORMANCE
Maximum grade ability: 60 percent
Turning radius: pivots
Fording depth: floats
Maximum vertical obstacle vehicle can climb: 18 in.
Maximum width of ditch vehicle can cross: 66 in.
Fuel consumption (average conditions): 0.84 mpg
Maximum allowable speed, recommended:
Land: 27 mph
Water: 6.5 mph
Maximum allowable towed load, gross: 14,000 lb
Cruising range (average conditions): 100 mi

COMMUNICATIONS
Radio set: AN/VRC-13, 14, or 15, or AN/VRC-46
Intercommunication set: AN/UIC-1

SIGHTING AND FIRE CONTROL:
FUZE SETTER: M27
MOUNT, PERISCOPE: M14A1
PERISCOPE: M17 and M19
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: gunner's, M1A1, with CASE, carrying
SIGHT, PERISCOPE: M28
SIGHT UNIT: M34A2
TRIPOD, SURVEYING: ESN 6075-240-1851 (issued w/POST, AIMING: M1 series when issued for Arctic use) (issued by Corps of Engineers)

INSTRUCTIONAL MATERIAL

AMMUNITION

4.2-inch mortar: 88 rounds
Cal .50: 2,205 rounds
3.5-inch rocket: 10 rounds
Cal .50: 3,000 rounds
Cal .30: 64 rounds
Cal .30 carbine: 360 rounds

PERFORMANCE
Maximum grade ability: 60 percent
Turning radius: pivots
Fording depth: floats
Maximum vertical obstacle vehicle can climb: 18 in.
Maximum width of ditch vehicle can cross: 66 in.
Fuel consumption (average conditions): 0.84 mpg
Maximum allowable speed, recommended:
Land: 27 mph
Water: 6.5 mph
Maximum allowable towed load, gross: 14,000 lb
Cruising range (average conditions): 100 mi

* For characteristics and data, see item in sections 14, 18, and 27.
RIFLE, SELF-PROPELLED, FULL TRACKED: MULTIPLE, 106-MM. M50

General
RIFLE, SELF-PROPELLED, FULL TRACKED: multiple, 106-mm. M50, is a lightly armored, full-track-laying combat vehicle, designed for use by the Marine Corps to provide a highly-mobile and maneuverable vehicle to give close support to rapidly moving armored columns and standard Marine Infantry Divisions. The vehicle hull and all hinged doors and covers in the rear, top, and above the driver's compartment are of all-welded, armor plate construction with the exception of the floor. The vehicle is powered by a water-cooled valve-in-head engine. Power is transmitted to the final drives through a cross-drive, single stage, 4-element transmission.

The vehicle utilizes the torsion bushing type suspension, incorporating eight road wheels, shock absorbers, road wheels, track skids, track skid shoes, and tracks. Track adjusting screws are provided in the rear road wheel for adjusting track tension.

Six RIFLE, 106 MILLIMETER: M40A1C* are mounted on a 106-mm rifle mount on the upper section of the hull. For identification, the rifles are numbered 1 to 6, from left to right, looking at the rifles from the rear of the vehicle. Four RIFLE, CALIBER .50 BROWNING, M1919A4, flexible: 6, are mounted directly over the Nos. 2, 3, 4, and 5, RIFLE, 106 MILLIMETER: M40A1C* respectively. The lower section of the hull supports the tracks, wheels, and other suspension components. The inside provides space for the power plant, personnel, controls, instruments, ammunition, equipment, and accessories.

Differences among models

Data plate location
The data plate is located on the engine section below the instrument panel.

Classification: Standard for U.S.M.C. (O.T.C.M. 35727)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M50</td>
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<td>2350-331-306</td>
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<thead>
<tr>
<th>Major item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>M50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M50</td>
<td></td>
</tr>
</tbody>
</table>

Tread (center to center of track) ........................................ 73 in.
Outside to outside of track ............................................ 83 in.
Angle of approach .........................................................
Angle of departure ........................................................
Type of fuel .................................................................
Center of gravity above ground ...........................................
Weight of vehicle:
Crew and equipment ...................................................... 19,050 lb
Empty .............................................................................. 16,450 lb
Length of track on ground .................................................
Ground contact area—0-inch penetration ................................
Ground clearance ................................................................
Ground pressure ................................................................
Pintle height, loaded ....................................................... 14.5 in.
Fuel octane rating .............................................................
Cylinders ............................................................................
No. of batteries .................................................................
No. of batteries .................................................................
No. of volts ...................................................................
No. of batteries .................................................................
Type of batteries ............................................................... 24

<table>
<thead>
<tr>
<th>Capacities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel (total)</td>
</tr>
<tr>
<td>Crankcase (including filter)</td>
</tr>
<tr>
<td>Transmission (including oil cooler)</td>
</tr>
<tr>
<td>Final drive</td>
</tr>
<tr>
<td>Brakes:</td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Operation</td>
</tr>
<tr>
<td>Number of ranges:</td>
</tr>
<tr>
<td>Forward</td>
</tr>
<tr>
<td>Reverse</td>
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</table>

<table>
<thead>
<tr>
<th>Transmission</th>
</tr>
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<tbody>
<tr>
<td>Manufacturer: General Motors Corp (Allison Div)</td>
</tr>
<tr>
<td>Model: XT-90-2</td>
</tr>
<tr>
<td>Type: Cross-drive-single stage 4-element</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer: General Motors Corp</td>
</tr>
<tr>
<td>Model: 302</td>
</tr>
<tr>
<td>Type: Valve-in-head, water-cooled</td>
</tr>
<tr>
<td>Displacement: 301.6 cu in</td>
</tr>
<tr>
<td>No. of cylinders: 6</td>
</tr>
<tr>
<td>Bore: 4 in</td>
</tr>
<tr>
<td>Stroke: 4 in</td>
</tr>
<tr>
<td>Compression ratio: 7.5:1</td>
</tr>
<tr>
<td>Maximum governed speed (full load): 3,400 rpm</td>
</tr>
<tr>
<td>Brake horsepower, gross: 145 at 3,400 rpm</td>
</tr>
<tr>
<td>Torque, gross: 255 ft-lb at 2,000 rpm</td>
</tr>
<tr>
<td>Type of ignition: Battery</td>
</tr>
</tbody>
</table>

For characteristics and data see item in sections 2 and 4.

23-20
## AMMUNITION

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>106-mm M40A3C</td>
<td>18 rounds</td>
</tr>
<tr>
<td>Cal .30</td>
<td>1,000 rounds</td>
</tr>
<tr>
<td>Cal .50</td>
<td>80 rounds</td>
</tr>
</tbody>
</table>

## PERFORMANCE

- Maximum grade ability: 60 percent
- Turning radius: pivots
- Fording depth:
  - No deep-water fording kit: 24 in.
  - With deep-water fording kit: 50 in.
- Maximum vertical obstacle vehicle can climb: 30 in.
- Maximum width of ditch vehicle can cross: 56 in.
- Fuel consumption (average conditions): 3 mpg
- Allowable speed recommended: 30 mph
- Cruising range (average conditions): 150 mi

## EQUIPMENT

- **Communications:** Radio set AN/PRC-10 or 25
- **Sighting and Fire Control:**
  - MOUNT, PERISCOPE: M05
  - MOUNT, TELESCOPE: M90
  - PERISCOPE: M13
  - PERISCOPE: M20A3C

* For characteristics and data, see items in sections 14, 18, and 27.

## INSTRUCTIONAL MATERIAL

- QUADRANT, FIRE CONTROL: M1A1
- TELESCOPE, ELBOW: M92D

**Basic Issue Items:** See TM 9-2350-212-12.

## STORAGE AND SHIPMENT DATA

**Within Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>305 sq. ft.</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
</tr>
</tbody>
</table>

**References:** SNL G-288, TM 9-2350-212-12, TM 9-2350-212-35.
TANK, COMBAT, FULL TRACKED: 76-MM GUN, M41, M41A1, M41A2 AND M41A3

General
TANK, COMBAT, FULL TRACKED: 76-mm gun, M41, M41A1, M41A2, and M41A3, is full-track-laying armored combat vehicle capable of operating in temperatures ranging from -60° to +125° F. The vehicles were designed to provide mobile fire power and crew protection in offensive combat. Light weight permits airborne transit of the vehicles. The vehicles are powered by horizontally opposed 6-cylinder air-cooled engines. Power is transmitted to the final drives through cross-drive transmissions. Major armament is a high-velocity 76-mm gun mounted in the turret.

The vehicles are supported by a suspension system consisting of 10 road wheels running on a rear sprocket driven track. Shock absorbers, compensating wheels, track roller wheels, and support arms are also provided.

The hull of the vehicles is divided into three compartments: the driving compartment in the front, fighting compartment in the middle, and the engine compartment in the rear. The turret is mounted on a ball bearing race ring on top of the fighting compartment. A MACHINEGUN, CALIBER .30: Browning, M1919A4E1* is mounted coaxially with the CANNON, 76 MILLIMETER GUN: M32; MOUNT, GUN: M76 within the turret. A MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel* can be mounted on either of two pintle stands for ground fire or protection against low-flying enemy aircraft.

Differences among models
The armament and vehicular characteristics of the M41 and M41A1 are nearly identical, the difference being in the installation of the late traversing and elevating mechanism in the M41A1.

The late traversing and elevating mechanism are used in the M41A2 and M41A3 also.

The M41A2 and M41A3 vehicles utilize the fuel injection engine.

Data plate location
The data plate is located on the hull wall to the left of the driver's seat.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M41, w/e</td>
<td>4-44021-20</td>
<td>2350-745-6846</td>
</tr>
<tr>
<td>M41A1, w/e</td>
<td>4-44021-30</td>
<td>2350-833-8819</td>
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<tr>
<td>M41A2, w/e</td>
<td>4-44021-40</td>
<td>2350-956-9588</td>
</tr>
<tr>
<td>M41A3, w/e</td>
<td>4-44021-50</td>
<td>2350-956-1087</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in sections 2 and 1.
CHARACTERISTICS—Continued

Engine:

Manufacturer: Continental or Lycoming
Model:
M41 and M41A1: AOS-800-3
M41A2 and M41A3: AOS-800-5

Type: Opposed cylinder, air-cooled, supercharged
No. of cylinders: 6
Displacement: 895.9 cu in.
Bore: 5.75 in.
Stroke: 5.75 in.
Compression ratio: 5.5:1

Maximum governed speed (full load): 2,800 rpm
Brake horsepower, gross (max w/std accessories): 500 at 2,800 rpm
Torque, gross (max w/std accessories): 995 ft-lb at 2,400 rpm

Type of ignition: Magneto (2)

Auxiliary engine-generator: GMC Model A41-1

Traversing and elevating mechanism: Manual and power

AMMUNITION

76-mm: 65 rounds
Cal. .50: 2,173 rounds
Cal. .45 for submachinegun: 150 rounds
Cal. .30 carbine: 90 rounds
Hand grenades: 8
Ground signals: 12

PERFORMANCE

Maximum grade ability: 60 percent
Turning radius: 400 feet

Fording depth:
wo/deep-water fording kit: 40 in.

w/deep-water fording kit: 28 in.

Maximum width of ditch vehicle can cross: 72 in.
Fuel consumption (average conditions): 0.7 mpg
Allowable speed, recommended: 45 mph
Maximum allowable towed load, gross: 10,000 lb
Cruising range (average conditions): 100 mi

* For characteristics and data, see item in sections 12, 14, 18, and 27.

EQUIPMENT

Communications:
AN/GRC-3-7 or 8; AN/ARC-3, AN/UC and AN/VIA-1

Sighting and Fire Control:
DRIVE, BALLISTIC: M4
PANIC SETTER, M27
INDICATOR, AZIMUTH: M31
LIGHT, INSTRUMENT: M80
MOUNT, PERISCOPE: M93
MOUNT, PERISCOPE: M94
MOUNT, TELESCOPIC: M92 or M92A1
PERISCOPE: M12, M17, M19 and M20

AMMUNITION (continued)

Cal. .30 (coaxial): 5,000 rounds

Basic Issue Items: See TM 9-2350-201-12

TELESCOPE: M97

INSTRUCTIONAL MATERIAL

Storage and Shipment Data

Within Continental United States

Skipped
Length: 2,200 cu ft
Width: 245 sq ft
Height: 245 sq ft
Gross weight: 10,000 lb
Ship tons: 10,000

Outside Continental United States

Skipped
Length: 2,200 cu ft
Width: 245 sq ft
Height: 245 sq ft
Gross weight: 10,000 lb
Ship tons: 10,000

References: SNL G-254, TM 9-2350-201-12, TM 9-2350-201-24P.
TANK, COMBAT, FULL TRACKED: 90-MM GUN, M47

NOTE: All DIMENSIONS SHOWN ARE IN INCHES

ORD E4075

General

TANK, COMBAT, FULL TRACKED: 90-mm gun, M47, is an early production, medium armored, full-track-laying, low silhouette combat vehicle used to provide mobile fire power and crew protection for offensive combat. The vehicle is powered by a 12-cylinder, V-type, four-stroke-cycle, air-cooled engine. Power is transmitted to the final drives by a cross-drive transmission attached directly to the engine. The vehicle is identified by the covered engine exhaust mufflers located on each rear fender, six rollers supporting the tracks, sharply tapered turret with a small gun shield and a storage box mounted on the rear of the turret bulge.

The vehicle is supported by a torsion bar suspension system consisting of transverse torsion bars, wheel arms, and road wheels. The vehicle hull is constructed of armored plate and cast armor sections welded together and reinforced. A transverse bulkhead separates the crew compartment of the front from the engine compartment at the rear. The turret is a cast structure formed of homogeneous armor steel.

Principal armament CANNON, 90 MILLIMETER GUN: M36, and a MACHINEGUN, CALIBER .30: Browning, M1919A4E1, mounted in the combination gun mount in the bow of the vehicle. Secondary armament includes a MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, mounted in a pintle stand on the turret roof, and a second MACHINEGUN, CALIBER .30: Browning M1919A4E1, flexible mounted in a flexible ball mount in the bow of the vehicle.

Differences among models

The vehicle hull is constructed of armor plate and cast armor sections welded together and reinforced. A transverse bulkhead separates the crew compartment of the front from the engine compartment at the rear. The turret is a cast structure formed of homogeneous armor steel.

Principal armament CANNON, 90 MILLIMETER GUN: M36, and a MACHINEGUN, CALIBER .30: Browning, M1919A4E1, mounted in the combination gun mount in the bow of the vehicle. Secondary armament includes a MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, mounted in a pintle stand on the turret roof, and a second MACHINEGUN, CALIBER .30: Browning M1919A4E1, flexible mounted in a flexible ball mount in the bow of the vehicle.

Data plate location

The data plate is located on the hull wall at the left side of the crew compartment.

Classification: Limited standard (OTCM 37696)

CHARACTERISTICS

Crew

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M47, w/e</td>
<td>4-44061-50</td>
<td>2350-735-1725</td>
</tr>
</tbody>
</table>

Length, overall: 279¼ in. (Gun in traveling position)
Length of vehicle: 260½ in.
Wheelbase: 152¼ in.
Width, overall: 138¼ in.
Height, overall (without machinegun): 116¼ in.
Height, overall (with machinegun): 132 in.

Armament:

CANNON, 90 MILLIMETER GUN: M36: 1
MACHINEGUN, CALIBER .30: Browning, M1919A4E1: 2
MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel: 1
Tracks, width: 23 in.
Tread (center to center of tracks): 110 in.
Outside to outside of track: 133 in.
Angle of approach: 30°
Angle of departure: 15°
Type of fuel: 1
Center of gravity above ground: 6 TN
Fuel octane rating: 80

Capacities:

Fuel (total): 233 gal
Crankcase, refill (without cooler, cores, and lines): 64 qt
Transmission, cross-drive, refill (without cooler, cores, and lines): 72 qt
Final drive (each): 8 qt

Brakes: wet multiple-disk

Transmission:

Manufacturer: General Motors Corp (Allison Div)
Model: CD-850-4, 4A or 4B
Type: cross-drive
No. of ranges: Forward: 2, Reverse: 1
Final reduction: 4.74:1

Engine:

Manufacturer: Continental
Model: AY-1790-3B, -7, or -7B
Type: V-type, air-cooled
Displacement: 1791.75 cu in.
No. of cylinders: 12
Bore: 2.5 in.
Stroke: 5.75 in.

* For characteristics and data, see item in sections 2 and 4.
CHARACTERISTICS—Continued

Engine—Continued
Compression ratio .................................................. 6.5:1
Maximum governed speed (full load) .................................. 2,800 rpm
Brake horsepower, gross (max w/ std accessories) ............ 810 at 2,800 rpm
Torque, gross (max w/ std accessories) ......................... 1,560 ft-lb at 2,400 rpm
Type of ignition ..................................................... magneto
Auxiliary engine-generator ........................................ Wisconsin Model TFT

Traversing and elevating mechanism ................................ power and mechanical

AMMUNITION
50-mm .................................................................. 71 rounds
Cal .50 .................................................................. 3,440 rounds
Cal .45 .................................................................. 180 rounds
Cal 30 (machinegun) .............................................. 4,125 rounds
Cal 30 (carbine) ..................................................... 90 rounds
Smoke grenades ....................................................... 8

PERFORMANCE
Maximum grade ability .............................................. 60 percent
Turning radius ........................................................ pivot
Fording depth:
wo/deep-water fording kit ........................................ 48 in.
w/deep-water fording kit ............................................. 48 in.
Maximum vertical obstacle vehicle can climb ................... 30 in.
Maximum width of ditch vehicle can cross ..................... 102 in.
Fuel consumption (average conditions) ......................... 0.33 mpg
Allowable speed, recommended .................................... 30 mph
Maximum allowable towed load, gross .......................... 10,000 lb
Cruising range (average conditions) ............................... 80 mi

EQUIPMENT
Communications:  
AN/GRC-3, 4, 5, 6, 7, or 8 and AN/VIA-1, or AN/YRC-47
Sighting and Fire Control:*  
DRIVE BALLISTIC: M3
FUZE SETTER: M27

* For characteristics and data, see items in sections 14, 18, and 27.

INDICATOR, AZIMUTH: M31
INVERTER: ORD No. 763598
LIGHT, INSTRUMENT: M30
MOUNT, PERISCOPE: M19
MOUNT, PERISCOPE: M88
PERISCOPE: M13, M19, and M20A3
QUADRANT, FIRE CONTROL: gunner's, M1 or M1A1, w/CASE, carrying
QUADRANT, FIRE CONTROL: elevation, M13
RANGE FINDER, FIRE CONTROL: M12
TRANSMITTER, SUPERELEVATION: M22

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length ..............................................................
Width .............................................................
Height ............................................................
Volume .........................................................
Area ............................................................
Gross weight ...................................................
Ship tons ....................................................... 

Outside Continental United States

Shipped
Length ..............................................................
Width .............................................................
Height ............................................................
Volume .........................................................
Area ............................................................
Gross weight ...................................................
Ship tons ....................................................... 

References: SNL G-262, TM 9-2350-200-12.
TANK, COMBAT, FULL TRACKED: 90-MM GUN, M48 AND M48C*

Data plate location
The data plate is located on a bracket directly above the brake pedal.

Classification
M48 ........................................ standard B
M48C .................................... limited standard

General
TANK, COMBAT, FULL TRACKED: 90-mm gun, M48 and M48C, is medium armored, full-track-laying low silhouette combat vehicle used to provide mobile fire power and crew protection for offensive combat. The vehicles are powered by 12-cylinder, V-type, 4-cycle, air-cooled engines. Power is transmitted to the final drives through cross-drive transmissions, which are combined transmission, differential, steering, and braking units. The vehicles may be identified by their elliptical cast turrets with the fire control range finder sights protruding from both sides. The hull ventilating blower is mounted in the left front corner of the turret. The vehicles are equipped with a suspension system consisting of road wheels, torsion bars, compensating idler wheels, bumper springs, and tracks. Fender dust shields, standard on other vehicles of this type, are not included on the M48 series.

The hull of the vehicles is of cast armor with an armor plate floor, and is divided into two compartments. The crew compartment (driving and fighting) at the front and the engine compartment (engine and transmission) at the rear. The engine compartment is covered by removable armored grilles. Major armament for the vehicles is a CANNON, 90 MILLIMETER GUN: M41, A MACHINEGUN, CALIBER .50: Browning, M1919A4EI, mounted on the commander's cupola. A remotely operated MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel is also mounted on the commander's cupola.

Differences among models
The M48 is an early production model, has a small driver compartment hatch and early type commanders cupola with an unprotected machinegun mount, designed by the Chrysler Corporation.

The M48C is similar in appearance to the M48. The difference in the strength of the armored hulls. The M48C is not suited for combat and is to be used for training purposes only. The letter "C" is embossed in the right front hull meaning the tank is "non-ballistic."

Data plate location
The data plate is located on a bracket directly above the brake pedal.

Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M48, w/e</td>
<td>4-44061-55</td>
<td>2300-736-1072</td>
</tr>
<tr>
<td>M48C, w/e</td>
<td>4-44061-70</td>
<td>2300-336-0240</td>
</tr>
</tbody>
</table>

| CREW | Length, overall: (Gun in traveling position) ... 292 1/4 in. |
|------| (Gun forward in firing position) ... 332 1/4 in. |
|      | Length of vehicle ... 264 in. |
|      | Width, overall ... 148 in. |
|      | Height, overall: (Without machinegun) ... 107 1/4 in. |
|      | (With machinegun) ... 127 3/4 in. |
| ARMAMENT | CANNON, 90 MILLIMETER GUN: M41 ... 1 |
|        | MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel ... 1 |
|        | MACHINEGUN, CALIBER .30: Browning, M1919A4EI ... 1 |
| TRACKS | Width ... 115 in. |
| TREAD (center to center of track) ... 115 in. |
| OUTSIDE TO OUTSIDE OF TRACK ... 115 in. |
| ANGLE OF APPROACH ... 115 in. |
| ANGLE OF DEPARTURE ... 115 in. |
| TYPE OF FUEL ... | |
| CENTER OF GRAVITY ABOVE GROUND ... | |
| WEIGHT OF VEHICLE: | |
| Crew and equipment ... 98,000 lb |
| Empty ... 90,126 lb |
| Length of track on ground ... 157 1/4 in. |
| Ground contact area—0-inch penetration ... 317 3/4 in. |
| Ground clearance ... 11 1/2 in. |
| Tread height (fender) ... 3/4 in. |
| ELECTRICAL SYSTEM: | |
| No. of batteries ... 4 (12 volts) |
| TYPE OF BATTERIES... 6 V \|
| FUEL OCTANE RATING ... 80 |
| CAPACITIES: | |
| Fuel (total) ... 200 gal |
| Crankcase, refill (without cooler, cores, and lines) ... 72 qt |
| Transmission, cross-drive, refill (without cooler, cores, and lines) ... 92 qt |
| FINAL Drives ... | |
| BRAKES: | |
| Transmitter: | General Motors Corp (Allison Div) |
| TYPE ... | CD-823-4, -4A, or -4B |

* For data, differences among models, and characteristics of the modified models of the M48 series, see pages 23-28 and 23-30.
** For characteristics and data, see item in sections 2 and 4.

23-26
CHARACTERISTICS—Continued

Transmission—Continued

No. of ranges:
   Forward: .................................................. 2
   Reverse: .................................................. 1
Final reduction ............................................. 5.08:1

Engine:
Manufacturer ............................................. Continental
Model ..................................................... AV-1790-3B, -7, -7B, or -7C
Type ....................................................... V-type, air-cooled
Displacement .............................................. 1,700 cu in.
No. of cylinders .......................................... 12
Bore ....................................................... 5.75 in.
Stroke ..................................................... 5.75 in.
Compression ratio ......................................... 6.5:1
Maximum governed speed (full load) ...................... 2,800 rpm
Brake horsepower, gross (max w/standard accessories) 810 at 2,800 rpm
Torque, gross (max w/standard accessories) ............ 1,560 ft-lb at 2,400 rpm
Type of ignition ........................................... magneto
Auxiliary engine ........................................... GMC model A-41-2
Traversing and elevating mechanism ..................... manual and mechanical

AMMUNITION

90-mm ...................................................... 60 rounds
Cal .50 ..................................................... 180 rounds
Cal .30 ..................................................... 5,900 rounds
Cal .45 ..................................................... 180 rounds
Cal .30 (for carbine) ..................................... 180 rounds

PERFORMANCE

Maximum grade ability ....................................... 60 percent
Turning radius ............................................. pivots
Fording depth:
   w/o/deep-water fording kit ................................ 48 in.
   w/deep-water fording kit ................................ 90 in.
Maximum vertical obstacle vehicle can climb ............ 36 in.
Maximum width of ditch vehicle can cross .............. 102 in.
Fuel consumption (average conditions) ..................... 14 mpg
Allowable speed, recommended .......................... 26 mph
Cruising range (average conditions) ...................... 70 mi

* For characteristics and data, see item in sections 12, 14, 15, 18, and 27.
**TANK, COMBAT, FULL TRACKED: 90-MM GUN, M48A1**

### Characteristics

**Model:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M48AT, w/e</td>
<td>4-14081-60</td>
<td>2250-301-8456</td>
</tr>
</tbody>
</table>

**General**

TANK, COMBAT, FULL TRACKED: 90-mm gun. M48A1, is a medium armored, full-track-laying, low silhouette combat vehicle used to provide mobile fire power and crew protection for offensive combat. The vehicle is powered by a 12-cylinder, V-type, air-cooled engine. Power is transmitted to the final drives through a cross-drive transmission, which is a combined transmission, differential, and steering unit. The vehicle may be identified by its elliptical cast turret with the fire control range finder sights protruding from both sides. The hull ventilating blower is mounted in the top left corner of the turret.

The vehicle is equipped with a suspension system consisting of road wheels, tension bars, compensating idler wheels, bumper springs, and track. Fender dust shields, standard on other vehicles of this type, are included on the M48 series.

The vehicle hull is of cast armor with an armor plate floor. The hull is divided into two compartments. The crew compartment (driving and fighting) is divided into two compartments. The engine compartment (engine and transmission) is at the rear. The engine compartment is covered by removable armored gratings. Major armament for the vehicle is CANNON, 90 MILLIMETER GUN; M41. A MACHINE GUN, CALIBER .30: Browning, M1919A4E1, **is coaxially mounted with the 90-mm gun. A remotely operated MACHINE GUN, CALIBER .50: Browning, M2, heavy barrel, is mounted on the commander's cupola.

**Differences among models**

The M48A1 is an early production model with a large driver's hatch and a later type commanders dual purpose caliber .50 machinegun cupola.

**Classification:** Standard B (O.T.C.M. 30681).

**Major item**

<table>
<thead>
<tr>
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<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
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<td>4-14081-60</td>
<td>2250-301-8456</td>
</tr>
</tbody>
</table>

**Armament:**

- 90-mm gun cannon M41
- MACHINEGUN, CALIBER .30: Browning, M1919A4E1
- MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel

**Tracks, width:**

- 36 in.

**Height (ground to top of turret):**

- 63 in.

**Width:**

- 143 in.

**Height of turret:**

- 124 in.

**Length of vehicle:**

- 343 in.

**Weight:**

- Gross: 104,000 lb
- Empty: 97,000 lb

**Length of track on ground:**

- 157 in.

**Ground clearance:**

- 11 in.

**Ground pressure:**

- 11.8 psi

**Electrical system:**

- 24 volts

**No. of batteries:**

- 4 (12 volts)

**Type of batteries:**

- 6 TN

**Capacities:**

- Fuel (total): 200 gal
- Transmission, cross-drive, refill (without cooler, cores, and lines): 92 qt
- Final drives: 24 qts

**Brakes:**

- Wet, multiple disk

**Transmission:**

- Manufacturer: General Motors Corp (Allison Div)
- Model: CD-850-13
- Type: Cross-drive
- No. of ranges: 2
- Reverse: 1
- Final reduction: 3.06:1

**Engine:**

- Manufacturer: Continental
- Model: AV-1790-7C
- Type: V-type, air-cooled

---

*For data, differences among models, and characteristics of the modified models of the M48 series, see pages 23-26 and 23-30.

**For characteristics and data, see items in sections 2 and 4.
CHARACTERISTICS—Continued

Engine—Continued

Displacement. 1,791 cu in.
No. of cylinders. 12
Bore. 5.746 in.
Stroke. 5.750 in.
Compression ratio. 6.3:1
Maximum governed speed (full load). 2,800 rpm
Brake horsepower, gross (max w/ std accessories). 810 at 2,800 rpm
Torque, gross (max w/ std accessories). 1,600 ft-lb at 2,800 rpm
Type of ignition. Magneto

AMMUNITION

90-mm. 60 rounds
Cal. .30. 5,900 rounds
Cal. .50. 500 rounds

PERFORMANCE

Maximum grade ability. 60 percent
Turning radius. 48 in.
Fording depth:
  w/o deep-water fording kit. 48 in.
  w/ deep-water fording kit. 36 in.
Maximum vertical obstacle vehicle can climb. 36 in.
Maximum width of ditch vehicle can cross. 102 in.
Fuel consumption (average conditions). 1.23 mpg
Allowable speed, recommended. 30 mph
Cruising range (average conditions). 1,150 mi
w/ jettison fuel tanks. 1,250 mi

EQUIPMENT

Communications:
Radio set. AN/GRC-3, -4, -7 or -8; AN/VRC-47, AN/ARC-37 or AN/VRC-24
External interphone. AN/VIA-1

Sighting and Fire Control:
CARD, TANK RANGE (Ord dwg No. 8724207)
COMPUTER, BALLISTIC: M13A1(T3E2)
DRIVE, BALLISTIC: M5 (T4E2)

FUSE SETTER: M27
INDICATOR, AZIMUTH: M28A1(T28E1)
MOUNT, PERISCOPE: M102A1(T194)
MOUNT, TELESCOPE: M16(T191)
PERISCOPE: M27, M24, and M20A3 or M20A1(T)
QUADRANT, FIRE CONTROL: elevation, M13A1
QUADRANT, FIRE CONTROL: gunner's, M1A1, w/ CASE, carrying
RANGE FINDER, FIRE CONTROL: M13 (T46E1)
SIGHT, PERISCOPE: M28 (T44)
TELESCOPE: M97C (T101E1)

Basic Issue Items: See ORD 7 SNL G-2M.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length.
Height.
Volume. 3,340 cu ft
Area. 294 sq ft
Gross weight.
Ship tons.

Outside Continental United States

Shipped
Length.
Height.
Volume.
Area.
Gross weight.
Ship tons.

References: SNL G-254; TM 9-7012.
TANK, COMBAT, FULL TRACKED: 90-MM GUN, M48A2 AND M48A2C*

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES.

Differences among models:

Major difference in M48A2 and M48A2C is in vision and fire control equipment. The only visual difference between the M48A2C and the M48A2 is the absence of the small track idler wheels located between the drive sprocket and rear road wheels of the M48A2.

The M48A2 and M48A2C tanks are equipped with a larger driver's hatch and late type commander's cupola as the M48A1. Topped doors and a raised rear deck provide for better ventilation of the modified engine assembly.

Data plate location:

The data plate is located on a bracket directly above the brake pedal.

Classification:

M48A2 .................................................. Standard B (OTCM 37038)
M48A2C .................................................. Standard B (OTCM 37025)

* For data, differences among models, and characteristics of the modified models of the M48 series, see pages 23-24 and 23-28.

** For characteristics and data, see items in sections 2 and 4.

CHARACTERISTICS

crew .................................................. 4
length, overall .................................. 342 in.
(gun in traveling position) ................. 292 in.
(gun forward in firing position) .......... 342 in.
length of vehicle ................................ 182 in.
front of gun to center of turret .......... 182 in.
front of vehicle to center of turret ...... 182 in.
center of turret to rear of vehicle ....... 182 in.
width, overall ..................................... 143 in.
height, overall ..................................... 121 in.
wheel base ......................................... 127 in.
height, above ground ......................... 103 in.

Armament:

CANNON, 90-MILLIMETER GUN: M41
MACHINEGUN, CALIBER .30: BROWNING, M1919A4E1
or M37
MACHINEGUN, CALIBER .50: BROWNING, M2, heavy barrel... 1

Tracks, width ...................................... 28 in.
track (center-to-center of track) ......... 115 in.
outside-to-outside of track ............... 143 in.
angle of approach ................................
angle of departure ................................
type of fuel ........................................
center of gravity above ground ..........

Weight of vehicle:

crew and equipment .........................
empty ..................................................
length of track on ground ..................
ground contact area—0-inch penetration ..
ground clearance ................................
ground pressure .................................

pinch height (loaded) .........................
pinch height (ground to top) .............

electric system .................................
no. of batteries ..................................

fuel octane rating ..............................

capacities:

fuel (total) ........................................

crankcase, refill (without cooler, cores, and lines) ..........
transmission, cross-drive, refill (without cooler, cores, and lines) .....
final drive ...........................................

23-30
CHARACTERISTICS—Continued

Transmission:
Manufacturer: General Motors Corp (Allison Div)
Model: CD-850 II-5
Type: Cross-drive
No. of ranges:
Forward: 2
Reverse: 1
Final reduction: 4:1

Engine:
Manufacturer: Continental
Model: AVL-1790-8
Type: V-type, 4-cycle, air-cooled
Displacement: 1,791 cu in.
No. of cylinders: 12
Bore: 5.75 in.
Stroke: 5.75 in.
Compression ratio: 6.35:1
Maximum governed speed (full load): 2,820 rpm
Brake horsepower, gross (max w/std accessories): 825 at 2,800 rpm
Torque, gross (max w/std accessories): 1,670 ft-lb at 2,800 rpm
Type of ignition: Magneto (4)
Auxiliary engine-generator: GMC-A41-2

AMMUNITION
90-mm: 64 rounds
Cal. .30: 5,500 rounds
Cal. .50: 1,365 rounds

PERFORMANCE
Maximum grade ability: 60 percent
Turning radius:
Without deep-water fording kit: 48 in.
Without deep-water fording kit: 98 in.
Maximum vertical obstacle vehicle can climb: 36 in.
Maximum width of ditch vehicle can cross: 102 in.
Fuel consumption (average conditions): 47 mpg
Allowable speed, recommended: 30 mph
Cruising range (average conditions): 250 mi

EQUIPMENT
Communications:
Radio set: AN/GRC-3, -4, -6, -7, or -8; AN/ARC-27, AN/VRC-47 or AN/VRC-24.
Auxiliary interphone equipment: AN/VIA-4

SIGHTING AND FIRE CONTROL:
CARD, TANK RANGE: (Ord No. D8724/97)
COMPUTER, BALLISTIC: M13A1 (T31E1) (for M48A2 only)
COMPUTER, BALLISTIC: M13A1C (for M48A2C only)
DRIVE, BALLISTIC: M5A1 (T24E2) (for M48A2 only)
DRIVE, BALLISTIC: M5A2 (for M48A2C only)
FUZE SETTER: M27
INDICATOR, AZIMUTH: M23A1
MOUNT, PERISCOPE: M102A1 (T184)
MOUNT, PERISCOPE: M164A1
MOUNT, TELESCOPE: M193 (T191)
PERISCOPE: M20A3 (for M48A2 only)
PERISCOPE: M20A3F (for M48A2C only)
PERISCOPE: M24 (T411) and M27 (T36E)
QUADRANT, FIRE CONTROL: elevation, M13A1
QUADRANT, FIRE CONTROL: gunner's, M1A1, w/Case, carrying
RANGE FINDER, FIRE CONTROL: M13A1 (for M48A2 only)
RANGE FINDER, FIRE CONTROL: M13A1E1 (for M48A2C only)
SIGHT, PERISCOPE: M38 (T46) (for M48A2 only)
SIGHT, PERISCOPE: M28C (for M48A2C only)
TELESCOPE: M97A1 (T154E1)

EQUIPMENT
Communications:
Radio set: AN/GRC-3, -4, -6, -7, or -8; AN/ARC-27, AN/VRC-47 or AN/VRC-24.
Auxiliary interphone equipment: AN/VIA-4

AMMUNITION

PERFORMANCE

EQUIPMENT

SIGHTING AND FIRE CONTROL:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 58 in.
Width: 92 in.
Height: 91 in.
Volume: 5,907 cu ft
Area: 683 sq ft
Gross weight: 22,000 lbs
Ship tons: 20

Outside Continental United States

Shipped
Length: 58 in.
Width: 92 in.
Height: 91 in.
Volume: 5,907 cu ft
Area: 683 sq ft
Gross weight: 22,000 lbs
Ship tons: 20

References: SNL G-287; TM 9-7022; TM 9-2350-208-20P; TM 9-2350-208-35P.
TANK, COMBAT, FULL TRACKED: 90-MM GUN, M48A3 (M48A1E2), W/E

General

TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A3 is a full-tracked vehicle with individual torsion bar suspension, center guide track, and rear sprocket drive. The tank employs the M3 Cupola and combines features of the M48A1 and M48A2 tank. Two (Nos. 2 and 4) support rollers and the rear track tension idler wheel and arm of the M48A1 are removed. The M48A2 tank design front compensating idler spindle and arm are incorporated to improve durability of the suspension system over the M48 and M48A1 tank.

Differences among models

Data plate location

Classification: Standard B (OTCM 37822).

CHARACTERISTICS

Crew: 4
Length, overall:
- (Gun in traveling position) 209 3/4 in.
- (Gun forward in firing position) 194 1/2 in.
Length of vehicle: 110.625 in.
Height, overall: 113 in. (reducible to 117 5/8 in.)
Width: 114 in. (reducible to 106 7/8 in.)

Armament:
- CANNON: 90 MILLIMETER GUN: M41
- MOUNT, GUN: combination, M17A1
- Tracks, width: 26 in.
- Tread (center to center of tracks): 115 in.
- Outside to outside of track: 143 in.
- Angle of approach: 30°
- Angle of departure: 30°
- Type of fuel: AVDS-1790-2A in. diesel
- Type of gravity above ground: V-V-E' 800 in.
- Weight of vehicle:
  - Gross (Combat loaded): 104,000 lb
  - Net (Less crew, stowage, and fuel): 10,000 lb
  - Payload (W/crew and equipment): 20,000 lb
- Length of track on ground: 157 1/8 in.

Ground contact area —0-inch penetration: 16 in.
Ground clearance: 11.8 psi
Pintle height (loaded): 24 volt
Electrical system: 67N
Number of batteries: 6
Fuel cetane rating: 48

Cannons:
- Fuel (total): 375 gal
- Crankcase, refill (w/o cooler, cores, and lines): 12 gal
- Transmission, refill (w/o cooler, cores, and lines): 17 gal
- Final drives: 8 at
- Brakes: multiple-disc, mechanical

Transmission:
- Manufacturer: General Motors Corp (Allison Div)
- Model: CD-850-6
- Type: Cross-drive, single stage
- Number of ranges:
  - Forward: 2
  - Reverse: 1
- Final reduction: 5.68:1

Engine:
- Manufacturer: Continental
- Model: AVDS-1790-2A
- Type: 90 deg, V-type, air-cooled diesel
- Displacement: 1790 cu in.
- Number of cylinders: 12
- Bore: 5.75 in.
- Stroke: 5.75 in.
- Compression ratio: 16:1
- Maximum governed speed (full load): 2,400 rpm
- Brake horsepower, gross (max w/ std acc): 760 hp, 3,600 rpm
- Torque, gross (max w/ std accessories): 1,710 lb-ft @ 1,900 rpm
- Type of ignition: compression

ammunition

- 90-mm: 62 rounds
- .45-mm: 2,750 rounds
- Cal. .50: 6,000 rounds
- Cal. .44: 630 rounds
- Grenades: 3

* For data, difference among models, and characteristics of the modified models of the M48 series, see pages 23-26, 23-28, and 23-30.
PERFORMANCE

Maximum grade ability ........................................60 percent
Turning radius ......................................................given
Fording depth:
- w/o deep-water fording kit .....................................1 ft
- Maximum vertical obstacle vehicle can climb ....................8 ft
- Maximum width of ditch vehicle can cross ......................8 ft, 8 in.
- Fuel consumption (average conditions) ..........................7 mpg
- Allowable speed, recommended .................................30 mph
- Cruising range (average conditions) ...........................250 mi

EQUIPMENT

Communications:
- AN/GRC-3 or 1 or 7 or 8 plus AN/VIA-1; AN/GRC-3 or 1 plus AN/VIA-1 plus ground-air radio set; AN/ VRC-12

Sighting and fire control:
- COMPUTER, BALLISTICS: M13A1
- DRIVE, BALLISTICS: M15B1
- FUZE SETTER: M23
- MOUNT, TANK PERISCOPE: M101A1
- MOUNT, TANK PERISCOPE: M113-(M97)
- MOUNT, TELESCOPE: M111 (T199)
- PERISCOPE, TANK: M21
- PERISCOPE, TANK: M37
- QUADRANT, ELEVATION: M11A3
- RANGE CARD: Doc No. D972467
- LIGHT, INSTRUMENT: M50
- RANGE FINDER, FIRE CONTROL: M17B1C

For characteristics and data, see items in sections 12, 14, 18 and 27.

SIGHT, INFINITY: M13A1
SIGHT, PERISCOPE: M23A
TELESCOPE, ARTICULATED: M103 (T171)

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped in tank
- Length .................................................................
- Width ............................................................... 
- Height ..............................................................
- Volume ..............................................................
- Area .................................................................
- Gross weight .......................................................
- Ship tons ...........................................................

Outside Continental United States

Shipped in tank
- Length .................................................................
- Width ............................................................... 
- Height ..............................................................
- Volume ..............................................................
- Area .................................................................
- Gross weight .......................................................
- Ship tons ...........................................................

TANK, COMBAT, FULL TRACKED: 105-MM GUN, M60 AND M60A1

The hull of the vehicle is a homogeneous steel casting and is divided into two compartments: the crew compartment (driving and fighting) at the front, and the engine compartment (engine and transmission) at the rear.

Major armament for the vehicle is CANNON, 105-MM GUN: M68* in MOUNT, GUN: M116* (for M60 tank) or MOUNT, GUN: M148* (for M60A1 tank). One MACHINE GUN, 7.62 MILLIMETER: tank, M73 (T172E2) is coaxially mounted with the 105-mm gun cannon. One MACHINE GUN, CALIBER .50: M85 (T172E2) is mounted inside the CUPOLA, TANK COMMANDER'S: cal. .50 machine gun, M19*.

Differences among models

The turrets of the M60 and M60A1 tank are of different design. Also, the external storage rack of the M60A1 extends completely around the rear of the turret and the lower portion is screened.

Data plate location

The data plate is located on a bracket directly above the brake pedal.

Classification: M60—Standard B (OTCM 37953).
M60A1—Standard A (OTCM 37953).

* For characteristics and data, see item in sections 2 and 4.
CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>M60</th>
<th>M60A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crew</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Length (Gun forward in firing position):</td>
<td>366.50 in.</td>
<td>371.50 in.</td>
</tr>
<tr>
<td>Length (Gun in traveling position):</td>
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<td></td>
</tr>
<tr>
<td>M60</td>
<td>329 in.</td>
<td>325 in.</td>
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<tr>
<td>M60A1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of vehicle</td>
<td>278.50 in.</td>
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</tr>
<tr>
<td>Front of gun to center of turret:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M60</td>
<td>206.16 in.</td>
<td></td>
</tr>
<tr>
<td>M60A1</td>
<td>211.80 in.</td>
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</tr>
<tr>
<td>Front of vehicle to center of turret:</td>
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</tr>
<tr>
<td>M60</td>
<td>115.30 in.</td>
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</tr>
<tr>
<td>M60A1</td>
<td>112.14 in.</td>
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</tr>
<tr>
<td>Center of turret to front of gun (when traversed 180 deg):</td>
<td>296.50 in.</td>
<td></td>
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<tr>
<td>Center of turret as rear of vehicle:</td>
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</tr>
<tr>
<td>M60</td>
<td>180 in.</td>
<td></td>
</tr>
<tr>
<td>M60A1</td>
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<td></td>
</tr>
<tr>
<td>Width, overall</td>
<td>148 in.</td>
<td></td>
</tr>
<tr>
<td>Height, overall</td>
<td>126.5 in.</td>
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<tr>
<td>Height (ground to traveling hole):</td>
<td>128.23 in.</td>
<td></td>
</tr>
<tr>
<td>M60A1</td>
<td>119.14 in.</td>
<td></td>
</tr>
<tr>
<td>Height (vehicle above ground)</td>
<td>18.25 in.</td>
<td></td>
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<tr>
<td>Wheel base</td>
<td>144.72 in.</td>
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<tr>
<td>Armament:</td>
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<td></td>
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<tr>
<td>Primary:</td>
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<td></td>
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<tr>
<td>CANNON, 105mm GUN:</td>
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<td>MOUNT, GUN: 105-mm, M16 (for M60 tank)</td>
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</tr>
<tr>
<td>MOUNT, GUN: 105-mm, M140 (for M60A1 tank)</td>
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<tr>
<td>Secondary:</td>
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<tr>
<td>MACHINE GUN, 50-caliber:</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M60A1</td>
<td>426 rounds</td>
<td></td>
</tr>
<tr>
<td>SUBMACHINE GUN, CALIBER .50:</td>
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<td></td>
</tr>
<tr>
<td>M60A1</td>
<td>380 rounds</td>
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<tr>
<td>Tracks, width</td>
<td>28 in.</td>
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<tr>
<td>Tread (center to center of track)</td>
<td>115 in.</td>
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<tr>
<td>Outside-in outside of track</td>
<td>114 in.</td>
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</tr>
<tr>
<td>Angle of departure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of fuel</td>
<td>Diesel-Spec VV-F-800</td>
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</tr>
<tr>
<td>Center of gravity above ground</td>
<td>54.25 in.</td>
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<tr>
<td>Weight of vehicles:</td>
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<tr>
<td>Crew and equipment:</td>
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<td></td>
</tr>
<tr>
<td>M60</td>
<td>102,000 lb</td>
<td></td>
</tr>
<tr>
<td>M60A1</td>
<td>106,000 lb</td>
<td></td>
</tr>
<tr>
<td>Empty:</td>
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<tr>
<td>M60</td>
<td>93,000 lb.</td>
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<tr>
<td>M60A1</td>
<td>97,000 lb.</td>
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<td>Length of track on ground</td>
<td>166.72 in.</td>
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<tr>
<td>Ground contact area—6-inch penetration</td>
<td>19.27 in.</td>
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<tr>
<td>Ground clearance:</td>
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<tr>
<td>Ground pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M60</td>
<td>11.1 psi</td>
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</tr>
<tr>
<td>M60A1</td>
<td>11.5 psi</td>
<td></td>
</tr>
<tr>
<td>Pinch height (loaded)</td>
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<td></td>
</tr>
<tr>
<td>Electrical system</td>
<td>24 volt</td>
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</tr>
<tr>
<td>Number of batteries</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Type of batteries</td>
<td>6</td>
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</tr>
<tr>
<td>Generator, main</td>
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<td></td>
</tr>
<tr>
<td>Fuel system rating</td>
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<td>Capacitors:</td>
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<tr>
<td>Fuel (total):</td>
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<td></td>
</tr>
<tr>
<td>M60</td>
<td>385 gals</td>
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</tr>
<tr>
<td>M60A1</td>
<td>375 gals</td>
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</tr>
<tr>
<td>Crankcase, refill (without cooler, cores, and lines)</td>
<td>12 gals</td>
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<tr>
<td>Transmission, cross-drive, refill (without cooler, cores, and lines)</td>
<td>17 gals</td>
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<tr>
<td>Final drive</td>
<td>8 at</td>
<td></td>
</tr>
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<td>Brakes:</td>
<td></td>
<td></td>
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<tr>
<td>M60</td>
<td>multiple disk, mechanical (foot pedal)</td>
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</tr>
<tr>
<td>M60A1</td>
<td>multiple disk, hydraulic (foot pedal)</td>
<td></td>
</tr>
<tr>
<td>Transmission:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Motors Corp (Allison Div)</td>
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<td></td>
</tr>
<tr>
<td>Model:</td>
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<tr>
<td>M60 tank</td>
<td>AVDS-1700-2</td>
<td></td>
</tr>
<tr>
<td>M60A1 tank</td>
<td>AVDS-1700-2A</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>cross-drive, single stage</td>
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<td>Ratio from torque converter output shaft to final drive range:</td>
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<td></td>
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<td>High range</td>
<td>4.3</td>
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<td>Low range</td>
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<td>Reverse range</td>
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<td>Final reduction</td>
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<tr>
<td>Engine:</td>
<td></td>
<td></td>
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<tr>
<td>Manufacturer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M60 tank</td>
<td>AVDS-1700-2</td>
<td></td>
</tr>
<tr>
<td>M60A1 tank</td>
<td>AVDS-1700-2A</td>
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</tr>
<tr>
<td>Type</td>
<td>90 deg. V-type, air-cooled, diesel</td>
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<tr>
<td>Number of cylinders</td>
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</tr>
<tr>
<td>Bore</td>
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<tr>
<td>AVDS-1700-2</td>
<td>7.75 in.</td>
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</tr>
<tr>
<td>AVDS-1700-2A</td>
<td>7.75 in.</td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
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<tr>
<td>AVDS-1700-2</td>
<td>7.75 in.</td>
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</tr>
<tr>
<td>AVDS-1700-2A</td>
<td>7.75 in.</td>
<td></td>
</tr>
<tr>
<td>Compression ratio</td>
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<td></td>
</tr>
<tr>
<td>AVDS-1700-2</td>
<td>16:1</td>
<td></td>
</tr>
<tr>
<td>AVDS-1700-2A</td>
<td>16:1</td>
<td></td>
</tr>
<tr>
<td>Maximum governed speed (full load)</td>
<td>1,600 rpm</td>
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<tr>
<td>Brake horsepower, gross (max w/std accessories):</td>
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<td></td>
</tr>
<tr>
<td>AVDS-1700-2</td>
<td>750 bhp &amp; 2,100 rpm</td>
<td></td>
</tr>
<tr>
<td>AVDS-1700-2A</td>
<td>750 bhp &amp; 2,100 rpm</td>
<td></td>
</tr>
<tr>
<td>Torque, gross (max w/std accessories):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVDS-1700-2</td>
<td>1,710 lb-ft &amp; 1,900 rpm</td>
<td></td>
</tr>
<tr>
<td>AVDS-1700-2A</td>
<td>1,710 lb-ft &amp; 1,900 rpm</td>
<td></td>
</tr>
<tr>
<td>Type of ignition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary engine-generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compression ratio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traversing and elevating mechanism</td>
<td>manual and hydraulic</td>
<td></td>
</tr>
</tbody>
</table>

AMMUNITION

105mm: 63 rounds (M60A1), 57 rounds (M60)

7.62: 1,535 rounds

Col. 30: 1,535 rounds

Col. 45: 560 rounds

Grenades: 8

PERFORMANCE

Maximum grade ability: 60 percent

Turning radius: 30 ft to infinity

Fording depth:

W/o deep-water fording kit: 48 in.

W/ deep-water fording kit: 76 in.

Maximum vertical obstacle vehicle can climb: 35 in.

Maximum width of ditch vehicle can cross: 102 in.

Fuel consumption, average conditions: 1.13 gpm

Allowable speed, recommended: 50 mph

Maximum allowable towed load, gross: 64,000 lb

Cruising range (120 mph on hard surface road): 310 mi

EQUIPMENT

Communications: radio and interphone

For M60 tank: AN/GRC-3 through 1 plus AN/VIA-4 plus AN/GRC-4 or through 6 plus
AN/VRC-24 and AN/VIA-4; or AN/VRC-12, 46, 47, or AN/PRC-25. AN/VRC-12 or AN/VRC-21 plus AN/VRC-24 are optional.

For M60A1 tank AN/VRC-12, 46, 47, or AN/PRC-25 with AN/VRC-24.

Sighting and fire control **
- CARD: range, tank (ORD Dwg No. D5724297).
- COMPUTER, BALLISTICS: M12A1D (for M60) or M12A2 (for M60A1).
- DRIVE, BALLISTICS: M10 (for M60) or M10A4 (for M60A1).
- FUZE SETTER: M27 (deleted).
- MOUNT, TANK PERISCOPE: M104A2.
- MOUNT, TANK PERISCOPE: M115.
- MOUNT, TELESCOPE: M114.
- PERISCOPE, TANK: M27.
- PERISCOPE, TANK: M31.
- PERISCOPE, TANK: M37 (for M60A1).
- POWER UNIT: assembly (ORD No. 6519660).
- QUADRANT, FIRE CONTROL: gunner's M1A1, w/CASE, carrying.
- QUADRANT, FIRE CONTROL: elevation, M16A1 (for M60) or M16A3 (for M60A1).
- RANGE FINDER, FIRE CONTROL: M17C (for M60) or M17A1 (for M60A1).
- SIGHT, INFINITY: M44C.
- SIGHT, PERISCOPE: M28C.
- TELESCOPE, ARTICULATED: M105C.


** For characteristics and data, see items in sections 12, 14, 18, and 27.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 tank

<table>
<thead>
<tr>
<th></th>
<th>M60</th>
<th>M60A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>8846.6 cu ft</td>
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</tr>
<tr>
<td>Area</td>
<td></td>
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<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
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</tbody>
</table>

Outside Continental United States

Shipped 1 tank

<table>
<thead>
<tr>
<th></th>
<th>M60</th>
<th>M60A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
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</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TANK, COMBAT, FULL TRACKED: 120-MM GUN, M103 AND M103A1

**Major Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
<td>M103</td>
<td>4-42996-19</td>
<td>2350-710-0800</td>
</tr>
<tr>
<td>M103A1</td>
<td>4-42996-31</td>
<td>2350-068-5603</td>
</tr>
</tbody>
</table>

**General**

TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 and M103A1, is fully armored, full-track-laying, low silhouette combat vehicle designed for direct assault and antitank mission. The vehicles are powered by 12-cylinder, air-cooled, 4-cycle V-type engines. Power is transmitted to the final drives through cross-drive transmissions, which are combined transmissions, differential, steering and braking units.

The vehicles are supported by 14 road wheels with rollers supporting the rear driven track. The vehicles are equipped with 2 rubber block-type tracks driven from the rear of the vehicle by sprockets attached to the final drives.

The hull of the vehicles is a homogeneous armor steel casting with a welded armor steel plate floor and is divided into two compartments, the crew compartment (driving and fighting) and the power plant compartment (engine and transmission). The engine assembly is mounted in the center of the hull with the exhaust mufflers protruding from the hull deck of the rear of the turret. Major armament for the vehicles is a MACHINEGUN, CALIBER .30: M37° coaxially mounted with a 120-mm gun, M58. Additional fire power is provided by a MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, mounted on the commander’s cupola.

**Differences among models**

The M103A1 is similar in outward appearance to the M103 with the exception of a basket being attached to the turret of the M103A1.

The other modifications internal and relative to the turret and gun operations.

**Data plate location**

The data plate is located on a bracket on the hull wall in front of the instrument panel.

**Classification:**

<table>
<thead>
<tr>
<th>M103</th>
<th>Standard B (OTCM 55841)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M103A1</td>
<td>Standard A (OTCM 55841)</td>
</tr>
</tbody>
</table>

**CHARACTERISTICS**

- **Crew**: 5
- **Length, overall**: 445 1/2 in.
- **Length of vehicle**: 175 in.
- **Width, overall**: 148 in.
- **Height, overall**: 113 1/4 in.
- **Wheel base**: 175 3/16 in.
- **Armament**: 120-mm gun M58, MACHINEGUN, CALIBER .50: M2
- **Tracks, width**: 445 1/2 in.
- **Type of fuel**: Diesel
- **Tread (center to center of track)**: 175 3/16 in.
- **Angle of approach**: 27°
- **Angle of departure**: 270°
- **Center of gravity above ground**: 175 3/16 in.
- **Weight of vehicle**: 125,000 lb (Crew and equipment), 114,900 lb (Empty)
- **Length of track on ground**: 175 3/16 in.
- **Ground clearance**: 15 3/4 in.
- **Ground pressure**: 12.85 psi
- **Pintle height (flanged)**: 12.85 psi
- **Type of batteries**: 6-TN-12V
- **Fuel octane rating**: 80
- **Capacities**:
  - **Fuel (total)**: 268 gal
  - **Crankcase, refill (without cooler, cores, and lines)**: 72 qt
  - **Transmission, cross-drive, refill (without cooler, cores, and lines)**: 72 qt
  - **Final drive**: 72 qt
  - **Brakes**: Multiple disk, mechanical foot pedal
- **Transmission**:
  - **Manufacturer**: General Dynamics
  - **Model**: CD-850-4A or 4B
  - **Type**: Cross-drive
  - **No. of ranges**: 4
    - **Forward**: 1
    - **Reverse**: 1
  - **Ratio from torque converter output shaft to final drive range**: 3:1
  - **Low range**: 4.51
  - **Reverse range**: 11.11
  - **Final reduction**: 7.077:1

* For characteristics and data, see items in sections 2 and 4.
CHARACTERISTICS—Continued

Engine:
Manufacturer: Continental
Model: AV-1780-3B or 7C
Type: V-12, air-cooled
No. of cylinders: 12
Displacement: 1,750 cu in.
Bore: 3.75 in.
Stroke: 3.75 in.
Compression ratio: 6.5:1
Maximum governed speed (full load): 21 mph
Brake horsepower, gross (max w/standard accessories): 710 at 4,500 rpm
Tare weight (max w/standard accessories): 1,350 lbs at 2,200 rpm
Type of ignition: Magneto (4)

AMMUNITION
120-mm (separate loading): 38 rounds
Cal. .30 MG: 3,356 rounds
Cal. .30 MG: 1,000 rounds
Cal. .30 carbine: 180 rounds

PERFORMANCE
Maximum grade ability: 60 percent
Turning radius: pivot
Fording depth:
W/deep-water fording kit: 48 in.
W/standard fording kit: to top of turret
Maximum vertical obstacle vehicle can climb: 36 in.
Maximum width of ditch vehicle can cross: 90 in.
Fuel consumption (average conditions): 1/2 mpg
Maximum speed, recommended: 31 mph
Cruising range (average conditions): 80 mi

EQUIPMENT
Communications:
Radio and interphone set...AN/GRC-3 through -8 series, or AN/VRC-47, AN/ARC-27, or AN/VRC-24, Rnd AN/VRC-1
Sighting and Fire Control:* M103:
DRIVE, BALLISTICS: M6
FUZE SETTER: M27
INDICATOR, AZIMUTH: M38
MOUNT, TELESCOPE: M107
PERISCOPE: M17, M20A3, M24, Rnd M26
QUADRANT, FIRE CONTROL: elevation, M113
QUADRANT, FIRE CONTROL: gunner’s, M1A1, w/CASE, carrying
RANGE FINDER, FIRE CONTROL: M14
M1A1:
COMPUTER, BALLISTICS: M14
CORRECTOR, CANT: M2
DRIVE MOUNT: M9
FUZE SETTER: M27
INDICATOR, AZIMUTH: M38
INVERTER: ORD No. 8602214
MOUNT, TELESCOPE: M107
PERISCOPE: M27 and M26
QUADRANT, FIRE CONTROL: elevation, M113
QUADRANT, FIRE CONTROL: gunner’s, M1A1, w/CASE, carrying
RANGE FINDER, FIRE CONTROL: M15
SERVOMECHANISM: M1
SIGHT INFINITY: M44
TELESCOPE: M102
TRANSMITTER, SUPERELEVATION: M23

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped:
Length
Width
Height
Volume
Area
Gross weight
Ship tons

Oversea Pack
Shipped:
Length
Width
Height
Volume
Area
Gross weight
Ship tons


* For characteristics and data, see items in sections 12, 14 through 18, and 27.

[Next page is 23-37]
GUN, FIELD ARTILLERY, SELF-PROPELLED: 175-MM, M107 (T235E1)

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M107 (T235E1)</td>
<td>426995</td>
<td>2350-486-6635</td>
</tr>
</tbody>
</table>

General

GUN, FIELD ARTILLERY, SELF-PROPELLED: 175-MM, M107 (T235E1), is a full-tracked vehicle, and provides a highly mobile and maneuverable, self-propelled weapon capable of being air transported in large cargo aircraft. It is designed to provide general artillery support to ground troops and close general support to armored columns. The M107 provides mobility for the CANNON, 175 MILLIMETER GUN: M113 (T235E1), and gives protection to the infantry in offensive combat. The vehicle is a low, all-welded steel structure with no superstructure and with an independently operated turret and cannon mounted toward the rear of the vehicle. The turret houses the MOUNT, GUN-HOWITZER: M158, which supports the cannon. The vehicle utilizes the tension bar-type suspension system incorporating five pairs of individually sprung road wheels, and tracks. Rear road wheels, mounted on eccentric shafts are used to adjust the tension on the tracks of the vehicle. A hydraulically operated spade, mounted at the rear of the vehicle and the road wheel lockout cylinders provide stability during operation of the weapon. The cannon is retracted during travel.

Differences among models

Data plate location

The data plate is located in the driver's compartment.

Classification: Standard A (OTCM 37684).

Characteristics

<table>
<thead>
<tr>
<th>Crew</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
<td></td>
</tr>
<tr>
<td>Overall, gun in travel position</td>
<td>44.75 in</td>
</tr>
<tr>
<td>Overall, cannon removed</td>
<td>25.45 in</td>
</tr>
<tr>
<td>Width, overall</td>
<td>124 in</td>
</tr>
<tr>
<td>Height:</td>
<td></td>
</tr>
<tr>
<td>Overall, gun in travel position</td>
<td>136.76 in</td>
</tr>
<tr>
<td>Hull</td>
<td>58.13 in</td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>Fighting</td>
<td>62,100 lb</td>
</tr>
</tbody>
</table>

Reduced for air transport:

- Less crew, storage and fuel | 55,000 lb |
- Less crew, storage, fuel, and gun tube | 42,000 lb |

Armament:

- CANNON, 175 MILLIMETER GUN: M113 (T235E1) | 1 |
- MOUNT, GUN-HOWITZER: M158 (T136) | 1 |
- RAMMER AND LOADER ASSEMBLY (1098900) | 1 |
- MECHANISM, Firing, CANNON: M55 | 1 |

Tracks:

- Type: flat, single pin, removable rubber pad |
- Model | T132 and T132E1 |
- Width | 18 in |
- Tread (center-to-center) | 108 in |
- Outside-to-outside | 124 in |
- Length of track on ground | 143.25 ± 1.6 in |
- Ground contact area, 0 in. penetration | 3434.06 sq in |
- Ground contact (wheel base) | 148.88 ± 1.9 in |
- Center of front road wheel to center of rear road wheel | 144 in |
- Center of gravity above ground | 49.3 in and 99.4 in from center line of sprocket |

Ground clearance | 17.88 in |

Ground pressure | 11.6 psi |

Pintle height | 27.25 in |

Front of vehicle to center of vehicle | 127.75 in |

Front of gun to center of vehicle | 136.76 in |

Electrical system:

- Volts, dc | 24 |
- Batteries: |
| Number | 4 |
| Type | 6 "2N |
| Volts, each | 12 |
- Generator: |
| Ampere rating | 300 |
| Model | 30010-000 |
| Manufacturer | Jack & Holder |
- Intercommunication set | AN/UIC-1 |

Type of ground: single conductor circuits, negative bonded to hull

Capacity:

- Fuel tank | 300 gal |
- Engine crankcase refill | 28 qt |
- Transmission refill | 14 gal |
- Final drive, each | 1 1/2 qt |
Recoil mechanism:
- Oil required: 16 gal
- Reserve: 2 pt

Brakes:
- Service: multiple wet plate
- Type: mechanical

Parking:
- Type: multiple wet plate
- Operation: mechanical

Transmission:
- Manufacturer: Allison
- Model: XTG-411-2A

No. of speeds:
- Forward: 4
- Reverse: 2

Gear ratio:
- Fourth (high): 2.94:1
- Third: 1.58:1
- Second: 1.38:1
- First (low): 4.69:1
- Reverse: 6.60:1, 3.75:1, 5.38:1

Firing:
- Type: General Motors
- General Motors: 8717

Displacement: 568 cu in.

Bore: 4.25 in.

Compression ratio: 17:1

Max. governed speed:
- No load: 2,450 rpm
- Full load: 500 rpm

Idle speed: 450 to 560 rpm

Max brake horsepower:
- Gross: 980 hp
- Net: 690 hp

Torque, gross, max: 5,600 lb-ft @ 1700 rpm

Ignition:
- Type: compression ignition

Fuel:
- Type: diesel
- Cetane rating (minimum): 35

Traversing mechanism:
- Type: manual and hydraulic power

Turret traverse:
- Right: 30 deg
- Left: 30 deg

Elevating mechanism:
- Type: manual and hydraulic power

Weapon mount motion:
- Elevation (max): 60 deg
- Depression: +2 deg

Recoil mechanism:
- Type: hydro pneumatic
- Equilibrator: hydro pneumatic
- Type of recoil oil: MIL-H-6803

AMMUNITION
- Type: 175 mm
- Loading: separate
- Loading and ramming: hydraulic or manual
- Main stowage: 2 rounds

*For characteristics and data, see item in sections 5, 13, 14, 18, and 27.

**Type classification pending.
**HOWITZER, HEAVY, SELF-PROPELLED: 8-INCH, M110 (T236E1)**

**General**
HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M110 (T236E1), is a full tracked vehicle, and provides a highly mobile and maneuverable, self-propelled weapon capable of being air transported in large cargo aircraft. It is designed to provide general artillery support to ground troops and close general support to armored columns. The M110 provides mobility for the CANNON, 8-INCH HOWITZER: M2A1E1,* and gives protection to the infantry in offensive combat. The vehicle is a low, all-welded steel structure with no superstructure and with an independently operated turret and cannon mounted toward the rear of the vehicle. The turret houses the MOUNT, GUN-HOWITZER: M158,* which supports the cannon. The vehicle utilizes the torsion bar-type suspension system incorporating five pairs of individually sprung road wheels, and tracks. Rear wheels, mounted on eccentric shafts are used to adjust the tension on the tracks of the vehicle. A hydraulically operated spade, mounted at the rear of the vehicle and the road wheel lockout cylinders provide stability during operation of the weapon.

**Differences among models**

**Data plate location**
The data plate is located in the driver's compartment.

**Classification Standard A (OTCM 37684).**

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M110 (T236E1)</td>
<td>418417</td>
<td>2350-440-6443</td>
</tr>
</tbody>
</table>

**Characteristics**

<table>
<thead>
<tr>
<th>Crew</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
<td></td>
</tr>
<tr>
<td>Overall, gun in travel position</td>
<td>294.28 in.</td>
</tr>
<tr>
<td>Overall, cannon removed</td>
<td>284.25 in.</td>
</tr>
<tr>
<td>Width, overall</td>
<td>124 in.</td>
</tr>
<tr>
<td>Height:</td>
<td></td>
</tr>
<tr>
<td>Overall, gun in travel position</td>
<td>115.50 in.</td>
</tr>
<tr>
<td>Hull</td>
<td>66.13 in.</td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>Fighting</td>
<td>58,500 lb</td>
</tr>
</tbody>
</table>

*For characteristics and data, see item in section 6.

**Armament:**
- **CANNON, 8-INCH HOWITZER: M2A1E1:**
- **MOUNT, GUN-HOWITZER: M158 (T185):**
- **RAMMER AND LOADER ASSEMBLY (1089830):**
- **MECHANISM, FIRING, CANNON: 265:**

**Tracks:**
- Type: Flat, single pin, removable rubber pad
- Model: T132 and T132E1
- Tread (center-to-center) | 106 in. |
- Outside-to-outside | 124 in. |
- Length of track on ground | 64.78 ± 1.5 in. |
- Ground contact area, O in. penetration | 584.51 sq in. |
- Ground contact (wheels) base | 148.28 ± 1.5 in. |
- Center of front road wheel to center of rear road wheel | 144 in. |
- Center of gravity above ground | 46 in. and 98.5 in. from center of sprocket

**Ground clearance:**
- Ground clearance | 17.38 in. |
- Ground pressure | 10.9 psi |
- Pintle height | 27.13 in. |
- Height of gun | 89.280 in. |
- Front of vehicle to center of vehicle | 127±5 in. |
- Front of gun to center of vehicle | 167.250 in. |

**Electrical system:**
- Volts, dc | 24 |
- Batteries: Number | 4 |
- Type | 6 TN |
- Generator Ampere rating | 380 |
- Model | 3000-3005 |
- Manufacturer | Jack & Heintz |
- Intercommunication set | AN/UIC-1 |
- Type of ground | Single conductor circuit, negative bonded to hull |

**Capabilities:**
- Fuel tank | 300 gal |
- Engine crankcase refill | 36 qt |

Reduced for air transport:
- Less crew, stowage, and fuel | 52,000 lb |
- Less crew, stowage, fuel, and gun cannon | 41,000 lb |

---

*For characteristics and data, see item in section 6.*
TRANSMISSION REFL:
Transmission refill: 14 gal
Final drive, each: 1/2 qt
Recoil mechanism:
Oil required: 15 gal
Reserve: 10 gal
Replenisher: 2 pt
Recoverator: 2 pt

Brakes:
Service:
Type: multiple wet plate
Operation: mechanical
Parking:
Type: multiple wet plate
Operation: mechanical

Transmission:
Manufacturer: Allison
Model: XTG-411-2A
Type: cross-drive

No. of speeds:
Forward: 4
Reverse: 2

Gear ratio:
Fourth (high): 0.70:1
Third: 1.15:1
Second: 2.11:1
First (low): 4.63:1
Reverse: 1.00:1
2.00:1
Final reduction: 5.36:1

DIFFERENTIAL-DRIVE:
Type: planetary

ENGINE:
Manufacturer: General Motors
Model: V871T
Type: compression ignition, V, liquid-cooled, turbocharged, diesel
Displacement: 0.568 cu in.
No. of cylinders: 8
Bore: 3.82 in.
Stroke: 4.53 in.
Compression ratio: 17:1
Max governed speed:
No load: 2400 rpm
Full load: 2100 rpm
Idling speed: 550 to 600 rpm
Max brake horsepower:
Gross: 540 hp
Net: 345 hp
Torque, gross, max: 1900 lb-ft @ 1700 rpm
Ignition: compression

Fuel:
Type: diesel
Gasoline rating (minimum): 87
Traversing mechanism:
Type: manual and hydraulic power
Turret traverse:
Right: 30 deg
Left: 30 deg

Elevating mechanism:
Type: manual and hydraulic power
Weapon mount motion:
Elevation (max): 66 deg
Depression: 2 deg

Recoil mechanism:
Type: hydropneumatic
Equilibrator: pneumatic
Type of recoil oil: MIL-H-5606, Type I

Ammunition:
Type: HE
Loading:
Loading and ramming: hydraulic or manual
Main storage: 2 rounds

FOR CHARACTERISTICS AND DATA, SEE ITEM IN SECTIONS 12, 14, 18, AND 27.
HOWITZER, LIGHT, SELF-PROPELLED: 105-MM, T195E1

**General**

HOWITZER, LIGHT, SELF-PROPELLED: 105-mm, T195E1, is an armored, full-track-laying vehicle with individual torsion bar suspension. The M108 provides a self-propelled carriage for 105-mm howitzer with adequate mobility for direct support of combat teams employing armored personnel carriers and tanks. This vehicle is capable of Phase III Airborne Operations and will cross inland waterways with an inflated flotation device.

**Differences among models**

**Data plate location**

The data plate is located to the left of the driver's seat on the sponson.

**Classification:** Limited production (OTCM 37966).

**Armament**

CANNON, 105 MILLIMETER HOWITZER: XM103
MOUNT, HOWITZER: XM139
MACHINEGUN, CALIBER 50: Browning, M2, heavy barrel, flexible
LAUNCHER, ROCKET: M20A1B1
RIFLE: 7.62-mm, M14 (five)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>T195E1</td>
</tr>
<tr>
<td>Line item No.</td>
<td></td>
</tr>
<tr>
<td>Federal stock No.</td>
<td>2350-440-8810</td>
</tr>
</tbody>
</table>

**Electrical system:**

- No. of volts: 24
- Generators (alternator): 100 amperes
- No. of batteries: 4 (12 volt)
- Type of batteries: 6 TN
- Fuel (minimum) (cetane rating): 95

**Capacities:**

- Fuel (total): 185 gal
- Crankcase, refill: 26 qt
- Transmission refill: 14 gal
- Final drive, each: 2 qt

**Brakes:**

- Type: multiple wet plate
- Operation: mechanical application

**Transmission:**

- Manufacturer: Allison Div., GMC
- Model: XTG-411-2A
- Type: X drive transverse
- No. of ranges: 4
  - Forward: 2
  - Reverse: 2
- Final reduction: 4.36:1
- Communication system: Interphone
- Suppressed for radio interference: Yes

**Engine:**

- Manufacturer: Detroit Diesel Engine Div., GMC
- Model: 8V71T
- Type: diesel, turbocharged, 2 stroke, liquid cooled
- Displacement: 868 cu in.
- No. of cylinders: 8
- Bore: 4.25 in.
- Stroke: 5 in.
TM 9-500 C 1

Compression ratio .................................................. 17:1
Brake horsepower, gross (w/maX std accessories) .......... 405 @ 2,000 rpm
Torque, gross (w/max accessories) .............................. 980 @ 1,700 rpm
Type of Ignition ...................................................... compression
Auxiliary engine generator ........................................ none
Elevating mechanism .................................................. manual
Tracks steel model .................................................... 1137
Tracks rubber model (removable rubber pads) ............... T127

AMMUNITION
105-mm .................................................................. 87 rounds
Cal. .50 ................................................................... 500 rounds
Rocket 3.5 in. ............................................................. 6 rounds
7.62-mm ................................................................ 780 rounds
Hand grenades ............................................................. 12

PERFORMANCE
Maximum sustained speed on improved road with combat load:
Level .......................................................................... 35 mph
10 percent grade ........................................................ 12 mph
Minimum sustained speed ......................................... 2.5 mph
Maximum grade ability (on prepared slopes) .............. 90 percent
Turning radius ........................................................... one vehicle length
Fording depth, swimming capabilities w/deep water fording kit yes
Type of water propulsion ............................................ trucks
Speed in water ............................................................. 4.0 mph
Vertical obstacle vehicle can climb ............................. 21 in.
Width of ditch vehicle can cross ................................ 72 in.
Fuel consumption ....................................................... 1 gal per hour @ 600 rpm
Maximum allowable towed load, gross ....................... 87,400 lb
Fording depth, swimming capabilities ......................... yes
Crusing range (improved roads) ................................. 240 mi
Drawbar pull .............................................................. 240 mi

EQUIPMENT
Interphones: Radio set AN/UGC-1 with fire (5) outlets plus external interphone extension kit, Model C-958/C.
Sighting and Fire Control:* HINGHILL, M17A1

OUTFIT SETTER: M28 with case, carrying M60
OUTFIT SETTER: F7
MOUNT, TELESCOPE: direct fire, T36
MOUNT, TELESCOPE: panoramic, T208
PERISCOPE, TANK: M27
PERISCOPE, TANK: XM45
POST AIMING: M1A2 w/cover, aiming post, M19
QUADRANT, FIRE CONTROL: elevation, M15 (T32E2)
QUADRANT, FIRE CONTROL: gunner's M1A1 w/case, carrying, M8
REFLECTOR, AIMING POST: M1 (clear) and M2 (red) w/case, carrying, M44
TELESCOPE, ELBOW: direct fire, T176E3
TELESCOPE, PANORAMIC: T167

INSTRUCTIONAL MATERIAL
StORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 1 howitzer uncrated per flat car.
Length ................................................................. 240.44 ft
Width ................................................................. 129.75 ft
Height ................................................................. 110 ft
Gross weight ......................................................... 46,412 lb
Ship tons ................................................................ 47.48

Gross weight ......................................................... 37,625 lb
Ship tons ................................................................ 37.64

Outside Continental United States

Shipped 1 howitzer uncrated per flat car.
Length ................................................................. 240.44 ft
Width ................................................................. 129.75 ft
Height ................................................................. 110 ft
Gross weight ......................................................... 46,412 lb
Ship tons ................................................................ 47.48


*For characteristics and data, see item in sections 14, 18, and 27.
HOWITZER. MEDIUM, SELF-PROPELLED: 155-MM, M109 (T196E1)
CHARACTERISTICS—Continued

Engine:
- **Manufacturer**: Detroit Diesel Engine Div. - GMC
- **Model**: 8V-11T
- **Type**: diesel, turbocharged, two-stroke, liquid-cooled, V8
- **Displacement**: 367.5 cu in.
- **Number of cylinders**: 8
- **Bore**: 4.25 in.
- **Stroke**: 6.00 in.
- **Compression ratio**: 17:1
- **Brake horsepower, gross (max w/std accessories)**: 405 @ 2,350 rpm
- **Torque, gross (max w/std accessories)**: 1,900 @ 1,700 rpm
- **Type of ignition**: compression
- **Auxiliary engine generator (model)**: none
- **Elevation mechanism power and manual tracks, double pin removable rubber pad (T195)**

AMMUNITION
- 155-mm: 28 rds
- Cal. .50: 500 rds
- Rocket 3.5-in.: 6 rds
- 7.62-mm: 90 rds
- Hand grenades: 1:1

PERFORMANCE
- **Maximum sustained speed on improved road with combat load**: Level 35 mph, 10 percent grade 12 mph
- **Minimum sustained speed**: 2.5 mph
- **Maximum grade ability (on prepared slopes)**: 60 percent
- **Turning radius (one vehicle length)**
- **Fording depth, swimming capability with deep water fording kit**
- **Type of water propulsion**
- **Tracks**
- **Speed in water**: 4.0 mph
- **Vertical obstacle vehicle can climb**: 21 in.
- **Width of ditch vehicle can cross**: 110.00 in.
- **Fuel consumption**: 1 gal per hour @ 500 rpm
- **Maximum allowable towed load, gross**: 220 mi
- **Drawbar pull**: 49,396 lb

EQUIPMENT
- **Interphone**: Radio set AN/UIC-1 with five outlets plus external interphone extension kit, Model C-888/C.

Sighting and fire control*: 
- **BINOCULAR**: M17A1 (authorized separately by TOE)
- **FUZE SETTER**: M26 w/case, carrying M66
- **FUZE SETTER**: M27
- **MOUNT, TELESCOPE**: direct fire, M146 (T206)
- **MOUNT, TELESCOPE**: panoramic, M146 (T208)
- **PERISCOPE, TANK**: M27
- **PERISCOPE, TANK**: M42
- **PERISCOPE, TANK**: XM45
- **POST, AIMING**: M1A2 w/cover, aiming post, M401
- **QUADRANT, FIRE CONTROL**: elevation, M15 (T23E2)
- **QUADRANT, FIRE CONTROL**: gunner's, M1A1 w/case, carrying, M82
- **REFLECTOR, AIMING POST**: M1 (clear) and M2 (red) w/case, carrying, M144
- **TELESCOPE, ELBOW**: direct fire, M118C (T176E2)
- **TELESCOPE, PANORAMIC**: M117 (T177)
- **Basic Issue Items**: See TM 9-2350-217-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

**Within Continental United States**
- **Shipped 1 howitzer uncrated flatcar.**
  - **Length**: 240.44 in.
  - **Width**: 129.75 in.
  - **Height**: 110.00 in.
  - **Volume**: 1,897.9 cu ft
  - **Gross weight**: 49,396 lb
  - **Ship tons**: 47.45

**Outside Continental United States**
- **Shipped 1 howitzer uncrated flatcar.**
  - **Length**: 240.44 in.
  - **Width**: 129.75 in.
  - **Height**: 110.00 in.
  - **Volume**: 1,897.9 cu ft
  - **Gross weight**: 49,396 lb
  - **Ship tons**: 47.45


*For characteristics and data, see item in sections 14, 18, and 27.
TANK, COMBAT, FULL TRACKED: FLAMETHROWER, M67 and M67A1

Data plate location
The vehicle data plate is located on a bracket directly above the brake pedal.

Classification
M67 Standard B for USMC use only (AMTC 126)
M67A1 Standard A for Army use only (OTCN 37119)

CHARACTERISTICS
Crew
3
Length, overall
M67 (flamethrower gun in firing position) 324\frac{1}{2} in.
M67A1 (flamethrower gun, M6 in firing position) 369\frac{3}{4} in.
Length of vehicle
M67 324\frac{1}{2} in.
M67A1 374\frac{3}{4} in.
Front of flamethrower gun to center of flamethrower turrett 270\frac{3}{4} in.

Front of vehicle to center of flamethrower turrett 119\frac{3}{4} in.
Length, overall (flamethrower gun in traveling position):
M67 274\frac{1}{2} in.
M67A1 271\frac{1}{4} in.

Center of flamethrower gun to center of turret:
M67 220\frac{1}{4} in.
M67A1 216 in.

Center of turret to rear of vehicle:
M67 163\frac{1}{4} in.
M67A1 160\frac{1}{4} in.

Width, overall 121\frac{1}{4} in.

Height, overall 107\frac{1}{4} in.

Height, above ground 103\frac{1}{4} in.

Armament:
FLAMETHROWER:
M67 M7-6
M67A1 M7A1-6

MACHINEGUN, CALIBER .30:
Browning, M1919A4E1 or M37

MACHINEGUN, CALIBER .50:
Browning, M2, heavy barrel

Tracks, width 28 in.

Tread (center-to-center of tracks) 113 in.

Outside to outside of track 143 in.

Angle of approach 36 deg

Angle of departure 31 deg

Type of fuel Gasoline

Center of gravity above ground

Weight of vehicle:
Combat loaded:
M67 104,790 lb
M67A1 106,790 lb

Loss crew, fuel, and storage:
M67 99,975 lb
M67A1 100,975 lb

Length of track on ground 167\frac{1}{4} in.

Ground contact area -- 0 inch penetration 8,200 sq. in.

Ground clearance 18\frac{3}{4} in.

Model | Line item No. | Federal stock No. |
--- | --- | --- |
M67 | 2310-388-1910 | 4-43960-30 |
M67A1 | 2350-663-294-43990-00 |

*Responsibility of the Chemical Corps.

**For characteristics and data, see item on pages 22-28 and 23-29.
### Ground pressure:
- M67: 71.9 psi
- M67A1: 72.0 psi

### Pinion height (loaded):
- M67: 81 11/16 in.

### Electrical system:
- M67: 24 volts
- M67A1: 24 volts

### Fuel system:
- M67: 4 (12 volts)
- M67A1: 6 TN

### Fuel octane rating:
- M67: 80
- M67A1: 83

### Capacities:
- Fuel for engine:
  - M67: 215 gal
  - M67A1: 235 gal
- Fuel for flamethrower:
  - M67: 380 gal
  - M67A1: 380 gal
- Compressed air at 3000 psi:
  - Secondary fuel container: 10 cu ft
  - Crankcase, refill (w/o cooler, cores, and lines): 64 qt
- Transmission, cross-drive, refill (w/o cooler, cores, and lines): 92 qt

### Performance:
- Maximum grade ability: 60 percent
- Turning radius: pivot to infinity
- W/o deep-water fording kit: 4 ft
- W/ deep-water fording kit: 8 ft
- Maximum vertical obstacle vehicle can climb: 56 in.
- Maximum width of ditch vehicle can cross: 102 in.
- Fuel consumption (average conditions): 0.47 mpg
- Maximum speed, recommended: 31.8 mph
- Cruising range (average conditions):
  - M67: 100 mi
  - M67A1: 160 mi
  - W/jettison fuel tanks: 250 mi

### Equipment:
- Communications:
  - Interphone: extension kit, AN/VIA-1, AN/VIA-4
  - Radio set: AN/GRC-3, 4, 7, or 8
- Auxiliary:
  - Sightline and Fire Control:
    - M67A1: MOUNT, TANK PERISCOPE: M113
    - PERISCOPE: XM30

### Instructional Material:
- Basic issue items:

### Storage and Shipment Data:

#### Within Continental United States

- Shipped:
  - Length: [data]
  - Width: [data]
  - Height: [data]
  - Area: [data]
  - Gross weight: [data]
  - Ship tons: [data]

#### Outside Continental United States

- Shipped:
  - Length: [data]
  - Width: [data]
  - Height: [data]
  - Volume: [data]
  - Area: [data]
  - Gross weight: [data]
  - Ship tons: [data]

### References:
- TM 9-2360-208-10A, USMC

### Ammunition:
- Cal .30: 5,500 rounds
- Cal .50: 600 rounds

***For characteristics and data, see item in section 14.
FLAME THROWER, SELF-PROPELLED: M132 AND M132A1

Model | Line item No. | Federal stock No.  
M132 | 2350-987-8900  
M132A1 | 2350-956-6809

General
FLAME THROWER, SELF-PROPELLED: M132 AND M132A1, is basically CARRIER, PERSONNEL, FULL TRACKED; armored, M113 (T113E2)* modified for use as a highly mobile flame thrower by addition of FLAME THROWER, M10-8. The vehicles are amphibious and can cross lakes and streams. The M132 and M132A1 retain the general operating characteristics of the M113 Carrier and are air transportable to using forces.

Differences among models:
The M132A1 is equipped with a diesel engine, and TX190-1 transmission, instead of a gasoline engine, and T-200-28 transmission, as in the M132.

Data plate location:

Classification:
- M132 — Standard B (AMCTCM W-740)
- M132A1 — Standard A (AMCTCM W-740)

CHARACTERISTICS

Crew: 2

Length overall:
- M132 (flame thrower gun in firing position) 191 1/2 in.
- M132A1 (flame thrower gun in firing position) 191 1/2 in.

Length of vehicle:
- M132 191 1/2 in.
- M132A1 191 1/2 in.

Front of vehicle to center of flame thrower turret: 91 1/2 in.

Length overall (flame thrower gun in traveling position):
- M132 191 1/2 in.
- M132A1 191 1/2 in.

Center of turret to rear of vehicle:
- M132 64 in.
- M132A1 64 in.

Width overall: 105 in.

Height overall: 93 1/4 in.

Wheelbase: 105 in.

Height, above ground: 10 3/4 in.

Armament:
- FLAME THROWER: M10-8
- MACHINEGUN, 7.62-MILLIMETER: M73
- Tracks, width: 15 in.
- Tread (center-to-center of tracks): 84 in.
- Outside to outside of track: 190 in.
- Type of fuel: 
  - M132: gasoline
  - M132A1: diesel

Center of gravity, above ground: 39 1/2 in.

Weight of vehicle:
- Gross (combat loaded):
  - M132 23,380 lb
  - M132A1 23,935 lb
- Net:
  - M132 22,650 lb
  - M132A1 23,415 lb
- Air transported:
  - M132 20,430 lb
  - M132A1 20,885 lb

Length of track on ground: 106 in.

Ground contact area—0-inch penetration:
- M132 7.4 psi
- M132A1 7.8 psi

Ground clearance: 16 in.

Ground pressure:
- M132: 
  - Combat loaded 7.5 psi
  - Net weight 7.3 psi
- M132A1: 
  - Combat loaded 7.6 psi
  - Net weight 7.5 psi

Pintle height (loaded): 26.5 in.

Fender height (ground to top):
- M132: 40 in.
- M132A1: 40 in.

*For characteristics and data, see item 10 section 21.
### Electrical System
- **No. of batteries**: 2 (series)
- **Type of batteries**: 6 TN (12 V)

### Fuel Rating
- **M132 (octane)**: 89 to 91
- **M132A1 (octane)**: 40

### Capacities
- **Refill**:
  - Fuel for engine: MI32 (tank) 86 gal, MI32A1 96 gal
  - Fuel for flame thrower: MI32 392 lb-ft @ 2,800 rpm, MI32A1 425 lb-ft @ 1,500 rpm
- **Crankcase refill**:
  - M132 (approx) 9 qt, MI32A1 (approx) 18 qt
  - MI32 1.5 gal, MI32A1 2.25 gal

### Brakes
- **M132**: differential band
- **MI32A1**: differential band and disc

### Transmission
- **Manufacturer**: Allison Div.-GMC
- **Model**: MI32 TX 200-23, MI32A1 TX 100-1
- **Type**: single stage, multiphase
- **Number of ranges**:
  - Forward: M132 6, MI32A1 4
  - Reverse: M132 1, MI32A1 1
- **Final reduction**:
  - Low: M132 5.296:1, MI32A1 2.817:1
  - High: M132 1:1, MI32A1 1:1

### Communication System
- **Engine**: interphone
- **Component**: engine
- **Engine type**: overhead valve, 90°, V-8
- **Displacement**: M132 361 cu in., MI32A1 318.6 cu in.
- **Compression ratio**: M132 7.9:1, MI32A1 8.1:1

---

**Maximum governed speed (full load)**:
- M132 3,900 rpm
- MI32A1 2,800 rpm

**Brake horsepower, gross (max w/std accessories)**:
- M132 315 bhp @ 4,000 rpm
- MI32A1 310 bhp @ 2,000 rpm

**Torque, gross (min w/std accessories)**:
- M132 392 lb-ft @ 2,800 rpm
- MI32A1 425 lb-ft @ 1,500 rpm

**Type of ignition**:
- M132: battery
- MI32A1: compression ignition

---

**Traversing and Elevating System**

**AMMUNITION**
- 7.62-mm: 2,500 rds

**PERFORMANCE**

**Maximum grade ability**: 60 percent

**Minimum turning radius**:
- M132 22.3 ft
- MI32A1 22.7 ft, w/pivot steer 12.8 ft

**Fuel consumption (average conditions)**:
- M132 (approx) 2.1 mpg
- MI32A1 (approx) 3.4 mpg

**Maximum speed recommended**: 35 mph

**Cruising range (average conditions)**:
- MI32 (approx) 200 miles
- MI32A1 (approx) 300 miles

**EQUIPMENT**

**Communications**:
- Radio set (on rack, left wall): AN/VRC-47

**Sighting and Fire Control**:
- **Mount, Periscope**: MI04A2
- **Periscope**: MI7, MI9
- **Periscope**: M28D (in lieu of M28C)
- **Plate**: Instruction (8724207)

**Basic Issue Items**:
- See TM 9-2300-224-10/3/4, TM 9-2300-224-10/3/4-(M132)
- See TM 9-2300-224-10/3/4-(MI32A1)

**INSTRUCTIONAL MATERIAL**
- **Cartridge, 7.62-mm, Dummy**: Nato 63
- **Graphic Training Aid**:
  - (Above item, when available, will be listed in DA Pam 210-6.)
- **Firing Attachment, Blank Ammunition**: M73 M.G.

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**
- Shipped 1 flame thrower uncrated per flatcar.

**Length**: 191 1/4 in.
**Width**: 106 1/2 in.
**Height**: 66 3/4 in.
**Volume**: 1,123 cu ft
**Area**: 141 sq ft
**Gross weight**: M132 19,466 lb, MI32A1 20,365 lb

**Ship tons**
- M132 28.08
- MI32A1 30.08
### STORAGE AND SHIPPING DATA—Continued

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 1 flame thrower uncrated.</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>190 in.</td>
</tr>
<tr>
<td>Width</td>
<td>100 in.</td>
</tr>
<tr>
<td>Height</td>
<td>90 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>889.6 cu ft</td>
</tr>
<tr>
<td>Area</td>
<td>132 sq ft</td>
</tr>
<tr>
<td>Gross weight:</td>
<td></td>
</tr>
<tr>
<td>M132</td>
<td>19,840 lb</td>
</tr>
<tr>
<td>M132A</td>
<td>20,545 lb</td>
</tr>
</tbody>
</table>

### Ship tons

<table>
<thead>
<tr>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.74</td>
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</tbody>
</table>

### References:

VEHICLE, COMBAT ENGINEER, FULL TRACKED:
165-MM GUN, M728 (TU8El)

Model Line item No. Federal stock No.
M728 (TU8El) E66577 2310-795-1797

General
VEHICLE, COMBAT ENGINEER, FULL TRACKED: 165-MM GUN, M728 (TU8El), is designed to provide maximum ballistic protection for the crew. The vehicle is heavily armed, being a basic M60A1 TANK*, modified to provide a mobile and maneuverable weapon for combat support of ground troops and vehicles. It is equipped with a hydraulically operated bulldozer mounted to the front of the hull. A winch and boom are mounted to the turret for lifting, carrying, and winching. The vehicle is used for breaching, obstacle removal, transportation of demolition teams, and pioneering operations.

Differences among models

Data plate location:
The data plate is located on a bracket above the brake pedal.

Classification: Limited production (AMCTC item 270).

CHARACTERISTICS
Crew
4 (commander, driver, gunner, and loader)
Length (with boom and bulldozer in travel position) 347.55 in.
Length (with boom in erected position) 366.30 in.
Width (with bulldozer installed) 146 in.
Height (lowest operable) 128.23 in.
Height of lifting hook 19.3 in.

Armament:
Primary:
CANNON, 165-MILLIMETER, GUN: XM135
MOUNT, COMBINATION GUN: XM160
Secondary:
MACHINEGUN, 7.62-MILLIMETER: M73
MACHINEGUN, CALIBER .50: M85
Other:
SUBMACHINEGUN, CALIBER .45: M3A1

Tracks:
Width 26 in.
No. of shoes per track 80
Type T79E2
Pitch 6-15/16 in.
Suspension type Individual torsion bar
Road wheels:
No. 2a
Tire 26 x 6 in.
Track center-to-center 116 in.
Outside to outside of track 146 in.
Wheelbase
Angle of approach
Angle of departure
Type of fuel Diesel Spec VV-P-800
Center of gravity above ground 34.25 in.
Weight of vehicle:
Gross (combat loaded) 16,000 lb
Net (less crew, storage, and fuel) 10,000 lb
Length of track on ground 106.72 in.
Ground contact area (6-inch penetration) 18.25 sq. in.
Ground clearance
Ground pressure 12.2 psi
Pintle height (loaded)
Electrical system:
Voltage 24 dc
Number of batteries 6
Type of battery 6 TN
Generator, main 500 amp
Fuel cetane rating
Capacities:
Hydraulic reservoirs:
Boom, winch, and bulldozer (fill) 200 qt
Boom, winch, and bulldozer (refill) 192 qt
Fuel tank (total) 978 gal
Transmission:
Fill 92 qt
Refill 88 qt

*For characteristics and data, see Item in section 23.

23-50
Brakes:
Type: multiple disc, wet plate
Operation: hydraulic-linked foot pedal

Transmission:
Manufacturer: General Motors Corp. (Allison Div.)
Model: CD-860-6A
Type: CV-808, drive, hydraulic torque converter, and planetary gearing.
Overall gear ratio:
- Input: 1.16:1
- Low range: 3.47:1
- High range: 1.26:1
- Reverse range: 4.30:1
- Maximum converter multiplication: 3.6:1
- Final reduction: 5.08:1
- Drive ranges: low, high, and reverse

Engine:
Manufacturer: Military engine (Continental)
Model: AVDS-1790-2A
Type: 12 cyl, 90 deg, V-type, air-cooled, diesel
Bore: 3.75 in.
Stroke: 6.75 in.
Compression ratio: 16:1
Maximum governed speed (full load): 2,400 rpm
Brake horsepower, gross (max w/std accessories): 760
Torque, gross (max w/std accessories): 1,710 lb-ft
Type of ignition: compression
Auxiliary engine-generator: none

Traversing and elevating mechanism:
- Boom and winch system: manual and hydraulic
- Boom:
  - Type: tubular A-frame
  - Traverse: 360 deg
  - Controls: hydraulic
- Winch:
  - Capacity, 1st wrap: 25,000 lb
  - Speed, 4th wrap: 30 rpm
  - Type, gear, two-speed, hydraulically operated
  - Cable:
    - Size: 3/4 in, diam.
    - Length: 200 ft
  - Lifting capacity (in all erected positions w/single line, 4th wrap cable): 17,000 lb

AMMUNITION
- 165-mm: 30 rds
- Cal. .50: (min) 600 rds
- 7.62-mm: (min) 2,000 rds
- Cal. .46: 360 rds
- Grenades: 12

PERFORMANCE
- Maximum grade ability: 60 percent
- Turning radius: to infinity
- Fording depth:
  - w/o deep water fording kit: (max) 48 in.
  - w/deep water fording kit: 96 in.
- Maximum vertical wall vehicle can climb: 30 in.
- Maximum width of trench vehicle can cross: 96 in.

Fuel consumption, average conditions: 1.13 mpg
Allowable speed recommended: 20 mph
Cruising range (20 mph): 280 mi
Buildup system:
- Controls: hydraulic
- Angle of moldboard cutting edge (with horizontal):
  - Final position: 46 deg
  - Lowest position: 46 deg
- Relation of moldboard cutting edge to ground level:
  - Lowest position: 10 in. below
  - Highest position: 10 in. above
- Rate of lift:
  - At engine speed of 1,100 rpm: 5.5 ips

EQUIPMENT
Communications:
- Radio sets: AN/VRC-63, AN/GRC-125, or AN/VRC-46
Sighting and fire control**:
- PERISCOPE, TANK: M27 (driver's)
- PERISCOPE, TANK: M24 (driver's)
- PERISCOPE, TANK: M38 (commander's)
- PERISCOPE, TANK: M32 (commander's, infrared)
- PERISCOPE, TANK: M32 (gunner's day, or infrared)
- MOUNT, PERISCOPE: M118 (gunner's)
- TELESCOPE: M114 (magnifier)
- PERISCOPE, TANK: M27 (loader's)
- SIGHT, INFINITY: M845446
- QUADRANT, FIRE CONTROL: elevation, M13A3
- QUADRANT, FIRE CONTROL: azimuth, M28E2
- QUADRANT, FIRE CONTROL: gunner's, M11, w/case
- BINOCULAR: M18 (infrared)

Basic Issue Items: See TM 9-2350-222-10.

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA

Within Continental United States
- Shipped 1 vehicle uncrated per flatcar.
- Length: 18 ft
- Width: 10 ft
- Height: 10 ft
- Volume: 120 cu ft
- Gross weight: 40 tons
- Ship tons: 50

Outside Continental United States
- Shipped 1 vehicle uncrated per flatcar.
- Length: 18 ft
- Width: 10 ft
- Height: 10 ft
- Volume: 120 cu ft
- Gross weight: 40 tons
- Ship tons: 50


**For characteristics and data, see item in sections 14, 18, and 27.

23-51
# SECTION 24

TRACTORS, TRACK LAYING, HIGH SPEED
(Class 2430)

(Includes Track Laying Tractors)

<table>
<thead>
<tr>
<th>Tractor Type</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor, Full Tracked, High Speed: 13-ton, M5, M5A1, M5A2, M5A3, and M5A4</td>
<td>24-2</td>
</tr>
<tr>
<td>Tractor, Full Tracked, High Speed: 18-ton, M4, M4A1, M4A1C, M4A2, and M4C</td>
<td>24-5</td>
</tr>
<tr>
<td>Tractor, Full Tracked, High Speed: M8A1, and M8A2</td>
<td>24-7</td>
</tr>
</tbody>
</table>
TRACTOR, FULL TRACKED, HIGH SPEED: 13-TON, M5, M5A1, M5A2, M5A3, AND M5A4
### Differences among models

**M5:**
- This tractor is identified by the unarmored, open top body, which may be inclosed by a driven top and side curtains. The vehicle is equipped with a front-mounted winch assembly, to which a tubular steel bumper is attached. Two small doors are located in the front of the body, on either side of the center mounted driver's compartment. The vehicle is supported by four road wheels on each side and runs on a narrow front driven track.

**M5A1:**
- This tractor is a later version of the M5 and is identified by the wide covered cab, side doors, and double windshield. The front mounted winch assembly is recessed under the cab floor and the bumper is equipped with a pintle hook and two tow hooks. A ring mount for a caliber .50 machine gun is mounted in the cab top.

**M5A2:**
- This tractor differs from the M6 only in the track and suspension. It has a horizontal volute spring suspension.

**M5A3:**
- This tractor is a modified version of the M5A1 and is identified by the suspension system and wide tracks. The suspension system is modified to provide for a wider track by the addition of spacers between the tractor hull and the suspension brackets.

**M5A4:**
- This tractor is equipped with a mechanically operated clutch and has only one air reservoir. The clutch gear reduction unit is replaced by a two-speed auxiliary transmission.

The vehicles are equipped with electric and airbrake systems for use with trailers.

The vehicles are equipped with volute spring suspensions. The vehicles M5 and M5A1 are provided with track rubber T18 and T44 or track steel T30E1 and T35E1. The vehicles M5A2 and M5A3 are provided with track steel T35.

The vehicle frames consist of two longitudinal heavy-section steel channels rigidly braced and attached to two transverse crossmembers which extend on each side. Removable plates are installed under the body to provide access to many vehicle components. Armament for the vehicles is a MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible in mount cal. .50 A4.

### General

**TRACTOR, FULLY TRACKED, HIGH SPEED:** 12-ton, M5, M5A1, M5A2, M5A3, and M5A4 is medium weight, heavy-duty, full track, general utility tractor designed to tow heavy artillery over rough terrain while transporting the gun, crew and ammunition. The vehicles are powered by six-cylinder, in-line, 4-cycle, liquid-cooled, valve-in-head, dual carburetor engines. The vehicles are equipped with a heavy-duty, dual-range type clutch. Power is transmitted to the final drives through helical-gear, constant-mesh transmission. The vehicles are equipped with electric and airbrake systems for use with trailers.

The vehicle tracks are equipped with welded extenders to improve flotation and increase traction. The width of the vehicle is widened 14 inches to provide seating capacity for additional crew members.

### Data place location

The data plate is located on the instrument panel in the driver's compartment.

### Major items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>4-56870-10</td>
<td>2430-835-8144</td>
</tr>
<tr>
<td>M5A1</td>
<td>4-56870-20</td>
<td>2430-835-8573</td>
</tr>
<tr>
<td>M5A2</td>
<td>4-56870-30</td>
<td>2430-835-8555</td>
</tr>
<tr>
<td>M5A3</td>
<td>4-56870-40</td>
<td>2430-835-8502</td>
</tr>
<tr>
<td>M5A4</td>
<td>4-56870-50</td>
<td>2430-867-9553</td>
</tr>
</tbody>
</table>

### CHARACTERISTICS

**Crew:**
- M5 and M5A2: 9
- M5A1 and M5A3: 11
- M5A4: 12

* For characteristics and data, see item in section 2.

### Dimensions

<table>
<thead>
<tr>
<th>Major item</th>
<th>M5 and M5A2</th>
<th>M5A1 and M5A3</th>
<th>M5A4</th>
<th>M5A4 and M5A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, overall:</td>
<td>1080 in.</td>
<td>1119 in.</td>
<td>1119 in.</td>
<td>1080 in.</td>
</tr>
<tr>
<td>Center of front pivot shaft to rear pivot shaft:</td>
<td>106 in.</td>
<td>106 in.</td>
<td>106 in.</td>
<td>106 in.</td>
</tr>
<tr>
<td>Center of front pivot shaft to center of drive sprocket:</td>
<td>30.642 in.</td>
<td>30.642 in.</td>
<td>30.642 in.</td>
<td>30.642 in.</td>
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<tr>
<td>Center of rear pivot shaft to center of rear road wheel:</td>
<td>74.1 in.</td>
<td>74.1 in.</td>
<td>74.1 in.</td>
<td>74.1 in.</td>
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<td>Center of pivot shaft to towing pintle:</td>
<td>126 in.</td>
<td>126 in.</td>
<td>126 in.</td>
<td>126 in.</td>
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<tr>
<td>Front of vehicle to center of drive sprocket:</td>
<td>33.1 in.</td>
<td>33.1 in.</td>
<td>33.1 in.</td>
<td>33.1 in.</td>
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<tr>
<td>Front of winch to center of drive sprocket:</td>
<td>19.3 in.</td>
<td>19.3 in.</td>
<td>19.3 in.</td>
<td>19.3 in.</td>
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<tr>
<td>Wheel base:</td>
<td>108.1 in.</td>
<td>108.1 in.</td>
<td>108.1 in.</td>
<td>108.1 in.</td>
</tr>
<tr>
<td>Width, overall:</td>
<td>106 in.</td>
<td>111.9 in.</td>
<td>111.9 in.</td>
<td>108.1 in.</td>
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<tr>
<td>Height, overall:</td>
<td>104 in.</td>
<td>104 in.</td>
<td>104 in.</td>
<td>104 in.</td>
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<tr>
<td>Height to top of ammunition boxes:</td>
<td>73.1 in.</td>
<td>73.1 in.</td>
<td>73.1 in.</td>
<td>73.1 in.</td>
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<tr>
<td>Height to top of ammunition boxes:</td>
<td>71.1 in.</td>
<td>71.1 in.</td>
<td>71.1 in.</td>
<td>71.1 in.</td>
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<tr>
<td>Wheel base:</td>
<td>75.5 in.</td>
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<td>75.5 in.</td>
<td>75.5 in.</td>
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<tr>
<td>Armament:</td>
<td>1</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ring mount for gun, machine cal .50:</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>MACHINEGUN, CALIBER .50: Browning:</td>
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<td>1</td>
<td>1</td>
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<tr>
<td>M2, heavy barrel, flexible:</td>
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<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**Tracks:**
- Width: 48.5 in.
- Height: 48.5 in.

**Center to inner edge:** 8% in.

**Center of gravity above ground:**

**Length:**
- Overall length: 12 feet 6 inches
- Front of vehicle to center of drive sprocket: 33.1 inches
- Front of winch to center of drive sprocket: 19.3 inches
- Wheel base: 108.1 inches
- Width: 106 inches
- Height overall: 104 inches
- Height to top of ammunition boxes: 73.1 inches

**Armament:**
- Ring mount for gun, machine cal .50: Browning, M2, heavy barrel, flexible
- MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible
- Tracks: Width: 48.5 inches
- Height: 48.5 inches

**Center to inner edge:** 8% inches

**Type of fuel:** gasoline

**Center of gravity above ground:**

**Weight:**
- Crew and equipment: 28,672 lb
- M5, M5A1, M5A2: 30,403 lb
- M5A3: 30,141 lb
- M5A4: 29,804 lb
- Empty: M5, M5A1, M5A2: 17,176 lb
- M5A3: 17,176 lb
- M5A4: 17,176 lb

---

24-3
CHARACTERISTICS—Continued

Ground clearance: 144 in
Ground pressure: 11.3 psi

M5: 11.3 psi
M5A1, M5A2, and M5A3: 11.0 psi
M5A4: 11.1 psi

Pintle height, loaded:
M5: 28½ in
M5A1, M5A2, and M5A3: 28½ in
M5A4: 28½ in

Electrical system:
Number of batteries: 1
Type of ground: negative

Fuel Octane rating:
M5: 80-85
M5A1, M5A2, and M5A3: 80-85

Capacities:
Fuel: 200 gal
Cooling system: 80 qts
Crankcase: 22 qts
Oil capacity: 11½ pts
Load capacity: 15,000 lb

Clutch reduction gear:
M5, M5A1, M5A2, and M5A3: 3½ pts

Clutch selector unit:
M5, M5A1, M5A2, and M5A3: 3 pt

Transmission and differential:
18 qts

Final drive:
3 qts

Auxiliary transmission:
M5A4: 6 qts

Brakes:
Mechanical, controlled-differential

Parking brake:
Buttons for locking steering lever

Clutch reduction unit (M5, M5A1, M5A2, and M5A3):
Speeds: 2
Gear ratio: High 1:11:1; Low 1:17:1

Transmission:
Manufacturer: Continental
Model: R6572
Type: 4-cycle, valve-in-head, in-line
No. of cylinders: 7
Displacement: 172 cu in
Bore: 4.44 in
Stroke: 5.11 in
Compression ratio: 6.5:1

Governed speed: 6,500 rpm
Brake horsepower (max w/ std accessories): 207 @ 2,000 rpm

Torque (max w/ std accessories): 455 ft-lbs @ 1,500 rpm

Type of ignition: distributor

AMMUNITION

(65 mm)...........................................56 rds
or 69 mm (with extra primers and fuses)...........24 rds
Cal. 50...........................................528 rds

PERFORMANCE

Maximum grade ability:
M5, M5A1, M5A2, and M5A3: 69 percent
M5A3: 70 percent

Turning radius:
20 ft

Ground clearance:
38 in

Maximum width of ditch vehicle can cross:
66 in

Maximum vertical obstacle vehicle can climb:
18 in

Fuel consumption (average conditions):
11½ mpg

Cruiising range (average conditions): 100 mi

Allowable speed, recommended:
30 mph

Maximum allowable towed load, gross:
M5, M5A1, M5A2, and M5A3: 29,000 lb
M5A4: 25,000 lb

EQUIPMENT

Communications:
Sight and Fire Control:
Basic issue item: See ORD 7 SNL. 9-162.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States:

Shipped:
Length:...
Width:...
Height:...
Volume:...

Area:...

Cross weight:...

Ship tons:...

Outside Continental United States:

Shipped:
Length:...
Width:...
Height:...
Volume:...

Area:...

Cross weight:...

Ship tons:...

References: SNL. G-162. TM 9-388

Pages 24-5 and 24-6 deleted by C 1.

24-4
TRACTOR, FULL TRACKED, HIGH SPEED: M8A1 AND M8A2

**Data plate location**
The data plate is located on the right inner wall of the driver's compartment.

**Classification**
M8A1—Standard B (OTCM 36841)
M8A2—Standard A (OTCM 36841)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8A1, w/e</td>
<td>4-56885-10</td>
<td>2430-710-5800</td>
</tr>
<tr>
<td>M8A2, w/e</td>
<td>4-56885-15</td>
<td>2430-663-7250</td>
</tr>
</tbody>
</table>

**General**
TRACTOR, FULL TRACKED, HIGH SPEED: M8A1 and M8A2 are late procurement type general utility tractors designed to transport general cargo over rough terrain. The vehicles are powered by forward mounted air-cooled, 4-cylinder, valve-in-head engines. Power is transmitted to the final drives through cross-drive transmissions, which are combined transmissions differential and steering units. The vehicles are also used to transport the 75-mm AA "Sky Sweeper" ammunition and related equipment while towing the gun assembly and related equipment. When used in this capacity, the tractors are equipped with a front mounted bulldozer blade, special body kit and a rear mounted hoist.

The vehicles are equipped with torsion bar suspension incorporating six double disc road wheels on each side.

The vehicles are equipped with track, rubber-backed, steel T91E3 with detachable rubber grousers.

The hulls of the vehicles are completely welded structures except for portion such as oil drain access covers, hull front door, and winch access door. All doors and covers can be removed for service and maintenance operations.

**Differences among models**
There are no outward visual differences between the two models. The differences being that the engine assembly of the M8A2 is equipped with a fuel injection system.

**Data plate location**
The data plate is located on the right inner wall of the driver's compartment.

**Classification**
M8A1—Standard B (OTCM 36841)
M8A2—Standard A (OTCM 36841)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, overall</td>
<td>265 1/2 in.</td>
</tr>
<tr>
<td>Wheelbase</td>
<td>137 1/2 in.</td>
</tr>
<tr>
<td>Width, overall</td>
<td>130 1/2 in.</td>
</tr>
<tr>
<td>Height, overall</td>
<td>118 1/2 in.</td>
</tr>
<tr>
<td>Height (ground to Hull floor)</td>
<td>180 in.</td>
</tr>
</tbody>
</table>

**Armament**
- Ring mount M8 at top of cab...

**Tracked**
- Width... 27 in.
- Tread (center to center of track)... 102 1/2 in.
- Outside to outside of track... 123 1/2 in.
- Angle of approach...
- Angle of departure...
- Type of fuel...
- Center of gravity above ground...

**Weight of vehicle**
- Net... 37,500 lb
- Payload... 17,500 lb
- Gross... 55,000 lb

**Length of track on ground**...
**Ground clearance**...
**Ground pressure**...
**Pintle height, loaded**...
**Loading height**...
**Electrical system**...
**Type of ground**...

**Capacities**
- Fuel...
- Crankcase, refill... 44 qt
- Transmission, cross-drive (including cooler)... 72 qt
- Power-take-off...
- Winch...
- Oil...
- Transmission...
- Load...
- Final drive (each)... 4 qt
- Fuel octane rating...

**Brakes**
- Hand lever controlled, hydraulic, multiple-disk steering brakes.
- Parking brake, type lever for locking service brakes.
- Hull construction...

**Federal stock No.**
2430-740-5800
2430-563-7250

**Line item No.**
M8A1, w/e...
M8A2, w/e...

**M8A1, w/e**...
M8A2, w/e...

**General**
TRACTOR, FULL TRACKED, HIGH SPEED: M8A1 and M8A2 are late procurement type general utility tractors designed to transport general cargo over rough terrain. The vehicles are powered by forward mounted air-cooled, 4-cylinder, valve-in-head engines. Power is transmitted to the final drives through cross-drive transmissions, which are combined transmissions differential and steering units. The vehicles are also used to transport the 75-mm AA "Sky Sweeper" ammunition and related equipment while towing the gun assembly and related equipment. When used in this capacity, the tractors are equipped with a front mounted bulldozer blade, special body kit and a rear mounted hoist.

The vehicles are equipped with torsion bar suspension incorporating six double disc road wheels on each side.

The vehicles are equipped with track, rubber-backed, steel T91E3 with detachable rubber grousers.

The hulls of the vehicles are completely welded structures except for portion such as oil drain access covers, hull front door, and winch access door. All doors and covers can be removed for service and maintenance operations.

**Differences among models**
There are no outward visual differences between the two models. The differences being that the engine assembly of the M8A2 is equipped with a fuel injection system.

**Data plate location**
The data plate is located on the right inner wall of the driver's compartment.

**Classification**
M8A1—Standard B (OTCM 36841)
M8A2—Standard A (OTCM 36841)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, overall</td>
<td>265 1/2 in.</td>
</tr>
<tr>
<td>Wheelbase</td>
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<tr>
<td>Width, overall</td>
<td>130 1/2 in.</td>
</tr>
<tr>
<td>Height, overall</td>
<td>118 1/2 in.</td>
</tr>
<tr>
<td>Height (ground to Hull floor)</td>
<td>180 in.</td>
</tr>
</tbody>
</table>

**Armament**
- Ring mount M8 at top of cab...

**Tracked**
- Width... 27 in.
- Tread (center to center of track)... 102 1/2 in.
- Outside to outside of track... 123 1/2 in.
- Angle of approach...
- Angle of departure...
- Type of fuel...
- Center of gravity above ground...

**Weight of vehicle**
- Net... 37,500 lb
- Payload... 17,500 lb
- Gross... 55,000 lb

**Length of track on ground**...
**Ground clearance**...
**Ground pressure**...
**Pintle height, loaded**...
**Loading height**...
**Electrical system**...
**Type of ground**...

**Capacities**
- Fuel...
- Crankcase, refill... 44 qt
- Transmission, cross-drive (including cooler)... 72 qt
- Power-take-off...
- Winch...
- Oil...
- Transmission...
- Load...
- Final drive (each)... 4 qt
- Fuel octane rating...

**Brakes**
- Hand lever controlled, hydraulic, multiple-disk steering brakes.
- Parking brake, type lever for locking service brakes.
- Hull construction...

**Federal stock No.**
2430-740-5800
2430-563-7250

**Line item No.**
M8A1, w/e...
M8A2, w/e...
CHARACTERISTICS—Continued

Transmission:
Manufacturer: General Motors Corp. (Allison Div.)
Model: CD 300-3
Type: cross-drive
No. of ranges:
Forward: 2
Reverse: 1
Final drive gear ratio: 4.69:1
Ratio from engine output to torque converter input: 0.715:1
Torque-converter stall ratio: 3.8:1
Drive ranges: low, high, and reverse
Ratio from torque converter output shaft to final drive range:
High range: 1.4:1
Low range: 5.34:1

Engine:
Manufacturer: Continental
Model: AOS-895-3, AOS-895-5
Type: Valve-in-head, 4-cylinder, air-cooled
No. of cylinders: 6
Displacement: 895 cu in.
Bore: 3.54 in.
Stroke: 4.375 in.
Compression ratio: 5.5:1
Governed speed (full load): 2,800 rpm
Brake horsepower (max w/std accessories): 863 at 2,800 rpm
Torque (max w/std accessories): 760 ft-lb at 2,000 rpm
Type of ignition: magneto

AMMUNITION
Cal. .50: 525 rounds
Cal. .30 (Carbine): 360 rounds
Rockets: 10

PERFORMANCE
Maximum grade ability: 60 percent
Turning radius: pivots in place
Fording depth: 42 in.
Maximum width of ditch vehicle can cross:
Forward: 84 in.
Reverse: 80 in.
Maximum vertical obstacle vehicle can climb: 30 in.
Fuel consumption (average conditions): 0.8 mpg
Cruising range (average conditions): 180 mi
Maximum speed:
Forward: 40 mph

EQUIPMENT
Sighting and Fire Control
Communications
Basic Issue Items: See TM 9-7420.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length: 24 ft
Width: 8 ft
Height: 10 ft
Volume: 2,420 cu ft
Area: 242 sq ft
Gross weight:
Ship tons:

Outside Continental United States

Shipped
Length: 24 ft
Width: 8 ft
Height: 10 ft
Volume: 2,420 cu ft
Area: 242 sq ft
Gross weight:
Ship tons:

References: SNL G-252, TM 9-7420, TM 9-2430-200-20P
SECTION 25
MISCELLANEOUS VEHICULAR COMPONENTS
(Class 2590)
(Includes Bulldozers)

BULLDOZER, EARTH MOVING: tank mounting, M6 (MOUNTED ON TANK, COMBAT, FULL TRACKED: 90-mm gun, M47) .................................................. 25-2
BULLDOZER, EARTH MOVING: tank mounting, M8 and M8A1 (MBE1) (MOUNTED ON TANK, COMBAT, FULL TRACKED: 90-mm gun, M48) .................................................. 25-3
BULLDOZER, EARTH MOVING: tank mounting, M9 (MOUNTED ON TANK, COMBAT, FULL TRACKED: 105-mm gun, M60) .................................................. 25-5

BULLDOZER, EARTH MOVING: tractor mounting, M5 (T8E4) (MOUNTED ON TRACTOR, FULL TRACKED, HIGH SPEED: M8A2) .................................................. 25-6
BULLDOZER EARTH MOVING COMBAT ENGINEER VEHICLE M7 (MOUNTED ON COMBAT ENGINEER VEHICLE: M102) ................................. 25-7

(no illus.)
BULLDOZER, EARTH MOVING: TANK MOUNTING, M6 (MOUNTED ON TANK, COMBAT, FULL TRACKED: 90-MM GUN, M47)

General
BULLDOZER, EARTH MOVING: tank mounting, M6, is mounted on TANK COMBAT, FULL TRACKED: 90-mm gun, M17. The bulldozer when propelled by the vehicle is used to clear land, move wreckage, move earth and debris. The controls for operation of the bulldozer are located conveniently with respect to the vehicle driver. The bulldozer consists of a moldboard, two push beams, four tilt arms, two carrying hooks, two double-acting hydraulic cylinders, and mounting brackets. Guards are provided to protect all vulnerable lines and parts located on the vehicle hull.

The moldboard is provided with a reversible (blade) cutting edge and is supported by a quadrilateral linkage. This linkage consists of the two push beams connected near the bottom of the moldboard, and the two inner and outer tilt arms connected at the top of the moldboard. The two double-acting hydraulic cylinders are provided to raise and lower the moldboard.

A hydraulic pump located below the turret floor and driven by the vehicle engine provides pressure for actuating the cylinders. The hydraulic reservoir for the system is located to the right of the bow gunner’s seat.

Differences among models
Data plate location
The data plate is located on the center of the rear side of the moldboard.

Classification: Standard C (OTCM 37209).

CHARACTERISTICS

| Weight (net increase to vehicle, including oil) | 6,000 lb |
| Moldboard length | 146 in |
| Moldboard height | 36\% in |
| Reversible moldboard (blade) cutting edge | $\frac{3}{4} \times 8 \times 1 \frac{1}{4}$ in |
| Angle of moldboard (blade) cutting edge (with horizontal) |
| At ground level | $55^\circ$ |
| At float position | |
| At lowest position | |
| Relation of moldboard (blade) cutting edge to ground |
| Carrying position, above | 31 in |
| Highest position, above | 32 in |
| Lowest position, below | $9\frac{3}{4}$ in |

Vehicle angle of approach:
- Blade in carrying position: $20^\circ$
- Blade in highest position: $22^\circ$

Hydraulic system (oil):
- Pump rating
- Relief pressure setting
- Control valve:
  - 4-position: raise-hold-lower-float
- Recommended oil:

PERFORMANCE
Rate of lift:
- Vehicle engine at 1,800 rpm: 4.0 in. per sec
- Vehicle engine at 2,800 rpm: 7.5 in. per sec
Forward speed of vehicle while bulldozing (low gear): 1 to 3 mph
Recommended maximum speed of vehicle with bulldozer attached: 15 mph

EQUIPMENT
Basic issue Items: See ORD 7-8 SNL G-286.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

| Shipped 1 |
| Length | 146 in |
| Width | 60 in |
| Height | 36\% in |
| Volume | 187 cu ft |
| Gross weight | 6,000 lb |
| Ship tons | 4.67 |

Outside Continental United States

| Shipped |
| Length |
| Width |
| Height |
| Volume |
| Gross weight |
| Ship tons |

References: SNL G-286, TM 9-7420.
BULLDOZER, EARTH MOVING: TANK MOUNTING, M8 AND M8A1 (M8E1) (MOUNTED ON TANK, COMBAT, FULL TRACKED: 90-MM GUN, M48)

Major Characteristics

- **Data plate location**: The data plate is located on the center of the rear side of the moldboard.
- **Differences among models**: The bulldozer M8 control valves and hydraulic reservoir are mounted on the hull wall of the rear of the tank. The bulldozer M8A1 control valves and hydraulic reservoir are mounted on the right fender of the tank.

**General**

**BULLDOZER, EARTH MOVING**: tank mounting, M8 (mounted on TANK, COMBAT, FULL TRACKED: 90-mm gun, M48, M8A1, and M8A1C and BULLDOZER, EARTH MOVING: tank mounting, M8A1 (M8E1) (M8A2), mounted on TANK, COMBAT, FULL TRACKED: 90-mm gun, M8A2) when propelled by their respective vehicles are used for road grading, clearing land, moving debris, and digging emplacement. The controls for operation of the bulldozer are located conveniently with respect to the driver. Each bulldozer consists of a moldboard, two push beams, four tilt arms, two carrying hooks, two double-acting hydraulic cylinders, and mounting brackets. Guards are provided to protect all vulnerable lines and parts located on the vehicle hull.

The moldboard for each bulldozer is provided with a reversible (blade) cutting edge and is supported by a quadrilateral linkage. This linkage consists of the two push beams connected near the bottom of the moldboard and the two inner and outer tilt arms connected at the top of the moldboard. The two double-acting hydraulic cylinders are provided to raise and lower the moldboard.

The necessary pressure for actuating the cylinders is provided by a hydraulic pump driven by the vehicle engine. Oil for the system is stored in a hydraulic reservoir. The reservoir for the bulldozer M8 is mounted on the hull wall at the rear of the tank, and on the right fender for the bulldozer M8A1.

**Weight**
- M8: 8,778 lb
- M8A1: 8,400 lb

**Moldboard length**: 146 in.

**Moldboard height**:
- M8: 36\frac{1}{4} in.
- M8A1: 36 in.

**Reversible moldboard (blade) cutting edge**: 14\frac{1}{8} x 8 x 1\frac{1}{2} in.

**Angle of moldboard (blade) cutting edge (with horizontal)**:
- At ground level: 58°
- At float position: 38°
- At lowest position: 20°

**Relation of moldboard (blade) cutting edge to ground**:
- Carrying position, above:
  - M8: 31 in.
  - M8A1: 37 in.
- Lowest position, below:
  - M8: 10 in.
  - M8A1: 30 in.

**Vehicle angle of approach**:
- Blade in carrying position: 20°
- Blade in highest position: 30°

**Hydraulic system (oil)**
- Pump rating: 65 rpm at 2,800 rpm at 1,000 psi
- Relief pressure setting:
  - M8: 1,500 psi
  - M8A1: 1,500 psi

**Control valve**: 
- Ejection: raise-hold-lower-float
- Recommended oil: Seasonal transmission oil SAE 10 above -10°F. OES from 0°F to 65°F.

**Rate of lift**
- Vehicle engine at 1,500 rpm: 5.5 in. per sec
- Vehicle engine at 2,800 rpm: 10.5 in. per sec

**Forward speed of vehicle while bulldozing**: 1 to 3 mph

**Recommended maximum speed of vehicle with bulldozer attached**: 15 mph

**Equipment**
- Basic Issue Items: See ORD 7-8 SNL G-278.

**INSTRUCTIONAL MATERIAL**
<table>
<thead>
<tr>
<th></th>
<th><strong>Within Continental United States</strong></th>
<th></th>
<th><strong>Outside Continental United States</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipped</strong></td>
<td></td>
<td><strong>Length:</strong></td>
<td></td>
</tr>
<tr>
<td>Length:</td>
<td></td>
<td><strong>M8</strong></td>
<td>........................................</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>M8A1</strong></td>
<td>........................................</td>
</tr>
<tr>
<td>Width:</td>
<td></td>
<td><strong>M8</strong></td>
<td>146 in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>M8A1</strong></td>
<td>159 in.</td>
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<tr>
<td>Height:</td>
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<tr>
<td></td>
<td></td>
<td><strong>M8</strong></td>
<td>40 in.</td>
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<td></td>
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<tr>
<td>Volume:</td>
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<td><strong>M8</strong></td>
<td>70 cu ft</td>
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<tr>
<td></td>
<td></td>
<td><strong>M8A1</strong></td>
<td>290 cu ft</td>
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<tr>
<td>Gross weight:</td>
<td></td>
<td><strong>M8</strong></td>
<td>8,778 lb</td>
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<tr>
<td></td>
<td></td>
<td><strong>M8A1</strong></td>
<td>8,775 lb</td>
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<tr>
<td>Ship tons:</td>
<td></td>
<td><strong>M8</strong></td>
<td>1.75</td>
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<tr>
<td></td>
<td></td>
<td><strong>M8A1</strong></td>
<td>7.25</td>
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<tr>
<td><strong>References:</strong></td>
<td></td>
<td>SNL G-278, TM 9-3830-202/15.</td>
<td></td>
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</tbody>
</table>
BULLDOZER, EARTH MOVING: TANK MOUNTING, M9  
(MOUNTED ON TANK, COMBAT, FULL TRACKED: 105-MM GUN, M60)

<table>
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<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No</th>
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<td>4-01718-00</td>
<td>2500-708-3203</td>
<td></td>
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</table>

**General**

The bulldozer, when propelled by the vehicle, is used to clear land, dig emplacements, move wreckage, logs, trees, or other debris, or do emergency construction as well as other tasks accomplished by bulldozers, under conditions requiring armor protection. The controls for operation of the bulldozer are located conveniently with respect to the driver. The bulldozer consists of a moldboard, two push beams, four tilt arms, and mounting brackets. Heavy wall steel tubing, extending along the lower portion of the hull, connects the front and rear hydraulic components.

The moldboard is provided with a reversible (blade) cutting edge and is supported by a quadrilateral linkage. This linkage consists of the two push beams connected near the bottom of the moldboard, and the two inner and outer tilt arms connected to the top of the moldboard. The two double acting hydraulic cylinders are provided to raise and lower the moldboard.

The necessary pressure for actuating the hydraulic cylinders is provided by a hydraulic pump driven from the transmission rear power takeoff. The hydraulic reservoir for the system is mounted on the left-rear fender of the tank.

**Characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>10,000 lb</td>
</tr>
<tr>
<td>Moldboard length</td>
<td>146 in.</td>
</tr>
<tr>
<td>Moldboard height</td>
<td>36 in.</td>
</tr>
<tr>
<td>Reversible moldboard (blade) cutting edge</td>
<td>146 x 8 x 3/4 in.</td>
</tr>
<tr>
<td>Angle of moldboard (blade) cutting edge (with horizontal):</td>
<td>58°</td>
</tr>
<tr>
<td>Relation of moldboard (blade) cutting edge to ground:</td>
<td>27 in.</td>
</tr>
</tbody>
</table>

**References:**

- OE-10 above -10°F.
- OE 0°F to -65°F.

**Equipment**

**Performance**

<table>
<thead>
<tr>
<th>Rate of lift:</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle engine at</td>
<td>1 to 3 mph</td>
</tr>
<tr>
<td>Vehicle engine at</td>
<td></td>
</tr>
</tbody>
</table>

**Storage and Shipment Data**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
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</tr>
<tr>
<td>Ship tons</td>
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</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**References:**
BULLDOZER, EARTH MOVING: TRACTOR MOUNTING, M5 (T8E4)  
(MOUNTED ON TRACTOR, FULL TRACKED, HIGH SPEED: M8A2)

General

BULLDOZER, EARTH MOVING: tractor mounting, M5(T8E4), is mounted on TRACTOR, FULL TRACKED, HIGH SPEED: M8A2. The bulldozer, when propelled by the vehicle, is used to clear land, dig emplacements, and move earth. The controls for operation of the bulldozer are located conveniently with respect to the vehicle driver. The bulldozer consists of a moldboard, two push beams, four tilt arms, two hydraulically operated carrying hooks, two double-acting hydraulic cylinders, and mounting brackets. Guards are provided to protect all vulnerable lines and parts located on the outside of the vehicle.

The moldboard is provided with a reversible (blade) cutting edge and is supported by a quadrilateral linkage. This linkage consists of the two push beams connected near the bottom of the moldboard, and the two inner and outer tilt arms connected to the top of the moldboard. The two double-acting hydraulic cylinders are provided to raise and lower the moldboard.

A hydraulic pump, located in the vehicle hull and driven by the engine power takeoff provides pressure for actuating the two hydraulic cylinders and any other hydraulically operated units mounted on the vehicle. The vehicle hydraulic oil reservoir is equipped with a manifold for connecting the bulldozer hydraulic system into the vehicle hydraulic system.

Differences among models

Data plate location

The data plate is located on the center of the rear side of the moldboard.

Classification: Standard A (OTCM 3684).

CHARACTERISTICS

| Weight (net increase to vehicle (including oil)) | 4,000 lb |
| Moldboard length | 1295 in. |
| Moldboard height | 34½ in. |
| Reversible moldboard (blade) cutting edge | 130 x 8 x ¾ in |
| Angle of moldboard (blade) cutting edge (with horizontal): |
| At ground level | 120° |
| At float position | 60° |
| At lowest position | 68° |
| Relation of moldboard (blade) cutting edge to ground: |
| Carrying position, above | 30° |
| Lowest position, below | 7¾ in |
| Vehicle angle of approach: |
| Blade in carrying position | 20° 30 min |
| Blade in highest position | 21° 30 min |
| Hydraulic system (oil): |
| Pump rating | |
| Relief pressure setting | |
| Control valve: 4-position |
| Recommended oil: |

PERFORMANCE

Rate of lift:

Vehicle engine at 1,500 rpm | 7.2 in. per sec |
Vehicle engine at 2,400 rpm | 14.1 in. per sec |
Forward speed of vehicle while bulldozing (low gear) | 1 to 3 mph |
Recommended maximum speed of vehicle with bulldozer attached | 15 mph |

EQUIPMENT

Basic Issue Items: See ORD 7-8 SNL G-266.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

| Shipped |
| Length | 135 in. |
| Width | 85 in. |
| Height | 47 in. |
| Volume | 250 cu ft |
| Gross weight | 4,300 lb |
| Ship tons | |

Outside Continental United States

| Shipped |
| Length | |
| Width | |
| Height | |
| Volume | |
| Gross weight | |
| Ship tons | |

References: SNL G-266, TM 9-7406.
BULLDOZER EARTH MOVING COMBAT ENGINEER VEHICLE M7
(MOUNTED ON COMBAT ENGINEER VEHICLE M102)

General

BULLDOZER EARTH MOVING COMBAT ENGINEER VEHICLE M7, mounted on combat engineer vehicle M102. The bulldozer, when propelled by the vehicle, is used to clear land, move wreckage, logs, trees, or other debris, or do emergency construction as well as other tasks accomplished by bulldozers, under conditions requiring armor protection. The controls for operation of the bulldozer are located conveniently with respect to the vehicle driver. The bulldozer consists of a moldboard, two push beams, four tilt arms, two carrying hooks, mounting brackets, and two double-acting hydraulic cylinders. The hydraulic cylinders are armored for protection against small arms fire, and waterproofed for limited surf operation.

The moldboard is provided with a reversible (blade) cutting edge and is supported by a quadrilateral linkage. This linkage consists of the two push beams connected near the bottom of the moldboard, and the two inner and outer tilt arms connected to the top of the moldboard. The two double-acting hydraulic cylinders are provided to raise and lower the moldboard.

The necessary pressure for operation of the hydraulic cylinders is provided by a hydraulic pump driven by the vehicle engine. The hydraulic oil for the system is stored in the vehicle reservoir.

Model       Line item No.       Federal stock No.
M7

Data plate location

Classification: Standard A (OTCM 36841)

CHARACTERISTICS

Weight...........................................................6,000 lb

Moldboard length..............................................140 in.

Moldboard height..............................................36¼ in.

Reversible moldboard (blade) cutting edge.................140 x 8 x ¾ in.

Angle of moldboard (blade) cutting edge
(with horizontal):

At ground level...................................................58°

At float position..................................................-

At lowest position..............................................-

Relation of moldboard (blade) cutting edge to ground:

Carrying position, above........................................31 in.

Highest position, above........................................32 in.

Lowest position, below...........................................0½ in.

Vehicle angle of approach:

Blade in carrying position.................................-

Blade in highest position.................................-

Hydraulic system (oil):

Pump rating....................................................-

Relief pressure setting......................................-

Control valve: 4-position.....................................raise-hold-lower-float

Recommended oil:

SAE 10 from 125°F. above to -0°F.

OES from 0°F. to -40°F.

PERFORMANCE

Rate of lift:

Vehicle engine at..............................................-

Vehicle engine at..............................................-

Forward speed of vehicle while bulldozing.................1 to 3 mph

Recommended maximum speed of vehicle with bulldozer attached...10 mph

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

Length..............................................................-

Width...............................................................-

Height.............................................................-

Volume............................................................-

Gross weight......................................................-

Ship tons........................................................-

Outside Continental United States

Shipped

Length..............................................................-

Width...............................................................-

Height.............................................................-

Volume............................................................-

Gross weight......................................................-

Ship tons........................................................-

References: 25-7
SECTION 26
TIME MEASURING INSTRUMENTS
(Class 6645)
(Includes pocket, stop, and wrist watches)

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOP WATCH: type A</td>
<td>26-2</td>
</tr>
<tr>
<td>STOP WATCH: type A-8</td>
<td>26-3</td>
</tr>
<tr>
<td>STOP WATCH: type B</td>
<td>26-4</td>
</tr>
<tr>
<td>STOP WATCH: M1</td>
<td>26-5</td>
</tr>
<tr>
<td>WATCH, POCKET: grade I (railroad grade)</td>
<td>26-6</td>
</tr>
<tr>
<td>WATCH, POCKET: grade II</td>
<td>26-7</td>
</tr>
<tr>
<td>WATCH, WRIST:</td>
<td>26-8</td>
</tr>
<tr>
<td>WATCH, WRIST: grade III</td>
<td>26-10</td>
</tr>
</tbody>
</table>
STOP WATCH: TYPE A

**Major item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waltham. 105 or American Inst. 5-405</td>
<td>4-65328-30</td>
<td>6645-719-7941</td>
</tr>
<tr>
<td>Waltham. 11609</td>
<td>4-65328-10</td>
<td>6645-719-8670</td>
</tr>
</tbody>
</table>

**General**

STOP WATCH: type A has a second dial graduated from 0 to 60 seconds in \( \frac{1}{2} \)-second intervals. The minute subdial has 1-minute graduations from 0 to 30 minutes. It is a stem-winding, open-faced watch with a sweep hand and a stop works mechanism. It is nonmagnetic.

**Differences among models**

- Waltham 105 or American Inst. 5-405 has 7 jewels, while Waltham 11609 has 9 jewels.

**Data plate location**

| Classification | 105 or 5-405: Standard A | 11609: Standard A |

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Dial:</th>
<th>Number of hands: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Register:</td>
<td>30 min</td>
</tr>
<tr>
<td>Background:</td>
<td>white</td>
</tr>
<tr>
<td>Graduations:</td>
<td>black</td>
</tr>
<tr>
<td>Numerals:</td>
<td>black</td>
</tr>
</tbody>
</table>

| Movement:                      |                    |
|--------------------------------|                    |
| Size:                          | 16                 |
| Jewels: 105 or 5-405:          | 7                  |
| 11609:                         | 9                  |
| Winding:                       | stem               |

**Case:**

- Face: open
- Crystal: glass
- Material: brass
- Finish: chrome-plated
- Running type: noncontinuous

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped stop watches per box</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped stop watches per box</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

**References:**

26-2
STOP WATCH: TYPE A-8

General

STOP WATCH: type A-8 has a second dial graduated from 0 to 10 seconds in 1/10-second intervals. The minute subdial has 1-minute graduations from 0 to 3 minutes. It is a stem-winding, open-faced watch with a sweep hand and a stop works mechanism controlled by a stem push-button. It is used by the Corps of Engineers for navigation and ground speed purposes.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Dial:
- Register: 5 min
- Graduations: white
- Numerals: white
- Number of hands: 2

Movement:
- Size: 16
- Jewels: 9
- Winding: stem

Case:
- Face: open
- Crystal: plastic

Material: nickel alloy
Finish: chrome-plated
Running type: non-continuous

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped stop watches per box</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped stop watches per box</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: 26-3
STOP WATCH: TYPE B

GENERAL
STOP WATCH: Type B may have either a long or short pendant. The second dial is graduated from 0 to 60 seconds in 5-second intervals. The minute subdial has 1-minute graduations from 0 to 30 minutes. It is a stem-winding open-faced watch with a sweep hand and a stop works mechanism.

DIFFERENCES AMONG MODELS
The class 15 model has 15 jewels while the other two models have 7 jewels. The class 15 model has a nickel or chromium alloy case while the other two have a brass case. The class 15 model has either a clear glass or permanently clear, nonbreakable crystal while the other two have glass crystals.

DATA PLATE LOCATION
Classification: (Standard A) (OTCM 30841).

CHARACTERISTICS
Dial:
Register: ........................................... 30 min
Background: ........................................... white
Graduations: ........................................... black
Numerals: ........................................... black

Number of hands: 2

Movement:
Size: ........................................... 16

Jewels:
Class 15: ........................................... 15
Long pendant: ........................................... 7
Short pendant: ........................................... 7

Winding: ........................................... stem
Case:
Face: ........................................... open
Crystal:
Class 15: ........................................... clear glass or nonbreakable
Long pendant: ........................................... glass
Short pendant: ........................................... glass
Finish:
Class 15: ........................................... polished
Long pendant: ........................................... chrome-plated
Short pendant: ........................................... chrome-plated

Running type: ........................................... continuous

PERFORMANCE
Running time: ........................................... 6 hrs

EQUIPMENT
Basic Issue Items: See TM 0-6645-200-12P.

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 24 stop watches per box.
Length: ........................................... 1 ft. 4 in.
Width: ........................................... 1 1/4 in.
Height: ........................................... 2 in.
Volume: ........................................... 1 cu ft
Gross weight: ........................................... 20 lb
Ship tons: ........................................... .03

Outside Continental United States
Shipped stop watches per box.
Length: ........................................... 1 ft. 4 in.
Width: ........................................... 1 1/4 in.
Height: ........................................... 2 in.
Volume: ........................................... 1 cu ft
Gross weight: ........................................... 20 lb
Ship tons: ........................................... .03

REFERENCES: SNL F-36, TM 9-575; TM 9-1575; TM 9-6645-200-12P.
STOP WATCH: M1

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td></td>
<td>6943-719-7131</td>
</tr>
</tbody>
</table>

General

STOP WATCH: M1 is an automatic timer, used by the Corps of Engineers for astronomic observation purposes.

Differences among models

Data plate location

Classification:

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped stop watches per box.

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped stop watches per box.

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Reference:
WATCH, POCKET: GRADE I (RAILROAD GRADE)

General

WATCH, POCKET: grade I (railroad grade) is an open-faced timepiece of standard American manufacture. This 21 jewel-precision timepiece has a white porcelain dial with Arabic numbers in black. Hour, minute, and second hands are of blued steel. Five-minute graduations are marked by red numerals, and single minutes are indicated on the outer ring of the dial by small black numerals.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Dial:
- Hours: 12
- Background: white
- Graduations: nonluminous
- Numerals: nonluminous
- Number of hands: 3

Movement:
- Size: 16 jewels
- Winding: stem

Case:
- Face: open
- Crystal: plastic

Waterproof: non
Finish: chrome-plate
Magnetic: non

PERFORMANCE

Running time: 30 hr

EQUIPMENT

Basic Issue Items: See TM 9-0645-200-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 24 watches per box
- Length: 1 ft, 4 in.
- Width: 1 in.
- Height: 10 in.
- Volume: 1 cu ft

Gross weight: 20 lb
Ship tons: .03

Outside Continental United States

Shipped per
- Length: 1 ft, 4 in.
- Width: 1 in.
- Height: 10 in.
- Volume: 1 cu ft

Gross weight: 20 lb
Ship tons: .03

References: SNL F-187; TM 9-5675; TM 9-1575; TM 9-0645-200-12P
WATCH, POCKET: GRADE II

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elgin, Grade 387, w/c</td>
<td>4-65320-20</td>
<td>6645-679-8203</td>
</tr>
<tr>
<td>Waltham, Model 1908, w/e</td>
<td>4-65326-30</td>
<td>6645-679-8207</td>
</tr>
</tbody>
</table>

General

WATCH, POCKET: grade II, is an open-faced timepiece of standard American manufacture. The hour and minute hands and hour numerals are luminous coated. The minute and second graduations are in black, with the small numerals indicating minute periods in red. The watch is stem-wound and stem-set.

Differences among models

The watches differ in the general design of the case. The Elgin model has a long pendant, the Waltham has a short pendant.

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Dial:
- Hours: 12
- Background: white
- Graduation: nonluminous
- Numerals: white and luminous
- Number of hands: 3
- Movement:
  - Size: 16
  - Jewels: 17
  - Winding:

Case:
- Face: glass
- Crystal: non
- Waterproof: nickel-plate

PERFORMANCE

Running time: 30 hr

EQUIPMENT

Basic Issue Items: See TM 9-6645-200-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 24 pocket watches per box.
- Length: 1 ft, 4 in.
- Width: 11 in.
- Height: 1 in.
- Volume: 1 cu ft
- Gross weight: 20 lb
- Ship tons: 0.03

Outside Continental United States

Shipped pocket watches per box.
- Length:
- Width:
- Height:
- Volume:
- Gross weight:
- Ship tons:

References: SNL F-38; TM 9-375; TM 9-1575; TM 9-6645-200-12P.
General

The Elgin, Grade II Navigation Type watch has a long, centrally located second hand and a second setting locking feature. All models are different in minor general detail proportions.

Differences among models

The Elgin, Grade II Navigation Type watch has a long, centrally located second hand and a second setting locking feature. All models are different in minor general detail proportions.

Data plate location

Classification: Standard A (OTCM 30841).

CHARACTERISTICS

Dial:

- Hours
- Background:
  - Bulova: black
  - Elgin: Grade II, Type D (Navigation Type): black
  - Hamilton: white
  - Waltham: white
- Graduation: nonluminous
- Hour numerals: luminous white
- Hour and minute hands: luminous white
- Number of hands: 3
- Movement:
  - Size:
    - Bulova: not specified
    - Elgin 8/0 size 15 jewel, grade 554: 8/0
    - Elgin, Grade II, Type D (Navigation Type): 8/0
    - Hamilton: 6/0
    - Waltham: 6/0

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulova 15 jewel, Model 10AK</td>
<td>4-65380-05</td>
<td>6645-719-0170</td>
</tr>
<tr>
<td>Elgin 8/0 size 15 jewel, grade 554</td>
<td>4-65380-16</td>
<td>6645-719-7006</td>
</tr>
<tr>
<td>Elgin, grade II, Type D, w/ second setting locking feature (Navigation Type)</td>
<td>4-65385-00</td>
<td>6645-719-8982</td>
</tr>
<tr>
<td>Hamilton 8/0 size 17 jewel, Model 987A</td>
<td>4-65380-32</td>
<td>6645-719-8882</td>
</tr>
<tr>
<td>Waltham 8/0 size 17 jewel, Model 10017</td>
<td>4-65380-36</td>
<td>6645-719-9181</td>
</tr>
</tbody>
</table>
CHARACTERISTICS—Continued

Jewels:
- Bulova .................................................. 15
- Elgin ...................................................... 15
- Grade II, Type D (Navigation Type) .................................. 16
- Hamilton ............................................... 17
- Waltham .................................................. 17

Winding and setting ........................................... stem

Case:
- Face ...................................................... open
- Crystal ...................................................... unbreakable plastic
- Construction ............................................ watertight
- Material .................................................. stainless steel
- Finish ...................................................... sand-blasted

PERFORMANCE
Running time .................................................. 30 hr

EQUIPMENT
Basic Issue Items: See TM 9-6445-200-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 96 wrist watches per box
Length ..................................................... 1 ft. 4 in.
Width ..................................................... 11 in.
Height ................................................... 10 in.
Volume .................................................. 1 cu ft
Gross weight .......................................... 20 lb
Ship tons .................................................. 0.03

Outside Continental United States

Shipped wrist watches per box.
Length ..................................................
Width ..................................................
Height ..................................................
Volume ..................................................
Gross weight ...........................................
Ship tons ..............................................

References: SNL F-36; TM 9-575; TM 9-1575; TM 6645-200-12P.
WATCH, WRIST: GRADE III

General

WATCH, WRIST: grade III is a small, open-faced timepiece having 7 or more jewels. It is equipped with an olive-drab webbing or russet leather wristband. The watch has hour, minute, and second hands. The hour and minute hands and the hour numerals are luminous coated. The watch is stem wound and stem set. It has an unbreakable crystal and is resistant to routine shock and incidental water immersion.

Model

Elgin 8/0 size 7 jewel, grade 580
Waltham 6/0 size 9 jewel, Model 10609

Jewels:
Elgin ............................................... 7
Waltham ............................................. 9

Winding and setting: stem

Case:
Face .................................................. open
Crystal .............................................. unbreakable plastic
Construction ......................................... watertight
Material ............................................. stainless steel
Finish ................................................ sand-blasted

Performance

Running time .................................... 30 hr

Equipment

Basic Issue Items: See TM 9-6645-200-12P.

Characteristics

Dial:
Hours .................................................. 12
Background ......................................... white
Graduation .......................................... nonluminous
Hour numerals ...................................... luminous white
Hour and minute hands ......................... luminous white
Number of hands ................................. 3

Movement:
Size:
Elgin ............................................... 8/0
Waltham ............................................. 6/0

Data plate location

The manufacturer's name is printed on the dial. The Ordnance serial number and grade are marked on the exterior back of the case.

Classification: Standard A (OTCM 3681).

INSTRUCTIONAL MATERIAL

Storage and shipment data

Within Continental United States

Shipped 96 wrist watches per box.
Length ............................................. .1 ft, 4 in.
Width .............................................. .11 in.
Height ............................................. .10 in.
Volume ............................................ .1 cu ft
Gross weight ..................................... 20 lb
Ship tons .......................................... 0.03

Outside Continental United States

Shipped 96 wrist watches per box.
Length ............................................. .1 ft, 4 in.
Width .............................................. .11 in.
Height ............................................. .10 in.
Volume ............................................ .1 cu ft
Gross weight ..................................... 20 lb
Ship tons .......................................... 0.03

References: SNL F-36; TM 9-675; TM 9-1575; TM 9-6645-200-12P.
## SECTION 27

**OPTICAL INSTRUMENTS**  
(Class 6650)

(Includes azimuth instrument; battery commander's and observation telescopes; binoculars; guided missile gunner's binocular and tripod; indicator mount; optical spotting instrument; and periscopes)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>BINOCULAR: M3</td>
<td>27-3</td>
</tr>
<tr>
<td>BINOCULAR: M7</td>
<td>27-4</td>
</tr>
<tr>
<td>BINOCULAR: M13 and M13A1</td>
<td>27-5</td>
</tr>
<tr>
<td>BINOCULAR: M15 and M15A1</td>
<td>27-6</td>
</tr>
<tr>
<td>BINOCULAR: M16</td>
<td>27-7</td>
</tr>
<tr>
<td>BINOCULAR: M17 and M17A1</td>
<td>27-8</td>
</tr>
<tr>
<td>BINOCULAR: gunner's, guided missile, with tripod</td>
<td>27-9</td>
</tr>
<tr>
<td>MOUNT, INDICATOR, ORD NO. 7694893</td>
<td>27-11</td>
</tr>
<tr>
<td>PERISCOPE: M6</td>
<td>27-12</td>
</tr>
<tr>
<td>PERISCOPE: M13</td>
<td>27-13</td>
</tr>
<tr>
<td>PERISCOPE: M14 and M14A1</td>
<td>27-14</td>
</tr>
<tr>
<td>PERISCOPE: M17</td>
<td>27-15</td>
</tr>
<tr>
<td>PERISCOPE: M19</td>
<td>27-16</td>
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<tr>
<td>PERISCOPE: M24 (T41)</td>
<td>27-17</td>
</tr>
<tr>
<td>PERISCOPE: M27 (T36)</td>
<td>27-18</td>
</tr>
<tr>
<td>TELESCOPE, BATTERY COMMANDER'S: M65</td>
<td>27-19</td>
</tr>
<tr>
<td>TELESCOPE: observation, M48</td>
<td>27-21</td>
</tr>
<tr>
<td>TELESCOPE: observation, M49</td>
<td>27-22</td>
</tr>
</tbody>
</table>
ADAPTER, TELESCOPE: M14

Secondary item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14</td>
<td></td>
<td>0650-068-2020</td>
</tr>
</tbody>
</table>

General
ADAPTER, TELESCOPE: M14, is used between the mount and tripod when TELESCOPE: battery commander's, M6S* and MOUNT, TELESCOPE: M4S** are employed with TRIPOD: M10.

Differences among models

Data plate location

Classification

CHARACTERISTICS
Maximum diameter ...(approx) 4\(\frac{1}{4}\) in.
Height ...(approx) 4\(\frac{3}{8}\) in.

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-6650-204-12P.

* For characteristics and data, see item on page 27-19.
** Characteristics and data will be added at a later date.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped: telescope adapters per
Length........................................
Width........................................
Height........................................
Volume........................................
Gross weight................................
Ship tons...................................

Outside Continental United States

Shipped: telescope adapters per
Length........................................
Width........................................
Height........................................
Volume........................................
Gross Weight................................
Ship tons...................................

References: TM 9-6650-204-12P.
**BINOCULAR: M3**

**General**

BINOCULAR: M3 is a substitute for BINOCULAR: M13A1.* The binocular M3 contains a reticle in the left eyepiece, for approximate measurement of small angles. The horizontal scale is graduated 10-mil interval from 0 to 50 on both sides of the center of the field of view and marked 1, 2, 3, 4, 5. Above the horizontal scale are two series of graduations, each graduation being spaced 5 mils apart. The vertical scale (range) is graduated in hundreds of yards from 0 to 2,000. When the center vertical line of the mil scale on the reticle is aligned with the target, deflection to the right or left of the target can be read on the mil scale. Binocular M3 is used for range estimation, determination of auxiliary aiming points, and for general observation purposes.

**Differences among models**

**Data plate location**

Data plate is located on the left cover plate.

**Classification** Standard B (OTCM 36841).

**CHARACTERISTICS**

- Magnification: 6 power
- Aperture: 30-mm
- Field of view: 8 deg, 30 min
- Exit pupil: 0.177 in.
- "F" number of objective: F/4.4
- Reticle horizontal scale: 0-50 mils

*For characteristics and data, see item on page 27-5.

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-6550-202-12P.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped 24 binoculars (w/equipment) per shipping container
- Length: 2 ft, 10 in.
- Width: 2 ft, 2½ in.
- Height: 11 in.
- Volume: 5.62 cu ft
- Gross weight: 140 lb
- Ship tons: 0.14

**Outside Continental United States**

- Shipped 24 binoculars (w/equipment) per shipping container
- Length: 2 ft, 10 in.
- Width: 2 ft, 2¼ in.
- Height: 11 in.
- Volume: 5.62 cu ft
- Gross weight: 140 lb
- Ship tons: 0.14

BINOCULAR: M7

General

BINOCULAR: M7 is a seven power instrument and does not have a reticle. It consists of two prismatic telescopes pivoted about a common hinge so as to permit adjustment of the distance between the eyepieces (interpupillary distance). The hinge holds the axes of the two telescopes in parallel alignment. The prism system in each telescope erects the image and provides an offset line of sight which increases stereoscopic vision. The prism system also increases the effective optical length of the two telescopes without increasing their actual size. Each eyepiece can be focused independently of the other by turning the dioptric scale in a plus or minus direction.

The scale, which is calibrated in diopters, indicates the correction required for the corresponding eye. The binocular hinge is equipped with a scale which indicates in millimeters the interpupillary distance. It is waterproofed. It is a substitute for Binocular: M13 and M15A1.*

It is used solely for general observation purposes.

Characteristics

Magnification .......................... 7 power
Aperture .................. 50-mm
Field of view .................. 7 deg. 16 min

*For characteristics and data, see items on page 27-6.
BINOCULAR: M13 AND M13A1

Differences among models
The M13 and M13A1 are identical with the exception that the waterproofing of the M13A1 has been improved over the waterproofing of the M13. These binoculars are used for observation and have a reticle in the left eyepiece identical to that of BINOCULAR: M3, for approximate measurement of small angles.

Classification:

Model | Model number, magnification, and diameter of the objectives are shown on the cover of the left eyepiece assembly.
--- | ---
M13 | Standard B (OTCM 36841)
M13A1 | Standard B (OTCM 36941)

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M13, w/e</td>
<td>4-01248-40</td>
<td>6660-670-2508</td>
</tr>
<tr>
<td>M13A1, w/e</td>
<td>4-01248-50</td>
<td>6660-533-9973</td>
</tr>
</tbody>
</table>

General
BINOCULAR: M13 and M13A1, consists of two prismatic telescopes pivoted about a common hinge so as to permit adjustment of the distance between the eyepieces (interpupillary distance). The binocular hinge is equipped with a scale which indicates this distance in millimeters. The hinge holds the axes of the two telescopes in parallel alignment. The prism system in each telescope erects the image and provides an offset line of sight which increases stereoscopic vision. The prism system also increases the effective optical length of the two telescopes without increasing their actual size. Each eyepiece can be focused independently of the other by turning the diopter scale in a plus or minus direction, providing the correction required for the corresponding eye.

These binoculars are used for observation and have a reticle in the left eyepiece identical to that of BINOCULAR: M3,* for approximate measurement of small angles.

Data plate location
Model number, magnification, and diameter of the objectives are shown on the cover of the left eyepiece assembly.

Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>6 power</td>
</tr>
<tr>
<td>Aperture</td>
<td>30-mm</td>
</tr>
<tr>
<td>Exit pupil</td>
<td>0.197 in.</td>
</tr>
<tr>
<td>F number of objective</td>
<td>F/4.4</td>
</tr>
<tr>
<td>Reticle horizontal scale</td>
<td>50-0-50 mils</td>
</tr>
<tr>
<td>Reticle range scale</td>
<td>0 to 2,000 yd</td>
</tr>
<tr>
<td>Filtet</td>
<td>M1</td>
</tr>
</tbody>
</table>

Performance

Equipment
Basic Issue Items: See TM 9-6650-208-12P.

Instructional Material
For graphic training aids and devices, see DA Pam 310-4.

Storage and Shipment Data

Within Continental United States
Shipped 24 binoculars (w/equipment) per shipping container
- Length: 2 ft, 10 in.
- Width: 2 ft, 2 in.
- Height: 11 in.
- Volume: 5.62 cu ft
- Gross weight: 140 lb
- Ship tons: 0.14

Outside Continental United States
Shipped 24 binoculars (w/equipment) per shipping container
- Length: 2 ft, 10 in.
- Width: 2 ft, 2½ in.
- Height: 11 in.
- Volume: 5.62 cu ft
- Gross weight: 140 lb
- Ship tons: 0.14


* For characteristics and data, see item on page 27-3.
BINOCULAR: M15 AND M15A1

**General**

BINOCULAR: M15 and M15A1, consists of two prismatic telescopes pivoted about a common hinge so as to permit adjustment of the distance between the eyepieces (interpupillary distance). The hinge holds the axes of the two telescopes in parallel alignment. The prism system in each telescope erects the image and provides an offset line of sight which increases stereoscopic vision. The prism system also increases the effective optical length of the two telescopes without increasing their actual size. Each eyepiece can be focused independently of the other by turning the diopter scale in a plus or minus direction. The scale, which is calibrated in diopters, indicates the correction required for the corresponding eye. The binocular hinge is equipped with a scale which indicates in millimeters the interpupillary distance. These binoculars do not have a reticle. They are waterproofed and similar to BINOCULAR: M7.

They are used solely for observation purposes.

**Differences among models**

These binoculars are identical with the exception of the filters. Binocular M15 has a soft rubber eyepiece and built-in polarized filter (to eliminate glare). In the Binocular M15A1 this feature has been replaced with an eye guard to accommodate the M1 filter.

**Data plate location**

Model number, magnification, and diameter of the objectives are shown on the cover of the left eyepiece assembly.

**Classification:**

- M15: Standard D (OTCM 36341)
- M15A1: Standard A (OTCM 36341)

**Characteristics**

- **7 power**
  - **Aperture:** 60-mm
  - **Field of view:** 7 deg, 16 min
  - **Exit pupil:** 0.250 in.
  - **"F" number of objective:** F/5.8
  - **Filter:** (for M15A1) M1

**Equipment**

- **EQUIPMENT**
  - **STORAGE AND SHIPMENT DATA**
    - **Within Continental United States**
      - Shipped 12 binoculars (w/equipment) per shipping container
        - **Length:** 2 ft, 10 1/2 in.
        - **Width:** 1 ft, 6 1/2 in.
        - **Height:** 1 ft
        - **Volume:** 4.9 cu ft
        - **Gross weight:** 120 lb
        - **Ship tons:** 0.12
    - **Outside Continental United States**
      - Shipped 12 binoculars (w/equipment) per shipping container
        - **Length:** 2 ft, 10 1/2 in.
        - **Width:** 1 ft, 6 1/2 in.
        - **Height:** 1 ft
        - **Volume:** 4.9 cu ft
        - **Gross weight:** 120 lb
        - **Ship tons:** 0.12

**References:** TM 9-575, TM 9-1580, TM 9-6650-209-12P, TM 9-6650-208-35P.

---

* For characteristics and data, see item on page 27-4.
BINOCULAR: M16

General
BINOCULAR: M16, is a seven-power instrument used for general observation purposes and for estimating small angles. The left eyepiece is equipped with a mill scale reticle identical to that on BINOCULAR: M3, M17, and M17A1.* This binocular is similar to the M7, M15, and M15A1 with the exception that it has a reticle in the left eyepiece.

Differences among models

Data plate location
Data plate is located on the left cover plate.

Classification: Standard A (OTCM 36641).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>7 power</td>
</tr>
<tr>
<td>Aperture</td>
<td>50-mm</td>
</tr>
<tr>
<td>Field of view</td>
<td>7 deg, 16 min</td>
</tr>
<tr>
<td>Exit pupil</td>
<td>0.280 in.</td>
</tr>
<tr>
<td>&quot;F&quot; number of objective</td>
<td>F/8.9</td>
</tr>
<tr>
<td>Reticle horizontal scale</td>
<td>50.8-50 mils</td>
</tr>
<tr>
<td>Reticle range scale</td>
<td>0 to 2,000 yd</td>
</tr>
<tr>
<td>Filter</td>
<td>M1</td>
</tr>
</tbody>
</table>

PERFORMANCE

Equipment
Basic Issue Items: See TM 9-6650-210-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 12 binoculars (w/equipment) per shipping container
Length...................................... 2 ft, 10\(\frac{1}{2}\) in.
Width...................................... 1 ft, 8\(\frac{1}{4}\) in.
Height...................................... 1 ft
Volume...................................... 4.9 cu ft
Gross weight................................ 120 lb
Ship tons.................................. 0.12

Outside Continental United States
Shipped 12 binoculars (w/equipment) per shipping container
Length...................................... 2 ft, 10\(\frac{1}{2}\) in.
Width...................................... 1 ft, 8\(\frac{3}{4}\) in.
Height...................................... 3 ft
Volume...................................... 4.9 cu ft
Gross weight................................ 120 lb
Ship tons.................................. 0.12


*For characteristics and data, see items on pages 27-3, 27-4, 27-6, and 27-8.
General

BINOCULAR: M17 and M17Al, is a seven-power instrument used for general observation purposes and for estimating small angles. The left eyepiece is equipped with a mil scale reticle which is identical to that on the binocular M3, and the binoculars M17 and M17Al are similar to binoculars M7, M15, and M15Al with the exception that the binoculars M17 and M17Al have a reticle in the left eyepiece.

The binoculars M17 and M17Al are used with various guns, including GUN, FIELD ARTILLERY, SELF-PROPELLED: 155-mm, M53(T97).*

Differences among models

The binocular M17 has been modified to the M17Al to accommodate the filter M1 and to replace the rubber eye guards with a phenolic type.

Data plate location

Data is located on the left cover plate.

Classification: Standard A (OTCM 3881).

CHARACTERISTICS

Magnification ........................................... 7 power
Aperture ............................................ 50-mm
Field of view ........................................ 7 deg, 16 min
Exit pupil ........................................... 0.280 in.
"F" number of objective .............................. F/3.9

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M17, w/e</td>
<td>4-01250-20</td>
<td>6650-670-2516</td>
</tr>
<tr>
<td>M17Al, w/e</td>
<td>4-01250-30</td>
<td>6650-530-0974</td>
</tr>
</tbody>
</table>

Reticle horizontal scale .................................. 50-0-50 mils
Reticle range scale ........................................... 0 to 2,000 yd
Filter ......................................................... M1

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-6650-211-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 12 binoculars (w/equipment) per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 10¼ in.</td>
<td>1 ft, 8¾ in.</td>
<td>1 ft</td>
<td>4.9 cu ft</td>
<td>120 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 12 binoculars (w/equipment) per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 10¼ in.</td>
<td>1 ft, 8¾ in.</td>
<td>1 ft</td>
<td>4.9 cu ft</td>
<td>120 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

References: TM 9-1580, TM 9-6650-211-12; TM 9-6650-211-12P, TM 9-6650-228-35P.

*For characteristics and data, see items on pages 27-3, 27-4, and 27-6 and in section 23.
BINOCULAR: GUNNER'S, GUIDED MISSILE, WITH TRIPOD

**General**

BINOCULAR: gunner's guided missile, is a component part of wire-guided, remotely-controlled surface-to-surface SYSTEM. GUIDED MISSILE, ANTITANK: SS-10/SS-11,* and is used as an aid to the gunner for long range targets in visually tracking and guiding the missile in flight. The guided missile gunner's binocular is mounted on a tripod, and is secured in place by a clamp and a lock screw. There are two types of tripods available, one for use in the lying down or prone position and the other for the sitting position. When folded, the legs of the small tripod can be inserted into the tubular support of the large tripod, thereby supplying the clamp and lock screw assembly. At the junction of its three legs, the large tripod has a steel plate which serves as a support for the manually operated control stick used for directing the flight of the missile electrically through command wires 1,800 yards long, which unwind from the within the missile during flight. A 100-meter (328 feet) cable from the control stick to the signal generator allows the gunner using the binocular to select an observation point removed from the launching site.

* For characteristics and data, see items in section 19.

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Data plate location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>REDSPONE ARSENAL</td>
<td>RSA-10021841</td>
</tr>
</tbody>
</table>

**Difference among models**

**Characteristics**

<table>
<thead>
<tr>
<th>Magnification</th>
<th>8 x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined binocular and sitting position tripod:</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>39½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>12¾ in.</td>
</tr>
<tr>
<td>Height</td>
<td>10½ in.</td>
</tr>
<tr>
<td>Weight</td>
<td>14.32 lb</td>
</tr>
<tr>
<td>Tripod, prone position:</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>9½ in.</td>
</tr>
<tr>
<td>Weight</td>
<td>1.76 lb</td>
</tr>
</tbody>
</table>

**Performance**

**Equipment**

**Instructional Material**

27-9
### Storage and Shipment Data

#### Within Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

#### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: TM 9-1400-450-12; 20, 30, and 35P.
BINOCULAR: INFRARED M18

(Illustration will be added at a later date)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M18</td>
<td>6-01254-10</td>
<td>6650-605-6051</td>
</tr>
</tbody>
</table>

General

BINOCULAR: INFRARED, M18 is employed by the commander of a tank for infrared observations. The binocular resembles a conventional hand-held binocular, but it contains an image converter tube in each of its two infrared optical channels, a reticle projection system, and an electric power unit.

Differences among models

Data plate location

Classifications: Standard A (AMCTCM 897).

CHARACTERISTICS

| Magnification | 3.3X |
| Field of view | 12.5 deg |
| Equivalent focal length of objective | 3.75 in |
| Clear-eye distance | 0.41 in |
| Diopter (cone) | 0.018 in |
| Interpupillary adjustment limits | 6 cm and 75 m |
| Weight | 4.15 lb |
| Length | 10.65 in |
| Width | 3.75 in |
| Height | 4.375 in |

PERFORMANCE EQUIPMENT

Basic Item Number: See TM 9-6650-215-12 (when available).

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Binoscopes per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Binoscopes per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
</tbody>
</table>

MOUNT, INDICATOR, ORD No. 7694893

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above)</td>
<td>6650-769-4893</td>
<td></td>
</tr>
</tbody>
</table>

General

MOUNT, INDICATOR, ORD NO. 7694893, supports INDICATOR, AZIMUTH: M24 (T23)* and is used with LOCAL CONTROL SYSTEM, ANTIAIRCRAFT GUN: M16A1* on GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED: twin, 40-mm M19A1.*

The mount consists of a gear housing, a coupling, which connects mount to traversing mechanism pinion shaft, and a vertical enclosed shaft which allows proper location of the indicator. The vertical shaft housing has two spherical mounting surfaces and two adjustable brackets which are located from these surfaces. Setscrews hold and allow adjustment of the indicator, when positioned on the mount.

Differences among models

Data plate location

Classified Standard B (OTCM 36841).

Characteristics

Length, overall ........................................... 1 ft, 4½ in.
Width, overall ............................................. 8½ in.
Depth, overall ............................................. 8½ in.

Performance

Equipment

INSTUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped Indicator mounts per
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped Indicator mounts per
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL P-355, TM 9-1620

*For characteristics and data, see items in sections 18 and 23.
PERISCOPE, TANK: M6

Model | Line item No. | Federal stock No. | 6650-757-8357
--- | --- | --- | ---
M6 | | |

**General**

PERISCOPE, TANK: M6 is a box-shaped instrument of 1 power magnification. It is designed to allow an operator to observe the surrounding terrain without exposing himself. Light rays entering the 90-degree prism of the head assembly are reflected downward through the body assembly to the elbow 90-degree prism, where they are again reflected in a direction parallel to the line-of-sight. Only the upper end or head assembly of the periscope is exposed during use. The head is made of phenolic plastic material and is easily replaced if damaged by a projectile. The lower end or elbow assembly and a large portion of the body assembly are protected by the armor of the vehicle in which the periscope is mounted. A flat spring, locking knob and guide strip mount and hold the periscope in its mount. Eccentric mechanisms are used to secure the elbow and head assemblies to the body assembly.

Periscope M6 is used with the MOUNT, GUN: 40-mm, twin, M4.*

**Differences among models**

Data plate location

The identification plate is located on the body assembly.

Classification: Standard A.

**CHARACTERISTICS**

| Magnification | 1 power |
| Length | 31 in. |
| Width | 81/2 in. |

**PERFORMANCE**

**EQUIPMENT**

Basic issue items: See ORD 7 HNL G-248.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 20 periscopes per shipping container

| Length | 2 ft, 4 1/2 in. |
| Width | 1 ft, 7 in. |
| Height | 1 ft, 43/4 in. |
| Volume | 5.11 cu ft |
| Gross weight | 178 lb |
| Ship tons | 0.13 |

**Outside Continental United States**

Shipped 20 periscopes per shipping container

| Length | 2 ft, 4 1/2 in. |
| Width | 1 ft, 7 in. |
| Height | 1 ft, 43/4 in. |
| Volume | 5.11 cu ft |
| Gross weight | 178 lb |
| Ship tons | 0.13 |

References: HNL F-235, TM 9-16088.

*For characteristics and data, see item in section 3.
PERISCOPE, TANK: M13

Model
M13

Secondary Item
Line item No.  Federal stock No.
6660-759-7754

General

PERISCOPE, TANK: M13 is a box-shaped instrument of 1 power magnification. It is designed to allow an operator to observe the surrounding terrain without exposing himself. Mirrors are sealed at a 45-degree angle to the head and elbow. Light rays entering the head are reflected downward through the body to the elbow, where they are again reflected in a direction parallel to the line of sight. Only the upper end of the head of the periscope is exposed during use. The lower end of the elbow and a large portion of the body are protected by the armor of the vehicle in which the periscope is mounted. Periscope M13 is of the solid plastic type, and is waterproof. Cemented windows or cover glasses for the head and elbow are provided for protection of the mirrors against dust and water. A locking knob mounts and holds the periscope in its mount. Periscope M13 is used with the HOWITZER, LIGHT, SELF-PROPELLED: full tracked, 105-mm, M37; HOWITZER, LIGHT SELF-PROPELLED: 105-mm, M62 (2x1E1); RECOVERY VEHICLE, FULL-TRACKED: Medium M71; and TANK, COMBAT FULL-TRACKED: 90-mm gun, M47.

Differences among models

Data plate location
Model number is shown on the body assembly.

Classification: Standard A (OTCM 36508).

CHARACTERISTICS

Magnification
1 power

Field of view:
Horizontally .......... 90 deg
Vertically ........... 25 deg

References: TM 9-1469E, TM 9-5600-206-26P.

*For characteristics and data, see item in sections 21 and 23.
PERISCOPE, TANK: M14A1

General

PERISCOPE, TANK: M14A1, is a box-shaped instrument of 1 power magnification, used in tanks equipped with bulldozer for general observation of the terrain and for closeup view of the bulldozer blade in contact with the ground, so that the operator does not expose himself. Mirrors are sealed at a 45 degree angle to the head and elbow. Light rays entering the head are reflected downward through the body to the elbow, where they are again reflected in a direction parallel to the line-of-sight. Only the upper end of the head of the periscope is exposed during use. The lower end or elbow and large portion of the body are protected by the armor of the vehicle in which the periscope is mounted. Periscope M14A1 is of solid plastic construction and is shock resistant. Cemented windows or cover glasses for the head and elbow are provided for protection of the mirrors against dust. This periscope is of the wide angle type. It is secured in an adapter assembly.

Differences among models

Data plate location

Data plate is located on the body assembly.

Classification:

CHARACTERISTICS

Magnification 

1 power

Field of view:

horizontally 

90 deg

vertically 

30 deg to 40 deg

Length 

13½ in.

Width 

7 in.

Thickness 

4 in.

Weight 

13½ lb

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-123

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 6 periscopes per shipping container.

Length 

2 ft, 7 in.

Width 

1 ft, 6 in.

Height 

11½ in.

Volume 

2.9 cu ft

Gross weight 

126 lb

Ship tons 

0.07

Outside Continental United States

Shipped 6 periscopes per shipping container.

Length 

2 ft, 7 in.

Width 

1 ft, 6 in.

Height 

11½ in.

Volume 

2.9 cu ft

Gross weight 

126 lb

Ship tons 

0.07

References: SNL F-235, Vol. 5; TM 9-1608E.
PERISCOPE: M17

PERISCOPE: M17 is a box shaped, solid plastic instrument of the short offset type, wide angle, and 1 power magnification. It is used solely for observation purposes by the driver, assistant driver, and commander. It is designed to allow an operator to observe the surrounding terrain without exposing himself. It consists of the body assembly and the upper and lower covers. Mirrors are sealed at a 45° angle to the upper and lower ends of the body. Light rays entering the upper end are reflected downward through the body to the lower end, where they are again reflected in a direction parallel to the line-of-sight. Only the upper end of the periscope is exposed during use. The lower end and large portion of the body are protected by the armor of the vehicle in which the periscope is mounted. Cemented windows or cover glasses for the upper and lower ends of the body are provided for protection of the mirrors against dust and water. The periscope M17 is waterproof.

Periscope M17 is used with the GUN, SELF-PROPELLED, FULL-TRACKED: 155-mm, M53,* HOWITZER, SELF-PROPELLED, FULL-TRACKED: 8-inch, M36,* CARRIER, PERSONNEL, FULL-TRACKED: armored, M76,* CARRIER, CARGO, AMPHIBIOUS: M76,* TANK, COMBAT, FULL-TRACKED: 75-mm, M41 and M41A1,* TANK, COMBAT, FULL-TRACKED: 90-mm gun, M48 and M48C,* TANK, COMBAT, FULL-TRACKED: 120-mm gun, M103,* RECOVERY VEHICLE: heavy, M51,* CARRIER, PERSONNEL, FULL-TRACKED: armored, M59,* HOWITZER, LIGHT SELF-PROPELLED, FULL-TRACKED: 105-mm, M58,* MORTAR, SELF-PROPELLED, FULL-TRACKED: 4.2-inch, M64,* and CARRIER PERSONNEL, FULL-TRACKED: armored, M113.*

** For characteristics and data, see items in sections 21 and 22.

**Classification: Standard A (OTCM 36505)

PERFORMANCE

INSTRUCTIONAL MATERIAL

GENERAL

Differences among models

Secondary item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M17</td>
<td></td>
<td>6650-704-3549</td>
</tr>
</tbody>
</table>

** For characteristics and data, see items in sections 21 and 22.

EQUIPMENT

Basic Issue Items: See TM 9-2350-204-12.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 8 periscopes per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>1 power</td>
</tr>
<tr>
<td>Field of view:</td>
<td></td>
</tr>
<tr>
<td>Horizontal</td>
<td>150 deg</td>
</tr>
<tr>
<td>Vertical</td>
<td>50 deg</td>
</tr>
<tr>
<td>Length</td>
<td>8 7/8 in.</td>
</tr>
<tr>
<td>Width</td>
<td>8 7/8 in.</td>
</tr>
<tr>
<td>Thickness</td>
<td>3 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>65.75 lb</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 8 periscopes per shipping container

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>1 power</td>
</tr>
<tr>
<td>Field of view:</td>
<td></td>
</tr>
<tr>
<td>Horizontal</td>
<td>150 deg</td>
</tr>
<tr>
<td>Vertical</td>
<td>50 deg</td>
</tr>
<tr>
<td>Length</td>
<td>8 7/8 in.</td>
</tr>
<tr>
<td>Width</td>
<td>8 7/8 in.</td>
</tr>
<tr>
<td>Thickness</td>
<td>3 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>65.75 lb</td>
</tr>
</tbody>
</table>

References: TM 9-1608E, TM 9-6650-213-36P.
PERISCOPE, TANK: M19

Model: M19
Line Item No.: 6650-766-25T1
Federal stock No.: 3650-766-2571

General

PERISCOPE, TANK: M19 is an infrared viewing device of the binocular type used in night driving of armored vehicles. Invisible infrared rays are projected forward from headlamps at the bow of the vehicle to "illuminate" the field of view. The periscope converts the infrared image to a visible image by means of infrared image-converter electronc tubes. The visible image is viewed through conventional eyepieces. For best vision at average speeds, the range of the periscope is focused at 18 yards. The head assembly projects through the armor and the body of the periscope is within the vehicle. The elevation lock assembly provides for locking the periscope in any position. An adjustable headrest assembly provides support for the operator and adjustment for eye distance from the eye lens.

Periscope M19 is used with the TANK, COMBAT, FULL-TRACKED: 76-mm gun, M41 and M41A1;* GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED, twin, 40-mm, M42 and M42A1;* TANK, COMBAT, FULL-TRACKED: 90-mm gun, M47;* RECOVERY VEHICLE, heavy, M51;* RECOVERY VEHICLE, FULL-TRACKED: medium, M74;* CARRIER, PERSONNEL, FULL-TRACKED: armored, M59 and M75;* CARRIER, CARGO, AMPHIBIOUS: M76;*

Differences among models

Data Plate Location
The identification plate is located on the body.

Classification: Standard A (OTCM 36506).

CHARACTERISTICS

Model M19

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>16 1/4 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>16 lb, 16 oz.</td>
</tr>
<tr>
<td>Magnification</td>
<td>1 power</td>
</tr>
<tr>
<td>Field of view</td>
<td>26.7 deg</td>
</tr>
<tr>
<td>Focal point</td>
<td>18-20 yd</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>16,000 volts</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-6650-261-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 6 periscopes per shipping container</td>
<td>3 ft, 1 1/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 7 1/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>12.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>189.25 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 6 periscopes per shipping container</td>
<td>3 ft, 1 1/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 7 1/4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>12.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>189.25 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.31</td>
</tr>
</tbody>
</table>


*For characteristics and data, see items in sections 21 and 28.
PERISCOPE, TANK: M24 (T41)

**Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M24</td>
<td></td>
<td>6650-844-4447</td>
</tr>
</tbody>
</table>

**General**

PERISCOPE, TANK: M24 (T41) is an infrared viewing device of the binocular type used in night driving of tanks. Infrared rays are projected forward from headlamps at the bow of the vehicle to illuminate the field of view. The periscope converts the infrared image to a visible image which is viewed through conventional eyepieces. The power supply unit, which is contained in the vehicle, provides all power for operation of the periscope.

The periscope M24 is used with TANK, COMBAT, FULL TRACKED: 90-mm gun, M48 series; TANK, COMBAT, FULL TRACKED: 120-mm gun, M109 and M109A1; TANK, COMBAT, FULL TRACKED: 155-mm gun, M48; and RECOVERY VEHICLE, FULL TRACKED: medium, M88.

**Differences among models**

**Data plate location**

The identification plate (nameplate) is located on the rear of the periscope body.

**Classification:** Standard A (OTCM 37001).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Field of view</th>
<th>26.5 deg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focal point</td>
<td>18 to 20 yds</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>16,000 v dc</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped 6 periscopes per shipping container
- Length: 3 ft, 1" in.
- Width: 2 ft, 6" in.
- Height: 1 ft, 8%" in.
- Volume: 18.5 cu ft
- Gross weight: 216.5 lb
- Ship tons: 0.84

**Outside Continental United States**

- Shipped 6 periscopes per shipping container
- Length: 8 ft, 1" in.
- Width: 2 ft, 6" in.
- Height: 1 ft, 8%" in.
- Volume: 13.6 cu ft
- Gross weight: 216.5 lb
- Ship tons: 0.84

**INSTRUCTIONAL MATERIAL**

- For characteristics and data, see items in sections 21 and 22.

PERISCOPE, TANK: M27 (T36)

**Secondary Item**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M27</td>
<td></td>
<td>6650-344-4643</td>
</tr>
</tbody>
</table>

**General**

PERISCOPE, TANK: M27 (T36), mounted in the periscope mounts around the driver’s hatch opening of TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A1, M48A2, and M48A2C.* TANK, COMBAT, FULL TRACKED: 105-mm gun, M60,* and TANK, COMBAT, FULL TRACKED: 120-mm gun, M103* (serial numbers 60 and above) and M103A1;* HOWITZER, LIGHT, SELF-PROPELLED: 105-mm, T196E1,* and HOWITZER, MEDIUM,* SELF-PROPELLED: 155-mm, T196E1,* is used for observation of terrain.

The periscope is of solid plastic with a single power of magnification.

**Differences among models**

Data plate location

The identification plate (nameplate) is located on the body assembly of the periscope.

Classification: Standard A

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Height</th>
<th>10½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width overall</td>
<td>9½ in.</td>
</tr>
<tr>
<td>Depth overall</td>
<td>3½ ft</td>
</tr>
<tr>
<td>Weight</td>
<td>7½ lb</td>
</tr>
<tr>
<td>Magnification</td>
<td>1 power</td>
</tr>
</tbody>
</table>

**Field of view (maximum)**

| Horizontal | 121 deg |
| Vertical   | 41 deg  |

**PERFORMANCE**

**EQUIPMENT**


**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 12 periscopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 1½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 10½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 6½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.275 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>163.65 lb</td>
</tr>
<tr>
<td>Ship ton#</td>
<td>0.11</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped 12 periscopes per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 1½ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 10½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 6½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.275 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>163.65 lb</td>
</tr>
<tr>
<td>Ship ton#</td>
<td>0.11</td>
</tr>
</tbody>
</table>


*For characteristics and data, see items in section 23.

27-18
TELESCOPE, BATTERY COMMANDER'S: M65

General

TELESCOPE, BATTERY COMMANDER'S: M65, is a binocular instrument of the periscope type, the eyepiece being about 12 inches below the line-of-sight. It consists of two telescope assemblies, joined at the top by a hinge mechanism and at the bottom by an interpupillary mechanism and knob. It can be used only with the telescopes in a vertical position and is used for observation and for measuring angles of site and azimuth for artillery fire. The right telescope has a laterally and vertically graduated reticle which permits measurement of small vertical (both below and above the horizontal) and horizontal angles within the limits of the field of view. Each telescope eyepiece has an individual diopter adjustment. An elevating knob and angle of sight mechanism permit measurement of larger vertical angles that can be measured within the field of view. The telescope is supported on a mount which contains a circular level dial for leveling the instrument, and an azimuth scale and micrometer for measuring large azimuth angles, and orientation knob for positioning the instrument on the short tripod M10 or the longer tripod M17 to orient the azimuth scales. Each telescope is provided with filters, amber, red, neutral, and a clear window. Instrument light M28 provides edge illumination for the reticle. Another lamp, on a flexible cable, is used as a hand light to read the scales and micrometers.

Differences among models

Data plate location

The identification plate is located on the left telescope.

Classification: Standard B (OTCM 37927)

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>10X</td>
</tr>
<tr>
<td>Field of view</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Diopter scale</td>
<td>±3 diopters</td>
</tr>
<tr>
<td>Interpupillary scale</td>
<td>60 to 70 mm</td>
</tr>
<tr>
<td>Elevation and horizontal reticle graduations</td>
<td>0 to ± 50 mls</td>
</tr>
<tr>
<td>Height</td>
<td>183/4 in</td>
</tr>
<tr>
<td>Length</td>
<td>8 in</td>
</tr>
<tr>
<td>Width</td>
<td>7 in</td>
</tr>
<tr>
<td>Weight</td>
<td>20 lb</td>
</tr>
</tbody>
</table>

M65

M65

665(1)-678-5577

Major item

Line item No.

Federal stock No.

6650-678-5577
PERFORMANCE
Limits of operation:
Angle of site: -300 to +300 mils
Azimuth: 0 to 6,400 mils (360° deg. no limit of operation)

EQUIPMENT
Basic Issue Items: See TM 9-6650-204-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 1 B.C. telescope per box.
Length: 4 ft, 5 in.
Width: 1 ft, 10 in.
Height: 1 ft
Volume: 7.9 cu ft
Gross weight: 150 lb
Ship tons: 0.20

Outside Continental United States
Shipped B.C. telescopes per box.
Length: 7 ft
Width: 1 ft, 10 in.
Height: 1 ft
Volume: 7.9 cu ft
Gross weight: 150 lb
Ship tons: 0.20

References: SNL F-259, TM 9-575, TM 9-1580, TM 9-6650-204-12P.
TELESCOPE: OBSERVATION, M48

General

TELESCOPE: observation, M48, is an erect-image instrument of the prism-offset type, the image being erected by means of two Porro prisms and magnified by the lenses in the eyepiece. It has no reticle, is of fixed magnification, and is used only for observation. It is focused by pushing or pulling the eyepiece in or out until an approximate focus is reached and then turning the knurled focusing sleeve to obtain exact focus. This arrangement is made possible by a spring-loaded ball which either rides over the threads or engages the threads of the focusing nut. The observation telescope M48 is strapped in position in a cradle which in turn is supported on the tripod M14, which supports the instrument about 1 foot above the ground. The tripod provides for full rotation in azimuth of the cradle and telescope, and for limited rotation in elevation. The front of the telescope has a sliding sunshade which can be extended approximately 2 inches.

Differences among models

Data plate location

The identification plate is located on the prism housing.

Classification: Standard A(OTCM 30841).

CHARACTERISTICS

| Magnification | 19.6X |
| Field of view | 2°, 8 min |
| Height | 3 in |
| Length | 14½ in |
| Width | 3 in |
| Weight | 4 lb |

PERFORMANCE

Limits of operation:

| Angle of site | Limited rotation |
| Azimuth | No limit of operation |

EQUIPMENT

Basic Issue Items: See TM 9-6650-201-12.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 observation telescope per box.

| Length | 1 ft, 5 in |
| Width | 3 in |
| Height | 6 in |
| Volume | 0.3 cu ft |
| Gross weight | 8 lb |
| Ship tons | 0.01 |

Outside Continental United States

Shipped 1 observation telescope per box.

| Length | |
| Width | |
| Height | |
| Volume | |
| Gross weight | |
| Ship tons | |

TELESCOPE: OBSERVATION, M49

General
TELESCOPE: observation, M49, is an erect-image instrument of the prism-offset type, the image being erected by means of two Porro prisms and magnified by the lenses in the eyepiece. It has no reticle, is of fixed magnification, and is used only for observation. It is focused by turning the knurled focusing sleeve. The observation telescope M49 is strapped in position in a cradle which in turn is supported on the tripod M15, which supports the instrument about 1 foot above the ground. The tripod provides for full rotation in azimuth of the cradle and telescope, and in conjunction with a thumbscrew, for limited rotation in elevation.

Differences among models

Data plate location
The identification plate is located on the prism housing.

Classification: Standard B (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M49</td>
<td>4-49980-20</td>
<td>6650-530-0960</td>
</tr>
</tbody>
</table>

Limits of operation:

<table>
<thead>
<tr>
<th>Angle of site</th>
<th>Limited rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azimuth</td>
<td>No limit of operation</td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic Issue Items: See TM 9-6650-212-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 observation telescope per box.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 5 in.</td>
<td>5 in.</td>
<td>5 in.</td>
<td>0.3 cu ft</td>
<td>5 lb</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped observation telescope per box.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PERISCOPE, TANK: M45

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XM45</td>
<td></td>
<td>6665-509-2742</td>
</tr>
</tbody>
</table>

General
PERISCOPE, TANK: M45 is used on HOWITZER, LIGHT, SELF-PROPELLED: 105-mm, T196E1 and HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, T196E1.

Differences among models
Data plate location
Data is engraved in the head of periscope.

Classification: Standard A.

CHARACTERISTICS

| Magnification | 1 power |
| Field of view: | Horizontal | 88 deg |
|               | Vertical | 10 deg |
| Length | 1 ft, 2 in. |
| Width | 8 in. |
| Thickness | 2.42 in. |
| Weight | 8.60 lb |

PERFORMANCE

EQUIPMENT
Basic issue Items: See TM 9-2360-217-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 10 per shipping container
Length ........................................
Width .....................................
Height ................................
Volume ...................................
Gross weight .................................. 146 lb
Ship tons ...................................

Outside Continental United States
Shipped 10 per shipping container
Length ..................................
Width ..................................
Height ..................................
Volume ..................................
Gross weight .................................. 146 lb
Ship tons ..................................

References:
27-23
SECTION 28
PRESSURE, TEMPERATURE, AND HUMIDITY MEASURING
AND CONTROLLING INSTRUMENTS
(Class 6685)

THERMOMETER, SELF-INDICATING, BIMETALLIC: M1 and M1A1 .......................... 28-2
THERMOMETER, SELF-INDICATING, BIMETALLIC: M2 ...................................... 28-3
THERMOMETER, SELF-INDICATING, BIMETALLIC: M1 AND M1A1

General

The THERMOMETER, SELF-INDICATING, BIMETALLIC: M1 or M1A1, is used for measuring powder temperatures of 90-mm and 120-mm ammunition. The thermometer can be inserted directly into separate-loading propelling charges or can be used as a component of INDICATOR, POWDER TEMPERATURE: M13 or M15* for lot ammunition.

The thermometer is a dial type with 6-inch stem.

Differences among models

On the M1, the lowest temperature indicated on the dial is -40°F, while on the M1A1 the lowest temperature indicated is -80°F.

Data plate location

Data is located on the face of the dial.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Temperature range:

- M1: -40°F to +160°F
- M1A1: -80°F to +160°F

Length overall:

Diameter of dial:

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-6685-200-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-6685-200-12P; TM 9-6685-200-35P.
THERMOMETER, SELF-INDICATING, BIMETALLIC: M2 (XM2E1)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td></td>
<td>6885-345-6125</td>
</tr>
</tbody>
</table>

General

THERMOMETER, SELF-INDICATING, BIMETALLIC: M2 (XM2E1), is used to measure average propellant grain temperature of the JATO, M6 for ROCKET, 762 MILLIMETER: M31 and M31A1.

The thermometer consists of a dial, collar, and probe. The dial is inclosed in a chromium plated steel case having a plexiglass front. The dial has a silver background and a black scale. Temperatures are indicated by a black pointer and can be read to less than one degree by interpolation. A setscrew on the back of the dial is provided for adjustment of the thermometer. A standard %-inch threaded collar located immediately behind the dial case is used to secure the thermometer when inserted in a rocket motor.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Temperature range</th>
<th>Length overall</th>
<th>Diameter of dial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3 in.</td>
</tr>
</tbody>
</table>

* Ammunition item.

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References:

28-3
SECTION 29
ARMAMENT TRAINING DEVICES
(Class 6920)
(Includes mortar and tank trainers)

ROCKET SET, TRAINING: 762-mm, M49................................................................. 29-2
TARGET MECHANISM: night firing, small arms, XM40 ........................................... 29-3
TRAINER, MORTAR: pneumatic, M32 and M32A1.................................................. 29-4
TRAINER, TANK GUNNERY: 76-mm gun, M17 (T17) and M17A1................................... 29-4B
TRAINER, TANK GUNNERY: 90-mm gun, M18........................................................ 29-5
TRAINER, TANK GUNNERY: 90-mm gun, M20 (T20)............................................... 29-6
TRAINER, TANK GUNNERY: 90-mm gun, M26....................................................... 29-7
TRAINER, TANK GUNNERY: 105-mm gun, XM30.................................................. 29-8
ROCKET SET, TRAINING: 762-mm, M49

General

ROCKET SET, TRAINING: 762-MM, M49 (formerly known as TRAINING DEVICE, 3-G-42 and 3-G-77), is intended for use as an aid in instruction and practical training of troops in all phases of handling and check out of the operational 762-MM M31 and M50 series rockets. The training set is made up of components that are full size in weight and configuration to their tactical counterparts. The M49 ROCKET SET, TRAINING, consists of the following components with the tactical counterparts listed therewith:

<table>
<thead>
<tr>
<th>Item</th>
<th>Model</th>
<th>Tactical</th>
<th>Trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocket Motor, M50 Series Rkt</td>
<td>M49</td>
<td>M66</td>
<td>M46</td>
</tr>
<tr>
<td>Rocket Motor, M31 Series Rkt</td>
<td></td>
<td>M3 Series M34</td>
<td></td>
</tr>
<tr>
<td>Warhead (Z)</td>
<td></td>
<td>M6</td>
<td>M42</td>
</tr>
<tr>
<td>Warhead (X)</td>
<td></td>
<td>M37, M37, M37</td>
<td></td>
</tr>
<tr>
<td>Warhead (Z)</td>
<td></td>
<td>M144</td>
<td>M132</td>
</tr>
</tbody>
</table>

The training rockets are so designed that the launching shoes and alignment points will fit operational handling and launching equipment. The alignment points between trainer fins, rocket motors, and warheads will not mate with tactical components due to addition of noninterchangeable pins purposely placed on trainer components to insure against training or tactical accidents.

Differences among models

Data plate location

Classification: Standard A (AMCTM 641)

CHARACTERISTICS

Rocket Motor, Training: 762-MM, M49

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>115.25 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>1,625 lb</td>
</tr>
<tr>
<td>Diameter (w/o fins &amp; launching shoes)</td>
<td>30.08 in.</td>
</tr>
</tbody>
</table>

Fins, Training, M49 Rocket Motor, M17

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>115.25 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>1,625 lb</td>
</tr>
<tr>
<td>Diameter (w/o fins)</td>
<td>30.08 in.</td>
</tr>
</tbody>
</table>

Rocket Motor, Training: 762-MM, M44

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>212 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>4,002 lb</td>
</tr>
<tr>
<td>Diameter (w/o fins)</td>
<td>30.08 in.</td>
</tr>
</tbody>
</table>

Fins, Training, M44 Rocket Motor, M122A2

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>11 in.</td>
</tr>
</tbody>
</table>

Warhead Section, M42 (for M84 Rkt Motors)

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>115.25 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>1,625 lb</td>
</tr>
<tr>
<td>Diameter</td>
<td>30.08 in.</td>
</tr>
</tbody>
</table>

Warhead Section, M132 (for Both M84 & M44 Rkt Motors)

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>115.25 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>1,625 lb</td>
</tr>
<tr>
<td>Diameter</td>
<td>30.08 in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Date: See TM 9-6920-213-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 inert warhead assembly per shipping container.

Length: 147 in.
Width: 41 in.
Height: 50 in.
Volume: 3,100 cu ft
Gross weight: 6,380 lb
Ship tons: ...

Shipped 1 simulated rocket motor per shipping container.

Length: 239 in.
Width: 41 in.
Height: 50 in.
Volume: 6,380 cu ft
Gross weight: 6,380 lb
Ship tons: ...

Shipped 4 training fins per shipping container.

Length: 239 in.
Width: 41 in.
Height: ...
Volume: 28.7 cu ft
Gross weight: 352 lb
Ship tons: ...

SIMULATOR, SMALL ARMS FIRE: M2 (XM2)

**General**

SIMULATOR, SMALL ARMS FIRE: M2 (XM2) is used to produce flash, noise, and smoke to simulate either rifle or machinegun fire. It can be used singly or in multiples to simulate individual soldiers or whole squads of the enemy. The simulator consists of a simulator gun assembly, a cabinet group with timer assembly, and a remote control cable assembly. It operates on either 115-volt ac or 12-volt dc. The operator may control a simulator directly at the timer assembly, or he may control many simulators by means of remote control cables.

**Differences among models**

Data plate location:
The identification plate is riveted to the rearward top surface of the simulator gun assembly cover.

Classification: Standard A (AMCTC item 1982).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2 (XM2)</td>
<td></td>
<td>6920-443-9282</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensional:</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulator gun assembly</td>
<td>59 1/2 in.</td>
<td>44 1/2 in.</td>
<td>20 in.</td>
</tr>
<tr>
<td>Cabinet group</td>
<td>24 1/4 in.</td>
<td>18 1/2 in.</td>
<td>29 3/4 in.</td>
</tr>
<tr>
<td>Timer assembly</td>
<td>12 in.</td>
<td>14 1/4 in.</td>
<td>9 1/2 in.</td>
</tr>
</tbody>
</table>

**AMMUNITION**

**EQUIPMENT**

Basic Issue Items: See TM 9-6920-204-14.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th>Dimensions:</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside Continental United States</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-6920-204-14, TM 9-6920-204-24F.

---

Cylinders are shipped empty to comply with ICC regulations.
TARGET MECHANISM: NIGHT FIRING, SMALL ARMS, XM40

TARGET MECHANISM: night firing, small arms, XM40, is a portable, electro-mechanical training device to be used for training in night firing of small arms. A light attached to the target flashes to simulate the flash of rifle or machinegun fire and presents a barely discernible silhouette for the soldier to fire at. The target mechanism permits its operator to control 15 target locations and will accommodate either kneeling silhouette target "E" or prone silhouette target "F". The target mechanism consists of a cabinet assembly (which serves as a housing for a counter chassis assembly and a flasher chassis assembly), one (1) terminal box assembly, 15 target holding assemblies, 15 hit switch assemblies, and 30 utility box assemblies. A 115-volt power source is required for operation of the target mechanism. It can be carried by two men.

Differences among models

Data plate location
The identification plate is located on the upper center exterior surface of the door of the cabinet assembly.

Classification:

CHARACTERISTICS

Cabinet:
- Weight: 44 lb
- Length: 21 in.
- Width: 14.1 in.
- Height: 24.5 in.

Flasher chassis:
- Weight: 17.4 lb
- Length: 19 in.
- Width: 8.9 in.
- Height: 14 in.

Counter chassis:
- Weight: 29.1 lb
- Length: 15 in.
- Width: 15 in.
- Height: 14 in.

Terminal box:
- Weight: 15 lb
- Length: 12 in.
- Width: 8 in.
- Height: 4 in.

Target holder:
- Weight: 6 lb
- Length: 14.5 in.
- Width: 2.5 in.
- Height: 2.5 in.

Utility box:
- Weight: 1 lb
- Length: 4.9 in.
- Width: 2.5 in.
- Height: 2 in.

Electrical system:
- Power source: 115 V ac
- Lights:
  - Target indicator: 24-28 V, 0.50 amp
  - Counter chassis indicator: 6-8 V, 0.15 amp
  - Flasher chassis panel: 24-28 V, 0.04 amp
- Fuses: 2 amp

PERFORMANCE

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
- Length: 37.5 in.
- Width: 25 in.
- Height: 31 in.
- Volume: 17.89 cu ft
- Gross weight: 276 lb
- Ship tons: 0.486

Outside Continental United States
- Length: 87.5 in.
- Width: 25 in.
- Height: 81 in.
- Volume: 17.89 cu ft
- Gross weight: 276 lb
- Ship tons: 0.486

References: TM 9-6920-205-14, TM 9-6920-205-24P.
TRAINER, MORTAR: PNEUMATIC, M32 AND M32Al

The identification plate is located in the upper right-hand corner of the left end of the trainer case. A warning sign is located inside the case.

Classification:
- M32: Standard C (OTCM 37526)
- M32Al: Standard A (OTCM 37525)

CHARACTERISTICS

Trainer M32 complete:
- Length: 2 ft, 6 in.
- Width: 1 ft, 4, \( \frac{1}{2} \) in.
- Depth: 10 in.
- Weight: 61 lb

Case (empty):
- Length: 2 ft, 6 in.
- Width: 1 ft, 4, \( \frac{1}{2} \) in.
- Depth: 9 in.
- Weight: 41 lb

Secondary item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M32, w/o cal...22 blank cartridge</td>
<td>6920-510-6087</td>
<td></td>
</tr>
<tr>
<td>M32Al</td>
<td>6920-045-6587</td>
<td></td>
</tr>
</tbody>
</table>

General

TRAINER, MORTAR: PNEUMATIC, M32, or M32Al is a pneumatically operated unit designed to adapt a 60-mm, 81-mm, or 107-mm 14.2 in.34 mortar to fire the 25-mm training projectile M879 on a 500-inch, 1,000-inch, or 2,000-inch range. It is packed in a case complete with a projectile rack with twenty 25-mm training projectiles M879, a barrel and valve assembly, to adapt the operational mortar to receive the 25-mm projectiles and to release compressed air charges for simulating operational mortar fire; a compressed gas cylinder (bottle and valve assembly) to provide compressed air supply; a regulator assembly, to control the pressure released for each charge, and a quick disconnect hose assembly, for attaching the air supply to the barrel and valve assembly.

Differences among models

The regulator assembly is the only difference between the two models; the M32Al has an improved regulator which incorporates a relief valve, tee, nipple, and other internal parts.

Data plate location

The identification plate is located in the upper right-hand corner of the left end of the trainer case. A warning sign is located inside the case.

Classification:
- M32: Standard C (OTCM 37526)
- M32Al: Standard A (OTCM 37525)

CHARACTERISTICS

Trainer M32 complete:
- Length: 2 ft, 6 in.
- Width: 1 ft, 4, \( \frac{1}{2} \) in.
- Depth: 10 in.
- Weight: 61 lb

Case (empty):
- Length: 2 ft, 6 in.
- Width: 1 ft, 4, \( \frac{1}{2} \) in.
- Depth: 9 in.
- Weight: 41 lb

Compressed air cylinder (bottle with valve assembly):
- Length: 1 ft, 11 in.
- Outside diameter: 7 in.
- Air contents: 38 cu ft
- Pressure:
  - Capacity: 1,800 psi
  - Working pressure: 3,005 psi
- Weight: 20 lb

Projectile rack (w/20 projectiles):
- Length: 9, \( \frac{1}{2} \) in.
- Width: 9, \( \frac{1}{2} \) in.
- Depth: 7, \( \frac{4}{\_} \) in.
- Weight: 8 lb

Hose assembly:
- Length: 10 ft
- Weight: 1, \( \frac{1}{2} \) lb
- Inside diameter: 0.4 in.

Regulator assembly:
- Length: 9 in.
- Width: 7 in.
- Depth: 4 in.
- Weight: 3, \( \frac{1}{3} \) lb

Barrel and valve assembly:
- Length: 1 ft, 11 in.
- Weight: 7 lb
- Outside diameter: 2, \( \frac{1}{2} \) in.

Type of operation: pneumatic

Method of feeding: drop

Refrigentant: compressed air

Number of rounds per 1,800 psi cylinder (approx): 1,500

AMMUNITION

Types: 25-mm training projectile M879 and CARTRIDGE, BLANK, CALIBER .22:

PERFORMANCE

RANGE (approx): 30 yd

EQUIPMENT

Sighting and fire control:

Use sighting equipment issued with primary weapon listed in "GENERAL" paragraph, except the firing tables.
TABLE, FIRING: IV (modified FT 60-L-1)
TABLE, FIRING: V (modified FT 80-AD-1)
TABLE, FIRING: VI (modified FT-4.2-B-1)


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 trainer per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 7⅝ in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 6⅞ in.</td>
</tr>
</tbody>
</table>

Outside Continental United States
Shipped 1 trainer per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 8 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 4⅝ in.</td>
</tr>
<tr>
<td>Height</td>
<td>11 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>3.6 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>66½ lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.089</td>
</tr>
</tbody>
</table>

References: TM 9-6920-212-14, TM 9-6920-212-24P.
TRAINER, TANK GUNNERY: 76-MM GUN, M17 (T17) AND M17A1

(Illustration will be added at a later date)

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Line Item No.</th>
<th>Federal Stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M17</td>
<td>4-57945-10</td>
<td>6920-555-8582</td>
</tr>
<tr>
<td>M17A1</td>
<td>4-57945-20</td>
<td>6920-217-2165</td>
</tr>
</tbody>
</table>

General

TRAINER, TANK GUNNERY: 76-mm gun, M17 (T17) and M17A1, is a training aid used to train personnel in the operation of the turret, the 76-mm gun, and the sighting and fire control equipment of TANK, COMBAT, FULL-TRACKED: 76-mm gun, M41, which the M17 is used and TANK, COMBAT, FULL-TRACKED: 76-mm gun M41A1, which the M17A1 is used.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Weight:

- Total
- Turret stand
- Canvas cover
- Length, overall
- Width
- Height (overall on base)
- Height (overall on casters)
- Armament
- Diameter
- Length, gun tube (outside platform)
- Clearance, base ring to ground
- Clearance, gun to ground (gun tube level)

AMMUNITION

* For characteristics and data, see item in section 22.

EQUIPMENT

Sighting and Fire Control:

(Same as for the TANK, COMBAT, FULL-TRACKED: 76-mm gun M41 and M41A1)

Basic Issue Items: See TM 9-2350-201-12, C 1.

PERFORMANCE

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Area</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References:
TRAINING SET, GUIDED MISSILE FLIGHT CONTROL,
10119920 (SIMULATOR, S-58)

Model Line item No. Federal stock No.
10119920 4-0925-00 6920-8711-9508

General

TRAINING SET, GUIDED MISSILE FLIGHT CONTROL, 10119920 (SIMULATOR, S-58), consisting of a TRAINER; GUIDANCE CONTROL STATION; POWER UNIT; and CABLE, ADAPTER; is used for training gunners to control the flight of wire-guided antitank missiles.

The TRAINER (SIMULATOR, S-58) consists of four electrically interconnected chassis, housed in a metal cabinet. The three lower chassis are removable slide-mounted units, while the front panel of the top unit may be removed for servicing and maintenance. The four chassis (top to bottom) are as follows:

1. Autotransformer chassis which provides the regulated voltage required for proper operation of the trainer,
2. Indicator chassis which displays the simulated missile provided by the trainer,
3. Computer chassis which provides the signals that control the flight of the simulated missile displayed on the cathode ray tube screen, and
4. Power supply chassis which contains five regulated, and two unregulated power sections, furnishes the power required for the computer and indicated chassis.

The GUIDANCE CONTROL STATION consists of a battery adapter, binoculars, guidance control unit, slide assembly, tripod, and cover.

The POWER UNIT is a small, portable, dc-power supply which provides a well-filtered and stabilized dc voltage, variable from 11 to 13.5 volts. The output of this unit is used in place of the 13.5-volt rechargeable battery used with the tactical guidance control unit.

The ADAPTER CABLE is used to connect the guidance control unit to the computer chassis of the trainer.

Differences among models

Data plate location:
The data plate is located top center on the top front panel of the trainer.

Classification

29-5
**CHARACTERISTICS**

Trainer (S-58 simulator):
- **Height:** 41.33 in.
- **Width:** 19.58 in.
- **Depth:** 28.83 in.
- **Weight:** 235 lb
- **Weight (storage case):** 109 lb
- **Input:** 110/220 volt ac, 50/60 cps, spl-ph

Power unit:
- **Length:** 12.24 in.
- **Width:** 5.68 in.
- **Height:** 6.87 in.
- **Weight:** 24.74 lb

Guidance control unit (tripod retracted):
- **Length:** 10.2 in.
- **Width:** 8.7 in.
- **Height:** 14.2 in.
- **Weight:** 23.6 lb

**PERFORMANCE**

Basic Issue Items: See TM 9-6920-455-12.

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Trainer, S-58, is stored in a storage cabinet, not in a shipping container.
- **Length:** 27.5 in. (69.8 cm)
- **Width:** 24.3 in. (62.2 cm)
- **Height:** 45.4 in. (115.3 cm)
- **Weight:** .338 lb (0.6 kg)

Shipped 1 trainer S-58, with cables, as No. 1 of 2 packages, in wooden crate.
- **Length:** 36 in. (91.4 cm)
- **Width:** 26 in. (66.0 cm)
- **Height:** 19 in. (48.3 cm)
- **Volume:** 29.0 cu ft
- **Gross weight:** 44 lb (200.4 kg)
- **Ship tons:** .66

Shipped No. 2 of 2 packages in wooden crate containing: 1—adapter cable; 1—guidance control unit; and 1—power unit.

**Outside Continental United States**

Shipped 1 trainer S-58, with cables, as No. 1 of 2 packages in wooden crate.

Shipped No. 2 of 2 packages in wooden crate containing: 1—adapter cable; 1—guidance control unit; and 1—power unit.

TRAINING SET, GUIDED MISSILE FLIGHT CONTROL, DX43 (ENTAC)

**General**

TRAINING SET, GUIDED MISSILE FLIGHT CONTROL, DX43 (ENTAC), consisting of a COMPUTER; ADAPTER; CABLES; LAUNCH AND GUIDANCE CONTROL TRAINING UNIT; TRIPOD; POWER SUPPLY; OPTICAL UNIT: is used for training gunners to fire and control the flight of wire-guided antitank missiles.

**Model** | Line item No. | Federal stock No.  
---|---|---  
DX-43 | X-D4210 | 6920-963-9963

The COMPUTER is the control center of the training set. Its primary functions are: to receive the basic commands from the control stick; determine how a missile should respond to these commands; then send signals to the optical unit; and to make the simulated missile maneuver accordingly.

The ADAPTER is used for cable connection between the launch and guidance control training unit and the computer.

The CABLES are used for connecting the required components of the training set (see illustration).

The LAUNCH AND GUIDANCE CONTROL TRAINING UNIT is used to develop the operator's feel of the stick and teach the
**GENERAL—Continued**

Firing procedures for firing tactical missiles.
The TRIPOD is used to support the optical unit, and the launch and guidance control training unit.
The POWER SUPPLY provides 24 volts dc for the operation of the training set.
The OPTICAL UNIT is a large set of special-purpose binoculars.

**Differences among models**

**Data plate location:**
A data plate is located on the outside of the case of each of the following units: optical unit; power supply; and launch and guidance training unit.

**CHARACTERISTICS**

**Computer:**
- Height: 6.28 in.
- Width: 13.78 in.
- Depth: 11.82 in.
- Weight: 30.67 lb

**Optical unit:**
- Height: 14.57 in.
- Width: 17.53 in.
- Depth: 17.53 in.
- Weight: 55.12 lb

**Power supply:**
- Height: 7.07 in.
- Width: 8.67 in.
- Depth: 14.42 in.
- Weight: 30.87 lb

**PERFORMANCE**

**EQUIPMENT**

**Basic Issue Items**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

Shipped No. 1 of 4 wooden crates containing: 1—adapter; 1—cable; 1—launch and guidance control training unit; and 1—tripod.
- Length: 26 in. (66.04 cm)
- Width: 15.0 in. (38.37 cm)
- Height: 11.9 cu ft
- Gross weight: 162 lb (73.7 kg)
- Ship tons: 0.30

Shipped No. 2 of 4 wooden crates containing 1—computer.
- Length: 20 in. (50.0 cm)
- Width: 18 in. (45.72 cm)
- Height: 2.23 cu ft
- Gross weight: 68 lb (30.9 kg)
- Ship tons: 0.06

*Outside Continental United States*

Shipped No. 1 of 4 wooden crates containing: 1—adapter; 1—cable; 1—launch and guidance control training unit; and 1—tripod.
- Length:
- Width:
- Height:
- Volume:
- Gross weight:
- Ship tons:

Shipped No. 2 of 4 wooden crates containing 1—computer.
- Length:
- Width:
- Height:
- Volume:
- Gross weight:
- Ship tons:

Shipped No. 3 of 4 wooden crates containing: 2—cables, and 1—power supply.
- Length: 20 in. (50 cm)
- Width: 14 in. (45.72 cm)
- Height: 10% in. (27.31 cm)
- Volume: 2.23 cu ft
- Gross weight: 68 lb (30.9 kg)
- Ship tons: 0.06

Shipped No. 4 of 4 wooden crates containing: 2—cables, and 1—optical unit.
- Length:
- Width:
- Height:
- Volume:
- Gross weight:
- Ship tons:

**References:** TM 9-4920-481-12.
30 August 1963

TRAINER, TANK GUNNERY: 90-MM GUN, M26

(Illustration will be added at a later date)

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M26</td>
<td>4-57950-08</td>
<td>6920-619-2600</td>
</tr>
</tbody>
</table>

General

TRAINER, TANK GUNNERY: 90-mm gun, M26, is a training aid used to train personnel in the operation of the turret, the 90-mm gun, and sighting and fire control equipment of the TANK, COMBAT, FULL TRACKED: 90-mm, M48 series.

Differences among models

Data plate location

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Sighting and Fire Control:

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Area</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Area</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References:
TRAINER, TANK GUNNERY: 105-MM GUN, XM30

General
TRAINER, TANK GUNNERY: 105-mm gun, XM30, is a training aid used to train personnel in the operation of the turret, the 105-mm gun, and the sighting and fire control equipment of TANK, COMBAT, FULL TRACKED: 105-mm gun, M60. The trainer is a modified turret from the tank M60 mounted on a stand. The turret has been provided with platforms and cutouts to allow the instructor to observe and guide the trainee under actual operating conditions. It is powered from a rectifier power supply which replaces vehicle power.

Differences among models

Data plate location

Classifications: Standard A (OTCM 97856).

CHARACTERISTICS

Weight:
Total .............................................. 28,910 lb
Turret stand ..................................... 7,116 lb
Canvas cover ................................... 98 lb

Length:
Overall ........................................... 296 in.
Gun tube (outside platform) .................... 198.5 in.

Width:.................................................. 116 in.

Height:
Overall on base .................................. 114 in.
Overall, on casters ............................. 119.375 in.
Diameter, traverse circle ....................... 413 in.

Clearance:
Base ring to ground ................................ 5.375 in.
Gun tube to ground (gun tube level) .......... 68 in.

ARMAMENT

CANNON, 105 MILLIMETER GUN: M68
MOUNT, GUN: 105-mm combination, M116

EQUIPMENT

Sighting and Fire Control:
(Same as for the TANK, COMBAT, FULL TRACKED: 105-mm gun, M60)*

Basic Issue Items: See TM 9-2350-215-10, C3

AMMUNITION

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 trainer per
Length ..............................................
Width ................................................
Height .............................................
Volume ...........................................
Gross weight ...................................
Ship tons ........................................

Outside Continental United States

Shipped 1 trainer per
Length ..............................................
Width ................................................
Height .............................................
Volume ...........................................
Gross weight ...................................
Ship tons ........................................


*For characteristics and data, see item in section 28.
APPENDIX I
REFERENCES

1. Publication Indexes

The following publication indexes should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to materiel covered in this manual:

Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings. DA Pam 108-1

Military Indexes:

Index of Administrative Publications. DA Pam 310-1

Index of Blank Forms. DA Pam 310-2

Index of Graphic Training Aids and Devices. DA Pam 310-5

Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders. DA Pam 310-4

Index of Doctrinal, Training, and Organizational Publications. DA Pam 310-3

2. Other Publications

The following publications contain information pertinent to this materiel:

Field Maintenance Floats: Major Items of Equipment Authorized for Stockage in Both Peacetime and Wartime. SB 9–140


Military Training. Military Training Aids. AR 350–15

Army Adopted Items of Material. SB 700–20

Ordnance Corps Type Classified Materiel (U). SB 9–176

Distribution Planning for Principal Items of Equipment. AR 700–16

Security Classification of Ordnance Corps Procured Supply Items (U). SB 9–131

Security Classification of Nuclear Items (U). (S) TB9–38–1

Stock Control: Army Equipment Status Reporting System; List of Reportable Items (Materiel Readiness). AR 711–140

A-1
By ORDER OF THE SECRETARY OF THE ARMY:

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

DCSLOG (1)  
CNGA (1)  
USASA (1)  
Tech Staff, DA (1) except  
CorOrd (9)  
Cont (none)  
Ord Bd (1)  
USCONARC (3)  
ARADCOM (2)  
ARADCOM Region (2)  
OS Maj Cmd (2)  
OS Base Cmd (2)  
LOGCOM (2)  
MDW (1)  
Armies (3)  
Corps (2)  
USA Corps (1)  
Div (2)  
Bde (2)  
Regt/Gp/bg (2)  
Ba (2)  
Ord Co (2) except  
TOE: 9-12 (1); 9-17 (1); 9-47 (1); 9-57 (1); 9-367 (1)  
Instl (2)  
SVC Colleges (2)  

NG: State AG (3); units—same as active Army except allowance is one copy to each unit.  
USAR: None.  
For explanation of abbreviations used, see AR 320-50.
BAYONET-KNIFE: M5 AND M5A1

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>4-01886-30</td>
<td>1005-726-6666</td>
</tr>
<tr>
<td>M5A1</td>
<td>4-01886-60</td>
<td>1005-836-8588</td>
</tr>
</tbody>
</table>

General

BAYONET-KNIFE: M5 or M5A1 is for use with RIFLE, CALIBER .50: U.S., M1, M1C (Sniper’s), and M1D (Sniper’s) as a bayonet in close combat, guarding of prisoners, riot duty, etc. A secondary function of the item is for use as a general utility knife. The blade has a cutting edge for the full length of bottom edge and for 5½ inches to rear of its point along upper edge. The handle is knurled to allow a firm grip and fits comfortably in the hand. There is no blood groove. SCABBARD, BAYONET-KNIFE: M5A1,* is used with this bayonet-knife.

Differences among models

The bayonet-knife M5A1 differs from the M5 in that the M5A1 has an improved latching lever, internal part in grip, thus increasing the accuracy of the weapon.

Data plate location

Data are stamped on guard of bayonet-knife.

Classification: M5: Limited standard (OTCM 37119)  
M5A1: Standard B (OTCM 38841)

* For characteristics and data, see item in section 9.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight</th>
<th>11 1/2 oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length overall</td>
<td>14 1/2 in.</td>
</tr>
<tr>
<td>Length of blade</td>
<td>6 1/2 in.</td>
</tr>
<tr>
<td>Width of blade</td>
<td>3/4 in.</td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic issue items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 100 bayonet-knives per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>3 ft, 1/2 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 2 1/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>4.8 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>134 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 60 bayonet-knives per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 7 1/2 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 2 1/4 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>70 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.06</td>
</tr>
</tbody>
</table>

BAYONET-KNIFE: M6 (T12)

General
BAYONET-KNIFE: M6 is a combination utility knife and bayonet. It is used with the RIFLE, 7.62-MILLIMETER: M14 as a bayonet for close combat, guard duty, riot duty, etc. The blade has a cutting edge for the full length on the bottom and for 3½ inches to the rear of the point on the top edge. The blade has no blood groove. The handle has knurled surfaces for a firm grip.

SCABBARD, BAYONET-KNIFE: M6A1,* is used with this bayonet-knife.

Differences among models

Data plate location

Classification: Standard A (OTCM 37286).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Part</th>
<th>Weight</th>
<th>Length overall</th>
<th>Blade Length</th>
<th>Blade Width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12 oz</td>
<td>11 3/4 in</td>
<td>6 1/8 in</td>
<td>3/8 in</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in section 9.

EQUIPMENT

Basic issue Items:

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 100 bayonet-knives per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ft, 3/4 in</td>
<td>1 ft, 2 3/4 in</td>
<td>1 ft, 4 in</td>
<td>4.8 cu ft</td>
<td>135 lb</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 50 bayonet-knives per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 7 3/4 in</td>
<td>1 ft, 2 3/4 in</td>
<td>1 ft, 4 in</td>
<td>3.6 cu ft</td>
<td>70 lb</td>
</tr>
</tbody>
</table>

CARBINE, CALIBER .30: M1

General

CARBINE, CALIBER .30: M1 is a gas-operated, self-loading, magazine-fed semiautomatic, lightweight, offensive or defensive shoulder weapon. Carbines originally were furnished with an L-type rear sight. A modification provides for a rear sight, adjustable for both elevation and windage. The front band has been modified to provide for attaching the BAYONET-KNIFE: M4.

Differences among models

Data plate location

Data are stamped on top of receiver behind rear sight.

Classification: Standard C (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1 w/e and spare parts</td>
<td>4-03916-00</td>
<td>1065-670-7670</td>
</tr>
</tbody>
</table>

Capacity of feeding device: 15 rd
Cooling: Air

AMMUNITION

Types: Ball, tracer, and dummy

PERFORMANCE

Muzzle velocity (ball): 1,970 fps
Maximum range (ball) (30° elevation): 2,300 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-28.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 CARBINE, DUMMY: M13.
TRAINER, RIFLE, SIGHTING: Device: M15.

STORAGE AND SHIPMENT DATA

Shipped 10 carbines per wood box (VCI pack).

Within and Outside Continental United States

| Weight (w/15-round magazine) (unloaded) | 5 lb, 8 oz |
| Weight (w/15-round magazine) (loaded) | 6 lb, 7 oz |
| Weight of 15-round magazine (unloaded) | 3 oz |
| Weight of 15-round magazine (loaded) | 9 oz |

Length overall (w/bayonet attached): 2 ft, 11 1/2 in.
Operation: Gas
Feed: Magazine

Slight weight: 113 lb
Ship tons: 0.13

References: SNL B-28; FM 23-7; TM 9-1276; TM 9-2205.
CARBINE, CALIBER .30: M2

General

CARBINE, CALIBER .30: M2 is a gas-operated, magazine-fed, lightweight, offensive or defensive shoulder weapon. It is capable of firing ammunition either in single shots or automatically. When firing single shots, it is a semiautomatic weapon. Automatic fire is achieved by means of a selector, located on the top left side of the receiver, which is manually controlled by the operator. Its rear sight is adjustable for both elevation and windage. The front hand permits the attaching of BAYONET-KNIFE: M4.

Differences among models

Data plate location

Data are stamped on right-hand side of receiver.

Classification: Standard C (OTCM 91119).

CHARACTERISTICS

Weight:

- (w/15-round magazine (unloaded)) 5 lb, 8 oz
- (w/15-round magazine (loaded) and sling) 8 lb, 12 oz
- (w/30-round magazine (unloaded)) 5 lb, 8 1/4 oz
- (w/30-round magazine (loaded)) 6 lb, 9 oz
- 15-round magazine (unloaded) 3 oz
- 15-round magazine (loaded) 9 oz
- 30-round magazine (unloaded) 8 1/2 oz
- 30-round magazine (loaded) 1 lb, 1 oz

Length:

Overall 2 ft, 11 1/2 in.
Overall w/bayonet attached 3 ft, 6 1/4 in.

Operation ..................................................... gas
Feed ............................................................... magazine
Capacity of feeding device:
Old type ......................................................... 15 rd
New type ......................................................... 30 rd
Cooling ......................................................... air

AMMUNITION

Types .......................................................... ball, tracer, and dummy

PERFORMANCE

Muzzle velocity (ball) 1,970 fps
Maximum range (ball) (30° elevation) 2,200 yd
Rate of fire (full automatic) 750-775 rd per min

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-28.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 CARBINE, DUMMY: M13.
TRAINER, RIFLE, SIGHTING: device, M16.
For graphic training aids and devices, see DA Pam 810-5.

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 10 carbines per wood box (VCI pack).

Length ......................................................... 3 ft, 5 1/2 in.
Width ......................................................... 1 ft, 6 1/2 in.
Height .......................................................... 11 1/2 in.
Volume ......................................................... 1.3 cu ft
Gross weight .................................................. 113 lb
Ship tons ...................................................... 0.18

References: SNL B-28; FM 23-7; TM 9-1276; TM 9-2295.
CHEST, AMMUNITION, CALIBER .50, M2

General
CHEST, ammunition, caliber .50, M2 provides a convenient means of handling and feeding belt ammunition. A hinge is provided for use in loading the chest. The chest is made of steel and equipped with a hinge, so that the upper half may be swung back for purposes of filling and cleaning. When in use, the chest attaches to the pertinent mount by means of slots on the side of the chest. The chest is mounted on the early models of the MOUNT, GUN: trailer, multiple caliber .50 machinegun, M5 which mounts MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, turret type and MOUNT, GUN: multiple caliber .50, M5C and on MOUNT, GUN: twin, caliber .50 machinegun, M45 which mounts MACHINEGUN, CALIBER .50: M2, heavy barrel, flexible or MACHINEGUN, CALIBER .50: Browning, AN-M2, aircraft, basic. However, on the newer models of the M4C mount, this chest is being replaced by an ammunition box tray.

Differences among models
Data plate location
Data are located on side of chest.

Classification:

CHARACTERISTICS

Weight ........................................................................... 32 lb
Length ......................................................................... 8 in.
Width .......................................................................... 12 5/8 in.
Height .......................................................................... 1 ft, 8 1/8 in.

Operation ........................................................................ spring
Capacity ........................................................................... 200 rd

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 3 chests per shipping container.
Length ......................................................... 2 ft, 2 1/4 in.
Width ............................................................. 1 ft, 10 1/2 in.
Height ............................................................ 1 ft, 2 in.
Volume .......................................................... 5.3 cu ft
Gross weight ................................................. 130 lb
Ship tons ......................................................... 0.13

Outside Continental United States
Shipped 3 chests per shipping container.
Length ......................................................... 2 ft, 5 1/4 in.
Width ............................................................. 1 ft, 10 1/2 in.
Height ............................................................ 1 ft, 2 in.
Volume .......................................................... 5.3 cu ft
Gross weight ................................................. 130 lb
Ship tons ......................................................... 0.13

References: SNL A-45, Sec. 33; SNL A-59; TM 9-220; TM 9-
2010; TM 9-2205.
CHEST, WATER, CALIBER .50, M3 (COMPLETE W/ HOSE ASSEMBLY)

General
CHEST, water, caliber .50, M3 consists of a hand-operated, chain-driven rotar pump mounted in a steel chest with the necessary hose and connections. The pump is operated while firing, causing circulation of water in the water jacket, thereby keeping the gun barrel cool.

Differences among models
Data plate location
Classification: Limited standard.

CHARACTERISTICS

Weight:
- Complete w/o water: 74 lb, 8 oz
- Complete w/ water: 139 lb, 8 oz
- Two hose assemblies: 13 lb, 8 oz
Length: 1 ft, 3 1/2 in.
Width: 1 ft, 2 3/4 in.
Height: 1 ft, 2 3/4 in.
Capacity: 8 gal
Displacement: 3,055 cu in.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

COUPLER AND DISCONNECTOR, LINK BELT, CALIBER .50, M20

**Basic Issue Items:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20</td>
<td></td>
<td>1065-714-6346</td>
</tr>
</tbody>
</table>

**General**

COUPLER AND DISCONNECTOR, link belt, caliber .50, M20 is a lightweight steel tool of simple construction requiring no adjustment in the performance of both coupling and disconnecting of caliber .50 machinegun cartridge belts. The tool has an outside tube with finger grips and an inside tube plunger and retracting spring. It functions like a hypodermic syringe and couples belts by pulling the end link loops onto the inserted cartridge, or disconnects a belt by holding the link loops while the round is simultaneously extracted to separate the belt at that point.

**Characteristics**

- **Weight**
- **Length** (approx.) 10¼ in.
- **Width (across finger grips)** 3½ in.

**Storage and Shipment Data**

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>coupler and disconnectors per wood box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>coupler and disconnectors per wood box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
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</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
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</tr>
</tbody>
</table>

CUPOLA, TANK COMMANDER’S: CALIBER .50 MACHINEGUN, M1

General
CUPOLA, TANK COMMANDER’S: caliber .50 machinegun, M1, is a turret-type rotatable dome installed on TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A1, M48A2, and M48A2C, and TANK, COMBAT, FULL TRACKED: flamethrower, M67A1, to provide the commander with reasonable armor protection, close-in defensive firepower, and target observation by permanently installed direct vision prism blocks or a periscope sight. It provides support for MACHINEGUN, CALIBER .50: Browning, M2, turret type, and means for its loading, charging, firing, and positioning in azimuth and elevation.

Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td></td>
<td>1005-399-6784</td>
</tr>
</tbody>
</table>

Weight:
Without sight ...........................................1 ft. 2½ in.
From cupola datum line .................................1 ft. 11½ in.
* Using adapter ring kit w/o sight ..................1 ft. 4½ in.
Width or diameter ..........................................3 ft. 2½ in.
Width or diameter, using adapter ring kit ..........3 ft. 6 in.
Length (w/o machinegun) ................................4 ft. 13½ in.
Weight ......................................................1,400 lb
Weight, using adapter ring kit .......................1,470 lb
Operation manual, w/electrical firing switch for machinegun
Power required ............................................24-v, dc (for firing only)

Performance
Azimuth .......................................................360°
Maximum elevation .........................................60°
Maximum depression .......................................10°

Equipment
Sighting and Fire Control:
Sight, periscope, M18 (for M48A1, M48A2 tank and M67A1 flame thrower tank).

Instructonal Material

Storage and Shipment Data

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit of measure</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
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</tbody>
</table>


* For characteristics and data, see items in section 14.
**CUPOLA, TANK COMMANDER'S: CALIBER .50 MACHINEGUN, M19 (T9)**

**General**

CUPOLA, TANK COMMANDER'S: caliber .50 machinegun, M19(T9) is installed on TANK, COMBAT, FULL TRACKED: 105-mm gun, M60. It is a self-contained unit mounting MACHINE-GUN, CALIBER .50: M85 with required controls to sights, lay, and fire the machinegun in azimuth and elevation. The cupola has eight vision blocks and an electrical slipring for operating the lights and commander's communication system. The weapon is traversed, elevated, and depressed entirely by mechanical controls. It can be fired either electrically or manually. The cupola provides protection for the commander from direct fire or overhead burst and enables the machinegun to be operated under cover.

**Data plate location**

Classification: Standard A (OTM 37282).

**CHARACTERISTICS**

- **Weight**: 1,930 lb
- **Weight (w/machinegun and ammunition)**: 2,028 lb
- **Length**: 5 ft, 9-3/4 in.
- **Width or diameter**: 4 ft, 9-3/4 in.
- **Height**: 1 ft, 6-1/4 in.
- **Azimuth**: +60°
- **Elevation (machinegun)**: +30°
- **Operation (machinegun)**: manual
- **Power requirements**: 24-volt, dc

**EQUIPMENT**

Sighting and Fire Control:

- Sight, Periscope, M28C
- Mount, Periscope, M104AS

**Basic issue items:**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Withins Continental United States**

- **Shipped mounts per**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**Outside Continental United States**

- **Shipped mounts per**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**References**: TM 9-1000-213-35, TM 9-1000-213-35P.

* For characteristics and data, see item in section 14.
GUN, CALIBER .22, SUBCALIBER: M3

General
GUN, CALIBER .22, SUBCALIBER: M3 (formerly known as RIFLE or TRAINER) is a link-belt fed, recoil-operated, automatic, water-cooled machinegun. This rifle is designed for the purpose of firing the caliber .22 cartridge in MACHINEGUN, CALIBER .30: Browning, M1917A1, for training purposes. The conversion is accomplished merely by changing the main group assemblies. The operation of the machinegun when converted to the subcaliber rifle is identical to the operation of the M1917A1 machinegun in every respect.

DIFFERENCES AMONG MODELS

Data plate location

Classification: Standard B (OTCM 8684).

CHARACTERISTICS

PERFORMANCE

Muzzle velocity (average) ...........................................1,180 fps
Maximum range (30° elevation) .....................................1,600 yd
Rate of fire ..................................................450-600 rd per min

EQUIPMENT


AMMUNITION

Type ..............................................................ball (long rifle, 40-grain bullet)

References: SNL A-48, Sec. 7; TM 9-2206.
GUN, CALIBER .22, SUBCALIBER: M4

CHARACTERISTICS

**Weight**: 32 lb
**Weight of conversion parts**: 7 lb
**Length overall**: 3 ft, 5½ in.
**Length of barrel**: 22½ in.
**Type of mechanism**: short recoil, floating chamber
**Feed**: metallic link belt
**Cooling**: air

Data plate location

*Data plate* No. 1006-678-7370

References: SNL A-48, Sec. 7; TM 9-2206.
GUN, 20-MILLIMETER, AUTOMATIC: M3

General

GUN, 20-MILLIMETER, AUTOMATIC: M3 is an air-cooled, combination blowback and gas-operated, link-belt fed gun designed to fire percussion primed ammunition. The metallic link belt is used to feed the ammunition into the weapon. By repositioning some of the component parts or changing of feed mechanisms, ammunition may be fed into the gun from either right or left as desired. These weapons are mounted fixed in the wing or fuselage of the aircraft or in flexible mounts in the turret.

Differences among models

Data plate location

Classification: Standard (for U.S. Navy use only) (OTCM 37429).

CHARACTERISTICS

Weight:
Gun, including cradle 99.5 lb
Tube 26.2 lb

Length:
Overall 6 ft, 1½ in.
Tube 4 ft, 4½ in.

Twist, uniform right-hand slope 7°

Operation combination blowback and gas-operated
Feed disintegrating metallic link belt
Cooling air

AMMUNITION

Types AP-T, HEI, HE-T, incendiary, TP, and dummy
Links M7, M8 (M7E4), M10 (M8E1), M14 (end), M5 (end), and 20-mm cartridge link filler

PERFORMANCE

Muzzle velocity:
AP-T 2,730 fps
HEI 2,730 fps

Maximum range:
AP-T 5,000 yd
HEI 5,750 yd

Rate of fire 650-800 rd per min

EQUIPMENT

Sighting and Fire Control:
Sights are considered to be plane equipment and furnished by the Air Force.

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Outside and Within Continental United States

Shipped 1 gun per wood box (VCI pack).

Length 7 ft, 1½ in.
Width 11½ in.
Height 9½ in.

Within and Outside Continental United States

Volume 6.4 cu ft
Gross weight 170 lb
Ship tons 0.13

References:
GUN, 20-MILLIMETER, AUTOMATIC: M24A1

General
GUN, 20-MILLIMETER, AUTOMATIC: M24A1 is an air-cooled, combination blowback and gas-operated, link-belt fed gun designed to fire electric primed fixed ammunition. The metallic link belt is used to feed the ammunition into the weapon. By repositioning some of the component parts or changing of feed mechanisms, ammunition may be fed into the gun from either right or left as desired. The weapon is mounted fixed in the wing or fuselage of the aircraft or in a flexible mount in the turret.

Differences among models

Data plate location
Classification: Standard (for U.S. Air Force use only) (OTCM 37429).

CHARACTERISTICS

Weight:
Gun, including cradle..................................100 lb
Cradle assembly ........................................9 lb
Tube ......................................................26.2 lb

Length:
Overall ..................................................6 ft, 8½ in.
Tube ......................................................4 ft, 4½ in.
Rifling:
Length ....................................................48.06 in.
Number of grooves ......................................9
Twist, uniform right-hand slope ....................7 deg

Operation: combination blowback and gas-operated
Feed: disintegrating metallic link belt
Cooling: air

AMMUNITION

Types: AP-T, API, AP, HEI, incendiary, TP and dummy
Links: M10 (M8E1) and 20-mm cartridge link filler

PERFORMANCE

Muzzle velocity:
AP-T .................................................2,730 fps
HEI ..................................................2,780 fps

Maximum range:
AP-T ..................................................5,900 yd
HEI ..................................................6,750 yd

Rate of fire ...........................................750–800 rd per min

EQUIPMENT

Sighting and Fire Control:
Sights are considered to be plane equipment and furnished by the Air Force.

Basic issue item:

INSTRUCTIONAL MATERIAL


STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 gun per wood box.

Length ..................................................7 ft, 1⅝ in.
Width ...................................................11¼ in.
Height ..................................................9½ in.
Volumetric capacity ..................................6.4 cu ft
Gross weight .........................................170 lb
Ship tons ..............................................6.13

References: TO 11W1-12-2-92, TO 11W1-12-9-93, TO 11W1-12-2-94.
GUN, 20-MILLIMETER, AUTOMATIC: M39A2

General

GUN, 20-MILLIMETER, AUTOMATIC: M39A2 is a gas-operated, revolver-type automatic gun which fires electric primed ammunition from a metallic linked belt. Ammunition may be fed into the gun from either the right or left side. The weapon is distinguished by a 5-chamber drum which revolves about an axis, parallel to the gun bore. The gun fires the 20-mm cartridge at the index drum position of the 6 o'clock chamber. It is used by the Air Force for fixed type mountings in aircraft.

Differences among models

Data plate location

Classification: Limited Standard (for U.S. Air Force use only) (OTCM 38541).

CHARACTERISTICS

Weight:
Gun ........................................... 179 lb
Tube ........................................... 29.6 lb
Length:
Overall .................................... 6 ft, ¾ in.
Tube ........................................... 4 ft, ¾ in.
Rifling:
Length ...................................... 53.6 in.
Number of grooves ................................ 6
Twist, gain right-hand ....................... one turn in 20 in.
Operation .................................. gas operated
Feed ........................................... disintegrating metallic link belt
Cooling ...................................... air

AMMUNITION

Types ....................................... ball, API, HEI, TP, and dummy
Links ........................................ T61E2 and T61E3

PERFORMANCE

Muzzle velocity:
API ........................................... 5,300 fps
HEI ........................................... 5,800 fps
Maximum range:
API ........................................... 5,750 yd
HEI ........................................... 6,000 yd
Rate of fire ..................................

EQUIPMENT

Sighting and Fire Control:
Sights are considered to be blank equipment and are furnished by the Air Force.

Basic Issue Items:

INSTRUCTIONAL MATERIAL

CARTRIDGE, 20-MILLIMETER DUMMY: M51E6, M51E8, or M51.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 gun per wood box.

Length ........................................ 4 ft, 9¾ in.
Width ........................................... 1 ft, 2¾ in.
Height ........................................... 1 ft, 1½ in.
Volume ........................................ 6.4 cu ft
Gross weight ................................... 240 lb
Ship tons ..................................... 0.16

Outside Continental United States

Shipped 1 gun per wood box.

Length ...........................................
Width ...........................................
Height ...........................................
Volume ...........................................
Gross weight ...................................
Ship tons .....................................

References: TO 11W1-12-3-14, TO 11W1-12-5-22
**GUN, 20-MILLIMETER, AUTOMATIC: M61 (T171E3)**

- **GUN, 20-MILLIMETER, AUTOMATIC: M61 (T171E3)** is a 6-barrel, rotating type weapon, designed on the Gatling principle, to fire electric primed ammunition at a very high rate. It is operated externally by a nonintegral electrical or hydraulic power drive, and linked ammunition is fed into the gun by a sprocket type feeder. The weapon is used by the Air Force as a fixed- and turret-type weapon mounted in aircraft.

**Differences among models**

Data plate location

Classification: Standard (for U.S. Air Force use only) (OTCM 37324).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
<td>M61</td>
<td></td>
<td>1006-629-3620</td>
</tr>
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</table>

- **Weight of gun w/M3A1 feeder and**
  - w/M7 drive 304 lb
  - w/M12 drive 305 lb
- **Weight of gun w/M3A1 feeder and**
  - w/M7 drive 302 lb
  - w/M12 drive 304 lb
- **Length overall, w/M3A1 or M3A1 feeder and**
  - w/M7 drive 6 ft, 5% in.
  - w/M12 drive 6 ft, 4% in.
- **Weight of barrel**
  - 18 lb
- **Length of barrel**
  - 5 ft
- **Rotation of barrels**
  - Counterclockwise viewed from breech end

**Rifling:**

- **Number of grooves**
  - 9
- **Twist, right-hand**
  - One turn in 20 in.
- **Operation**
  - Electric (M7 drive) or hydraulic (M12 drive)
- **Feed**
  - Disintegrating metallic link belt
- **Cooling**
  - Air

**AMMUNITION**

- **Types**
  - Ball, API, HEI, TP, and dummy
- **Links**
  - M34 (for M2A1 feeder); M17 (T90) (for M3A1 feeder)

**PERFORMANCE**

- **Muzzle velocity:**
  - API: 3,480 fps
  - HEI: 3,480 fps
- **Maximum range:**
  - API: 4,000-4,600 rd per min
  - HEI: 6,000-7,200 rd per min

**EQUIPMENT**

**Sighting and Fire Control:**

- Sights are considered to be plane equipment and are furnished by the Air Force.

**Basic Issue Items:**

**INSTRUCTIONAL MATERIAL**

**CARTRIDGE, 20-MILLIMETER DUMMY: M51 (T228), M51E4, and M51E6.**

**STORAGE AND SHIPMENT DATA**

**Within and Outside Continental United States**

- Shipped 1 gun per wooden box.
  - **Length**
    - 5 ft, 4 1/2 in.
  - **Width**
    - 1 ft, 8 1/2 in.
  - **Height**
    - 2 ft, 1 3/4 in.
  - **Volume**
    - 19.6 cu ft
  - **Gross weight**
    - 460 lb
  - **Ship tons**
    - 0.487

**References:** TO 11W1-12-4-34, TO 11W1-12-4-32, TO 11W1-28-3-2, TO 11W1-28-3-4, TO 11W1-7-9-2, TO 11W1-7-9-4
LAUNCHER, GRENADE: M7A2, AND M7A3

LAUNCHER, GRENADE: M7A2 or M7A3 is used for launching grenades and ground signals from RIFLE, CALIBER .30: U.S., M1, M10 (Sniper's), or M1D (Sniper's). Each launcher is composed of a sleeve (tube) having a series of annular rings around its periphery, attached to a bracket. A spring holds the grenade or ground signal on the sleeve. With the grenade in place on the launcher, the rings are used in conjunction with the angle of elevation to determine range. The greater the number of rings exposed, the shorter the range.

As the angle of elevation is increased, the range is increased.

Caution: Never under any circumstances fire service ammunition when a grenade or noand signal is in place on the launcher.

Main difference between the launcher M7A2 and M7A3 is the M7A3 is 1½ inches longer. The increased sleeve length provides higher velocity with flatter trajectory. Extra range rings are included in the sleeve.

Data plate location: The model number of the launcher is stamped on the bracket.

Classification: Standard 3 (all models) (OTCM 39841).

CHARACTERISTICS

Weight: 12 oz

Length overall:
M7A2: 7½ in.
M7A3: 9 in.

Outside diameter of tube: ½ in.

AMMUNITION

Types:

Rifle grenades:
- For launcher M7A2: AT, practice (M11-series and M29), colored smoke (M22-series), colored streamer smoke (M32-series), WP smoke (M19 or M19A1).
- For launcher M7A3: AT, practice (M11-series and M29), colored smoke (M22-series), colored streamer smoke (M32-series), WP smoke (M19 or M19A1), HEAT (M31).

Hand grenades:
- Used with ADAPTER, grenade projection:
  - M1: fragmentation (Mk 2 and M29), practice (M20 and M21), WP smoke (M34).
  - Chemical, M2 or M2A1: offensive incendiary (TI), irritant (CN-DM and CN (tear)), WP smoke, and HC smoke.

Ground signals: colored smoke (M62, M64, M65, and M66), star cluster (M18, M20, M22, and M52), star parachute (M17, M19, M21, and M51).

Cartridge: CARTRIDGE, GRENADE: RIFLE, cal. .30 M3

PERFORMANCE

Maximum range: (w/CARTRIDGE, GRENADE: rifle, cal. .30, M3):
- Rifle grenades:
  - AT, practice (M11A4) (45° elevation): 165 meters
  - HEAT (M31) (45° elevation): 120 meters
  - Smoke, WP (M19A1) (45° elevation): 95 meters

Hand grenades:
- Fragmentation (45° elevation using ADAPTER, GRENADE PROJECTION: M1A2): 60 meters
- Chemical (45° elevation, using ADAPTER, GRENADE PROJECTION: M1A2): 145 meters

Ground signals: 180 to 215 meters

EQUIPMENT

Sighting and Fire Control:
The following item is considered equipment and is issued as such:

SIGHT, RIFLE GRENADE LAUNCHER: M15, w/e

Basic Issue Items: See TM 9-1005-234-14P

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 100 launchers per wood box (VCI pack).

Length: 1 ft, 9½ in.
Width: 1 ft, 6½ in.
Height: 1 ft, 6½ in.
Volume: 4.3 cu ft
Gross weight: 122 lb
Ship tons: 0.11

Outside Continental United States

Shipped 00 launchers per wood box (VCI pack).

Length: 1 ft, 9½ in.
Width: 1 ft, 6½ in.
Height: 1 ft, 10 in.
Volume: 4.3 cu ft
Gross weight: 92 lb
Ship tons: 0.06

**LAUNCHER, GRENADE: M76 (T140)**

**General**

LAUNCHER, GRENADE: M76 (T140) is a cylindrical shaped sleeve with a hinged latching mechanism connected to a collar on the rear of the sleeve. Range setting calibration marks are provided on the sleeve for varying the position of the grenade. The launcher is used with RIFLE, 7.62-MILLIMETER, AUTOMATIC, M14 for launching fragmentation or antitank grenades.

**CAUTION:** Never under any circumstances fire service ammunition when a grenade is in place on the launcher.

**Differences among models**

- Data plate location: Data are located on the barrel of the launcher.
- Classification: Standard A (for U.S. Marine Corps use only) (OTCM 37289).

**CHARACTERISTICS**

| Weight | 7 oz |
| Length overall | 8 3/4 in. |
| Outside diameter of tube | 5/8 in. |

**AMMUNITION**

- Types: AT, fragmentation
- Cartridge: CARTRIDGE, GRENADE: rifle, 7.62-mm, NATO, M64

**PERFORMANCE**

- Maximum range

**EQUIPMENT**

- SIGHT, RIFLE GRENADE LAUNCHER: M15, w/e.
- Basic issue items: See TM 9-1006-234-14P.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within and Outside Continental United States

- Shipped 327 launchers per wood box (VCI pack).
  | Length | 2 ft. 6 1/2 in. |
  | Width | 1 ft. 9 3/8 in. |
  | Height | 11 3/8 in. |
  | Volume | 4.28 cu in. |
  | Gross weight | 198 lb. |
  | Ship tons | 0.7 |

**References:** FM 23-16, TM 9-1005-223-12, TM 9-1006-234-14P
LINKER-DELINKER, 20-MILLIMETER, HAND: M24 (T52) AND M24A1

<table>
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<td>1005-715-9071</td>
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<td>M24A1</td>
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</table>

**General**

LINKER-DELINKER, 20-MILLIMETER, HAND: M24 (T52) and M24A1 is a hand-operated device which is used for linking or delinking belted M55-series 20-mm ammunition linked with LINK, CARTRIDGE, METALLIC BELT 20-MILLIMETER: M17.

**Differences among models**

**Data plate location**

**Classification:**

- M24: Limited Standard (AMTC item 2566)
- M24A1: Standard A (for U.S. Air Force use only) (AMTC item 2566)

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight</th>
<th>1 lb 7 oz</th>
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<td>Length</td>
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<td>Width</td>
<td>2 1/2 in.</td>
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<td>Height</td>
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</tbody>
</table>

**PERFORMANCE**

**Loading rate:**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped linker-delinker per

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

**Outside Continental United States**

Shipped linker-delinker per

- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

**Basic Issue Items:**

**Equipment**

**References:** TO 34Y36-2-11.
LINKER-DELINKER, 20-MILLIMETER, HAND: M25

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
<td>M25</td>
<td></td>
<td>1085-770-0853</td>
</tr>
</tbody>
</table>

General

LINKER-DELINKER, 20-MILLIMETER, HAND: M25 is a hand-operated device which is used for linking or delinking belted M5-series 20-mm ammunition linked with LINK, CARTRIDGE, METALLIC BELT, 20-MILLIMETER, AUTOMATIC: M61.

Differences among models

Data plate location

Classification: Standard (for U.S. Air Force use only) (OTCM 37545).

CHARACTERISTICS

<table>
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<th>Value</th>
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<td>Weight</td>
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<tr>
<td>Length</td>
<td>12 in.</td>
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<tr>
<td>Width</td>
<td>3½ in.</td>
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<tr>
<td>Height</td>
<td>1½ in.</td>
</tr>
<tr>
<td>Capacity</td>
<td></td>
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</table>

PERFORMANCE

Loading rate

EQUIPMENT

Basic Issue Items:

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 linker-delinkers per shipping container.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft. 6 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 1 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 1½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>7.8 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>54 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 5 linker-delinkers per shipping container.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft. 6 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft. 1 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 1½ in.</td>
</tr>
<tr>
<td>Volume</td>
<td>7.8 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>54 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.01</td>
</tr>
</tbody>
</table>

References:

AGO 5095A
LINKER-DELINKER, 20-MILLIMETER, POWERED: M23 (T51)

General

LINKER-DELINKER, 20-MILLIMETER, POWERED: M23 (T51) is an electrically operated device which is used for linking or delinking M5A-series 20-mm ammunition with either LINK, CARTRIDGE, METALLIC BELT, 20-MILLIMETER: M14 (T766E1) or LINK, CARTRIDGE, METALLIC BELT, 20-MILLIMETER: M17 (T79).

Differences among models

Data plate location

Classification: Standard (for U.S. Air Force use only) (OTCM 87452).

CHARACTERISTICS

LINKER-DELINKER:

- Weight: 125 lb
- Length:
  - Without ammunition feed trays: 16 in.
  - With ammunition feed trays: .96 in.
- Width: .35 in.
- Height: 11 in.
- Motor:
  - Horsepower: 110
  - Volt: 110

Cycle

Phase

PERFORMANCE

Normal operating speed: rd per min

EQUIPMENT

Basic Issue Items:

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>linker-delinker per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>16 in.</td>
</tr>
<tr>
<td>Width</td>
<td>.96 in.</td>
</tr>
<tr>
<td>Height</td>
<td>.35 in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>linker-delinker per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References:

AGO 5098A
MACHINE, LINK-DELINKING, CALIBER .50, M7

General

MACHINE, link-delinking, caliber .50, M7 is used to insert caliber .50 cartridges into caliber .50 links to form a linked belt of ammunition or to remove caliber .50 cartridges from a linked belt of ammunition. It consists of a base, handle, slide (bar), and delinker (bar). It may be screwed to a bench, ammunition box, or other suitable base when in use. The linking operation, with the delinker (bar) up, is performed by pushing the loading handle forward which will load ammunition to the correct depth in the links. The delinking operation, with the delinker (bar) down, is performed by pushing the loading handle forward until the delinker engages the notch in the cartridge base and then pulling back on the loading handle, thereby removing the cartridges from the links.

Differences among model's

Data plate location

Classification: Standard A (OTCM 3841).

CHARACTERISTICS

Average load handle necessary to load links .................. 43 lb

Loading rate:

One man ........................................... approx 1,040 rd per hr

Two men ........................................... approx 2,000 rd per hr

EQUIPMENT

Within Continental United States

Shipped 6 machines per wood shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4 in.</td>
<td>1 ft, 5 3/8 in.</td>
<td>1 ft, 5 3/4 in.</td>
<td>4.9 cu ft</td>
<td>148 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 6 machines per wood shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 4 in.</td>
<td>1 ft, 5 3/8 in.</td>
<td>1 ft, 5 3/4 in.</td>
<td>4.9 cu ft</td>
<td>132 lb</td>
<td>0.12</td>
</tr>
</tbody>
</table>

MACHINE, LINK-LOADING, HAND, CALIBER .30, M3
W/ATTACHMENT, DELINKING, CALIBER .30, M8

Secondary Item

Model | Line Item No. | Federal stock No. |
------|--------------|------------------|
M3 w/attachment M8 | 1085-381-0210 | |

General

MACHINE, link-loading, hand, caliber .30, M3 is used for the rapid loading of caliber .30 ammunition into metallic links. It may be screwed to a bench, ammunition box, or other suitable base when in use. The loading is performed by the operation of the link-lowering handle which when pushed forward to the stop, will load the ammunition to the correct depth in the links. A delinking attachment M8 is provided which consists of a steel plate which, when placed on the bed of the M3 machine, permits delinking of 20 rounds per stroke and immediate separation of the links and rounds by lifting the plate off the machine and sliding the links and rounds separately into boxes or on the bed of a linking machine.

Differences among models

Data plate location

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Machine M3:
- Weight: 10 lb, 11 oz
- Length: 13¾ in
- Width: 8½ in
- Height (handle folded down): 25¾ in
- Capacity: 20 rd

Attachment M8:
- Length: 14¼ in
- Width: 3¾ in

PERFORMANCE

Machine M3:
- Average hand on handle necessary to load links: 21 lb
- Loading rate:
  - One man: approx 1,040 rd per hr
  - Two men: approx 2,080 rd per hr
- Attachment M8:
  - Normal operation speed: approx 500 rd per 2½ min

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 machines w/attachments per shipping container:
- Length: 1 ft, 9¾ in
- Width: 1 ft, 8½ in
- Height: 1 ft, 3½ in
- Volume: 3.9 cu ft
- Gross weight: 137 lb
- Ship tons: 0.10

Outside Continental United States

Shipped 10 machines w/attachments per shipping container:
- Length: 1 ft, 9¾ in
- Width: 1 ft, 8½ in
- Height: 1 ft, 3½ in
- Volume: 4 cu ft
- Gross weight: 137 lb
- Ship tons: 0.10

MACHINE, LINKING, POWERED, CALIBER .50, M5
W/ATTACHMENT, DELINKING, CALIBER .50, M7

General
MACHINE, linking, powered, caliber .50, M5 is an electrically or manually operated machine which is used to insert caliber .50 ammunition into metallic links at a speed much greater than that attained by hand operated tools. Provision has been made so that in the event of power failure a handcrank can be attached and linking continued at a reduced speed. A delinking attachment M7 is provided consisting of several units which may be quickly and easily attached to the powered linking machine to delink cartridges from caliber .50 metallic link belts.

Differences among models

Data plate location
Identification plate is located on the frame assembly.

Classification: Standard A (OTCM 38441).

CHARACTERISTICS

Machine M5:
- Weight: \(312 \text{ lb}\)
- Length: \(4 \text{ ft, 5\frac{1}{8} in}\)
- Width: \(2 \text{ ft, 2\frac{1}{8} in}\)
- Height: \(3 \text{ ft, 5\frac{1}{8} in}\)

Motor:
- Horsepower: \(\frac{1}{4}\)
- Volt: \(110\)
- Cycle: \(60\)
- Phase: \(1\)

Attachment M7:
- Weight: \(27 \text{ lb}\)

PERFORMANCE

Machine M5:
- Normal operating speed: \(60-75 \text{ rd per min}\)

Attachment M7:
- Normal operating speed: \(135-150 \text{ rd per min}\)

STORAGE AND SHIPMENT DATA

Machine M5:
Within Continental United States
- Shipped machine per wood box:
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

Outside Continental United States
- Shipped machines per
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

Attachment M7:
Within Continental United States
- Shipped machine per wood box:
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

Outside Continental United States
- Shipped machines per
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

References: TM 9-518.
MACHINE, REPOSITIONING, CALIBER .50, M15

General
MACHINE, repositioning, caliber .50, M15 is a small lightweight, portable, hand-operated machine used to reposition cartridges which may become misaligned or loose in caliber .50 link belts.

Differences among models
Identification plate is located on the right-hand frame assembly and instruction plate on the plunger ring gear guard.

Classification: Standard A (OTCM 36341).

CHARACTERISTICS
Weight ........................................ 58 lb
Length ....................................... 1 ft. 8½ in.
Width .......................................... 1 ft. 4½ in.
Height ......................................... 1 ft. 2¾ in.

PERFORMANCE
Normal operating speed .......................... 400 to 500 rd per min

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STOREAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 machine per wood box.
Length ........................................
Width ........................................
Height ........................................
Volume ........................................
Gross weight .................................
Ship tons .....................................

Outside Continental United States
Shipped 1 machine per wood box.
Length ........................................
Width ........................................
Height ........................................
Volume ........................................
Gross weight .................................
Ship tons .....................................

MACHINEGUN, CALIBER .30: BROWNING, M1917A1

GENERAL
MACHINEGUN, CALIBER .30: Browning, M1917A1 is an automatic, recoil-operated, link-belt fed, water-cooled machinegun. The metallic link belt is used to feed the ammunition into the left side of the gun. The gun is mounted on MOUNT, TRIPOD, MACHINEGUN; caliber .30, M1917A1, M2, or MOUNT, TRIPOD WEAPON: M74 for ground use. This gun is known as the cal. .30 heavy machinegun.

Characteristics
- Weight:
  - Gun and pintle (w/o water) 32 lb, 10 oz
  - Gun and pintle (w/water) 41 lb
  - Receding parts 7 lb, 5 oz
  - Barrel 3 lb
  - Length overall 3 ft, 7 in.
  - Length of barrel 2 ft
  - Sight graduation 2,600 yd
  - Water jacket (capacity) 8 pt

Riding:
- Length 1 ft, 9\(\frac{1}{4}\) in. (71 cal.)
- Number of grooves 4
- Twist, right-hand one turn in 10 in. (33.3 cal.)
- Depth of grooves 0.0049 in.
- Type of mechanism short recoil
- Feed disintegrating metallic link belt
- Capacity of feeding device 169 to 269 rd
- Sight radius 2 ft, 2 in.
- Gear release
- Trigger pull 7 lb (min), 12 lb (max)
- Cooling water

Muzzle velocity (average):
- AP, M2 2,770 fps
- Ball, M2 2,800 fps

Maximum range (30° elevation):
- AP, M2 8,160 yd
- Ball, M2 8,500 yd

Rate of fire 450-600 rd per min

Equipment
- Sight and Fire Control:
  - Clinometer, machinegun, M1917A1 (Issued and supplied by special requisition only.)
  - Table, firing, 0.80-A-4
  - Table, firing, 0.30-A-4

Basic Issue Items: See ORD 7 SNL A-5.

Instructional Material
- Attachment, firing blank ammunition, cal. .30, M1A1
- CARTRIDGE, CALIBER. 30, DUMMY: M40
- GUN, CALIBER .30, SUBCALIBER: M3

For Graphic Training Aids and Devices, see DA Pam 310-5.

Storage and Shipment Data
Within and Outside Continental United States
- Skipped 1 gun per wood box.
  - Length 3 ft, 7 in.
  - Width 7 ft, 6 in.
  - Height 8 in.
  - Volume 1.64 cu ft
  - Gross weight 56 lb
  - Ship tons .04


*For characteristics and data for item, see section 18.
MACHINEGUN, CALIBER .30: BROWNING, M1919A4 FLEXIBLE, M1919A4E1, AND M1919A6

Differences among models
The machinegun M1919A4E1 is equipped with a charging bar for easier loading in a cramped position such as a tank turret. The machinegun M1919A6 has a shoulder stock attached to the back plate buffer tube, a bipod attached to the front end of the barrel jacket, a carrying handle, flash hider attached to the barrel, and the barrel is lighter.

Data plate location
Data stamped on the right-hand side plate of the receiver assembly.


CHARACTERISTICS
Weight of gun:
M1919A4 and M1919A4E1 ........................................ 31 lb
M1919A6 .................................................. 32 lb, 3 oz

Weight of barrel:
M1919A4 and M1919A4E1 ........................................ 7 lb, 8 oz
M1919A6 .................................................. 8 lb, 4 oz

Weight of stock (M1919A4 and M1919A4E1 only) ........................................ 1 lb, 12 oz

Weight of plastic and combined elevating and traversing mechanism (M1919A4 and M1919A4E1 only) ........................................ 4 lb, 12 oz

Weight of recoiling parts:
M1919A4 and M1919A4E1 ........................................ 11 lb, 12 oz
M1919A6 .................................................. 7 lb, 8 oz

Length overall:
M1919A4 and M1919A4E1 ........................................ 3 ft, 6 in.
M1919A6 .................................................. 4 ft, 5 in.

Length of barrel ........................................ 2 ft

Firing:
Number of grooves ........................................ 4
Twist, right hand ........................................ one turn in 10 in. (33.3 cal.)
Depth of grooves ........................................ 0.150 in.

Sight graduations ........................................ 2,400 yd
Operation ........................................ short recoil
Feed ........................................ disintegrating metallic link belt

Ammunition
Types ........................................ ball, AP, AP blank, incendiary, tracer, frangible (M1919A4E1 only), and dummy

Links ........................................ M1

Performance
Muzzle velocity (average):
AP, M2 ........................................ 2,770 fps
Ball, M2 ........................................ 2,800 fps

Maximum range (30° elevation):
AP, M2 ........................................ 3,160 yd
Ball, M2 ........................................ 3,500 yd

Rate of fire:
M1919A4 and M1919A4E1 ........................................ 460-550 rd per min
M1919A6 .................................................. 600-660 rd per min

Equipment
Sighting and Fire Control:
M1919A4 and M1919A4E1:
Table, firing, 0.30-A-4
Table, firing, 0.30-J-3
INSTRUCTIONAL MATERIAL

Adapter, barrel jacket (1205-335-5648) (for M1919A6)
ATTACHMENT, FIRING, BLANK: ammunition, cal. .30, M6 (for M1919A4 and M1919A4E1).
ATTACHMENT, FIRING, BLANK: ammunition, cal. .30, M9 (M1919A6).

For graphic training aids and devices, see DA Pam 310-5.

GUN, CALIBER .22, SUBCALIBER: M4

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 machinegun per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Item</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1919A4</td>
<td>3 ft, 10 in.</td>
<td></td>
<td>7 in.</td>
<td>1.8 cu ft</td>
<td>55 lb</td>
</tr>
<tr>
<td>M1919A4E1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>54 lb</td>
</tr>
<tr>
<td>M1919A6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>58 lb, 8 oz</td>
</tr>
</tbody>
</table>

Ship tons: 0.04

MACHINEGUN, CALIBER .30: TANK, M37 (T153) AND M37C, FIXED

General
MACHINEGUN, CALIBER .30: tank, M37 (T153) and M37C, fixed, is an automatic, recoil-operated, link-belt fed, air-cooled machinegun. The M37 is designed for both fixed and flexible uses. It is coaxially mounted with larger caliber weapons on various combination gun mounts for use on tanks. However, for emergency use, this weapon may be mounted on the MOUNT, TRIPOD, MACHINEGUN: M2 or M1917A1, or MOUNT, TRIPOD, WEAPON: M74.** The M37C is designed for fixed use only. It is used for installation in the ARMAMENT, SUBSYSTEM, HELICOPTER, .30 CALIBER MACHINEGUN: XM761 or XM1E1.*

Each weapon has a backplate which is equipped with a pistol grip. They are known as caliber .30 heavy barrel machineguns.

Differences among models
The M37C is basically the M37 with the following components removed:
a. Retracting bar, link chute bolt stud, and component items of the front and rear sights, and the safety and its components.
b. The following components were added in place of the above items removed: charger assembly, quick disconnect coupling hose assembly, charger plate, straight (bolt) pin, solenoid assembly, link chute, attaching hardware, and barrel bearing.

Data plate location
The name and serial number of each gun is stamped on the right-side plate of the receiver and forward of the retracting bar guides.

Classification:
M37
M37C

Model Line item No. Federal stock No.
M37 1005-710-2916
M37C 1005-525-1385

CHARACTERISTICS
Caliber .30 Machinegun M37:
Weight:
Gun ........................................... 31 lb
Barrel ........................................... 7.28 lb
Length:
Overall ........................................ 3 ft 6%/ in.
Barrel ........................................... 2 ft
Rifling:
Length ......................................... 21.38 in.
Number of grooves ......................... 4
Twist, right-hand ................................ one turn in 10 in.
Space required to open cover ............. (approx) 1 ft, 9 5/8 in.
Space to rear required for removing barrel (approx) 2 ft, 6 in.
Feed ............................................. disintegrating metallic link belt
Operation ....................................... recoil
Cooling ......................................... air

Caliber .30 Machinegun M37C:
Weight:
Gun ........................................... 34.7 lb
Barrel ........................................... 7.28 lb
Length:
Overall ......................................... 34 in.
Barrel ........................................... 21 in.
Rifling:
Length ......................................... 21.38 in.
Number of grooves ......................... 4
Twist, right-hand ................................ one turn in 10 in.
Space required to open cover ............. (approx) 1 ft, 9 5/8 in.
Space to rear required for removing barrel (approx) 2 ft, 6 in.
Feed ............................................. disintegrating metallic link belt
Operation ....................................... recoil
Cooling ......................................... air

* For characteristics and data, see item on page 2-34 and 2-47.
** For characteristics and data, see item in section 8.

2-32
AMMUNITION

Types .... Ball, AP, API, blank, tracer, and dummy
Links ...................... M1

PERFORMANCE

Muzzle velocity (average):
  AP, M2 ......................... 2,770 fps
  Ball, M2 ....................... 2,800 fps

Maximum range (30-deg elevation):
  AP, M2 ......................... 3,160 yd
  Ball, M2 ....................... 5,500 yd

Rate of fire .......................... 400-550 rd per min

EQUIPMENT

Sighting and Fire Control
Basic Issue Items: M37, See TM 9-2350-206-12
M37C

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 DUMMY: M40

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States
Shipped 1 gun per shipping container
Length ....................... 3 ft, 10% in.
Width ....................... 7% in.
Height ...................... 8% in.
Volume ....................... 1.7 cu ft
Gross weight ........................ 55 lb
Ship tons ........................ 0.04

M37C:

Within and Outside Continental United States
Shipped gun per
Length ...........................
Width ...........................
Height ...........................
Volume ...........................
Gross weight ......................
Ship tons ........................

M37C—TM 9-1005-240-20, TM 9-1005-240-20P,
TM 9-1005-240-34, TM 9-1005-240-35P.

30 August 1963
MACHINEGUN, CALIBER .50: AN-M3, AIRCRAFT, BASIC

Differences among models

Several variations of the machinegun AN-M3 are in use. A retracting slide (not furnished with gun) is used for charging when used as an antiaircraft weapon. In some aircraft installations, the trunnion adapter is removed and a recoil adapter installed. This gun is similar in appearance to the caliber .50 basic aircraft Browning machinegun AN-M2. However, the rate of fire is much faster and many component parts, although similar, are not interchangeable. Some component parts of the gun AN-M2 have been replaced by different component parts in the gun AN-M3, such as, the backplate assembly which is larger; the front barrel bearing by a recoil booster; front and rear cartridge stops and link stripper by link chute adapters for either right- or left-hand feed.

General

MACHINEGUN, CALIBER .50: AN-M3, aircraft, basic is a high-speed, recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed into the gun from either the right or left side as desired. The metallic link belt is used in all cases. This gun is primarily used in aircraft, however, it can be used for antiaircraft purposes when mounted in MOUNT, GUN: antiaircraft caliber .50 machinegun, M63. The gun is without sights or trigger. It is fired with a solenoid. A spade grip-type backplate is not available for this gun. When this aircraft gun is used in gun mount M63, it is fired with a side plate trigger which is part of the mount. Direction of fire is checked by tracer bullets due to the absence of sights.

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Weight:
- Gun w/o recoil adapter assy: 64 lb. 8 oz
- Recoil adapter assy: 4 lb. 4 oz
- Barrel: 11 lb

Length:
- Overall: 4 ft. 9¼ in
- Barrel: 3 ft

Riding:
- Length: 2 ft. 9 in
- Number of grooves: 8
- Twist, right hand: 1 turn in 16 in
- Operation: short recoil
- Feed: disintegrating metallic link belt
- Cooling: air
- Firing pin release:
  - Pressure applied to rear slide: (max) 36 lb
  - Pressure applied to rear: (max) 26 lb
- Belt pull (load that can be imposed on gun w/o obtaining malfunctions): 5 lb

AMMUNITION

Types:
- Ball, AP, AP-T, incendiary, tracer, headlight tracer, blank, and dummy

PERFORMANCE

Muzzle velocity (average):
- Ball, M2: 2,840 fps
- Incendiary, M23 (T48): 3,450 fps

Maximum range:
- Ball, M2 (30° elevation): 7,276 yd
- Incendiary, M23 (T48) (30° elevation): 6,500 yd

Rate of fire: 1,160-1,260 rd per min

EQUIPMENT

Sighting and Fire Control:
- Sights are considered to be plane equipment and are furnished by the Air Force.

Basic Issue Items:

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .50 DUMMY: M2

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped: 1 gun per wood box.

Length: 6 ft. 1½ in
Width: 8½ in
Height: 16½ in
Volume: 6.0 cu ft
Gross weight: 97 lb
Ship tons: 0.08

Reference: TM 9-2206.

2-33
MACHINEGUN, CALIBER .50: BROWNING, AN-M2, AIRCRAFT, BASIC

**General**

MACHINEGUN, CALIBER .50: Browning, AN-M2, aircraft, basic is an automatic, recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed into the gun from either the right or left side as desired. The metallic link belt is used to feed the ammunition into the weapon. This gun, as issued, is primarily used for fixed positions in aircraft. By the addition of a retracting slide group assembly for flexible positions or an operating slide group assembly for fixed positions, this weapon may be fired from gun mounts. When mounted on MOUNT, GUN: antiaircraft, caliber .50 machinegun, M48, a side plate trigger is used; on MOUNT, GUN: pedestal, twin caliber .50 machinegun, M65 or MOUNT, TRIPOD, MACHINEGUN: M68, a spade grip backplate conversion group assembly is used. When mounted on the gun mount M68, the direction of fire is checked by tracer bullets due to the absence of sights. On the pedestal gun mount M68, a sight is part of the mount. The rate of fire of this machinegun can be varied to a limited extent by adjusting the position of the oil buffer group assembly in the oil buffer body group.

**Differences among models**

Classification: Standard A (OTCSC 38464).

**CHARACTERISTICS**

**Weight:**
- Gun (w/standard backplate) 61 lb
- Gun (w/standard backplate) 62 lb, 8 oz
- Barrel 9 lb, 8 oz
- Retracting slide group assy 3 lb
- Operating slide group assy 1 lb, 8 oz

**Length:**
- Gun with retracting slide group 5 ft, 8 in.
- Gun with operating slide group 4 ft, 9 in.
- Barrel 8 ft

**Rifling:**
- Length 8
- Number of lands and grooves one turn in 15 in.
- Twist, right-hand short recoil
- Operation disintegrating metallic link belt
- Cooling air

**AMMUNITION**

Types: ball, AP, API, API-T, incendiary, tracer, headlight tracer, blank and dummy.

Links: M2, M9 (T43), T51E2, and T51E3

**PERFORMANCE**

Muzzle velocity (average):
- ball, M2 2,840 fps
- incendiary, M23 (T48) 2,460 fps

Maximum range:
- ball, M2 (90° elevation) 7,775 rd
- incendiary, M23 (T48) (90° elevation) 6,500 yd

Rate of fire 750-850 rd per min

**EQUIPMENT**

Sighting and Fire Control:
- Table, firing, 0.50-H-1.

Sights are considered to be plane equipment and furnished by the Air Force.

Basic Issue Items: See ORD 7 SNL A-38.

**INSTRUCTIONAL MATERIAL**

CARTRIDGE, CALIBER .50, DUMMY: M2 (C56579).

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 gun per wood box.
- Length 8 ft, 1/4 in.
- Width 7 in.
- Height 7 1/4 in.
- Volume 2.7 cu ft
- Gross weight 160 lb
- Ship tons 0.06

**Outside Continental United States**

Shipped gun per wood box.
- Length 8 ft, 1/4 in.
- Width 7 in.
- Height 7 1/4 in.
- Volume 2.7 cu ft
- Gross weight 160 lb
- Ship tons 0.06

**MACHINEGUN, CALIBER .50: BROWNING, M2, HEAVY BARREL, FIXED**

**General**

MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, fixed is an automatic, recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed from either the right or left side. The metallic link belt is used to feed the ammunition into the weapon. This gun differs from MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible machinegun M2 in that it does not have a bolt latch, backplate with spade grips and trigger, or a barrel carrier assembly. Heavy barrel guns do not recoil with as much force as other types of caliber .50 machineguns, therefore several parts of the oil buffer assembly are eliminated and recoil oil is not used. It is charged by means of a retracting slide and fired by means of a side plate trigger. This gun is used in MOUNT, GUN; combination M64 on vehicles.

**Differences among models**

Data plate location

Classification: Standard A (OTCM 86841).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td></td>
<td>1005-726-5637</td>
</tr>
</tbody>
</table>

- **Weight:**
  - Gun: 82 lb
  - Barrel: 28 lb

- **Length:**
  - Overall: 5 ft. 5 in.
  - Barrel: 3 ft. 9 in.

- **Rifling:**
  - Length: 8
  - Number of lands and grooves: one turn in 15 in.
  - Twist, right-hand: short recoil

- **Operation:**
  - Feed: disintegrating metallic link belt
  - Capacity of feeding device: as desired

- **Cooling:**
  - Air

**AMMUNITION**

- **Types:** ball, AP, API, API-T, incendiary, tracer, headlight tracer, blank, and dummy
- **Links:** M2, M9 (T43), and T31E3

**PERFORMANCE**

- **Muzzle velocity (average):**
  - API, M8: 3,050 fps
  - Ball, M2: 2,930 fps

- **Maximum range:**
  - API, M8 (30° elevation): (approx) 6,470 yd
  - Ball, M2 (35° elevation): (approx) 7,460 yd

- **Rate of fire:** 450-555 rd per min

**EQUIPMENT**

**Sighting and Fire Control:**
- Table, firing, 0.50-AAA-T-1
- Table, firing, 0.50-H-1

**Basic Issue Items:** See ORD 7 SNL A-39.

**INSTRUCTIONAL MATERIAL**

**CARTRIDGE, CALIBER .50 DUMMY: M2.**

**STORAGE AND SHIPMENT DATA**

**Within and Outside Continental United States**

- Shipped 1 gun per wood box.
- Length: 5 ft 9\(\frac{1}{2}\) in.
- Width: 7\(\frac{1}{4}\) in.
- Height: 10\(\frac{1}{4}\) in.
- Volume: 3.8 cu ft
- Gross weight: 117 lb
- Ship tons: 0.08

MACHINEGUN, CALIBER .50: BROWNING, M2, HEAVY BARREL, FLEXIBLE

General
MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible is an automatic, recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed from either the right or left side. The metallic link belt is used to feed the ammunition into the weapon. This gun is equipped with a backplate having spade grips, trigger, and bolt latch release. A bolt latch in the receiver will hold the bolt in the open position after each round is fired unless the bolt latch release on the backplate is in the locked position making the bolt latch inoperative. This gun may be mounted in MOUNT GUN: antiaircraft, caliber .50 machinegun, M68;  MOUNT, GUN: pedestal twin caliber .50 machinegun, M65;  MOUNT, TRIPOD, MACHINEGUN; M3 and on most vehicles and tanks as an antiaircraft weapon. The gun is equipped with leaf-type sights and a barrel carrier assembly. A retracting slide assembly is furnished with each gun. Heavy barrel guns do not recoil with as much force as other types of caliber .50 machineguns; therefore, several parts of the oil buffer assembly are eliminated and recoil oil is not used.

Differences among models
Data plate location
Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Weight:
Gun ................................... 82 lb
Barrel .................................. 28 lb

Length:
Overall ................................ 5 ft, 5 in.
Barrel .................................. 3 ft, 9 in.

Rifling:
Length ................................
Number of lands and grooves ...........
Twist, right-hand .................... one turn in 15 in.

Operation ................................ short recoil
Feed ...................................... disintegrating metallic link belt
Capacity of feeding device .......... as desired
Cooling ...................................

AMMUNITION

Types .......... ball, AP, API, API-T, incendiary, tracer, headlight tracer, blank, and dummy.
Links .............. M2, M9 (T43), and T31E8

PERFORMANCE

Muzzle velocity (average):
API, M8 .................................. 3,050 fps
Ball, M2 ................................... 2,930 fps

Maximum range:
API, M8 (30° elevation) ................. 5,470 yd (approx)
Ball, M2 (35° elevation) ................. 7,690 yd (approx)

Rate of fire ................................ 450-555 rd per min

EQUIPMENT

Sighting and Fire Control:
Table, firing, 0.50AA-T-1
Table, firing, 0.50-H-1.


INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .50 DUMMY: M2.

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 gun per wood box.

Length ................................... 6 ft, 9½ in.
Width ................................... 9 in.
Height .................................... 10½ in.
Volume ..................................... 3.7 cu ft
Gross weight ............................. 128 lb
Ship tons .................................... 0.09

MACHINEGUN, CALIBER .50: BROWNING, M2, HEAVY BARREL, TURRET TYPE

11 September 1962

MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, turret type, is an automatic recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed from either the right or left side. The metallic link belt is used to feed the ammunition into the weapon. These guns are for ground use and antiaircraft fire in turret type mounts. The gun having a barrel support is used in the caliber .50 multiple machinegun mount M45C on the caliber .50 multiple machinegun trailer mount M55.

Differences among models:

Two variations of the machinegun, M2 are in use. One is equipped with a barrel support and the other with a recoil adapter. The gun equipped with a barrel support is identical to the fixed calibers .50 heavy barrel machinegun M2 except the sights are removed. The gun, equipped with a recoil adapter, differs from the fixed gun in the elimination of sights and the substitution of a recoil adapter (Edgewater) for the barrel support. Both types are charged by means of a retractable slide or M10 manual charger, when gun is used in a cupola, and fired by means of an electrical backplate or top plate solenoid.

Data plate location:
Classification: Standard B (OTCM 36841).

---

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With barrel support, backplate solenoid and M10 charger assembled on left side (for Cupola M1).</td>
<td>1005-493-4654</td>
<td></td>
</tr>
<tr>
<td>With barrel support, backplate solenoid and M10 charger assembled on right side (for Cupola M13).</td>
<td>1005-466-4412</td>
<td></td>
</tr>
<tr>
<td>With barrel support, retracting slide, and top plate solenoid (for multiple mount M45C).</td>
<td>1005-602-2105</td>
<td></td>
</tr>
<tr>
<td>With recoil adapter, backplate solenoid and M10 charger assembled on left side (for Cupola M13).</td>
<td>1005-602-2105</td>
<td></td>
</tr>
<tr>
<td>With recoil adapter, backplate solenoid and M10 charger assembled on right side (for Cupola M13).</td>
<td>1005-602-2105</td>
<td></td>
</tr>
</tbody>
</table>

General:

MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, turret type, is an automatic recoil-operated, link-belt fed, air-cooled machinegun. By repositioning some of the component parts, ammunition may be fed from either the right or left side. The metallic link belt is used to feed the ammunition into the weapon. These guns are for ground use and antiaircraft fire in turret type mounts. The gun having a barrel support is used in the caliber .50 multiple machinegun mount M45C on the caliber .50 multiple machinegun trailer mount M55.

Differences among models:

Two variations of the machinegun, M2 are in use. One is equipped with a barrel support and the other with a recoil adapter. The gun equipped with a barrel support is identical to the fixed calibers .50 heavy barrel machinegun M2 except the sights are removed. The gun, equipped with a recoil adapter, differs from the fixed gun in the elimination of sights and the substitution of a recoil adapter (Edgewater) for the barrel support. Both types are charged by means of a retractable slide or M10 manual charger, when gun is used in a cupola, and fired by means of an electrical backplate or top plate solenoid.

Data plate location:
Classification: Standard B (OTCM 36841).

---

CARTRIDGE, CALIBER .50 DUMMY: M2.

AMMUNITION:

- Ball, AP,(API-T, incendiary, tracer, headlight tracer, blank, and dummy.

- M2, M9 (T43, and T31E3)

PERFORMANCE:

- Muzzle velocity (average):
  - API, M8: 3,050 fps
  - Ball, M2: 2,930 fps

- Maximum range:
  - API, M8 (30° elevation): (approx) 47,400 yd
  - Ball, M2 (30° elevation): (approx) 7,440 yd

- Rate of fire: 450-465 rpm per min

EQUIPMENT:

Sighting and Fire Control:
- Table, firing, 0.50-H-4
- Table, firing, 0.50-AAA-3-1

Basic issue Items: See ORD 7 A-49

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .50 DUMMY: M2.

STORAGE AND SHIPMENT DATA:
Within and Outside Continental United States

- Shipped 1 gun per wood box (VCI pack).
  - Length: .6 ft, 9½ in.
  - Width: 7 in.
  - Height: 9½ in.
  - Weight: 26 cu ft
  - Gross weight: 119 lb
  - Ship tons: 0.67

MACHINEGUN, CALIBER .50: TANK, M85 (T175E2) (FIXED) AND M85C (FLEXIBLE)

SHOWN:
MACHINE GUN, CALIBER .50: TANK, M85

ORD A1117

General
MACHINEGUN, CALIBER .50: TANK, M85 (T175E2) (FIXED) and M85C (FLEXIBLE) are automatic, recoil-operated, air-cooled, fixed head space weapons having a dual rate of fire. The gun was designed specifically for combat vehicle installation and is particularly suitable for installations presently using MACHINEGUN, CALIBER .50: M2. The simplicity of design allows experienced personnel to field strip the gun in less than 15 seconds and change barrel in less than 5 seconds. Change over from right-hand to left-hand feed is readily accomplished by removal and replacement of a limited number of components.

Differences among models
The M85C differs from the M85 in that it has provisions for mounting sights and spade grips with integral trigger extensions for manual firing.

Data plate location
Classification: M85 Standard A (OTCM 87988)
M85C Classification pending

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M85</th>
<th>M85C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight: Gun (complete)</td>
<td>65 lb</td>
<td></td>
</tr>
<tr>
<td>Recocking parts</td>
<td>23.2 lb</td>
<td></td>
</tr>
<tr>
<td>Barrel</td>
<td>16.25 lb</td>
<td></td>
</tr>
<tr>
<td>Length: Overall (w/flash suppressor)</td>
<td>4 ft, 6 1/2 in.</td>
<td></td>
</tr>
<tr>
<td>Barrel</td>
<td>3 ft</td>
<td></td>
</tr>
<tr>
<td>Rifting: Length</td>
<td>32.695 in.</td>
<td></td>
</tr>
<tr>
<td>Number of grooves</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Twist, right-hand</td>
<td>one turn in 15 in.</td>
<td></td>
</tr>
<tr>
<td>Operation: Feed</td>
<td>recoiling</td>
<td></td>
</tr>
<tr>
<td>Feed</td>
<td>disintegrating metallic link belt</td>
<td></td>
</tr>
<tr>
<td>Cooling</td>
<td>air</td>
<td></td>
</tr>
</tbody>
</table>

AMMUNITION

<table>
<thead>
<tr>
<th>Type</th>
<th>Ball, AP, API, API-T, incendiary, tracer, blank, and dummy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link</td>
<td>M15, A2</td>
</tr>
</tbody>
</table>

PERFORMANCE

<table>
<thead>
<tr>
<th>Muzzle velocity (average):</th>
<th>M85</th>
<th>M85C</th>
</tr>
</thead>
<tbody>
<tr>
<td>API:</td>
<td>2,950 fps</td>
<td>2,840 fps</td>
</tr>
<tr>
<td>Ball:</td>
<td>2,950 fps</td>
<td>2,950 fps</td>
</tr>
</tbody>
</table>

Maximum range:

<table>
<thead>
<tr>
<th>Range (approx)</th>
<th>M85</th>
<th>M85C</th>
</tr>
</thead>
<tbody>
<tr>
<td>API:</td>
<td>6,375 yd</td>
<td>7,275 yd</td>
</tr>
<tr>
<td>Ball:</td>
<td>7,275 yd</td>
<td>7,275 yd</td>
</tr>
</tbody>
</table>

Rate of fire:

<table>
<thead>
<tr>
<th>Rate of fire</th>
<th>Fast</th>
<th>Slow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per min</td>
<td>1,980 rd</td>
<td>350 to 450 rd</td>
</tr>
</tbody>
</table>

EQUIPMENT

Sighting and Fire Control:
Basic Issue Items: See TM 9-2350-216-10.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 1 machinegun per shipping container

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>M85</td>
<td>3 ft, 9 in.</td>
<td>8 in.</td>
<td>1 ft, 2% in.</td>
<td>8.1 cu ft</td>
<td>87 lb</td>
<td>0.08</td>
</tr>
<tr>
<td>M85C</td>
<td>3 ft, 9 in.</td>
<td>8 in.</td>
<td>1 ft, 2% in.</td>
<td>8.1 cu ft</td>
<td>87 lb</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 1 machinegun per shipping container

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>M85</td>
<td>3 ft, 9 in.</td>
<td>8 in.</td>
<td>1 ft, 2% in.</td>
<td>8.1 cu ft</td>
<td>87 lb</td>
<td>0.08</td>
</tr>
<tr>
<td>M85C</td>
<td>3 ft, 9 in.</td>
<td>8 in.</td>
<td>1 ft, 2% in.</td>
<td>8.1 cu ft</td>
<td>87 lb</td>
<td>0.08</td>
</tr>
</tbody>
</table>

References: TM 9-1005-231-34, TM 9-1005-231-35P
MACHINEGUN, 7.62 MILLIMETER: M60 (T161E3)

**General**

MACHINEGUN, 7.62 MILLIMETER: M60 (T161E3) is a light-weight general purpose machinegun using NATO ammunition. It can be fired from the shoulder, hip, sitting, or prone position. In the prone or sitting position, the bipod or MOUNT, GUN: 7.62 millimeter machinegun, M12 may be used.

The front sight is in a fixed position and is permanently mounted. The rear sight is mounted on a spring-type dovetail base. In elevation, movement can be controlled with either a vernier adjusting knob or a quickset-type release. A vernier-type windage adjusting knob is on the left side of the sight.

**Differences among models**

**Data plate location**

The name of the machinegun, model, and manufacturer are stamped on top of the receiver in front of the rear sight. The serial number is stamped on the left side of the receiver below the rear sight.

**Classification:** Standard A (OTCM 36841).

**CHARACTERISTICS**

**Weight:**
- Gun: 23.16 lb
- Barrel (complete): 8.38 lb

**Length:**
- Overall: 3 ft, 7 1/2 in.
- Barrel (w/socket): 1 ft, 10 1/2 in.

**Rifling:**
- Length: 20 in.
- Number of lands: 4
- Twist: one turn in 12 in.

**Operation:** gas operated

**Cooling:** air

**Sight graduations:** 1,200 yd

**Trigger pull:** 11.5 lb (max); 6 lb (min)

**AMMUNITION**

Types (NATO) — AP, ball, dummy, tracer

Link — M13

**Muzzle velocity:** 2,800 fps

**Maximum range:** 3,200 meters

**Rate of fire (approx):** 650 rounds per min

**PERFORMANCE**

**Sightings and Fire Control:**


**EQUIPMENT**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

Shipped 1 machinegun, w/o, per shipping container (VCI pack).

Length: 2 ft, 9 1/2 in.

Width: 1 ft, 1 in.

Height: 10 in.

Volume: 2.6 cu ft

Gross weight: 50 lb

Ship tons: 0.07

Outside Continental United States

Shipped 1 machinegun, w/o, per shipping container (VCI pack).

Length: 2 ft, 10 1/2 in.

Width: 1 ft, 1 1/2 in.

Height: 10 in.

Volume: 3.4 cu ft

Gross weight: 58 lb

Ship tons: 0.09

**REFERENCES:**

MACHINEGUN, 7.62-MILLIMETER: M73

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M73</td>
<td></td>
<td>1005-875-0733</td>
</tr>
</tbody>
</table>

Classification: M73 Standard A (OTCM 37060)

MACHINEGUN, 7.62-MILLIMETER: M73 is a lightweight, air-cooled weapon used primarily as a coaxial gun on tanks. It is a disintegrating metallic link belt fed for either right or left side. It has a short receiver, is recoil operated with a gas assist to boost recoil, has a fixed head space, is fired from the open bolt position, and has a quick change barrel.

Differences among models

Data plate location

Characteristics

Weight of gun (complete):
- M73: 29.31 lb
- Barrel: 5.25 lb

Length:
- M73 (including flash suppressor): 55.00 in.
- Barrel: 22.00 in.

Rifling:
- Length: 20 in.
- Number of grooves: 4
- Twist, right-hand: one turn in 12 in.

Operation: recoil with gas assist
Feed: disintegrating metallic link belt
Cooling: air
Trigger pull: 15 lb

Ammunition

Types: AP, ball, tracer, dummy
Link: M12

Performance

Muzzle velocity: (approx) 2,600 fps
Maximum range: 4,150 yd
Rate of fire: 450 to 500 rd per min

Equipment


Instructional material

Storage and shipment data

Within Continental United States
Shipped 1 machinegun per shipping container.
Length: 3 ft, 1½ in.
Width: 10½ in.
Height: 8½ in.
Volume: 1.91 cu ft
Gross weight: 41 lb
Ship tons: 0.03

Outside Continental United States
Shipped 1 machinegun per shipping container.
Length: 3 ft, 1½ in.
Width: 10½ in.
Height: 8½ in.
Volume: 2.00 cu ft
Gross weight: 41 lb
Ship tons: 0.04

References: TM 9-1005-233-34, TM 9-1005-233-35F.
MOUNT, COMMANDER'S CUPOLA, M13

General
MOUNT, commander's cupola, M13 is installed on CARRIER, PERSONNEL, FULL-TRACKED: armored, M59 (serial No. F2492 and up) and MORTAR, SELF-PROPELLED, FULL-TRACKED: 4.2-Inch, M84 to provide the commander with reasonable armor protection, close-in defensive fire power, and target observation by permanently installed direct vision blocks or a periscope. It provides support for MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, turret type, and means for its loading, charging, and positioning in azimuth and elevation.

Differences among models

Data plate location
An identification plate is mounted in the cupola assembly between the azimuth and elevation drive assemblies, and another identical plate is mounted in front of the commander's seat.

Classification: Standard B (OTCM 37037).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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<tr>
<td>Weight (w/o machinegun)</td>
<td>800 lb</td>
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<tr>
<td>Length (w/o machine gun)</td>
<td>4 ft 4 in.</td>
</tr>
<tr>
<td>Width or diameter</td>
<td>3 ft 4 in.</td>
</tr>
<tr>
<td>Height (silhouette above vehicle)</td>
<td>1 ft 2½ in.</td>
</tr>
<tr>
<td>Azimuth</td>
<td>360°</td>
</tr>
<tr>
<td>Elevation</td>
<td>57°</td>
</tr>
<tr>
<td>Depression</td>
<td>11°</td>
</tr>
<tr>
<td>Operation</td>
<td>manual</td>
</tr>
</tbody>
</table>

EQUIPMENT

Sighting and Fire Control:
Sight, periscope, M28 (furnished separately).
Mount, periscope, M104A1 (furnished separately).
Basic issue items: See TM 9-2300-230-12.

* For characteristics and data, see item in section 14.
### Storage and Shipment Data

**Within Continental United States**

<table>
<thead>
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<th>Shipped</th>
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</thead>
<tbody>
<tr>
<td>Length</td>
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</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

### Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>mount per</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: TM 9-1006-227-85; TM 9-1006-227-86P.
MOUNT, GUN: AA CALIBER .50 MACHINEGUN, M63

**Weight:**
- (W/ammonition box adapter) ........................................... 144 lb
- Four legs ........................................................................ 24 lb
- Base assembly ..................................................................... 54 lb
- Elevator assembly ............................................................... 15 lb
- Cradle assembly ................................................................. 44 lb
- Ammunition box adapter ..................................................... 10 lb

**Height overall** ................................................................. 42 in.
**Length of leg** ................................................................... 24 in.
**Diameter of base (w/leg assembled)** .................................... 62 in.
**Maximum elevation** .......................................................... 85°
**Maximum depression** ....................................................... 30°
**Traverse** ........................................................................... 360°

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL A-30

**INSTRUCTIONAL MATERIAL**

For Graphic Training Aids and Devices, see DA Pam 810-5.

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

Shipped 1 mount per wood box.
- Length .............................................................................. 3 ft, ¾ in.
- Width .............................................................................. 1 ft, 1½ in.
- Height ............................................................................... 1 ft, 9½ in.
- Volume ............................................................................. 8.5 cu ft
- Gross weight ................................................................. 238 lb
- Ship tons .......................................................................... 0.22

*Outside Continental United States*

Shipped mount
- Length ..............................................................................
- Width ..............................................................................
- Height .............................................................................
- Volume ...........................................................................
- Gross weight .................................................................
- Ship tons ........................................................................

**References:** SNL A-36, TM 9-2021, TM 9-2205.
MOUNT, GUN: PEDESTAL, TWIN CALIBER .50, M65 MACHINEGUN

Major item

Model
M65

Line item No.
4-24135-19

Federal stock No.
1005-324-9483

General
MOUNT, GUN: pedestal, twin caliber .50 machinegun M65 is a pedestal-type antiaircraft mount which mounts two MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible without change in backplate, or two MACHINEGUN, CALIBER .50: Browning, AN-M2, aircraft, basic, with spade grip backplate conversion group assembly and retracting slide group assembly. It is mounted principally on decks of boats; however, it may be used in many other installations having fixed foundations, such as docks, bridges, roofs, etc.

The left side gun must be assembled for left-hand feed and left-hand charging; the right side gun must be assembled for right-hand feed and right-hand charging.

Differences among models

Data plate location
Classification: Standard B (OTCM 38441).

CHARACTERISTICS

Weight ...........................................325 lb
Maximum elevation ..................................89°
Maximum depression ................................-10°
Traverse ...........................................360°

EQUIPMENT

Basic Issue Items: See ORD 7-8 SNL A-55, Sec 33.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 mount per wood box.
Length ...........................................6 ft, 7 in.
Width .............................................3 ft, 6% in.
Height .............................................3 ft, 6% in.
Volume .........................................79.7 cu ft
Gross weight .....................................1,100 lb
Ship tons .........................................1.99

Outside Continental United States

Shipped mount per
Length ...........................................
Width ...........................................
Height ...........................................
Volume .........................................
Gross weight ...................................
Ship tons .....................................

MOUNT, GUN: TRAILER, MULTIPLE CALIBER .50 MACHINEGUN, M55

**General**

MOUNT, GUN: trailer, multiple caliber .50 machinegun, M55, is composed of MOUNT, GUN: caliber .50 machinegun, M45C and TRAILER, 1-ton, 2-wheel, machinegun mount, M20. The mount M45C is a power-driven, semiautomatic gun mount with self-contained power units. A power charger produces electrical current to be stored in two 6-volt storage batteries. The electrical system operates from the storage batteries. This mount is constructed to accommodate four (two on each side) MACHINE GUN, CALIBER .50: Browning, M2, heavy barrel, turret type. The early models have four (two on each side) ammunition chests M2. On later models, these mounts have been modified to replace the chests with ammunition box trays (FSN 1005-609-0078). Power is directed by a pair of control handles placed directly in front of the operator's seat on the mount. This mount is normally mounted on the mount trailer M20.

The trailer M20 is a two-wheeled vehicle designed to transport mount M45C either by manpower or by a 1/4-ton 4-by-4 truck. In an emergency, it can be coupled to any vehicle equipped with a pintle tow hook. The maximum towing speed over smooth surfaced roads is 10 miles per hour while over terrain, the speed must not exceed 5 miles per hour. When the trailer is to be transported any great distance, it is loaded onto a tractor and mounted on the mount. Three lift jacks with special mount assemblies, two at the rear and one at the drawbar, permit quick removal of the wheels, and lowering of the body to the ground to afford the trailer a solid foundation for firing.

**Differences among models**

**Data plate location**

Classification: Standard A (OTCM 24441).

**CHARACTERISTICS**

- **Model:** M55, w/o
- **Line item No.:** 4-5510-00
- **Federal stock No.:** 1005-678-4760

**Mount M45C:**
- Weight of mount (fully equipped) ........... (approx) 2,550 lb
- Overall width ............................... 4 ft. 7 in.
- Overall height ............................... 6 ft. 2 in.
- Elevation speed ............................. 0° to 60° per sec
- Depression speed ............................ 0° to 60° per sec
- Traverse ................................... 55°
- Elevation ................................... 90°
- Depression ................................... 10°

**Trailer M20:**
- Weight (approx) .............................. 800 lb
- Width of tread (to c) ....................... 6 ft
- Ground clearance under body ................. 7 in.
- Height of drawbar hanger for max clearance ... 1 ft. 10 in.
- Tires:
  - Size ....................................... 22 x 7.25 x 11.50 in. (6 ply)
  - Type ....................................... aircraft, smooth contour tread
  - Inflation pressure ......................... 60 lb

**EQUIPMENT**

**Sighting and Fire Control:**
- Mount, sight (FSN 1290-767-6767).
- Sight, reflex, M18.

**Basic Issue Items:** See ORD 7 SNL A-61.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

- Shipped 1 mount per wood box.
  - Length ...................................... 6 ft. 11 1/2 in.
  - Width ....................................... 5 ft. 6 in.
  - Height ...................................... 6 ft. 2 1/4 in.
- Volume ...................................... 219 cu ft
- Gross weight .................................. 3,420 lb
- Ship tons ..................................... 5.6

**Outside Continental United States**

- Shipped mount per
  - Length ......................................
  - Width ....................................... 6 ft. 11 1/2 in.
  - Height ......................................
  - Volume ......................................
  - Gross weight ................................
  - Ship tons ...................................


* For characteristics and data, see item in section 14.

2-45
MOUNT, TRIPOD, MACHINEGUN: CALIBER .30, M2

General

MOUNT, TRIPOD, MACHINEGUN: caliber .30, M2, is a lightweight portable, folding mount used for ground fire. It consists of three tubular steel legs joined in a tripod head, the two rear legs being joined and additionally supported by a traversing bar forming a simple A-truss and serving as a rear support for the elevating mechanism which in turn supports the mounted gun. The tripod head acts as a front support for the mounted gun and is in turn supported by the short front leg. MACHINEGUN, CALIBER .30: Browning M1919A4 flexible, is used primarily with this mount for ground fire; however, it can mount MACHINEGUN, CALIBER .30: Browning, M1917A1, M1919A4E1, M1919A6 or M37. This mount is stowed on various vehicles and tanks for possible ground use when conditions warrant.

Differences among models

Data plate location

Classification: Standard B (OTCM 38941).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2, w/o</td>
<td>4-26535-60</td>
<td>1005-322-6715</td>
</tr>
</tbody>
</table>

Elevating range:

Free: 21° to 48°
Mechanical: 19° to 25°
Least increment: 1 mil
Elevating handwheel graduated: 1 mil

EQUIPMENT

Basic Issue Items: See ORD 7 SNL A-4.

INSTRUCTIONAL MATERIAL

For Graphic Training Aids and Devices, see DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 4 mounts per wooden box.

Outside Continental United States

Shipped 4 mounts per...

MOUNT, TRIPOD, MACHINEGUN: CALIBER .30, M1917A1

**General**

MOUNT, TRIPOD, MACHINEGUN: caliber .30, M1917A1, is a lightweight portable folding mount. This mount has as a central member a socket with three projecting lugs. Attached to these lugs are three legs which may be clamped independently in various positions. The cradle assembly seats in the socket and houses the elevating and traversing mechanism. Mount M1917A1 is intended primarily for machinegun, caliber .30: M1917A1, but can mount machinegun caliber .30: M1919A4, M1919A4E1, M1919A6, or M37.

**Data plate location**

Classification: Standard B (OTCM 36841).

Differences among models

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1917A1, w/e</td>
<td>4-25691-15</td>
<td>1005-678-4188</td>
</tr>
</tbody>
</table>

Elevating limits, mechanical range .................................. 50 mil
Elevating arc graduated .................................................. every 25 mil for 900 mil
Depression in cradle slot ................................................. (max) 500 mil (28°)
Depression within graduation on elevating arc ........................................ (max) 400 mil (22.5°)

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL A-5.

**INSTRUCTIONAL MATERIAL**

For Graphic Training Aids and Devices, see DA Pam 810-5.

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 mount per wood box.

Length ........................................ 4 ft 1½ in.
Width ........................................ 10½ in.
Height ........................................ 1 ft ½ in.
Volume ....................................... 8.8 cu ft
Gross weight .................................. 58 lb
Ship tons ..................................... 0.09

**Outside Continental United States**

Shipped ........................................ mount per

Length ........................................ 4 ft 1½ in.
Width ........................................ 10½ in.
Height ........................................ 1 ft ½ in.
Volume ....................................... ...
Gross weight ..................................
Ship tons .....................................

MOUNT, TRIPOD, MACHINEGUN: CALIBER .50, M3

General

MOUNT, TRIPOD, MACHINEGUN: caliber .50, M3, is a lightweight portable folding mount. It consists of three telescoping tubular legs joined in a tripod head, the two rear legs being joined and additionally supported by a traversing bar. The traversing bar forms a single A-truss and serves as a rear support for the elevating mechanism which in turn supports the mounted gun. The tripod head furnishes a front support for the mounted gun, if being in turn supported by the short front leg. MACHINEGUN, CALIBER .50: Browning, M2, heavy barrel, flexible, is used with this mount. By the addition of a spade grip backplate conversion group assembly, MACHINEGUN, CALIBER .50: Browning, M2-M2, aircraft, basic, can be used with this mount in an emergency. This mount is stowed on various vehicles and tanks for possible ground use when conditions warrant.

Differences among models

Data plate location

Classification: Standard A (OTCM 5861).

CHARACTERISTICS

Weight........................................................................ 44 lb
Length:
  Extended.......................................................... 6 ft, 2 1/2 in.
  Folded for transportation................................. 3 ft, 9 1/4 in.
Spread of rear legs................................................. 6 ft, 1 1/2 in.
Height........................................................................ 3 ft, 9 1/4 in.

Traversing range:
  Without releasing elevating mechanism............... 45°
  Free....................................................................... 360°
  Traversing bar graduated................................... 300 mil
  Maximum elevation............................................. 5.6°
  Maximum depression......................................... 14°
  Least increment of elevation........................... 1 mil

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount per wood box.

Length.................................................................4 ft, 3/4 in.
Width......................................................................10 1/8 in.
Height...................................................................8 5/8 in.
Volume..................................................................2.7 cu ft
Gross weight.......................................................80 lb
Ship tons................................................................0.07

Outside Continental United States

Shipped 1 mount per wood box.

Length.................................................................4 ft, 3/4 in.
Width......................................................................10 1/8 in.
Height...................................................................8 5/8 in.
Volume..................................................................2.7 cu ft
Gross weight.......................................................80 lb
Ship tons................................................................0.07

MOUNT, TRIPOD, MACHINEGUN: 7.62-MM, M122

**General**

MOUNT, TRIPOD, MACHINEGUN: 7.62-mm, M122, is a lightweight, portable, folding mount, used for ground fire. It is composed of three main groups: the tripod, the elevating and traversing mechanism, and the pintle. The elevating and traversing mechanism has a quick-disconnect adapter which fastens to a plate beneath the receiver of the weapon. When released, the weapon may be traversed a full 360° and manually elevated or depressed. The pintle has a platform with a quick-disconnect latch which uncouples the weapon from the mount by pressing forward on the release latch.

MACHINEGUN, 7.62 MILLIMETER: M60, is used with this mount.

**Differences among models**

Data plate location

Rear surface of head assembly.

Classification: Standard A (OTCM 37270).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weight</th>
<th>.16 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Extended</td>
<td>2 ft, 3/4 in.</td>
</tr>
<tr>
<td>Folded for transportation</td>
<td>2 ft, 3 in.</td>
</tr>
<tr>
<td>Spread of rear legs</td>
<td>2 ft, 6 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 2 in.</td>
</tr>
<tr>
<td>Traversing range:</td>
<td></td>
</tr>
<tr>
<td>Using traverse bar</td>
<td>60°</td>
</tr>
<tr>
<td>Free</td>
<td>360° (6,400 miles)</td>
</tr>
</tbody>
</table>

**Traversing bar graduated**

876 mils

**Elevating range:**

Free: +31°, -45°

Without releasing elevating mechanism: +19°, -25°

Least increment: 1 mil

**Elevating handwheel graduated**

1 mil

**EQUIPMENT**

Basic issue items: See TM 9-1005-224-12.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 1 mount per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 7 1/2 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>.7 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>.6 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>.08 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>.25 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>.021</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

Shipped 4 mounts per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 10 3/4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 4 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 1 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>.448 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>.129 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>.11</td>
</tr>
</tbody>
</table>

**References:** TM 9-1005-224-12, TM 9-1005-224-20P, TM 9-1005-224-34, TM 9-1005-224-34P.
PISTOL, CALIBER .22, AUTOMATIC: COLT, SUPER MODEL
WOODSMAN, 4½-INCH BARREL

Model
Line item No.
Federal stock No.
(ass above) 1008-680-3220

General
PISTOL, CALIBER .22, AUTOMATIC: Colt, super model Woodsman, 4½-inch barrel, is a recoil-operated, air-cooled, magazine-fed, automatic loading hand weapon. The barrel is cylindrical. The front sight is adjustable for elevation and the rear sight is adjustable for windage. This weapon is identical to the standard model in appearance with the exception that it has a shorter barrel.

Differences among models
Data plate location
Data are located on the left and right sides of the pistol.

Classification: No type classification.

CHARACTERISTICS
Weight 1 lb, 11 oz
Length overall 8½ in.
Length of barrel 4½ in.
Rifling:
Number of grooves
Twist, hand
Operation short recoil
Feed magazine
Capacity of feeding device 10 rd
Type of front sight blade (adjustable)
Type of rear sight adjustable (windage)
Cooling air
Trigger pull

AMMUNITION
Type ball

PERFORMANCE
Muzzle velocity (long rifle, lead bullet) .970 fps
(Maximum range (long rifle std) (30° elevation) 1,800 yd

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 25 pistols per wood box (VCI pack).
Length 2 ft, 4½ in.
Width 11½ in.
Height 8½ in.
Volume 1.7 cu ft
Gross weight 76 lb
Ship tons 0.04

Outside Continental United States
Shipped 25 pistols per (VCI pack).
Length 2 ft, 4½ in.
Width 11½ in.
Height 8½ in.
Volume 1.7 cu ft
Gross weight 76 lb
Ship tons 0.04

References: FM 28-35.
PISTOL, CALIBER .22, AUTOMATIC: COLT, WOODSMAN, MATCH TARGET

Major items

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above)</td>
<td>1105-921-8040</td>
<td>1105-921-8045</td>
</tr>
</tbody>
</table>

General

PISTOL, CALIBER .22, AUTOMATIC; Colt, Woodsman target, is a recoil-operated, air-cooled, magazine-fed, semi-automatic pistol weapon. Both of these weapons are identical in operation and functioning. These weapons are used for training purposes.

Differences among models

Data plate location

Data are located on right and left sides of the pistol.

Classification: No type classification.

CHARACTERISTICS

- Weight: 2 lb. 4 oz
- Length overall: 11 in.
- Length of barrel: 6 1/2 in.
- Weight:
- Length:
- Number of grooves:
- Twist:
- Operation:
- Feed:
- Capacity of feeding device:
- Type of front sight:
- Type of rear sight:
- Cooling:
- Trigger pull:

AMMUNITION

- Type: ball

PERFORMANCE

Muzzle velocity (long rifle, lead bullet)
(cartridges of different manufacture may vary) 370 fps
Maximum range (long rifle cartridge) (80° elevation) 1,500 yd

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 26 pistols per wood box (VCI pack).
Length: 2 ft. 7 1/2 in.
Width: 1 ft. 1 3/4 in.
Height: 8 1/2 in.
Volume: 2.1 cu ft
Gross weight: 100 lb
Ship tons: 0.05

Outside Continental United States

Shipped 26 pistols per wood box (VCI pack).
Length: 2 ft. 7 1/2 in.
Width: 1 ft. 1 3/4 in.
Height: 8 1/2 in.
Volume: 2.1 cu ft
Gross weight: 100 lb
Ship tons: 0.05

PISTOL, CALIBER .22, AUTOMATIC: HIGH STANDARD, MODEL B

General

PISTOL, CALIBER .22, AUTOMATIC: High Standard Model B is a recoil-operated, air-cooled, magazine-fed, automatic loading hand weapon. Both front and rear sights are fixed and the pistol is hammerless.

Differences among models

Data plate location

Data are located on the left and right sides of the pistol.

Classification: No type classification.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>1 lb, 15 oz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length overall</td>
<td>8 1/2 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of barrel</td>
<td>4 1/2 in.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riffing:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of grooves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twist, left-hand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation:</td>
<td>recoil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feed</td>
<td>magazine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity of feeding device</td>
<td>10 rd</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of front sight</td>
<td>fixed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of rear sight</td>
<td>fixed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling:</td>
<td>air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trigger pull</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AMMUNITION

Type: ball

PERFORMANCE

Muzzle velocity (long rifle, lead bullet) (cartridges of different manufacture may vary) 970 fps
Maximum range (long rifle ctg) (30° elevation) 1,500 yd

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 pistols per wood box (VCI pack).

Length 1 ft, 7 1/4 in.
Width 11 1/4 in.
Height 8 1/4 in.
Volume 1.8 cu ft
Gross weight 1 lb
Ship tons 0.35

Outside Continental United States

Shipped 25 pistols per wood box (VCI pack).

Length 1 ft, 7 1/4 in.
Width 11 1/4 in.
Height 8 1/4 in.
Volume 1.8 cu ft
Gross weight 1 lb
Ship tons 0.35

PISTOL, CALIBER .22, AUTOMATIC: HIGH STANDARD, SUPERMATIC (5½-INCH BARREL)

General

PISTOL, CALIBER .22, AUTOMATIC: high standard, supermatic is a 10-shot magazine-loaded hand weapon chambered for the caliber .22 long rifle cartridge only. The rear sight has a precision click adjustment for windage and elevation. The front sight is of the adjustable ramp type. The barrel has ports near its muzzle to stabilize it against muzzle jump. Weights of 2 to 5 ounces may be added to a dovetailed slot in the barrel to give balance to the pistol. A positive lock safety is provided which locks the rear in the safe position. A slide lock automatically holds the slide open after firing the last round in the magazine. Takedown of the barrel and the slide assembly is easily accomplished by depressing a barrel plunger cam. The trigger is of the serrated type for nonslip action and the grips are diamond checkered solid plastic.

Differences among models

Data plate location

Data are located on the left and right sides of the pistol.

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above)</td>
<td>4-29195-10</td>
<td>1006-317-2474</td>
</tr>
</tbody>
</table>

Type of front sight........................................adjustable ramp
Type of rear sight........................................micrometer click sight
Cooling .........................................................Air
Trigger pull.......................................................2½ to 8 lb

AMMUNITION

Type ...............................................................ball

PERFORMANCE

Muzzle velocity (long rifle, lead bullet) ........................................970 fps
(Maximum range (long rifle, ctg) (30° elevation) ......................................1,500 yd

EQUIPMENT

Basic issue items: See ORD 7 SNL B-49.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 pistols per wood box (VCI box).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped 25 pistols per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

PISTOL, CALIBER .22, AUTOMATIC: RUGER, MARK I
(TARGET MODEL) (6 7/8-INCH BARREL)

**GENERAL**

PISTOL, CALIBER .22, AUTOMATIC: Ruger, Mark I, is a 9-shot magazine-loaded hand weapon, chambered for the caliber .22 long rifle cartridge only. The "micro" rear sight is attached to the receiver and does not move with the recoil action of the weapon. The sight has precision click adjustment for windage and elevation. The front sight is a partridge style with a 1/2-inch wide blade. The bolt assembly which slides inside the receiver has serrated lugs used in initially cocking the weapon. A positive lock safety lever is provided which locks the sear in the safe position. It also can be used to lock the bolt in the rear position for chamber inspection. The trigger is of the serrated type for nonslip action. The grips are butaprene hard black gloss rubber with diamond checkering.

**Differences among models**

Data plate location

Data are located on the right and left sides of the pistol.

Classification: Standard A (OTC# 37119).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>2 lb, 10 oz</td>
</tr>
<tr>
<td>Length overall</td>
<td>10 3/8 in.</td>
</tr>
<tr>
<td>Length of barrel</td>
<td>6 7/8 in.</td>
</tr>
<tr>
<td>Rifling:</td>
<td></td>
</tr>
<tr>
<td>Number of grooves</td>
<td>6</td>
</tr>
<tr>
<td>Twist, right-hand</td>
<td>one turn in 14 in.</td>
</tr>
<tr>
<td>Operation</td>
<td>recoil</td>
</tr>
<tr>
<td>Feed</td>
<td>magazine</td>
</tr>
<tr>
<td>Capacity of feeding device</td>
<td>9 rds</td>
</tr>
<tr>
<td>Type of front sight</td>
<td>partridge style</td>
</tr>
</tbody>
</table>

**Type of rear sight**

- micrometer click

**Cooling**

- Trigger pull

2 1/4–3 1/4 lb

**AMMUNITION**

Type: ball

**PERFORMANCE**

Muzzle velocity (long rifle (40 grain)) (cartridges of different manufacture may vary) 970 fps

Maximum range (long rifle ctg) (30° elevation) 1,500 yd

**EQUIPMENT**

Basic issue Items: See ORD 7 SNL B-49.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped pistols per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped pistols per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

**References:** SNL B-49, TM 9-1005-226-14.
PISTOL, CALIBER .32, AUTOMATIC: COLT

General

PISTOL, CALIBER .32, AUTOMATIC: Colt is a light defensive hand weapon generally used for ranges of less than 100 yards. It is air-cooled, magazine-fed, recoil-operated, and automatic loading. During recoil the empty cartridge case is ejected; the pistol is then ready to be fired again by actuating the trigger. This pistol is similar in appearance to PISTOL, CALIBER .380, AUTOMATIC: Colt.

Differences among models

Data plate location:
Data are located on the right and left sides of the pistol.

Classification: Standard A (OTCM 37119)

CHARACTERISTICS

Weight (including magazine) 1 lb, 8 oz
Length overall 6 3/8 in.
Length of barrel 3 3/4 in.
Rifling:
Length 6 3/8 in.
Number of grooves 3
Twist, hand short recoil
Operation short recoil
Feed magazine
Capacity of feeding device 8 rd
Cooling air

AMMUNITION

Type ball (71 or 74 grain bullet)

PERFORMANCE

Muzzle velocity 980 fps
Maximum range

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-36.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 25 pistols per wood box (VCI pack).

Outside Continental United States
Shipped 25 pistols per wood box (VCI pack).

PISTOL, CALIBER .380, AUTOMATIC: COLT

Differences among models

Data plate location

Data are located on the left and right sides of the pistol.

Classification: Standard A (OTCM 37119).

CHARACTERISTICS

Weight (including magazine) ........................................... 1 lb, 8 oz
Length overall .......................................................... 6% in.
Length of barrel ......................................................... 3% in.
Rifling:
Length ..............................................................................
Number of grooves .........................................................
Twist, -hand .................................................................
Operation .................................................................
Feed ........................................................................
Capacity of feeding device ...........................................
Coolant .................................................................

AMMUNITION

Type ................................................................. ball (95-grain bullet) (9-mm short)

PERFORMANCE

Muzzle velocity ......................................................... 970 fps
Maximum range (30° elevation) ................................... 1,089 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-86.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 pistols per wood box (VCI pack).

Length ................................................................. 2 ft, 4% in.
Width ................................................................. 9% in.
Height ................................................................. 8% in.
Volume ................................................................. 1.4 cu ft
Gross weight ......................................................... 88 lb
Ship tons ........................................................... 0.04

Outside Continental United States

Shipped 25 pistols per wood box (VCI pack).

Length ................................................................. 2 ft, 4% in.
Width ................................................................. 9% in.
Height ................................................................. 8% in.
Volume ................................................................. 1.4 cu ft
Gross weight ......................................................... 88 lb
Ship tons ........................................................... 0.04


General

PISTOL, CALIBER .45, AUTOMATIC: M1911A1 is a light defensive hand weapon generally used for ranges of less than 100 yards. It is an air-cooled, magazine-fed, recoil-operated, and automatic loading. The gas pressure generated, when the cartridge is fired, forces the recoiling parts to the rear. During recoil, the empty cartridge case is ejected, the recoil spring compressed and the hammer cocked. When the recoil movement has been completed, the compressed recoil spring expands forcing the recoiling parts forward into battery chambering a round of ammunition, thereby placing the pistol in the "ready to fire" position. This pistol has an inertia type firing pin. National match weapons are specially selected for inherent accuracy during manufacture and conform to specific National Match Standards. They are used for all competitive matches held within the Army areas in the zones of interior and overseas.

Differences among models

The M1911A1 national match pistol with 1961 improvements is similar to the standard M1911A1 except that the national match has a lightweight long trigger with adjustable stops, higher front and rear sights, checked stock and selected parts. One version has adjustable rear sight.

Data plate location

Classification: M1911A1—Standard A (OTCM 8684). CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1911A1, w/e</td>
<td>4-29280-20</td>
<td>1006-673-7825</td>
</tr>
<tr>
<td>M1911A1, w/shoulder holster, w/e</td>
<td>4-29280-21</td>
<td>1006-673-5997</td>
</tr>
<tr>
<td>M1911A1, national match, w/1961 improvements</td>
<td>4-2928-20</td>
<td>1006-844-6124</td>
</tr>
<tr>
<td>M1911A1, national match, w/adjustable rear sight &amp; 1961 improvements</td>
<td>1006-788-3026</td>
<td></td>
</tr>
</tbody>
</table>

Riding:

- Length: 4.118 in.
- Number of grooves: 6
- Twist, left-hand: one turn in 16 in.
- Operation: short recoil
- Feed: magazine
- Capacity of feeding device: 7 rd
- Cooling: air
- Trigger pull: New or repaired: 6.5 to 6.75 lb
- In hands of troops: 6 to 6.5 lb

AMMUNITION

Types: ball, tracer, blank, and dummy

PERFORMANCE

- Muzzle velocity (ball, 243- or 254-grain bullet): 885 fps
- Maximum range (ball, 40° elevation): 1,640 yd

EQUIPMENT


INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .45 DUMMY: M1921.

For Graphic Training Aids and Devices, see DA Pam 810-5.

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 25 pistols per wood box (VCI pack).

- Length: 3 ft, 4.96 in.
- Width: 11.3 in.
- Height: 10.8 in.
- Volume: 8.3 cu ft
- Gross weight: 9.5 lb
- Ship tons: 0.06

REPOSITIONER, 20-MILLIMETER, M17

General

REPOSITIONER, 20-mm, M17, is a small, lightweight, hand-operated machine used to accurately reposition rounds in disintegrating belts composed of M6, M7, M8, or M10 links.

Data plate location

The identification plate is located on the front of the base assembly. It includes the name, model number, serial number of the repositioner, and the name and address of the manufacturer. An instruction plate is mounted on the infeed top guide assembly.

Classification: Standard (for U.S. Air Force use only) (OTCM 86541).

CHARACTERISTICS

Net weight ........................................ 84 lb
Length ........................................ 2 ft, 4 in.
Width ........................................ 1 ft, 6 in.
Height ........................................ 1 ft, 7 in.
Links used ........................................ M8, M7, M6, and M10

PERFORMANCE

Normal operating speed ........................................ 200 rd per min

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped repositioners per

Length ........................................ 2 ft, 4 in.
Width ........................................ 1 ft, 6 in.
Height ........................................ 1 ft, 6 in.
Volume ........................................ 115 lb
Gross weight ........................................ 115 lb
Ship tons ........................................

Outside Continental United States

Shipped repositioners per

Length ........................................
Width ........................................
Height ........................................
Volume ........................................
Gross weight ........................................
Ship tons ........................................

References: SNL A-78, Sec. 2; TM 9-9204-1.
REVOLVER, CALIBER .38: COLT, DETECTIVE SPECIAL, 2-INCH BARREL

Major Item

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above) w/ hip holster</td>
<td>4-85831-05</td>
<td>1005-840-7802</td>
</tr>
<tr>
<td>(as above) w/ shoulder holster</td>
<td>4-85831-06</td>
<td>1005-899-1478</td>
</tr>
</tbody>
</table>

General

REVOLVER, CALIBER .38: Colt, detective special, 2-inch barrel, is a single shot, breech loading, hand weapon. It functions either single or double action and has a swing-out type cylinder which holds six cartridges.

Differences among models

Data plate location

Data are stamped on the left side of the barrel.

Classification: Standard A (OTCM 88841).

CHARACTERISTICS

- **Weight**: 1 lb. 5 oz
- **Length overall**: 6-3/8 in.
- **Length of barrel**: 2 in.
- **Rifling**:
  - **Length**: one turn in 16 in.
  - **Number of grooves**: 6
  - **Type of front sight**: blade (fixed)
  - **Type of rear sight**: groove (fixed)
- **Cooling**: air

AMMUNITION

- **Type**: ball

PERFORMANCE

- **Muzzle velocity (ball, 158-grain bullet)**: 870 fps
- **Maximum range (ball) (90° elevation)**: (approx) 350 yd
- **Maximum effective range**: 50 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL E-29.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 26 revolvers per wood box (VCI pack).
- **Length**: 2 ft. 11 in.
- **Width**: 10 in.
- **Height**: 11 in.
- **Volume**: 8 cu ft
- **Gross weight**: 67 lb
- **Ship tons**: 0.05

Outside Continental United States

Shipped 26 revolvers per wood box (VCI pack).
- **Length**: 2 ft. 11 in.
- **Width**: 10 in.
- **Height**: 11 in.
- **Volume**: 8 cu ft
- **Gross weight**: 67 lb
- **Ship tons**: 0.05


2-59
REVOLVER, CALIBER .38: COLT, POLICE POSITIVE SPECIAL, 4-INCH BARREL

General

REVOLVER, CALIBER .38: Colt, police positive special, 4-inch barrel, is a light defensive hand weapon generally used for ranges of less than 100 yards. It has a solid frame, fixed sights, and a swing-out type cylinder which holds six cartridges.

AMIUNITION

Type .......................................................... ball

PERFORMANCE

Muzzle velocity (ball, 158-grain bullet) ............... 870 fps
Maximum range (ball) (80° elevation) ............... 1,085 yd

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

DATA PLATE LOCATION

DATA PLATE LOCATION

Data are stamped on the left side of the barrel.

CLASSIFICATION

Classification: Standard A (OTCM 36541).

CHARACTERISTICS

Weight ........................................ 1 lb, 6 oz
Length:
Overall ........................................ 8½ in.
Barrel ........................................ 4 in.

RIFLING:

Length ........................................
Number of grooves ................................
Twist, right-hand ................................

Number of chambers .................. 6
Type of front sight ............ fixed
Type of rear sight .................. fixed
Cooling ........................................
Trigger pull ...................................

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 revolvers per wood box (VCI pack).

Length ........................................
Width ........................................
Height ........................................
Volume ........................................
Gross weight ................................
Ship tons ...................................

Outside Continental United States

Shipped 25 revolvers per wood box (VCI pack).

Length ........................................
Width ........................................
Height ........................................
Volume ........................................
Gross weight ................................
Ship tons ...................................

REFERENCES:
SB 9-112, TM 9-2208.
REVOLVER, CALIBER .38: COLT, SPECIAL OFFICER'S MODEL, SHORT ACTION, NATIONAL MATCH GRADE

### Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above) w/e</td>
<td>4-88775-00</td>
<td>1965-656-3762</td>
</tr>
</tbody>
</table>

### General

REVOLVER, CALIBER .38: Colt, special officer's model; short action, national match grade, is used for target practice. It has a rear sight which is adjustable for elevation and windage, a front sight of a ramp type, a heavy barrel, and a wide spur hammer.

### Differences among models

Data plate location

Classification: No type classification.

### Characteristics

- **Weight**: 39 oz
- **Length overall**: 11 1/2 in.
- **Length of barrel**: 6 in.
- **Rifling**:
  - **Length**:
  - **Number of grooves**:
  - **Twist**: -hand
- **Number of chambers**: 6
- **Type of front sight**: ramp fixed blade
- **Type of rear sight**: adjustable

### Ammunition

**Types**: .38 Special (midrange, regular and high speed loads, including .38-44).

### Performance

- **Muzzle velocity**
- **Maximum range**

### Equipment

**Basic Issue Items**:

### Instructional Material

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>revolves per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>revolves per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: Not printed.
REVOLVER, CALIBER .38: COLT, SPECIAL, OFFICIAL POLICE, 2- AND 4-INCH BARREL

PERFORMANCE
Muzzle velocity (4-inch barrel) (ball, 158-grain bullet) 870 fps
Maximum range (ball) (35° elevation) (approx) 1,086 yd

EQUIPMENT
Basic Issue Items: See ORD 7 SNL B-29

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 26 revolvers (2-in. barrel) per wood box (VCI pack).
Length 2 ft, 7½ in.
Width 11 in.
Height 11 in.
Volume 2.4 cu ft
Gross weight 66 lb
Ship tons 0.06

Outside Continental United States
Shipped 26 revolvers (2-in. barrel) per wood box (VCI pack).
Length 2 ft, 7½ in.
Width 11 in.
Height 11 in.
Volume 2.4 cu ft
Gross weight 66 lb
Ship tons 0.06

REVOLVER, CALIBER .38: SMITH AND WESSON, MILITARY AND
POLICE (SHORT ACTION), 2- AND 4-INCH BARREL

General

REVOLVER, CALIBER .38: Smith and Wesson, military and
police (short action), 2- or 4-inch barrel, is a light defensive hand
weapon generally used for ranges of less than 100 yards. It func-
tions either single or double action and has a swing-out type
cylinder which holds six cartridges. The short action model was
redesigned for the purpose of reducing the length of hammer travel,
thereby speeding up lock time and making it easier and faster to
cork the gun in single action firing. This was accomplished by
relocating the hammer stud and redesigning the hammer, sideplate,
frame, and other components with the exception of the location of
the trigger.

Differences among models

The only difference between these models is in the length of the
barrel.

Data plate location

Data are stamped on the right side of the barrel and frame.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as above) 2-inch barrel, w/hip holster.</td>
<td>4-35831-30</td>
<td>1005-840-7306</td>
</tr>
<tr>
<td>(as above) 4-inch barrel, w/hip holster, w/e.</td>
<td>4-35840-30</td>
<td>1005-840-7307</td>
</tr>
<tr>
<td>(as above) 4-inch barrel, w/shoulder holster, w/e.</td>
<td>4-35840-31</td>
<td>1005-699-1681</td>
</tr>
</tbody>
</table>

Rifling:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Number of grooves</td>
<td>6</td>
</tr>
<tr>
<td>Twist, right-hand</td>
<td>fixed</td>
<td></td>
</tr>
<tr>
<td>Type of front sight</td>
<td>adjustable</td>
<td></td>
</tr>
<tr>
<td>Type of rear sight</td>
<td>adjustable</td>
<td></td>
</tr>
<tr>
<td>Trigger pull</td>
<td>Single action</td>
<td>8-5 lb</td>
</tr>
<tr>
<td>Double action</td>
<td>(max) 14 lb</td>
<td></td>
</tr>
</tbody>
</table>

AMMUNITION

Types

PERFORMANCE

Muzzle velocity (ball, 158 grain bullet) 760 fps

Maximum range (ball) (30° elevation) (approx) 1.085 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-29.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 revolvers per wood box (VCI pack),

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 7¾ in.</td>
<td></td>
<td>11 in.</td>
<td>2.4 cu ft</td>
<td>74.8 lb</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 25 revolvers per wood box (VCI pack),

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft, 7¾ in.</td>
<td></td>
<td>11 in.</td>
<td>2.4 cu ft</td>
<td>74.8 lb</td>
<td>0.06</td>
</tr>
</tbody>
</table>

REVOLVER, CALIBER .38: SMITH AND WESSON, SPECIAL, K-38 (MASTERPIECE)

General

REVOLVER, CALIBER .38: Smith and Wesson, special, K-38 (Masterpiece), is a 6-shot breech-loading hand weapon. It has a solid frame, a swingout cylinder with six chambers and a manual ejector. The cylinder, mounted on a yoke assembled to the front of the frame, swings out when released by the thumbpiece. The cylinder is unloaded by pressure on the ejector rod which passes down the central axis of the cylinder. Spring loading returns the ejector rod to its original position. This revolver is a selective-double-action type or single action type. There is a built-in safety which prevents firing except by pull on the trigger. The front sight is ¾ or ¾-inch wide plain partridge style. The rear sight has micrometer click adjustments for windage and elevation. The grips are walnut wood with diamond checkering. The hammer spur and trigger are knurled.

Differences among models

Data plate location

Data are stamped on the right and left side of the barrel and on the right side of the frame.

Classification: No type classification.

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Line item No.</td>
<td>Federal stock No.</td>
</tr>
<tr>
<td>E-38, w/o</td>
<td>4-38791-09</td>
<td>1005-568-PT04</td>
</tr>
</tbody>
</table>

AMMUNITION

<table>
<thead>
<tr>
<th>Type of rear sight</th>
<th>Micrometer click</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single action</td>
<td>2½ to 3½ lb</td>
</tr>
<tr>
<td>Double action</td>
<td>12 to 14 lb</td>
</tr>
</tbody>
</table>

PERFORMANCE

<table>
<thead>
<tr>
<th>Type of rear sight</th>
<th>Micrometer click</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muzzle velocity</td>
<td>fps</td>
</tr>
<tr>
<td>Midrange, 146-grain bullet</td>
<td></td>
</tr>
<tr>
<td>Maximum range</td>
<td>yd</td>
</tr>
<tr>
<td>Midrange, 146-grain bullet</td>
<td></td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic issue items: See ORD 7 SNL B-19.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 revolvers per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volums</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped 25 revolvers per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volums</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL B-29, TM 9-1006-226-14, SB 9-112.
REVOLVER, CALIBER .38: SMITH AND WESSON, SPECIAL, MILITARY AND POLICE, 2- AND 4-INCH BARREL

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revolver (as above), 2-inch barrel, w/hip holster</td>
<td>4-35881-20</td>
<td>1005-840-7803</td>
</tr>
<tr>
<td>Revolver (as above), 2-inch barrel, w/shoulder holster</td>
<td>4-35881-36</td>
<td>1005-690-1680</td>
</tr>
<tr>
<td>Revolver (as above), 4-inch barrel, w/hip holster</td>
<td>4-35840-20</td>
<td>1005-214-0934</td>
</tr>
<tr>
<td>Revolver (as above), 4-inch barrel, w/shoulder holster</td>
<td>4-35840-21</td>
<td>1005-690-1685</td>
</tr>
</tbody>
</table>

General

REVOLVER, CALIBER .38: Smith and Wesson, special, military and police, 2- and 4-inch barrel, are light defensive hand weapons generally used for ranges of less than 100 yards. They function either single or double action and have a swing-out type cylinder which holds six cartridges. This revolver can be identified by the "38 S&W Special CTG." on the barrel.

Differences among models

The only difference between these models is in the length of the barrel.

Data plate location

Data are stamped on the right, left sides and top of the barrel and frame.

Classification: Standard A (OTCM 36944).

Characteristics

<table>
<thead>
<tr>
<th>Weight:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(2-in. barrel)</td>
<td>1 lb, 8 oz</td>
</tr>
<tr>
<td>(4-in. barrel)</td>
<td>1 lb, 12 oz</td>
</tr>
<tr>
<td>Length overall:</td>
<td>7 1/4 in.</td>
</tr>
<tr>
<td>(2-in. barrel)</td>
<td></td>
</tr>
<tr>
<td>(4-in. barrel)</td>
<td>9 1/2 in.</td>
</tr>
<tr>
<td>Number of chambers</td>
<td>6</td>
</tr>
<tr>
<td>Type of front sight</td>
<td>blade (fixed)</td>
</tr>
<tr>
<td>Type of rear sight</td>
<td>groove (fixed)</td>
</tr>
<tr>
<td>Cooling</td>
<td>air</td>
</tr>
</tbody>
</table>

AMMUNITION

| Type                                        | ball          |

Performance (4-in. barrel)

Muzzle velocity (ball, 158-grain bullet) 750 fps

Maximum range (ball) (30° elevation) (approx) 1,085 yd

Equipment

Basic Issue Items: See ORD 7 SNL B-29.

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped 25 revolvers, 2-inch barrel per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 7 1/4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>10 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>10 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>1.14 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>70 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Shipped 25 revolvers, 4-inch barrel per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 11 1/2 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>11 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>11 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.4 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>74.5 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 26 revolvers, 2-inch barrel per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 7 1/4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>10 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>10 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>1.14 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>70 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Shipped 26 revolvers, 4-inch barrel per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>2 ft, 11 1/2 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>11 1/2 in.</td>
</tr>
<tr>
<td>Height</td>
<td>11 1/2 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.4 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>74.5 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.06</td>
</tr>
</tbody>
</table>

References: SNL B-29, TM 9-2205, FM 23-35.
REVOLVER, CALIBER .38: SMITH AND WESSON, SPECIAL, MILITARY AND POLICE (SHORT ACTION), 2- AND 4-INCH BARREL

Model
(as above), 2-inch barrel, w/shoulder holster.
(as above), 4-inch barrel, w/hip holster.
(as above), 4-inch barrel, w/shoulder holster.

Data plate location
Data are stamped on the right side of the barrel and frame.

Classification: Standard A (OTCM 38844).

CHARACTERISTICS

Weight:
(2-in. barrel) ........................................ 1 lb, 1 oz
(4-in. barrel) ........................................ 1 lb, 14 oz

Length overall:
(2-in. barrel) ........................................ 7½ in.
(4-in. barrel) ........................................ 9½ in.

Height overall ........................................ 8 in.

Width overall ........................................ 11½ in.

Rifling:
Number of grooves .................................. 5
Twist, right-hand .....................................

Type of front sight .................................. fixed
Type of rear sight ................................... adjustable

Trigger pull:
Single action ........................................ 3–5 lb
Double action ........................................ (max) 14 lb

AMMUNITION

Type .............................................. ball

PERFORMANCE (4-in. barrel)
Muzzle velocity (ball, 150-grain bullet) ............. 769 fps
Maximum range (ball) (90° elevation) ............... (approx) 1,085 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-29.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 25 revolvers, 2-inch barrel, per wood box (VCI pack).

Length .............................................. 2 ft, 7½ in.
Width .............................................. 10½ in.
Height .............................................. 10½ in.
Volume ............................................. 3.1 cu ft
Gross weight ....................................... 70 lb
Ship tons .......................................... 0.05

Shipped 25 revolvers, 4-inch barrel, per wood box (VCI pack).

Length .............................................. 3 ft, 7½ in.
Width .............................................. 11½ in.
Height .............................................. 11 in.
Volume ............................................. 3.4 cu ft
Gross weight ....................................... 74.6 lb
Ship tons .......................................... 0.06

Outside Continental United States

Shipped revolvers, 2-inch barrel, per

Length ..............................................
Width ..............................................
Height ..............................................
Volume .............................................
Gross weight .......................................
Ship tons .......................................... 

Shipped revolvers, 4-inch barrel, per

Length ..............................................
Width ..............................................
Height ..............................................
Volume .............................................
Gross weight .......................................
Ship tons .......................................... 

References: SNL B-29, TM 9-2305, FM 28-85.
RIFLE, CALIBER .22: SURVIVAL, M4 (T38) (HORNET CARTRIDGE)

Model: M4
Line Item No: 1005-575-0070
Federal stock No: 1005-575-0070

General
RIFLE, CALIBER .22: survival, M4, is for use by Air Force personnel for the procurement of food when such personnel are forced down in uninhabited or hostile territory. It is basically a bolt action, repeating weapon firing the cal. .22 Hornet cartridge. It is equipped with a stamped metal receiver casing and has a collapsible wire stock. The barrel is removable from the weapon for packing purposes. The rifle is equipped with a receiver-mounted peep rear sight and a blade type front sight.

Differences among models
Data plate location
Data are located on the barrel, receiver, and frame.

Characteristics
Model

Weight: 4 lb
Length overall: 2 ft, 8 1/2 in
Feed: magazine
Length of barrel: .187 in
Capacity of feeding device: 4 rd
Type of action: bolt-action, repeating, nonautomatic

Ammunition
Type: ball (45-grain soft point bullet)

Performance
Muzzle velocity: 2,800 fps
Maximum effective range: 50 yd

Equipment
Basic Issue Items: See ORD 7-8 SNL B-48.

Instructional Material
Storage and shipment data
Within Continental United States
Shipped 20 rifles per wood box (VCI pack).
Length: 1 ft, 9 1/2 in
Width: 1 ft, 3 1/2 in
Height: 1 ft, 2 1/2 in
Volume: 3.2 cu ft
Gross weight: 125 lb
Ship tons: 0.08

Outside Continental United States
Shipped 20 rifles per wood box (VCI pack).
Length: 1 ft, 9 1/2 in
Width: 1 ft, 3 1/2 in
Height: 1 ft, 2 1/2 in
Volume: 3.2 cu ft
Gross weight: 125 lb
Ship tons: 0.08

References: SNL B-43. TB ORD 389.
GENERAL
RIFLE, CALIBER .22: M12 designates commercial rifles classified for match competition and includes the Winchester Models 52 Standard, 52 Heavy Barrel, 52B and 52C, and Remington Model 40X-S1. The rear sight is a micrometer type adjustable for both windage and elevation. The hooded front sight is furnished with several types of removable inserts ranging from a post to a cross-hair. Provisions for mounting a telescope are provided.

Differences among models
Primarily the difference between models of the Winchester model 52 series is in the weight of the barrels and type of firing mechanisms. They are 5-shot magazine-loaded repeating rifles while the Remington model 40X-S1 is a single shot weapon with loading platform. On the Winchester, the safety lock is located at the front of the bolt locking handle while on the Remington the safety lock is located at the top rear of the bolt.

Data plate location
Data is located on the receiver and barrel of the heavy barrel Winchester and on the receiver of the standard model Winchester and Remington.

Classification: Standard A (OTCM 38641).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>52 Standard, w/e</td>
<td>4-33996-30</td>
<td>1005-317-2472</td>
</tr>
<tr>
<td>52 Heavy barrel, w/e</td>
<td>4-33996-40</td>
<td>1005-317-2472</td>
</tr>
<tr>
<td>52B</td>
<td>4-33996-50</td>
<td>1005-736-7845</td>
</tr>
<tr>
<td>52C</td>
<td>4-33996-52</td>
<td>1005-820-6785</td>
</tr>
<tr>
<td>40X-S1, w/e</td>
<td>4-33996-20</td>
<td>1005-694-4123</td>
</tr>
</tbody>
</table>

Number of lands and grooves: 6
Twist, right-hand: one turn in 16 in.
Operation: manual
Feed:
Winchester: Optional (magazine or single shot using single shot adapter)
Remington: Single shot (hand-loaded)

Capacity of feeding device:
Winchester: 5 rd
Remington: 1 rd

Type of front sight: hooded, interchangeable inserts
Type of rear sight: micrometer

COOLING

AMMUNITION

Types:
Winchester, 52 Standard: .22 ball, long rifle or short (40- or 29-grain bullet)
Winchester, 52 Heavy Barrel: .22 ball, long rifle (40-grain bullet)
Winchester, 52B
Winchester, 52C

PERFORMANCE

Muzzle velocity (ball, long rifle (40-grain bullet)) 1,100 fps
Maximum range (long rifle efg) 1,500 fps

EQUIPMENT

Basic Issue Items: See TM 9-1005-206-14P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 rifles per wood shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>4 ft, 4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 9 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 6 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>10.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>210 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.28</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 10 rifles per wood shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>4 ft, 4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>1 ft, 9 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 6 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>10.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>210 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.28</td>
</tr>
</tbody>
</table>

RIFLE, CALIBER .22: M13 (WINCHESTER MODEL 75, TARGET; REMINGTON MODEL 513T, MATCHMASTER)

SHOWN: RIFLE CALIBER .22: M13 (UPPER–REMINGTON, MODEL 513T, MATCHMASTER; LOWER–WINCHESTER, MODEL 75, TARGET)

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>75, w/e</td>
<td>4-33094-46</td>
<td>1005-317-3471</td>
</tr>
<tr>
<td>513T, w/e</td>
<td>4-33094-20</td>
<td>1008-840-3728</td>
</tr>
</tbody>
</table>

General

RIFLE, CALIBER .22: M13 designates commercial rifles classified for training purposes and includes the Winchester target rifle model 75 and the Remington matchmaster rifle model 513T. They are magazine-fed, manually-operated, bolt action, shoulder weapons. The rear sight is a micrometer type adjustable for both windage and elevation and the front sight is the fixed blade type.

Differences among models

The Winchester model 75 has a magazine containing 5 rounds of ammunition and a short fixed blade-type front sight.

The Remington model 513T has a magazine containing 6 rounds of ammunition and a long fixed blade-type front sight.

Data plate location

Data are located on top of the receiver.

Classification: Standard A (OTCM 36941).

CHARACTERISTICS

Weight (w/o equipment):

Winchester: 7 lb. 8 oz
Remington: 8 lb. 2 oz

Length overall: 3 ft. 9 in.

Length of barrel:

Winchester: 2 ft. 4½ in.
Remington: 2 ft. 3 in.

Operation: Manual

Feed: Magazine

Capacity of feeding device:

Winchester: 5 rd
Remington: 6 rd

Type of front sight: Fixed blade

Type of rear sight: Adjustable

Cooling: Air

Rifling:

Length:

Winchester: 2 ft. 3½ in.
Remington: 2 ft. 4½ in.

Number of lands and grooves: 6

Twist, right-hand: One turn in 16 in.

AMMUNITION

Type: Ball (long rifle. 40-grain bullet)

PERFORMANCE

Muzzle velocity: 1,100 fps
Maximum range (long rifle cal) (30° elevation): 1,500 yd

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 rifles per wood shipping container.

Length: 4 ft. 4 in.
Width: 1 ft. 9½ in.
Height: 1 ft. 4½ in.
Volume: 10.3 cu ft
Gross weight: 210 lb
Ship tons: 0.26

Outside Continental United States

Shipped 10 rifles per wood shipping container.

Length: 4 ft. 4 in.
Width: 1 ft. 9½ in.
Height: 1 ft. 4½ in.
Volume: 10.3 cu ft
Gross weight: 210 lb
Ship tons: 0.26

RIFLE, CALIBER .30: U.S., M1903A4 (SNIPER'S)

Major Item

Model          Line item No.          Federal stock No.
M1903A4, w/e     4-36160-30             1665-674-1521

General

RIFLE, CALIBER .30: U.S., M1903A4 is a magazine-fed, manually-operated, bolt action, shoulder weapon used for sniping. TELESCOPE: M73B1 or M84 is mounted to the top of the receiver. In addition, the bolt handle has a clearance cut on the outside to prevent interference with the telescope when the handle is raised to unlock the bolt. Ammunition must be loaded into the magazine singly because the telescope covers the top of the receiver. The telescope is a delicate instrument; therefore, care must be used in handling the rifle when it is mounted. This rifle is being replaced by RIFLE, CALIBER .30, AUTOMATIC: U.S., M1C.

Differences among models

Data plate location

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Weight:
(w/mount base) .................................. 8 lb, 11 oz
(w/telescope) .................................... 9 lb, 3 oz

Length:
Overall .......................................... 3 ft, 7½ in.
Barrel ............................................... 24 in.

Operation ........................................ manual

Feed ............................................... receiver magazine
Capacity of feeding device ........................................ 5 yd
Cooling ............................................. air

AMMUNITION

Types .............................................. ball, tracer, AP, API, and dummy

PERFORMANCE

Muzzle velocity (ball) .................................. 2,800 fps
Maximum range (ball) (30° elevation) .................. 3,500 yd

EQUIPMENT

Sighting and Fire Control

Telescope: M73B1 or M84

Basic issue Items: See ORD 7 SNL B-3.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 DUMMY: M40 (20/ctn) TRAINER.
RIFLE, SIGHTING: device, M15

STORAGE AND SHIPMENT DATA

Domestic and Oversea Pack

Shipped 10 rifles per wood box (VCI pack).

Length .............................................. 3 ft, 11¾ in.
Width .............................................. 1 ft, 1½ in.
Height .............................................. 1 ft, 1½ in.
Volume ............................................. 5.3 cu ft
Gross weight ...................................... 16.5 lb
Ship tons .......................................... 0.13


* For characteristics and data, see item in section 14.
RIFLE, CALIBER .30: WINCHESTER, MODEL 70 (SPECIAL MATCH GRADE)

General
RIFLE, CALIBER .30: Winchester, Model 70, is a bolt-action, 6-shot, magazine-loaded repeating rifle. The rear sight has click sight adjustments for windage and elevation. The front sight is a hooded detachable sight with nine interchangeable inserts. Provisions for mounting a telescope are provided. The stock is of walnut wood with a checkered steel butt plate.

Differences among models

Data plate location
Classification: Standard B (OTCM 36841).

CHARACTERISTICS

Weight: 9 lbs
Length overall: 3 ft 8½ in.
Length of barrel: 2 ft
Rifling:
Number of grooves: 4
Twist, right-hand: one turn in 10 in.
Operation: manual
Feed: magazine
Capacity of feeding device: 6 rd
Type of front sight: hooded, interchangeable inserts
Type of rear sight: micrometer click
Cooling: air
Trigger pull: 4 to 5½ lbs

AMMUNITION

Type: ball (180-grain bullet)

PERFORMANCE

Muzzle velocity
Maximum range

EQUIPMENT

Basic Issue Items: See ORD 7 SNL B-50.

INSTRUCTIONAL MATERIAL

Storage and shipment data

Within Continental United States

Shipped rifles per
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped rifles per
Length
Width
Height
Volume
Gross weight
Ship tons

RIFLE, CALIBER .30, AUTOMATIC: BROWNING, M1918A2

General

RIFLE, CALIBER .30, AUTOMATIC: Browning, M1918A2, is a gas-operated, magazine-fed, automatic, light infantry weapon. A selector located on the receiver regulates the rate of automatic fire so that the rifle can be fired either at high speed or at a retarded speed. Provision for firing single shots is not made. The rifle can be fired either from the shoulder, hip, or ground. When fired from the ground, a bipod attached to the muzzle end of the barrel is used. The butt plate has a hinged shoulder rest to provide additional support when firing.

Differences among models

Data plate location

Classification: Standard B (OTCM 1084).CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight:</th>
<th></th>
<th>20 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>(W/o equipment)</td>
<td></td>
<td>16 lb, 6 oz</td>
</tr>
<tr>
<td>Magazine</td>
<td></td>
<td>7 oz (empty)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 lb, 7 oz (full)</td>
</tr>
<tr>
<td>Bipod</td>
<td></td>
<td>2 lb, 7 oz</td>
</tr>
<tr>
<td>Length overall</td>
<td></td>
<td>2 ft, 11 3/16 in.</td>
</tr>
<tr>
<td>Length of barrel</td>
<td></td>
<td>2 ft, 4 1/4 in.</td>
</tr>
<tr>
<td>Rifling:</td>
<td></td>
<td>0.1014 in.</td>
</tr>
<tr>
<td>Number of grooves</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Twist, right-hand</td>
<td></td>
<td>one turn in 10 in.</td>
</tr>
<tr>
<td>Depth of groove</td>
<td></td>
<td>0.0010 in.</td>
</tr>
<tr>
<td>Capacity of feeding device</td>
<td></td>
<td>20 rd</td>
</tr>
<tr>
<td>Feed</td>
<td></td>
<td>magazine</td>
</tr>
<tr>
<td>Cooling</td>
<td></td>
<td>Magazine</td>
</tr>
<tr>
<td>Sight radius</td>
<td></td>
<td>5 ft, 7 1/8 in.</td>
</tr>
<tr>
<td>Trigger pull</td>
<td></td>
<td>10 lb max; 6 lb min</td>
</tr>
</tbody>
</table>

AMMUNITION

Types: ball, tracer, AP, incendiary, API, blank, and dummy

PERFORMANCE

Muzzle velocity (ball) ........................................... 2,800 fps
Maximum range (ball) (90° elevation) .......................... 3,000 yd
Rate of fire:
Fast automatic .................................................. 550-650 rds per min
Slow automatic ................................................... 300-400 rds per min

EQUIPMENT

Basic issue items: See ORD 7 SNL A-4.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30 DUMMY: M40.

For Graphic Training Aids and Devices, see DA Pam 310-6.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 6 rifles, w/ sling and cover per wood box.

| Length     | 4 ft, 1 1/8 in. |
| Width      | 1 ft, 6 1/4 in. |
| Height     | 4 7/8 in.       |
| Volume     | 4.6 cu ft       |
| Gross weight | 160 lb          |
| Ship tons  | 0.11             |

Outside Continental United States

Shipped rifles

| Length     |                |
| Width      |                |
| Height     |                |
| Volume     |                |
| Gross weight |            |
| Ship tons  |                |

RIFLE, CALIBER .30, AUTOMATIC: U.S., M1, NATIONAL MATCH, M1C (SNIPER’S), AND M1D (SNIPER’S)

**General**

**RIFLE, CALIBER .30, AUTOMATIC**: U.S., M1, M1C, and M1D, is gas-operated, semiautomatic, clip-fed, offensive shoulder weapon. Eight cartridges, loaded into a clip, are inserted into the receiver and a new cartridge automatically feeds into the chamber after each round is fired. When the last round in the clip has been fired, the clip is automatically ejected from the receiver and the bolt remains in its rearmost position ready for the insertion of another loaded clip. The trigger must be actuated to fire each round.

The M1 rifle, when specially selected for inherent accuracy during manufacture and when conforming to specific National Match Standards, is stamped NM on the barrel and is used for all competitive matches held within the Army areas in the zones of interior and overseas.

Differences among models:

- The rifles M1C and M1D differ from the M1 in that they have a telescope mount attached to the receiver. They also have a removable flash hider assembled to the front end of the barrel and a cheek pad laced to the stock.
- The rifle M1D differs from the rifle M1C in the design of the telescope mount. On the rifle M1C, the telescope is held in a removable mount that has a dovetailed slide that mates with a bracket on the receiver. On the rifle M1D, the telescope is held in a removable mount, which is attached by a screw and plunger, on the barrel.

Rifles of early manufacture of the same model may differ somewhat due to change in design of some of the component parts.

Data plate location

**Classification**: M1 and M1D: Standard A (OTCM 36042).
M1C: Standard A (OTCM 36068).
M1 National Match: No type classification.

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1, w/e</td>
<td>1-36069-00</td>
<td>1004-674-0445</td>
</tr>
<tr>
<td>M1C, w/e</td>
<td>1-36130-10</td>
<td>1006-474-1430</td>
</tr>
<tr>
<td>M1D, w/e</td>
<td>1-36130-20</td>
<td>1006-471-1431</td>
</tr>
<tr>
<td>M1, National Match, w/e</td>
<td>1-360691-10</td>
<td>1005-726-6478</td>
</tr>
</tbody>
</table>

**Weight**

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>9.5 lb</td>
</tr>
<tr>
<td>M1C or M1D</td>
<td>9.75 lb</td>
</tr>
<tr>
<td>M1C or M1D, with accessories, but including permanently mounted bracket</td>
<td>9.75 lb</td>
</tr>
<tr>
<td>M1C or M1D, with telescope, flash hider, gun sling, and cheek pad</td>
<td>11.75 lb</td>
</tr>
<tr>
<td>Length of rifle only</td>
<td>3 ft, 7½ in.</td>
</tr>
<tr>
<td>Length of rifle with flash holder (M1C and M1D)</td>
<td>3 ft, 10½ in.</td>
</tr>
<tr>
<td>Length of barrel</td>
<td>24 in.</td>
</tr>
<tr>
<td>Riffing: Length</td>
<td>21.20 in. (70.8 cal.)</td>
</tr>
<tr>
<td>Number of grooves</td>
<td>4</td>
</tr>
<tr>
<td>Twist, right-hand</td>
<td>one turn in 10 in.</td>
</tr>
<tr>
<td>Depth of grooves</td>
<td>0.0040 in.</td>
</tr>
</tbody>
</table>

**Ammunition**

- Types: ball, tracer, AP, blank, incendiary API, dummy, grenade cartridge (see grenade launcher M7-series).

**Performance**

- Muzzle velocity (ball): 2,800 fps
- Maximum range (ball): 3,460 yd
- Rate of fire: semiautomatic

**Equipment**

**Sighting and Fire Control**
- Telescopes: M84 (M1C and M1D)
- Basic Issue Items: See TM 9-1093-222-12P/2 (M1, M1C and M1D), TM 9-1093-222-12P/1 (M1, National Match).

**Instructmal Material**

**Cartridge, Caliber .30 Dummy**: M40.
**Trainer, Rifle, Sighting**: device, M6.

For Graphic Training Aids and Devices, see DA Pam 810-6.

*For characteristics and data for item, see section 14.*
STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 16 rifles per wood box (VCI pack).

Length:
- Mt .......................................................... 4 ft, 1 in.
- M1C and M1D ........................................... 3 ft, 11/2 in.

Width:
- Mt .......................................................... 1 ft, 6 1/2 in.
- M1C and M1D ........................................... 1 ft, 1 1/8 in.

Height:
- Mt .......................................................... 1 ft, 1 in.
- M1C and M1D ........................................... 1 ft, 1 1/8 in.

Volume:
- Mt .......................................................... 6.8 cu ft
- M1C and M1D ........................................... 6.3 cu ft

Gross weight:
- Mt .......................................................... 164 lb
- M1C and M1D ........................................... 182 lb

Ship tons:
- Mt .......................................................... 0.17
- M1C and M1D ........................................... 0.18

GUN, SPOTTING, CALIBER .50: M8C

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8C</td>
<td>1000-511-9042</td>
<td></td>
</tr>
</tbody>
</table>

**General**

GUN, SPOTTING, CALIBER .50: M8C is used on RIFLE, 106-MILIMETER: M40A1 or M40A1C to assist the gunner in determining range. It is a magazine-fed, percussion-fired, gas-operated, semiautomatic weapon that utilizes special caliber .50 ammunition, which incorporates a tracer element and provides a smoke puff on impact. Either a 10-round or 20-round magazine may be used with this weapon.

**Differences among models**

Data plate location
Classification: Standard A (OTCM 36841).

**CHARACTERISTICS**

**Weight:**
- Without magazine: 24.41 lb
- (w/10-round magazine (loaded)): 25.86 lb
- (w/20-round magazine (loaded)): 26.64 lb
- (w/20-round magazine (unloaded)): 31.26 lb
- 10-round magazine (loaded): 1.25 lb
- 20-round magazine (loaded): 3.61 lb
- 20-round magazine (unloaded): 3.13 lb
- 20-round magazine (unloaded): 0.96 lb

**Length:**
- Overall: 3 ft, 8% in.
- Barrel: 2 ft, 8 in.

**Rifling:**
- Length: one turn in 12 in.

**Cooling**
- Gas

**Feed**
- Magazine

**Capacity of feeding device**
- 10 or 20 rd

**AMMUNITION**

Types: Practice, spotter-tracer

**PERFORMANCE**

Muzzle velocity: 1,760 fps
Estimated accuracy life: 5,000 rd

**EQUIPMENT**

Sighting and Fire Control:
Basic Issue Items: See TM 9-1000-206-12.

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

Shipped 4 rifles per shipping container.

- Length: 4 ft, 2% in.
- Width: 1 ft, 5%6 in.
- Height: 1 ft, 11% in.
- Volume: 6.8 cu ft
- Gross weight: 110 lb
- Ship tons: 0.17

**Outside Continental United States**

Shipped 4 rifles per shipping container.

- Length: 4 ft, 2% in.
- Width: 1 ft, 5%6 in.
- Height: 1 ft, 11% in.
- Volume: 6.8 cu ft
- Gross weight: 110 lb
- Ship tons: 0.17

RIFLE, 7.62-MILLIMETER, AUTOMATIC: M14; BIPOD, RIFLE: M2

CHARACTERISTICS

Rifle:
- Weight: (w/empty magazine less sling) 9.1 lb, (fully loaded w/sling attached) 11 lb
- Length: Overall (w/flash suppressor) 3 ft, 8½ in., Barrel 1 ft, 10 in.
- Riffing: Length 19.91 in., Number of grooves 4, Twist, right-hand 1 turn in 12 in.
- Operation: gas
- Feed: magazine
- Cooling: air
- Type of mechanism: rotating bolt
- Trigger pull: 7.5 lb max; 5.5 lb min

Bipod:
- Weight: 1½ lb
- Spread of legs: With legs telescoped 12½ in., With legs fully extended 15 in.
- Height: With legs telescoped 9½ in., With legs fully extended 18½ in.

AMMUNITION
Types (NATO) AP, blank, ball, tracer, and dummy

PERFORMANCE
- Muzzle velocity: 2,750 fps
- Maximum range: 2,200 meters
- Maximum effective range: 800 yd
- Rate of fire:
  - Semiautomatic: 40 to 60 rd per min
  - Automatic: 120 to 150 rd per min
  - Sustained: 8 to 10 rd per min

EQUIPMENT

Within Continental United States
- Shipped 10 rifles per wood shipping container:
  - Length: 4 ft, 2½ in.
  - Width: 2 ft, 2½ in.
  - Height: 1 ft, 3⅜ in.
  - Volume: 3.96 cu ft
  - Gross weight: 176 lb
  - Ship tons: 0.205

Outside Continental United States
- Shipped 60 bipods per wood shipping container:
  - Length: 5 ft, 10⅝ in.
  - Width: 2 ft, 2½ in.
  - Height: 1 ft, 3⅜ in.
  - Volume: 3.96 cu ft
  - Gross weight: 210 lb
  - Ship tons: 0.44

STORAGE AND SHIPMENT DATA


INSTRUCTIONAL MATERIAL
ATTACHMENT, FIRING, BLANK: Ammunition, 7.62-mm, M12.
CARTRIDGE, 7.62 MILLIMETER DUMMY: NATO, M63.
DEVICE, AIMING: M2.
TRAINER, RIFLE, SIGHTING: device, M13.
RIFLE-SHOTGUN, SURVIVAL, CALIBER .22/.410-GAGE, M6 (T39)

General

RIFLE-SHOTGUN, survival, caliber .22/.410-gage, M6, is for use by Air Force personnel for procurement of food when such personnel are forced down in uninhabited or hostile territory. It is a single shot weapon of the "over and under" type. The top barrel is chambered for the cal. .22 Hornet cartridge; the lower barrel will accept the .410 shotgun shell or the .410 rifled slug. A spring actuated extractor is provided. The weapon is equipped with a sheet metal stock having provision for storing ammunition. A bar type trigger is used; no applied safety is provided. The rear sight is a "flip over" type containing a peep for the rifle barrel and an open sight for the shotgun barrel. The front sight is a blade type sight adjusted at manufacture. This sight is secured to the top barrel and constructed to provide clearance around the bottom barrel. This floating feature allows either barrel to elongate independently of the other when expansion occurs due to heat produced by firing. An eyelet is provided in the front sight for attaching one end of a sling.

Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6, w/o</td>
<td>1005-578-9073</td>
<td></td>
</tr>
</tbody>
</table>

AMMUNITION

Cal. .22 Hornet cartridge:
- Type: Ball (45-grain soft point bullet)

.410-gage shotgun cartridge:
- Type: Cartridge (3-in., No. 7½ chilled shot) (M35, all aluminum, 3-in., No. 6 chilled shot).

PERFORMANCE

Muzzle velocity (cal. .22 Hornet cal) -------------- 2,690 fps
Average velocity over 25-yard range:
- .410-gage: 3-in., No. 7½ chilled shot -------------- 950 fps
- .22 Hornet cartridge (ball) ------------------ 50 yd

Maximum effective range:
- .410-gage, 3-inch shotgun shell, No. 6 chilled shot ------- 25 yd
- .22 Hornet cartridge (ball) ------------------ 50 yd

EQUIPMENT

Basic Issue Items: See ORD 7 SNL 8-45.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 20 rifle-shotguns per wood box (VCI pack):
- Length: 3 ft, 3½ in.
- Width: 1 ft, 7 in.
- Height: 1 ft, 6 in.
- Volume: 7.2 cu ft
- Gross weight: 200 lb
- Ship tons: 0.18

Outside Continental United States

Shipped 20 rifle-shotguns per wood box (VCI pack):
- Length: 3 ft, 3½ in.
- Width: 1 ft, 7 in.
- Height: 1 ft, 6 in.
- Volume: 7.2 cu ft
- Gross weight: 200 lb
- Ship tons: 0.18

References: SNL B-45, TB ORD 499.
SHOTGUN, 12-GAGE, RIOT TYPE: STEVENS, MODELS M520-30 AND M620A, 20-INCH BARREL

General

SHOTGUN, 12-GAGE, RIOT TYPE: Stevens, M520-30 or M620A, 20-inch barrel, is a manually-operated, slide action, repeating, hammerless, shoulder weapon. It is equipped with a type-S bayonet attachment, hand guard, sling, and sling swivels.

Differences among models

The shotgun M520-30 has the upper part of the rear of the receiver forming a corner; the safety is located in the receiver tang; and the stock is fastened by a screw, running vertically through the receiver tang and the stock.

The shotgun M620A has the safety located in the trigger guard; it has a receiver extension instead of a receiver tang; and the stock is fastened to the receiver extension by a bolt running horizontally through the stock.

Data plate location:

Classification: Standard A (OTCM 38841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
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<tbody>
<tr>
<td>Models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M520-30</td>
<td>4-10784</td>
<td>1005-677-9130</td>
</tr>
<tr>
<td>M620A</td>
<td></td>
<td>1005-677-9140</td>
</tr>
</tbody>
</table>

Weight (w/attachment) 8 lb
Length overall 3 ft, 4 in.
Length of barrel 20 in.
Operation manual
Feed tubular magazine
Capacity of feeding device 5 rd
Cooling air
Gage of bore 12
Diameter of bore 0.729 in.
Boring of barrel cylinder

AMMUNITION

Types 12-gage shotgun cartridge—all brass No. 00 buck M19; paper—No. 00 buckshot, No. 9 chilled shot.

PERFORMANCE

Average velocity over 40-yr range:
No. 00 buckshot 1,060 fps
Maximum effective range:
No. 00 buckshot 60-75 yd

EQUIPMENT

Basic issue items: See ORD 7 SNL B-9.

INSTRUCTIONAL MATERIAL

For Graphic Training Aids and Devices, see DA Pam 310-8.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 shotguns per wood box (VCI pack).
Length 3 ft, 8 in.
Width 1 ft, 4 in.
Height 1 ft
Volume 4.9 cu ft
Gross weight 166 lb
Ship tons 0.12

Outside Continental United States

Shipped 10 shotguns per wood box (VCI pack).
Length 3 ft, 8 in.
Width 1 ft, 4 in.
Height 1 ft
Volume 4.9 cu ft
Gross weight 165 lb
Ship tons 0.12

SHOTGUN, 12-GAGE, RIOT TYPE: WINCHESTER, 20-INCH BARREL, M12 (M1912)

General
SHOTGUN, 12-GAGE, RIOT TYPE: Winchester, 20-inch barrel, M12, is a manually-operated, slide action, repeating, hammerless, shoulder weapon having a solid frame. It is equipped with a type-W bayonet attachment, hand guard, sling, and sling swivels. This shotgun is used for guard duty.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Model | Line item No. | Federal stock No.
M12 | 1005-731-2036

Weight (w/attachments) | 7 lb, 8 oz
Length overall | 3 ft, 4 in.
Length of barrel | 20 in.
Operation | Manual
Feed | Tubular magazine
Capacity of feeding device | 5 rd
Gage of bore | 12
Diameter of bore | 0.729 in.
Cooling | Air
Boring of barrel | Cylinder

AMMUNITION

Types | 12-gage shotgun cartridges—all brass No. 00 buck M19; paper No. 00 buckshot, No. 9 chilled shot.

PERFORMANCE

Average velocity over 40-yd range:
No. 00 buckshot | 1,060 fps
No. 00 buckshot | 60-75 yd

EQUIPMENT

Basic Issue Items: See ORD 7-SNL B-9.

INSTRUCTIONAL MATERIAL

For Graphic Training Aids and Devices, see DA Pam 310-6.

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 10 shotguns per wood box (VCI pack).
Length | 3 ft, 8 in.
Width | 1 ft, 4 in.
Height | 1 ft
Volume | 4.9 cu ft
Gross weight | 150 lb
Ship tons | 0.12

Outside Continental United States
Shipped 10 shotguns per wood box (VCI pack).
Length | 3 ft, 8 in.
Width | 1 ft, 4 in.
Height | 1 ft
Volume | 4.9 cu ft
Gross weight | 150 lb
Ship tons | 0.12

References: SNL B-9, TM 9-236, TM 9-2117, TM 9-2206, SB 9-117.
SUBMACHINEGUN, CALIBER .45: M3 AND M3A1

General

SUBMACHINEGUN, CALIBER .45: M3 and M3A1, is air-cooled, blowback-operated, magazine-fed, automatic weapon. They have a sliding metal stock which may be extended for shoulder firing. With the stock in its forward position, the gun may be fired from the hip. This gun is not considered safe when a loaded magazine is in place and the bolt is forward in the receiver unless the cover attached to the receiver is closed, thereby engaging the safety lock with its recess in the bolt. If the gun is dropped on the butt or if severely jarred, with the cover open, the bolt may move rearward far enough so that on its forward movement it may remove a round from the magazine and chamber and fire it.

Differences among models

The M3 submachinegun is cocked by a lever attached to the housing assembly and on the M3A1 the bolt is pulled to the rear with a finger to cock the gun.

Data plate location

Classification: Standard B (OTCM 85841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3, w/e</td>
<td>4-17247-20</td>
<td>1006-672-1767</td>
</tr>
<tr>
<td>M3A1, w/e</td>
<td>4-17247-16</td>
<td>1006-672-1771</td>
</tr>
</tbody>
</table>

AMMUNITION

Types: ball, tracer, and dummy

PERFORMANCE

Muzzle velocity (ball, 234-grain bullet) ........................................... 920 fps
Maximum range (ball) (30° elevation) .............................................. 1,760 yd
Rate of fire .................................................. 350-450 rd per min

EQUIPMENT

Basic Issue Items: See ORD 7 SNL A-58.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .45 DUMMY: M1921.
For Graphic Training Aids and Devices, see DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 10 guns w/sling and oiler per wood box.
Length ........................................... 1 ft, 11 1/2 in.
Width ................................................ 1 ft, 1 1/2 in.
Height ............................................. 1 ft, 3 1/4 in.
Volume ........................................... 3.0 cu ft
Gross weight .................................. 128 lb
Ship tons ........................................... 0.08

Outside Continental United States

Shipped guns
Length ........................................... 1 ft, 11 1/2 in.
Width ................................................ 1 ft, 1 1/2 in.
Height ............................................. 1 ft, 3 1/4 in.
Volume ........................................... 3.0 cu ft
Gross weight .................................. 128 lb
Ship tons ........................................... 0.08

ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: TWIN, M2 (XM2) (MACHINEGUN, 7.62-MILLIMETER: M60C; MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM (7791961))

General

The subsystem M2 is designed for installation on OH-13 (series) or OH-23 (series) helicopters. The subsystem mounts two MACHINEGUNS, 7.62-MILLIMETER: M60C, one on each side of the helicopter, in individual mount assemblies which fasten to the front and rear cross tubes of the helicopter skids. The machineguns are interchangeable. Machineguns are pneumatically charged from a compressed gas charging system on each mount assembly. Weapon elevation and firing are electrically controlled from the cockpit. Ammunition for each machinegun is loaded in a single ammunition box secured to the mount assembly and is fed through an ammunition chute assembly to the machinegun.

Differences among models

When the subsystem M2 is installed on OH-13E and OH-13G helicopters, four bracket assemblies are installed on the helicopter skid cross tubes. Four pin and cable assemblies fasten the mount assemblies to the bracket assemblies. When the subsystem M2 is

* Characteristics and data will be added at a later date.
Differences among models—Continued
installed on the OH-13H helicopter, mounting plate kits take the place of the bracket assemblies; pin and cable assemblies fasten the mount assemblies to the mounting plate kits. When the sub-
system M2 is installed on the OH-23 (series) helicopter, the mount assemblies fasten directly to the helicopter skid cross bars and no bracket assemblies, mounting plate kits, or pin and cable
assemblies are required.

Data plate location
One data plate is attached to right front of each mount assembly.

Classification: Standard A (AMCTC Item 01637)

CHARACTERISTICS

Armament subsystem:
Weight (w/machineguns, w/o ammunition) 130.55 lb
Weight (w/machineguns, w/ammunition) 201.2 lb
Depression _____________________________ 0 deg
Depression rate ________________________ 0 deg/second
Elevation ______________________________ 9 deg
Elevation rate __________________________ 9 deg/second
Length _______________________________ 62.5 in.
Charger supply pressure __________________ 3000 psi max
Charger line pressure ____________________ 300 to 400 psi
Machinegun:
Length ________________________________ 43.5 in.
Weight (two guns) ________________________ 42.0 lb

AMMUNITION

7.62-mm ______________________________ capacity 1100 rds total
Types ________________________________ ball, AP, tracer, dummy

PERFORMANCE

Rate of fire (both guns) (approx) 1,100 rds per min

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 armament subsystem per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>6.0 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>2 ft, 1 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 10 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>21.8 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>269.5 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Outside Continental United States
Shipped 1 armament subsystem per shipping container.

<table>
<thead>
<tr>
<th>Length</th>
<th>6.0 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>2 ft, 1 in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 10 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>21.8 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>269.5 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.5</td>
</tr>
</tbody>
</table>

ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: QUAD, M6 (XM6E3) (MACHINEGUN, 7.62-MILLIMETER: M60CAl; MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM (7792569))

General
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: quad, M6 (XM6E3) consists of four MACHINEGUNS, 7.62-MILLIMETER: M60CAl and MOUNT, MACHINEGUN, 7.62-mm, helicopter armament subsystem mounted on a UH-1B helicopter. The mount is composed of left-hand and right-hand mount assemblies which hold two machineguns each, 12 ammunition box assemblies and necessary ammunition chutes to connect with the machineguns, a control box panel and a sighting station used by the copilot to control and direct machinegun fire electrically. Machinegun changing and mount assembly movements in elevation and azimuth are powered hydraulically from the helicopter. The left-hand and right-hand mount assemblies provide a field of fire ranging from plus 9° to minus 66° in elevation, and from 12° inboard to 70° outboard in azimuth, with the mount assemblies being directed by electrical signals from the sighting station, independent of the helicopter attitude. When the subsystem is energized but the sighting station is not in use, the mount assemblies return to zero elevation and zero azimuth, or “stow” position. When in “stow” position, the machineguns may be fired by pilot or copilot from a switch on either cyclic stick as the helicopter is maneuvered to aim the machineguns.

Difference among models
Data plate location:
Data plates are attached to the back of each mount assembly, to the sighting station just under the sunshade, and to the body of the control box panel.

Classification: Standard A (AMCTC item 949)

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M6</td>
<td>A9023</td>
<td>1086-084-8332</td>
</tr>
</tbody>
</table>

AGO 5716A
242-876 O - 67 - 8
CHARACTERISTICS

Armament Subsystem:
- Weight (both mount assemblies w/o guns or ammunition) 133.2 lb
- Weight (both mount assemblies w/guns and ammunition) 689.9 lb
- Cylinder assembly (charger) hydraulic supply pressure 1,500 psi
- Machinegun:
  - Weight (4 machineguns) 83 lb
  - Gun length (including flash suppressor) 43.5 in.

AMMUNITION
- 7.62-mm capacity 6,000 rds total
- Types: ball, AP, tracer, dummy

PERFORMANCE
- Rate of fire (4 guns) (approx) 2,200 rds per min

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
DRIVE, ELECTRIC: M7 (T48)

30 August 1963

Illustration will be added at a later date

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M7</td>
<td>1005-508-2040</td>
<td>1005-862-8300</td>
</tr>
<tr>
<td>M7, w/e</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General**

DRIVE, ELECTRIC: M7 is used to operate the GUN, 20 MILLIMETER, AUTOMATIC: M61*. The drive has an electric braking device built into the housing which is released upon application of power to the drive.

**Differences among models**

Data plate location

Data plate location is on the side of the drive.

Classification: Standard (For U. S. Air Force use only)  (OTCM 37324)

**Characteristics**

**Performance**

**Equipment**

**Storage and Shipment Data**

Within Continental United States

Shipped 4 drives w/ or w/o equipment per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 7% in.</th>
<th>Width</th>
<th>1 ft, 6% in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>1 ft, 6% in.</td>
<td>Volume</td>
<td>4.27 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>196 lb</td>
<td>Ship tons</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 4 drives w/ or w/o equipment per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>1 ft, 7% in.</th>
<th>Width</th>
<th>1 ft, 6% in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
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<td>Volume</td>
<td>4.27 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>196 lb</td>
<td>Ship tons</td>
<td>0.19</td>
</tr>
</tbody>
</table>

**References:**

* For characteristics and data, see item on page 2-19.
DRIVE, HYDRAULIC: M12

(Drive will be added at a later date)

General
DRIVE, HYDRAULIC: M12 is used in the operation of the GUN, 20 MILLIMETER, AUTOMATIC: M61*. The drive is a ball motor which is connected to a hydraulic power system. The drive provides its own braking torque to stop the weapon when the power is cut.

Differences among models
Data plate location
Data plate location is on the side of the drive.

Classification: Standard (For U. S. Air Force use only)
(OTCM 87324)

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic issue items:

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 6 drives per shipping container.

Length ........................................ 28 1/2 in.
Width ......................................... 19 in.
Height ....................................... 11 3/4 in.
Volume ...................................... 4.0 cu ft
Gross weight ................................ 110 lb
Ship tons ................................... 0.1

Outside Continental United States
Shipped 6 drives per shipping container.

Length ........................................ 28 1/2 in.
Width ......................................... 19 in.
Height ....................................... 11 3/4 in.
Volume ...................................... 4.0 cu ft
Gross weight ................................ 130 lb
Ship tons ................................... 0.1

References:

* For characteristics and data, see item on page 2-19.

2-86
FEEDER, AUTOMATIC GUN: M2 AND M2A1

30 August 1963

FEEDER, AUTOMATIC GUN: M2 and M2A1 is used with the GUN, 20 MILLIMETER, AUTOMATIC: M61*. The feeder is driven by the rotor gear and pulls linked rounds from the ammunition box, strips the links from the rounds and ejects empty rounds. It feeds and guides the rounds into the extractor lip of the bolt which chamber the rounds.

Differences among models

Model
M2
M2A1

Secondary Item
Line item No. Federal stock No.
1006-701-6706
1006-478-6122

General

FEEDER, AUTOMATIC GUN: M2 and M2A1 is used with the GUN, 20 MILLIMETER, AUTOMATIC: M61*. The feeder is driven by the rotor gear and pulls linked rounds from the ammunition box, strips the links from the rounds and ejects empty rounds. It feeds and guides the rounds into the extractor lip of the bolt which chamber the rounds.

Classification:
M2 ... Limited standard
M2A1 .... Standard

Data plate location
Data plate location is on the top of the feeder.

CHARACTERISTICS
PERFORMANCE

EQUIPMENT

Basic Issue Items:

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 1 feeder per shipping container.

Length .................................................. 181/2 in.
Width ..................................................... 10 in.
Height ..................................................... 91/4 in.
Volume .................................................... .96 cu ft
Gross weight .............................................. 22 lb
Ship tons ................................................. 0.02

Outside Continental United States

Shipped 6 feeders per shipping container.

Length .................................................... 331/2 in.
Width ..................................................... 191/2 in.
Height ..................................................... 191/4 in.
Volume .................................................... 7.3 cu ft
Gross weight .............................................. 74 lb
Ship tons ................................................. 0.18

References:

* For characteristics and data, see item on page 2-19.
FEEDER, AUTOMATIC GUN: M3 AND M3A1

(Illustration will be added at a later date)

General
FEEDER, AUTOMATIC GUN: M3 and M3A1 is used with the GUN 20 MILLIMETER, AUTOMATIC: M61*. The feeder is driven by the rotor gun and pulls linked rounds from the ammunition box, strips the links from the rounds, and ejects empty rounds. It feeds and guides the rounds into the extractor lip of the bolts which chamber the round.

Differences among models
Data plate location
Data plate location is on the top of the feeder.

Classification:
M3 ........ Limited standard
M3A1 ........ Standard

CHARACTERISTICS

PERFORMANCE

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td></td>
<td>1005-629-6299</td>
</tr>
<tr>
<td>M3A1</td>
<td></td>
<td>1005-473-6054</td>
</tr>
</tbody>
</table>

EQUIPMENT

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 feeder per shipping container.
Length ....................................... 18½ in.
Width ........................................ 10 in.
Height ...................................... 19½ in.
Volume ...................................... 96 cu ft
Gross weight ................................ 20.6 lb
Ship tons ................................... 0.02

Outside Continental United States
Shipped 6 feeders per shipping container.
Length ....................................... 23½ in.
Width ........................................ 19½ in.
Height ...................................... 19½ in.
Volume ...................................... 7.3 cu ft
Gross weight ................................ 165 lb
Ship tons ................................... 0.18

References:

* For characteristics and data, see item on page 2-19.
LINKER-DELINKER, 7.62 MILLIMETER, HAND: M21

(Illustration will be added at a later date)

PERFORMANCE
Loading rate

EQUIPMENT
Basic Issue Items: See TM 9-1005-224-31P

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 1 linker-delinker per shipping container.
Length ................. 17 3/8 in.
Width .................. 11 3/8 in.
Height .................. 6 1/2 in.
Volume ................ 26 cu ft
Gross weight .......... 25 lb
Ship tons .............. 0.08

Outside Continental United States
Shipped 6 linker-delinker per shipping container.
Length ................ 36 1/2 in.
Width ................ 18 3/4 in.
Height ................ 11 3/4 in.
Volume ............... 4.0 cu ft
Gross weight ......... 180 lb
Ship tons .............. 0.1

References:

2-89
LINKER-DELINKER, CALIBER .50, HAND: M22

Illustration will be added at a later date.

Model M22
Line item No. ............... 1005-899-4046
Federal stock No. ..............

General
LINKER-DELINKER, CALIBER .50, HAND: M22, is used to link or delink caliber .50 ammunition and M15 or M15A1 links. It is manually operated by means of a handle bar. The links are placed in the forward portion of the stripper bar, the ammunition is partially inserted into the rear of the links, the handle bar is then pulled forward and down to complete the linking operation. To delink, the entire belt is positioned on the rearward portion of the stripper bar, the handle bar is then pulled forward and down forcing the rounds of ammunition forward through and out of the links, thus completing the delinking operation.

Characteristics
Model.............. M22
Line item No. ............... 1005-899-4046
Federal stock No. ..............

Weight.............. 9.25 lb
Length.............. 15% in.
Width.............. 15% in.
Height.............. 3% in.
Capacity.............. 10 rds

PERFORMANCE
Loading rate..............

EQUIPMENT

Basic Issue Items: See TM 9-1005-231-35P

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 linker-delinker per shipping container.
Length..................... 20% in.
Width..................... 16% in.
Height..................... 4% in.
Volume..................... 92 cu ft
Gross weight..................... 88% lb
Ship tons..................... 0.2

Outside Continental United States

Shipped 4 linker-delinker per shipping container.
Length..................... 23% in.
Width..................... 20% in.
Height..................... 17% in.
Volume..................... 4.9 cu ft
Gross weight..................... 186 lb
Ship tons..................... 0.1

References:

2-90
PISTOL, CALIBER .22, AUTOMATIC: MARKSMAN TRAINING
GRADE, MODEL 9271 SUPERMATIC TOURNAMENT
HIGH STANDARD

(Illustration will be added at a later date)

<table>
<thead>
<tr>
<th>Model</th>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>As above</td>
<td>...</td>
<td>4-29196-05</td>
<td>1005-890-5220</td>
</tr>
</tbody>
</table>

General

PISTOL, CALIBER .22 AUTOMATIC: marksmen training grade,
Model 9271 supermatic tournament high standard, is a 10-shot,
magazine-fed, recoil-operated, air-cooled, automatic loading
hand
weapon chambered for the caliber .22 long rifle cartridge only. The
rear sight has a positive self-locking click adjustment for both
windage and elevation. A positive lock safety is provided which
locks the rear in the safe position. A slide lock automatically holds
the slide open, after firing the last round in the magazine. Take-
down of the barrel and the slide assembly is easily accomplished by
depressing a barrel plunger cam.

Differences among models

Data plate location

Data are located on the left and right sides of the pistol.

Classification: No type classification.

CHARACTERISTICS

| Weight | 2 lb, 12 oz |
| Length overall | 12 in. |
| Length of barrel | 6½ in. |
| Ramping |
| Number of grooves | 6 |
| Operation, right-hand | blowback |
| Feed | magazine |
| Capacity of feeding device | 10 rd |
| Type of front sight | adjustable ramp |
| Type of rear sight | micrometer click sight |
| Cooling | air |
| Trigger pull | 2½–3 lb |

AMMUNITION

| Type | ball |

PERFORMANCE

Muzzle velocity (long rifle, lead bullet) (cartridges
of different manufacturers may vary) 970 fps
Maximum range (long rifle cartridge) 1,500 yd

EQUIPMENT

Basic issue items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Ship 25 pistols per shipping container.

| Length | 13⅞ in. |
| Width | 33¾ in. |
| Height | 10 in. |
| Volume | 2.64 cu ft |
| Gross weight | 14 lb |
| Ship tons | 0.06 |

Outside Continental United States

Ship 25 pistols per shipping container.

| Length | 13⅞ in. |
| Width | 33¾ in. |
| Height | 10 in. |
| Volume | 2.64 cu ft |
| Gross weight | 14 lb |
| Ship tons | 0.06 |

References:

AGO 57198 A

2-91
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: DOOR MOUNTED, LIGHTWEIGHT, XM23 (MACHINEGUN, 7.62-MILLIMETER: XM60D; MOUNT ASSEMBLY, LEFT SIDE (49937) AND MOUNT ASSEMBLY, RIGHT SIDE (49936))

ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: door mounted, lightweight, XM23, is composed of two MACHINEGUNS, 7.62-MILLIMETER: XM60D mounted on a MOUNT ASSEMBLY, LEFT SIDE and MOUNT ASSEMBLY, RIGHT SIDE, on the UH-1D helicopter. The mount assemblies secure to hard points on the helicopter, located so the machineguns can be fired by gunners standing in the open doors of the helicopter cargo compartment. Maximum elevation, depression, and traverse movements of the machineguns on the mount assemblies are controlled by the shape and size of the pintle pivots which carry the machineguns. Traversing locks on the mount pintle posts secure the machineguns in stowed position. Linked ammunition is carried in an ammunition box and cover assembly on each mount and is fed to each gun through a chute assembly. Spent cartridges are caught in an ejection control bag attached to the right side of each machinegun.

Differences among models

Data plate location

Data for the XM23 subsystem mount assemblies are stamped in the base assembly of each mount assembly.

Classification

CHARACTERISTICS

Armament system:
Weight (both mounts, w/ammo boxes, chuting, and bags, w/o machineguns or ammunition) .......... 82.6 lb
Weight (both mounts, w/ammo boxes, chuting, and bags, w/two machineguns, w/800 rds of ammo per box) ........................................... 208.8 lb
Elevation:
Forward ............................................. 81 mils
Aft ................................................... 115 mils
Side .................................................. 99 mils
Depression:
Forward ............................................. 1,457 mils
Aft ................................................... 1,386 mils
Side .................................................. 1,457 mils
 Traverse:
Forward ............................................. 1,546 mils
Aft ................................................... 1,546 mils

Machine gun, 7.62-millimeter: XM60D:
Length, overall ................................... 44.7 in.
Weight ............................................. 24.7 lb

AMMUNITION

7.62-mm .............................................. capacity 600 rds total
Types ................................................ ball, AP, tracer, dummy

PERFORMANCE

Rate of fire, (each gun) ......................... (approx) 550 rds per min

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA


* Characteristics and data will be added at a later date.
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: DOOR MOUNTED, LIGHTWEIGHT, XM24 (MACHINEGUN, 7.62-MILLIMETER: XM60D; MOUNT ASSEMBLY, LEFT SIDE (50599) AND MOUNT ASSEMBLY, RIGHT SIDE (50600))

General
ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN: door mounted, lightweight, XM24, is composed of two MACHINEGUNS, 7.62-MILLIMETER: XM60D mounted on a MOUNT ASSEMBLY, LEFT SIDE and MOUNT ASSEMBLY, RIGHT SIDE, on the CH-47A helicopter. The mount assemblies are installed horizontally across the right cabin doorway and across the escape hatch on the left side of the helicopter. Each mount assembly attaches to vertical members of the helicopter airframe. Boxed, linked ammunition is carried in an ammunition can assembly which attaches to the left side of each machinegun. The spent cartridges are caught in an ejection control bag attached to the right side of each machinegun. When not in use, each machinegun is swung to a traversing limit and is secured by an elastic shock cord assembly.

Differences among models
Data plate location:
Data for the XM24 subsystem mount assemblies are stamped on the triangular metal portion of the mount which supports the pintle post.

Classification

* Characteristics and data will be added at a later date.
CHARACTERISTICS

Armament subsystem:

Weight (both mounts, w/ammbox boxes and bags, w/o machineguns or ammunition) 35.6 lb
Weight (both mounts, w/ammbox boxes, bags, machineguns, and two boxes of ammo per machinegun) 111.4 lb

Mount assembly, left side:
Elevation:
Forward 53 mils
Aft 115 mils
Depression 1,191 mils
Traverse:
Forward 1,280 mils
Aft 1,066 mils

Mount assembly, right side:
Elevation:
Forward 53 mils
Aft 115 mils
Depression 1,386 mils
Traverse:
Forward 1,333 mils
Aft 1,102 mils

Machinegun:
Length, overall 44\frac{1}{2} in.
Weight 24.7 lb

AMMUNITION

.30-cal 7.62-mm capacity 200 rds per gun
Types ball, AP, tracer, dummy

PERFORMANCE

Rate of fire, (each gun) (approx) 550 rds per min

INSTRUCTIONAL MATERIAL

GUN, AUTOMATIC, 7.62-MILLIMETER: GAU-2B/A

General

GUN, AUTOMATIC, 7.62-MILLIMETER: GAU-2B/A is a lightweight, air-cooled, six-barrel weapon used on a fixed-wing and rotary-wing aircraft to deliver area suppressive fire. The gun will deliver fire at rates from 2,000 to 6,000 shots per minute. The different rates of fire are produced by use of differing gear ratios in the electric drive motor which powers the gun. Both the electric drive motor and the recoil adapter assemblies which support the gun are parts of the armament pod or armament subsystem which holds and feeds the gun. The gun operates on the Gatling gun principle, with ammunition fed into the right side of the gun, and spent or misfired cartridges are discharged from the bottom of the gun.

Differences among models

Data plate location:

Data are attached to right rear of the gun housing assembly.

Classification

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAU-2B/A</td>
<td></td>
<td>1905-915-3987</td>
<td></td>
</tr>
</tbody>
</table>

Length, complete ........................................ 31.5 in.
Weight, complete ........................................ 34.8 lb

Barrel:

Length .................................................. 22 in.
Weight, each ........................................... 1 lb, 10 oz
Rifling twist .......................................... right hand
Cooling ................................................... air

AMMUNITION

7.62-mm ... capacity determined by pod or subsystem using the gun
Types .............................................. ball, AP, tracer, dummy

PERFORMANCE

Rate of fire:
9.8 to 1 drive ratio in electric
   drive motor ................................... 2,000 spm, 14-V DC to motor
                                           4,000 spm, 24-V DC to motor
6.1 to 1 drive ratio in electric
   drive motor ................................... 4,000 spm, 18-V DC to motor
                                           6,000 spm, 26-V DC to motor

EQUIPMENT

Basic Issue Items: See TM 9-1005-265-15P

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA


2-95
POD, AIRCRAFT GUN, 7.62-MILLIMETER: SUU-11A/A

General

POD, AIRCRAFT GUN, 7.62-MILLIMETER: SUU-11A/A is a lightweight cylindrical structure capable of containing a GUN, AUTOMATIC, 7.62-MILLIMETER: GAU-2B/A*, with ammunition storage space, a system for delivering the ammunition to the gun, and a storage battery with necessary cabling to the electric drive motor which powers the gun. The electric drive motor and the recoil adapter assemblies which support the gun in the pod are considered parts of the pod. The pod also contains a rounds counter to aid personnel in loading ammunition in the pod. The pod is designed to mount on aircraft with facilities to secure items with 14-inch double lug spacing, or single lug suspension, and may be used at air speeds up to Mach 1.2.

Differences among models

Data plate location:
Data are located on forward face of drum cover assembly.

Classification

Length ........................................... 38 in.
Diameter ......................................... 12 in.

MAJOR ITEM

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUU-11A/A</td>
<td>1005-912-3988</td>
<td></td>
</tr>
</tbody>
</table>

Weight:

- Loaded (w/gun GAU-2B/A, w/ammunition) (approx) 325 lb
- Empty (w/gun GAU-2B/A, w/o ammunition) (approx) 245 lb

AMMUNITION

- 7.62-mm capacity 1,000 rds
- Types: ball, AP, tracer, dummy

PERFORMANCE

- Maximum burst length: full complement
- Bore sight adjustment: firing barrel of gun GAU-2B/A
  - Elevation: +1 deg 30 ft to -1 deg 30 ft
  - Azimuth: +1 deg 30 ft to -1 deg 30 ft
- Operating temperature range: -65° to +165° F.

EQUIPMENT

Basic issue items: See TM 9-1005-266-15P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

References: TM 9-1005-266-15, TM 9-1005-266-16P.

* For characteristics and data, see item on page 2-94.
RIFLE, 5.56-MILLIMETER: M16 AND XM16E1

RIFLE, 5.56-MILLIMETER: M16 and XM16E1, is a lightweight, air-cooled, gas-operated, magazine-fed, shoulder or hip weapon and is designed for either full automatic or semiautomatic fire. Each rifle accommodates a 20-round magazine.

The barrel is air-cooled and is provided with a flash suppressor, that may serve as a grenade launcher and a front support for the BAYONET-KNIFE: *M7. The barrel is surrounded by a heat resisting fiber glass material, which serves as a handguard and forearm. The handguard has a heat resisting inner shield. The front and rear sights are adjustable.

The butt stock is made of a durable synthetic material of high impact strength.

Differences among models:
The M16 has the same component parts as the XM16E1 except the XM16E1 has a forward assist assembly with associated parts.

Data plate location

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight:</th>
<th>M16:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(w/loaded magazine and sling)</td>
<td>7.4 lb</td>
</tr>
<tr>
<td>(w/o magazine and sling)</td>
<td>6.3 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>XM16E1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(w/loaded magazine and sling)</td>
</tr>
<tr>
<td>(w/o magazine and sling)</td>
</tr>
</tbody>
</table>

| Sling, M1 | 0.4 lb |
| Empty aluminum magazine | 0.2 lb |

| Telescope | 0.9 lb |
| Bipod, M3 | 0.6 lb |
| Bipod case | 0.2 lb |
| Bayonet-knife, M7 | 0.6 lb |

| Scabbard, M8A1 | 0.3 lb |

Length:

<table>
<thead>
<tr>
<th>Rifle:</th>
</tr>
</thead>
<tbody>
<tr>
<td>With flash suppressor</td>
</tr>
<tr>
<td>Barrel</td>
</tr>
<tr>
<td>Barrel with flash suppressor</td>
</tr>
</tbody>
</table>

Ammunition

Caliber: .223 in. (5.56-mm)

Performance

Muzzle velocity: (approx) 3,250 fps
Muzzle energy: 1,300 ft-lb
Chamber-pressure: 52,000 psi
Cyclic rate of fire: 700/800 rds per min
Maximum rate of fire:

- Semiautomatic: 45/65 rds per min
- Automatic: 150/200 rds per min
- Sustained rate of fire: 12/15 rds per min

Maximum range: 2,653 meters
Maximum effective range: 460 meters

Equipment


Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped 2 rifles w/sling per cardboard box w/equipment.

| Length | 40 in |
| Width | 9 in |
| Height | 6½ in |
| Volume | 1.44 cu ft |
| Gross weight | 24 lb |
| Ship tons | 0.028 |

* Characteristics and data will be added in section 2 at a later date.
Outside Continental United States

Shipped 2 rifles per shipping container.

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>40 in.</td>
</tr>
<tr>
<td>Width</td>
<td>9 in.</td>
</tr>
<tr>
<td>Height</td>
<td>6.5 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>1.14 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>24 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.028</td>
</tr>
</tbody>
</table>

References: TM 9-1006-249-14.
## SECTION 3

**GUNS, OVER 30-MM UP TO 75-MM**

(CLASS 1010)

(Includes subcaliber cannons, mortars and mortar cannons, and rifles.)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannon, 37-Millimeter Gun, Subcaliber: M12 (interior type)</td>
<td>3-2</td>
</tr>
<tr>
<td>Cannon, 37-Millimeter Gun, Subcaliber: M13 (T27E1)</td>
<td>3-3</td>
</tr>
<tr>
<td>Cannon, 37-Millimeter Gun, Subcaliber: M1916; Recoil Mechanism: M1916; Mount,</td>
<td>3-4</td>
</tr>
<tr>
<td>Gun: 37-mm M5, M10, or M13A1</td>
<td></td>
</tr>
<tr>
<td>Cannon, 40-Millimeter Dual Automatic Gun: M2 or M2A1; Mount, Gun: 40-mm, twin,</td>
<td>3-6</td>
</tr>
<tr>
<td>M4 and M4E1</td>
<td></td>
</tr>
<tr>
<td>Launcher, Grenade: 40-mm, M79</td>
<td>3-8</td>
</tr>
<tr>
<td>Mortar, Infantry: 60-mm, M2, w/e (Cannon, 60 Millimeter Mortar: M2; Mount, Mortar: 60-mm, M5)</td>
<td>3-9</td>
</tr>
<tr>
<td>Mortar, Infantry: 60-mm, M19, w/e (Cannon, 60 Millimeter Mortar: M19; Mount, Mortar: 60-mm, M5)</td>
<td>3-10</td>
</tr>
<tr>
<td>Mount, Mortar: 60-mm, M5</td>
<td>3-11</td>
</tr>
<tr>
<td>Rifle, 57-Millimeter: M18, M18A1, or T15E16; Mount, Gun: M1917A2 or Mount, Tripod, Weapon: M74</td>
<td>3-12</td>
</tr>
</tbody>
</table>
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M12 (INTERIOR TYPE)

General
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M12 (interior type), consisting of a tube, deflector, extractor, and lock assembly, is a single-shot, hand-loaded weapon. It is used for training in laying and firing the HOWITZER, PACK: 76-mm, M118 w/e (CANNON, 76 MILLIMETER PACK HOWITZER: M1A1; RECOIL MECHANISM: M1-SERIES; CARRIAGE: HOWITZER PACK), 76-mm, M8 and the CANNON, 76-MILLIMETER HOWITZER: M5; MOUNT, HOWITZER: 76-mm, M7. The use of smaller bore ammunition prevents wear on the regular piece during practice and is less costly. The tube has an enlarged portion near the chamber end which acts as a rear adapter to center the cannon in the chamber of the pack howitzer, and a combination front adapter and gas deflector which is screwed on at the muzzle end of the tube. The tube is fixed longitudinally in the pack howitzer by a welded lock assembly which fits in a transverse vertical keyway at the rear of the tube and fastens to the lower left side of the breech ring by means of a set screw passing through a clamp. A sliding cylindrical sleeve, which encloses the rear end of the tube, completes the subcaliber cannon. The rear end of this sleeve is partly cut away and is counterbored for the rim of a 37-mm cartridge, thus forming an extractor for the cartridge case. Percussion is obtained by operation of the firing mechanism of the howitzer which actuates its firing pin, causing it to strike the primer of the 37-mm cartridge.

Differences among models
Data plate location
Classification: Standard A (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td>4-17227-01</td>
<td>1010-672-4844</td>
</tr>
</tbody>
</table>

AMMUNITION

Type: TP

PERFORMANCE

Muzzle velocity:
Cartridge M63 Mod 1 ........................................... 1,100 fps

Range (maximum):
Cartridge M63 Mod 1 ........................................... 4,980 yd

EQUIPMENT

Sighting and fire control:
TABLE, FIRING: FT 37-BJ-1 (abr).
TABLE, FIRING: FT 37-BA-2 (abr).
In addition to above equipment, use sighting equipment issued with primary weapon listed in GENERAL paragraph.
Basic Issue Item: See ORD 7 SNL C-33, section 15.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL C-33, Section 15; TM 9-318, TM 9-319.
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M13

General
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M13, consisting of a tube, blast deflector, extractor, and lock assembly, is a single-shot, hand-loaded weapon. It is used for training in laying and firing the CANNON, 105-MILLIMETER HOWITZER: M2A1; RECOIL MECHANISM: M2-series; CARRIAGE, HOWITZER: 105-mm, M3A1 or M3A2; and the CANNON, 105-MILLIMETER HOWITZER: M2A1; MOUNT, HOWITZER: 105-mm, M4 or M4A1. The use of smaller bore ammunition prevents wear on the regular piece, during practice and is less costly. The blast deflector, which is screwed onto the muzzle end of the tube, and the collar, near the breech end of the tube support and align the tube in the chamber and bore of the howitzer cannon. The tube is secured in the howitzer cannon by a welded lock assembly which fits in a vertical keyway at the rear of the tube and fastens to the lower left side of the breech ring by means of a cap screw passing through a clamp on the lock assembly. The extractor encases the rear end of the tube. The rear end of the extractor is partly cut away and is counterbored for the rim of a 37-mm cartridge. Percussion is obtained by operation of the firing mechanism of the howitzer cannon.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Weight
Length:
Overall
Tube
Rifling:
Length
Twist, right-hand
Number of grooves

AMMUNITION

Type

PERFORMANCE

Muzzle velocity:
Cartridge M63 Mod 1
1,100 fps
Range (max.):
Cartridge M63 Mod 1
4,200 yd

EQUIPMENT

Sighting and fire control:
TABLE, FIRING: FT 37-BA-2 (abr)
TABLE, FIRING: FT 37-BJ-1 (abr)

In addition to above equipment, use sighting equipment issued with primary weapon listed in GENERAL paragraph.

Basic Issue Items: See ORD 7 SNL C-35, section 16.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL C-35, section 16; TM 9-325; TM 9-326.
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M1916; RECOIL MECHANISM: M1916; MOUNT, GUN: 37-MM, M5, M10, OR M13A1

The subcaliber cannon rests on the recoil mechanism and, in turn, they are secured to the mount which is adapted to the particular weapon.

Differences among models

In general, the mounts M5, M10, or M13A1 are designed to fit the configuration of the cannon of the major weapon to which they are attached. Similar collars and cradle trunnion brackets are used to secure the cannon and recoil mechanism; however, mounts M10 and M13A1 are constructed of channels while mount M5 is made from welded angles and shaped, slotted brackets.

Data plate location

Classification: Standard A (OTCM 37198).

CHARACTERISTICS

Cannon:
- Weight of cannon and recoil mechanism: 86 lb, 4 oz
- Length of bore: 2 ft, 5 1/8 in.
- Length of cannon: 2 ft, 7 in.
- Type of breechblock:
  - M1 or M1A1: eccentric screw
  - M1A2: trigger

Recoil mechanism:
- Type: hydrospring
- Length of recoil (max. allowable): 7 to 10 in.
- Capacity: 2 1/2 pt

Mount:
- Weight:
  - M5: 31 lb, 12 oz
  - M10: 31 lb, 12 oz
  - M13A1: 31 lb, 12 oz
- Elevation: same as piece to which it is attached
- Traverse: same as piece to which it is attached
- Operation of firing linkage: manual

AMMUNITION

Type: TP

PERFORMANCE

Muzzle velocity:
- Cartridge M63, Mod 1: 1,100 fps

Range (maximum):
- Cartridge M63, Mod 1: 4,980 yd

Rate of fire (maximum): 85 rd per min
**EQUIPMENT**

Sighting and fire control.

**TABLE, FIRING:** FT 37-BJ-1 (abr)

**TABLE, FIRING:** FT 37-BA-2 (abr)

In addition to above equipment, use sighting equipment issued with primary weapon listed in "GENERAL" paragraph.

Basic Issue Items: See ORD ? SNL C-33, section 13, 3, 7.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

<table>
<thead>
<tr>
<th>Shipped</th>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
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</tr>
</tbody>
</table>

Within Continental United States

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

References: SNL C-33, TM 9-331, TM 9-3004, TM 9-331A.
CANNON, 40-MILLIMETER DUAL AUTOMATIC GUN: M2A1;
MOUNT, GUN: 40-MM, TWIN M4E1

Weight of tube ........................................... 296 lb
Length ................................................... 12 ft
Length of tube ........................................... 7 ft, 6-9/16 in.
Rifling:
Length ................................................... 6 ft, 3/8 in.
Number of grooves .................................... 16
Twist, right-hand ........................................... nonuniform, increasing from one turn in 45 calibers at the breach to one turn in 30 calibers at the muzzle.

Type of breechblock ........................................... vertical sliding
Type of firing mechanism ...................................... percussion
Estimated accuracy life of tube .................................... 12,000 rds

Mount:
Weight (complete w/cannon) ..................................... 6,300 lb
Type of recoil mechanism ........................................... recuperator spring and oil
Number of recoil cylinders ....................................... 2
Length of recoil:
Minimum ................................................... 7.4 in.
Maximum ................................................... 8.3 in.
Capacity of recoil mechanism .................................... 2.64 qt
Elevation:
Maximum (power) ........................................... 85 deg
Maximum (manual) ........................................... 87 deg
Depression:
Power ....................................................... -3 deg
Manual ...................................................... -5 deg
Thruver ............................. 360 deg
Operation of firing linkage ....................................... manual or electric

AMMUNITION
Types .......................................................... AP-T and HE-T (fixed)

PERFORMANCE
Muzzle velocity:
AP-T ........................................... 2,870 fps
HE-T ........................................... 2,870 fps

Range (max):
Vertical ........................................... 5,100 yds
Horizontal ........................................... 5,200 yds
AP-T ........................................... 9,475 yds

Rate of fire ........................................... 240 rds per min

EQUIPMENT
Sighting and fire control:
LOCAL CONTROL SYSTEM, ANTIAIRCRAFT GUN: M16A1E1
SIGHT, COMPUTING: M38 (T154)
SIGHT, REFLEX: M24C

Basic Issue Items: See ORD 7 SNL C-248 and TM 9-7218.

INSTRUCTIONAL MATERIAL
Subcaliber equipment:
MOUNT, GUN: caliber .50, M19.

STORAGE AND SHIPMENT DATA

Within Continental United States
Number per box ...........................................
Length ...................................................
Width ...................................................
Height ...................................................
Volume ...................................................
Gross weight ...........................................
Ship tons ................................................

* For characteristics and data, see item in sections 12, 14, and 18.
### STORAGE AND SHIPMENT DATA—Continued

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Number per box</th>
<th>Length</th>
<th>Width</th>
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</thead>
</table>

<table>
<thead>
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<th>Gross weight</th>
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</thead>
</table>

**LAUNCHER, GRENADE: 40-MM, M79**

![Image of 40-MM, M79 Launcher](Image)

**General**

Launcher, grenade: 40-mm, M79, is a single-shot, break-open shoulder fire weapon. Its appearance is that of a short hammerless single-barrel shotgun except that the barrel has a larger diameter. It is breech loading and chambered for a 40-mm metallic cartridge case with internal primer. The barrel is made of aluminum. The front sight is a conventional military type with guard wings like those of the carbine or rifle M1. The rear sight is a large folding leaf, far up the barrel since high elevations are required, and is adjustable for elevation and windage. A rubber recoil pad is located on the rear end of the stock.

**Differences among models**

Data plate location

The model and serial numbers are stamped on the bottom surface of the receiver, forward of the trigger guard.

**Classification**: Standard A (OTCM 37826).

<table>
<thead>
<tr>
<th>Model</th>
<th>Extra item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M79</td>
<td>4-20670-10</td>
<td>1010-691-1582</td>
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**CHARACTERISTICS**

<table>
<thead>
<tr>
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<th>Description</th>
<th>Details</th>
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<tbody>
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<td>Loaded</td>
<td>6.45 lb</td>
</tr>
<tr>
<td></td>
<td>Unloaded</td>
<td>5.85 lb</td>
</tr>
<tr>
<td><strong>Length overall</strong></td>
<td></td>
<td>2 ft, 4 3/4 in.</td>
</tr>
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<td><strong>Length of barrel</strong></td>
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<td>1 ft, 2 in.</td>
</tr>
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<td>1 hand</td>
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<td><strong>Feed</strong></td>
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**AMMUNITION**

Types Fixed-HE and practice

**PERFORMANCE**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**EQUIPMENT**

Sighting and Fire Control

Basic issue Items: See TM 9-1010-205-12.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

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**AMMUNITION**

Types Fixed-HE and practice

**PERFORMANCE**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**EQUIPMENT**

Sighting and Fire Control

Basic issue Items: See TM 9-1010-205-12.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

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**AMMUNITION**

Types Fixed-HE and practice

**PERFORMANCE**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**EQUIPMENT**

Sighting and Fire Control

Basic issue Items: See TM 9-1010-205-12.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

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**AMMUNITION**

Types Fixed-HE and practice

**PERFORMANCE**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**EQUIPMENT**

Sighting and Fire Control

Basic issue Items: See TM 9-1010-205-12.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

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**AMMUNITION**

Types Fixed-HE and practice

**PERFORMANCE**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**AMMUNITION**

Muzzle velocity: 250 fps

**EQUIPMENT**

Sighting and Fire Control

Basic issue Items: See TM 9-1010-205-12.
MORTAR, INFANTRY: 60-MM, M2 W/E
(CANNON, 60 MILLIMETER MORTAR: M2; MOUNT, MORTAR: 60-MM, M5)

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>Cannon M2</td>
<td>4-33465-15</td>
<td>1010-675-2007</td>
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<tr>
<td>Mount M5 w/animal pack transport equipment</td>
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</tr>
<tr>
<td>Cannon M2</td>
<td>4-33565-20</td>
<td>1010-670-2006</td>
</tr>
<tr>
<td>Mount M5 w/hand carrying equipment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General
MORTAR, INFANTRY: 60-mm, M2, w/e, consisting of a CANNON, 60 MILLIMETER MORTAR: M2 with MOUNT, MORTAR: 60-MM, M5, is a smooth-bore, muzzle-loading, high-angle-of-fire weapon. The cannon is composed of a bore and a base cap containing a fixed firing pin. The cannon is mounted on the 60-mm mortar mount M5. The mount consists of a bipod and a base plate which is provided with screw-type elevating and traversing mechanisms to lay the mortar and a spring-type shock absorber to absorb the shock of recoil in firing.

Differences among models
Data plate location
Classification: Limited standard (OTCM $7118).

CHARACTERISTICS:

Cannon:
- Weight: 12.8 lb
- Length: 2 ft, 4½ in.

Mount:
- See MOUNT, MORTAR: 60-mm, M5

AMMUNITION
Types: HE; ILLUM; SMOKE, WP; and TP

PERFORMANCE
Muzzle velocity:
- CARTRIDGE, 60-MILLIMETER: (full charge—ignition cartridge plus 4 propellant increments): HE (M49A2) TP (M50A2) 518 fps SMOKE, WP (M302) 489 fps ILLUM (M92A2) 484 fps PROJECTILE, 60-MILLIMETER: training, M69 (ignition cartridge only) 153.0 fps

Range (maximum) (45° elevation):
- CARTRIDGE, 60 MILLIMETER: HE (M49A2) and TP (M50A2) 3,090 yd SMOKE, WP (M302) 1,610 yd ILLUM (M92A2) 1,100 yd PROJECTILE, 60 MILLIMETER: training, M69 (ignition cartridge only) 285 yd

Rate of fire:
- Sustained: 18 rd per min
- Rapid: 35 rd per min

EQUIPMENT

Sighting and fire control:
- AIMING POST: M10
- SIGHT: M4
- TABLE, FIRING: FT 60-A-5
- TABLE, FIRING: FT 60-C-3
- TABLE, FIRING: FT 60-F-4
- TABLE, FIRING: FT 60-G-2


INSTRUCTIONAL MATERIAL
- TABLE, FIRING: FT 60-L-1
- PROJECTILE, 60-MILLIMETER: training, M69
- TRAINER, MORTAR: subcaliber, pneumatic, M82 or M82A1

STORAGE AND SHIPMENT DATA
With Continental United States
Ship 4 mortars per wood box.
- Length: 2 ft, 9 in.
- Width: 1 ft, 2½ in.
- Height: 1 ft, 2½ in.
- Volume: 3.9 cu ft
- Gross weight: 90 lb
- Ship tons: 0.10

Outside Continental United States

Shipped
- Length: 2 ft, 9 in.
- Width: 1 ft, 2½ in.
- Height: 1 ft, 2½ in.
- Volume: 3.9 cu ft
- Gross weight: 90 lb
- Ship tons: 0.10


* For characteristics and data, see item in sections 14 and 18.

3-9
MORTAR, INFANTRY: 60-MM, M19, W/E
(CANNON, 60 MILLIMETER MORTAR: M19; MOUNT, MORTAR: 60-MM, M5)

General
MORTAR, INFANTRY: 60-mm, M19, w/e consisting of a CANNON, 60 MILLIMETER, MORTAR: M19 with MOUNT, MORTAR: 60-mm, M5, is a smooth bore, muzzle-loading, high angle-of-fire weapon. The cannon is composed of a tube, combination base cap, and firing mechanism. The base cap is hollowed and threaded to screw on the barrel. The mount consists of a bipod and a baseplate which is provided with screw-type elevating and traversing mechanisms to lay the mortar and a spring-type shock absorber to absorb the shock of recoil in firing. The cannon is used with the 60-mm mortar mount M5.

Differences among models
Data plate location
Classification: Limited standard (OTCM 37119)

CHARACTERISTICS
Cannon:
Weight: 16.0 lb
Length: 2 ft, 8½ in.
Mount:
See MOUNT, MORTAR: 60-mm, M5

AMMUNITION
Types: HE; ILLUM; SMOKE; WP; and TP

PERFORMANCE
Muzzle velocity:
CARTRIDGE, 60-MILLIMETER: (full charge ignition plus 4 propellant increments):
HE (M49A2) and TP (M50A2) 518 fps
SMOKE, WP (M302) 439 fps
ILLUM (M38A3) 484 fps
PROJECTILE, 60-MILLIMETER: training, M69 (ignition cartridge only) 152.5 fps

Maximum range (45° elevation):
CARTRIDGE, 60-MILLIMETER:
HE (M49A2) and TP (M50A2) 1,990 yd
SMOKE, WP (M302) 1,810 yd
ILLUM (M38A3) 1,190 yd
PROJECTILE, 60-MILLIMETER: training, M69 (ignition cartridge only) 1,375 yd

Rate of fire:
Sustained: 18 rd per min
Rapid: 85 rd per min

EQUIPMENT
Sighting and fire control:
AIMING POST: M10
SIGHT: M4
TABLE, FIRING: FT 60-A-5
TABLE, FIRING: FT 60-C-3
TABLE, FIRING: FT 60-E-4
TABLE, FIRING: FT 60-F-2

Basic Issue Items: See ORD 7 SNL A-43.

DIFFERENCES AMONG MODELS
Data plate location
Classification: Limited standard (OTCM 37119)

CHARACTERISTICS
Cannon:
Weight: 16.0 lb
Length: 2 ft, 8½ in.

PROJECTILE, 60-MILLIMETER: training, M69 (ignition cartridge only) 1,375 yd

Rate of fire:
Sustained: 18 rd per min
Rapid: 85 rd per min

EQUIPMENT
Sighting and fire control:
AIMING POST: M10
SIGHT: M4
TABLE, FIRING: FT 60-A-5
TABLE, FIRING: FT 60-C-3
TABLE, FIRING: FT 60-E-4
TABLE, FIRING: FT 60-F-2

Basic Issue Items: See ORD 7 SNL A-43.

INSTRUCTIONAL MATERIAL
TABLE, FIRING: FT 60-L-1
PROJECTILE, 60 MILLIMETER: training, M69
GRAPHIC TRAINING AID: GTA 9-624; GTA 7-7
TRAINER, MORTAR: subcaliber, pneumatic, M32 or M82A1

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 4 mortars per wood box.
Length: 2 ft, 9 in.
Width: 1 ft, 2½ in.
Height: 1 ft, 2¼ in.
Volume: 8.9 cu ft
Gross weight: 90 lb
Ship tons: 0.10

Outside Continental United States
Shipped
Length: 2 ft, 9 in.
Width: 1 ft, 2½ in.
Height: 1 ft, 2¼ in.
Volume: 8.9 cu ft
Gross weight: 90 lb
Ship tons: 0.10


*For characteristics and data, see item in sections 14 and 18.
MOUNT, MORTAR: 60-MM, M5

Differences among models

Data plate location

The identification plate of the mount M5 is attached to the body yoke.

Classification: Limited Standard (OTCM 37719).

CHARACTERISTICS

Weight:

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mount</td>
<td>29.3</td>
</tr>
<tr>
<td>Bipod</td>
<td>16.4</td>
</tr>
<tr>
<td>Baseplate</td>
<td>12.8</td>
</tr>
<tr>
<td>Elevation</td>
<td>0° to 85°</td>
</tr>
<tr>
<td>Traverse</td>
<td>7°</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic Issue Items: See ORD 7 SNL A-43.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount with 1 mortar M3 or 1 mortar M10 per wood box.

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft, 9½ in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 2½ in.</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 3¼ in.</td>
</tr>
<tr>
<td>Gross weight</td>
<td>75 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.106</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>


General

MOUNT, MORTAR: 60-mm, M5, is a mount that can be used by either the MORTAR, INFANTRY: 60-mm, M2 or M19.

The mount consists of two units—the bipod and baseplate. The bipod consists of a leg assembly, elevating mechanism assembly, and traversing assembly. The baseplate is a pressed steel body to which is welded a series of ribs and braces, a front flange, and socket.
RIFLE, RECOILLESS, 57-MILLIMETER: M18, M18A1, OR T15E16

model

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rifle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M18</td>
<td>4-35870-16</td>
<td>1010-322-9797</td>
</tr>
<tr>
<td>M18A1</td>
<td>4-35870-20</td>
<td>1010-322-9798</td>
</tr>
<tr>
<td>T15E16</td>
<td>4-35870-36</td>
<td>1010-322-9740</td>
</tr>
</tbody>
</table>

General

RIFLE, RECOILLESS, 57-MILLIMETER: M18, M18A1, or T15E16: is a lightweight, recoilless, portable weapon designed to be fired from the ground, or shoulders. These rifles are equipped with a manually operated breech mechanism and a percussion-type firing mechanism. They are designed for direct firing only, and sighting equipment for this purpose is furnished with each weapon. The rifle consists basically of a barrel group, a breech mechanism group, a firing cable group, a trigger mechanism group, a bipod assembly, and an extendible handle assembly.

The barrel group consists of the rifle tube and the chamber which are threaded together. Attached to the tube or chamber are the carrier hinge bracket, chamber fulcrum, and a tube fulcrum. The breech mechanism consists of the breechblock and firing mechanism group.

The breech mechanism consists of the breechblock and firing safety grip, and trigger safety for operating the weapon.

Differences among models:

Rifles M18 and M18A1 have their chamber and breechblock handles located in different positions. The breechblock cover of the rifle M18 has been replaced on the rifle M18A1 by the breechblock operating lever from which the breechblock handle projects. The M18A1 also contains an improved sear and striker assembly for more positive operation of the rifle.

The rifle T15E16 is similar to the M18A1. The major difference between the rifles is in the linkage between the trigger mechanism group and breech mechanism group. The rifle T15E16 has a firing linkage group which contains a trigger rod, firing rod, trigger and firing rod housings, and a bellcrank. The rods and bellcrank transfer the action of the trigger to the sear in the breech mechanism group. The rifle T15E16 uses a loader's safety which is similar to the safety lever assembly at the rifles M18 and M18A1 but operates on a different principle to disrupt the continuity of the firing linkage.

Data plate location:

The rifle data are stamped on the forward surface of the chamber, directly under the tube. The tube data are stamped on the muzzle end of the rifle.

Classification: Standard B (OTCM 36841), except:

RIFLE T15E16 = Limited production

CHARACTERISTICS

Rifle:

- Weight: 40 lb, 4 oz
- Length: 6 ft, 1½ in.
- Length of tube: 4 ft
- Riffing:
  - Length: 3 ft, 10½ in.
  - Number of grooves: 24
  - Twist, right-hand: one turn in 30 cal.
- Type of breechblock: interrupted lug
- Type of firing mechanism: percussion
- Estimated usable life:
  - Tube and chamber: 2,500 rds
  - Breechblock throat rings and throat blocks: 500 rds
- Bipod:
  - Weight: (approx) 4 lb, 2½ oz

AMMUNITION

- Type: Canister, HE, HEAT, WP, and TP

PERFORMANCE

- Muzzle velocity:
  - WP, HE, HEAT: 1,200 fps
- Range:
  - HE (40 deg elevation): 4,830 yds
  - WP (39 deg elevation): 4,520 yds
  - HEAT (65 deg elevation): 2,000 yds

EQUIPMENT

Sightline and fire control:

- MOUNT SIGHT: M74C or M74
- SIGHT, FRONT: M36

* For characteristics and data, see item in sections 14 and 18.
TELESCOPE: M86F or M86C
TABLE, FIRING: FT 57-E-3 (abr)
TABLE, FIRING: FT 57-F-2 (abr)
TABLE, FIRING: FT 57-G-1 (abr)
Basic Issue Items: See ORD 7 SNL C-73

INSTRUCTIONAL MATERIAL
CARTRIDGE, CALIBER .30: ball, M2
BARREL, MACHINEGUN: modified .30 caliber (ORD No. 6655253)
GRAPHIC TRAINING AID: See DA Pam 810-5

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 per box.
Length .................. 5 ft, 9 in.

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 2½ in.</td>
<td>1 ft, 1½ in.</td>
<td>7.9 cu ft</td>
<td>107 lb</td>
<td>0.29</td>
</tr>
</tbody>
</table>

References: FM 29-80, SNL C-73, TM 9-3062, TM 9-3062-84.
CANNON, 37 MILLIMETER GUN, SUBCALIBER: M15

General
CANNON, 37 MILLIMETER GUN, SUBCALIBER: M15, is used for training in laying and firing of 76-mm guns. The use of smaller bore ammunition prevents wear on the regular piece during practice and is less costly. The subcaliber gun cannon is a single-shot, hand-loaded weapon, consisting of a tube, deflector, extractor, and lock assembly. The tube has an enlarged portion near the chamber end which acts as a rear adapter to center the cannon in the chamber of the 76-mm gun, and a combination front adapter and gas deflector which is screwed on at the muzzle end of the tube. The tube is secured longitudinally by a lock which fits in a transverse keyway at the rear of the subcaliber tube and the lock is secured to the breech ring by a screw. The extractor, a sliding cylindrical sleeve, encases the rear end of the tube. The rear end of the sleeve is counterbored for the rim of a 37-mm cartridge. A rim extending more than halfway around the rear of the extractor is engaged by the extractors of the 76-mm gun in the same manner as the rim of a 76-mm cartridge case. The left rear portion of the extractor is cut away to clear the lock during extraction. Percussion is obtained by operation of the firing mechanism of the 76-mm gun, which actuates its firing pin, causing it to strike the primer of the 76-mm cartridge.

Characteristics

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>ML18</td>
<td>4-17252</td>
<td>1010-572-4859</td>
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</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Cartridge</th>
<th>TP M63 Mod 1</th>
</tr>
</thead>
</table>

**Performance**

- **Muzzle velocity**: 1,100 fps
- **Range (maximum)**: 4,080 yd

**Equipment**

Table, Firing: FT 37-BA-2 (abridged)

In addition to above equipment, use sighting equipment issued with primary weapon listed in "GENERAL" paragraph.

Basic Issue Items: See ORD 7 SNL C-33, Sec. 17

**Instructional Material**

**Storage and Shipment Data**

**Within Continental United States**

- Shipped subcaliber gun cannons.
- Length
- Width
- Height
- Volume
- Area
- Gross weight
- Ship tons

**Outside Continental United States**

- Shipped subcaliber gun cannons.
- Length
- Width
- Height
- Volume
- Area
- Gross weight
- Ship tons

References: SNL C-33, TM 9-308.
ARMAMENT SUBSYSTEM, HELICOPTER, 40-MILLIMETER GRENADE LAUNCHER: M5
(LAUNCHER, GRENADE, 40-MILLIMETER: M75; MOUNT, GRENADE LAUNCHER (11014999))

General
ARMAMENT SUBSYSTEM, HELICOPTER, 40-MILLIMETER GRENADE LAUNCHER: M5 is designed for installation on UH-1B helicopters. The subsystem, electrically powered and remotely controlled, launches antipersonnel type grenades from a turret assembly externally mounted on the helicopter nose. The subsystem consists of the LAUNCHER, GRENADE, 40-MILLIMETER: M75 mounted in a turret assembly, with an ammunition feed system, turret control panel assembly, servo-amplifier junction box assembly, sight mount bracket assembly, and the hand control sight assembly. The copilot-gunner uses the hand control sight assembly to control and direct grenade launcher fire, independently of the helicopter attitude. The turret assembly provides a field of fire ranging from plus 15° to minus 35° in elevation, and from 60° left to 60° right in azimuth. When the subsystem is energized and the hand control sight assembly is not in use, the turret assembly returns to zero azimuth and zero elevation, or "stow" position. When in "stow" position, the grenade launcher may be fired by pilot or copilot from a switch on either cyclic stick as the helicopter is maneuvered to aim the machineguns.

Differences among models
Data plate location:
The subsystem data plate is attached to the back of the turret assembly, in the lower left corner. Individual component data plates are attached to the left front side of the grenade launcher receiver assembly, the under side of the mount portion of the hand control sight assembly, the rear side of the servo-amplifier.
Junction box assembly, the upper rear surface of the turret control panel bracket, and to the sprocket cover of the ammunition booster assembly.

Classification: Standard A (AMCTC item 02177).

CHARACTERISTICS

Mount, grenade launcher:
- Weight (w/grenade launcher)
  - W/o ammunition (approx) 194.75 lb
  - W/ammunition (approx) 258.75 lb
- Turret assembly diameter: 22 in.

Launcher, grenade, 40-millimeter M15:
- Weight: 27 lb
- Height: 9 in.
- Width: 8 in.
- Length (barrel extended): 22.5 in.
- Length (barrel retracted): 18 in.

Barrel length: 18.7 in.
Percussion: Mechanical

AMMUNITION
- 40-millimeter capacity: 150 rds
- Types: HE, practice

PERFORMANCE
- Rate of fire: 226-230 rds per min

EQUIPMENT
- Basic Issue Items: See TM 9-1010-207-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

SECTION 4
GUNS, 75-MM THROUGH 125-MM
(CLASS 1015)
(Includes gun and howitzer cannons, guns, howitzers, artillery and infantry mortars, gun and mortar mounts, and rifles and subcaliber rifles.)
BATTLE GROUP ATOMIC WEAPON SYSTEM: M28 (XM28) (GUN, RECOILLESS, 120-MILLIMETER: M63 (XM63E1) W/GUN, 20-MILLIMETER, SPOTTING: M69 (XM69); MOUNT, TRIPOD, RECOILLESS GUN: M120 (XM120) OR MOUNT ASSEMBLY: M131 (XM131)

Shown: Gun, recoilless, 120-millimeter: M63 w/gun, spotting, 20-millimeter: M69, mount tripod, recoilless gun, gun M120

General

BATTLE GROUP ATOMIC WEAPON SYSTEM: M28 (XM28) (GUN, RECOILLESS, 120-MILLIMETER: M63 (XM63E1) W/GUN, 20-MILLIMETER, SPOTTING: M69 (XM69); MOUNT, TRIPOD, RECOILLESS GUN: M120 (XM120) OR MOUNT ASSEMBLY: M131 (XM131) is a smooth-bore, lightweight, short-rang weapon, transported, frontline infantry weapon, with nuclear capability, and can be fired from a ground mount or vehicle.

The 120-mm recoilless gun M63 consists of three parts permanently assembled: barrel, chamber, and nozzle.

The 20-mm spotting gun M69 is a single-shot, breech-loading weapon, with a manually-operated, vertical sliding wedge breech-lock. It has a rifled barrel which is threaded and screwed into the breech housing. It is mounted coaxially under the recoilless gun in the spotting mount.

The 120-mm recoilless gun tripod mount M120 consists of two rear legs and one front telescoping-type leg joined at the outer gimbal ring.

An adapter kit is provided for the weapon system M28. It consists of brackets and supports bolted to TRUCK, UTILITY: 1-1/2-ton, 4 x 4, M131. The brackets and supports are equipped with straps for securing the mount M120, ammunition, and equipment for transportation. The 120-mm recoilless gun vehicle mount M131 is furnished with the kit and mounts the gun M63 for transportation and for firing from the truck.

Differences among models

Data plate location

Gun, M63—On the spotting gun bracket beneath the gun barrel.
Gun, M69—Stamped on the right side of the breech housing.

Characteristics and data will be included at a later date.

Mount, tripod M120—On the right side of the front leg yoke.
Mount assembly, M131—On the left side of the mount.

Classification: Standard A (AMCTCM 279)

Weapon system (w/M120 mount):

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>110 1/4 lb</td>
<td>6 ft, 3 in.</td>
<td>5 ft, 4 in.</td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td>Height</td>
</tr>
<tr>
<td>9 ft, 4 in.</td>
<td></td>
<td>9 ft, 4 in.</td>
</tr>
</tbody>
</table>

Gun, M63:

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>77 lb</td>
<td>approx 3 ft, 1/2 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>Length</td>
</tr>
<tr>
<td>7 lb</td>
<td>2 ft, 3 1/2 in.</td>
</tr>
</tbody>
</table>

Type of breech mechanism—vertical sliding wedge
Type of firing mechanism—Inertia percussion

Gun, M69:

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>84 lb</td>
<td>2 ft, 3 in.</td>
</tr>
<tr>
<td>Weight</td>
<td>Width</td>
</tr>
<tr>
<td>18 1/2 lb</td>
<td>1 ft, 3 1/2 in.</td>
</tr>
</tbody>
</table>

AMMUNITION

Gun, M63, types—nuclear, practice, dummy, training
Gun, M69, types—dummy, spotting

PERFORMANCE

Muzzle velocity—(classified)
Range—2,000 meters
Rate of fire—

EQUIPMENT

Sighting and fire control:

HOLDER, TELESCOPE MOUNT: M5 (XM5).

For characteristics and data, see item in section 14, 18, and 38.
MOUNT, TELESCOPE: M117 (XM117).
POST, AIMING: M1A2.
QUADRANT, FIRE CONTROL: gunner's, M1A1, w/CASE, CARRYING.
SIGHT, BORE: MUZZLE, M30 (XM30) (for 20-mm gun).
TELESCOPE, ELBOW: M107 (XM107).
THERMOMETER, SELF-INDICATING, BIMETALLIC: M1A1, w/e.

Auxiliary sighting and fire control:
CASE, CARRYING: M120 (for M50 bore sight).
CASE, TELESCOPE: M121.
CHEST, M14 (aiming post light M14).
LIGHT, AIMING POST: M14.
LIGHT, INSTRUMENT: M53.
AIMING CIRCLE: M2, w/e.
BINOCULAR: M1A1, w/e.
BROAD, PLOTTING: M16, w/e.
COMPASS, MAGNETIC, UNMOUNTED: M2, w/e.

Bore sighting:
CASE, BORESIGHT: M122 (for M47 and M48 bore sights).
SIGHT, BORE, BREECH: M47 (XM47) (for 120-mm gun).
SIGHT, BORE, MUZZLE: M48 (XM48) (for 120-mm gun).

Basic Issue Items: See TM 9-1000-209-12.

INSTRUCTIONAL MATERIAL
CARTRIDGE, SPOTTING, 20-MILLIMETER, DUMMY: M47 (XM47).
CHARGE, PROPPELLING, ATOMIC PROJECTILE, DUMMY: M7E1 (XM7E1).
PISTON, LAUNCHING, ATOMIC PROJECTILE, DUMMY: M3 (XM3).
PROJECTILE, ATOMIC, SUPERCALIBER, 279-MILLIMETER, DUMMY: M421 (XM421).

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States
Shipped 1 weapon system per shipping container.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>5 ft, 6 in.</td>
<td>115 lb</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 0% in.</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>3 ft, 42% in.</td>
<td>442 lb</td>
</tr>
<tr>
<td>Volume</td>
<td>28.10 cu ft</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Ship tons

CANNON, 76-MILLIMETER GUN: M32 (T91E3); MOUNT, GUN: M76 (T138E1) OR MOUNT, COMBINATION GUN: M76A1 (T138E2)

<table>
<thead>
<tr>
<th>Model</th>
<th>Secondary item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannon</td>
<td>M32</td>
<td></td>
<td>1015-723-8793</td>
</tr>
<tr>
<td></td>
<td>M76</td>
<td></td>
<td>1015-740-4903</td>
</tr>
<tr>
<td></td>
<td>M76A1</td>
<td></td>
<td>1015-833-8999</td>
</tr>
</tbody>
</table>
| General       | CANNON, 76-MILLIMETER GUN: M32 (T91E3) with MOUNT, GUN: M76 (T138E1) or MOUNT, COMBINATION GUN: M76A1 (T138E2), provides the major armament for the 76-mm full tracked combat tanks M41 and M41A1, respectively. The principal components of the 76-mm gun cannon M32 are the cannon tube, muzzle brake, bore evacuator chamber, and breech mechanism assembly. The gun mount M76 or combination gun mount M76A1 consists primarily of a shield assembly and recoil cylinder assembly. The mount supports the cannon and provides attachment for the breech operating mechanism assembly, firing plunger assembly, manual firing and safety mechanism assembly (M76A1), hand firing control assembly (M76), machinegun mounting brackets, recoil guard, replenisher assembly, elevating cylinder assembly (M76), and the elevating gear box assembly (M76A1). Differences among models are that the M76 has a hydraulic elevating cylinder assembly and related parts where the M76A1 has an electro-mechanical elevating gear box assembly and related parts. The mounting pads on the outside of the recoil cylinder are designed for mounting the elevating cylinder assembly on M76 and the elevating gear box assembly on M76A1. The mounting position for the telescope is different on each model. All mounts M76 and mounts M76A1 retain an early type trunnion left cap which does not have an adjustable plate and level vial attached thereto. Data plate location: Classification: Standard A (OTCM 86841). CHARACTERISTICS Cannon: Weight: 1,320 lb Weight of tube: 962 lb Length (muzzle to rear face of breech ring): 15 ft. 7 in. Length of tube (muzzle to breech face of tube): 15 ft Riffing: Length: 13 ft. 7½ in. Number of grooves: 28 Twists, right hand: one turn in 25 calibers Type of breechblock: vertical sliding Type of firing mechanism: spring actuated, inertia percussion Estimated accuracy life of tube: 350 equivalent full change rounds Mount: Weight: M76: 1,277 lb M76A1: 1,397 lb Type of recoil mechanism: concentric hydro-pneumatic Length of recoil: Maximum: 1 ft Normal: 9 to 10½ in. Number of recoil cylinders: 1 Capacity of recoil mechanism (including replenisher assembly): 2½ gal Elevation (max): approx. 19 deg. 45 minutes Depression (max): approx. 9 deg. 45 minutes Operation of firing linkage: manual or electrical AMMUNITION Types: AP-T, HE, HVAP-T, HVAP-DS-T, WP, TP-T, and BLANK PERFORMANCE Muzzle velocity: AP-T, TP-T: 3,800 fps HVAP-DS-T: 4,124 fps HVAP-T: 4,135 fps HE, WP: 3,400 fps Range: AP-T, TP-T (2-deg 16 min elevation): 6,000 yd HVAP-DS-T (1-deg 8 min elevation): 6,000 yd HVAP-T (9-deg 25 min elevation): 6,800 yd HE, WP (44-deg 19 min elevation): 16,580 yd Rate of fire: 4-3
EQUIPMENT

Sighting and fire control:

- DRIVE, BALLISTICS: M4 (T23)
- FUZE SETTER: M27 or M14
- INDICATOR, AZIMUTH, MECHANICAL: M31 (T24)
- MOUNT, PERISCOPE: M98 (T17E1)
- MOUNT, PERISCOPE: M94 (T17E1)
- MOUNT, TELESCOPE: M92 (T178)
- MOUNT, TELESCOPE: M92A1 (T178E1)
- PERISCOPE: M18
- PERISCOPE: M17
- PERISCOPE: M19
- PERISCOPE: M20 or M20A1 or M20
- PROJECTION—SYSTEM: (FSN 1290-759-7858)
- QUADRANT, FIRE CONTROL: gunner's, M1A1 or M1 W/CASE.
- TELESCOPE: M97

Basic issue items: See TM 9-2350-201-12.

* For characteristics and data, see item in sections 12, 14, 18, and 27.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: SNL C-82, TM 9-2350-201-12, TM 9-2350-201-12.
CANNON, 90-MILLIMETER GUN: M36 (T119E1); MOUNT, GUN: 90-MM COMBINATION, M78

Cannon and mount:

Overall:
- Length: 16 ft, 11\% in.
- Width: 2 ft, 6 in.
- Height: 2 ft, 9 in.

Cannon:
- Weight (complete): 2,650 lb
- Weight of tube: 1,750 lb
- Length (blast deflector to rear face of breech ring): 16 ft, 1\% in.
- Length of tube: 14 ft, 9 in.
- Elevation:
  - Length: 162.77 in.
  - Number of grooves: 32
  - Twist, right hand: one turn in 25 caliber

General:
The cannon is a flat trajectory artillery weapon. It uses fixed ammunition which is loaded into the gun manually. The loading of a round permits a closing spring mechanism to close the breech. The breech is opened automatically during counterrecoil of the gun, extracting the empty shell case. The principal components of the cannon are the gun tube, blast deflector, evacuator chamber, and the breech mechanism assembly with related parts.

The mount consists primarily of a shield group and the recoil mechanism assembly. In addition, it provides attachment for the emergency hand elevating screw assembly and the gun elevating cylinder assembly.

Differences among models:

Data plate location:
The combination gun mount identification plate is located on the right side of the gun mount below the gun firing relay.

Classification: Standard B (OTCM 36481).

CHARACTERISTICS

- Type of breechblock: vertical sliding
- Type of firing mechanism: spring-actuated inertia percussion
- Estimated accuracy life of tube: 700 equivalent full charge rounds

Mount:
- Weight (approx): 2,900 lb
- Type of recoil mechanism: concentric hydrospring
- Number of recoil cylinders: 1
- Length of recoil:
  - Normal: 1 ft
  - Maximum: 1 ft, 2 in.
- Capacity of recoil mechanism (including replenisher assembly): 6 gal
- Elevation (max): 19° (33 mils)
- Depression (max): 5° (89 mils)
- Operation of firing linkage: manual or electrical

AMMUNITION
- Types: AP-T, HE-T, TP-T, and smoke (WP-T)

PERFORMANCE
- Muzzle velocity:
  - AP-T: 3,000 fps
  - HE-T: 2,400 fps
- Range:
  - AP-T: 18,980 yd
  - HE-T: 14,000 yd
- Rate of fire:
  - Sustained speed: 8 rd per min
  - Rapid: 16 rd per min

EQUIPMENT
- Sighting and firing control:
  - Installed on tank M47 prior to issue:
    - DRIVE, BALLISTICS: M3
    - INDICATOR, AZIMUTH, MECHANICAL: M31
    - INVERTER, ORD No. 763898
    - MOUNT, PERISCOPE: M88
    - MOUNT, PERISCOPE: M89
    - QUADRANT, FIRE CONTROL: elevation, M18
    - RANGE FINDEE, FIRE CONTROL: M12
    - TRANSMITTER, SUPERELEVATION: M22

* For characteristics and data, see item in sections 14, 18, and 27.
Boxed and stowed in tank M47 prior to issue:
FIRING, TABLE: 90-F-2 (abridged)
FUZE SETTER: M27 or M14
PERISCOPE, M13
PERISCOPE, M20A3, M20, or M20A1
QUADRANT, FIRE CONTROL: gunner's, M1A1 or M1
Basic Issue Items: See TM 9-2350-200-12.
INSTRUCTIONAL MATERIAL
Subcaliber equipment:
MACHINEGUN: cal. .30, M1919A4E1

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped
Length ........................................
Width ........................................

Height ........................................
Volume ........................................
Gross weight ...................................
Ship tons ......................................

Outside Continental United States

Shipped
Length ........................................
Width ........................................
Height ........................................
Volume ........................................
Gross weight ...................................
Ship tons ......................................

CANNON, 90-MILLIMETER GUN: M41 (T139); MOUNT, GUN: 90-MM COMBINATION, M87 (T148) or ORD NO. 8733943

General

The CANNON, 90-MILLIMETER GUN: M41 (T139) with MOUNT, GUN: 90-mm combination, M87 (T148), provides the major armament for the TANK, COMBAT, FULL TRACKED: 90-mm. M48, M48A1, or M48C.

The CANNON, 90-MILLIMETER GUN: M41 (T139) with MOUNT, GUN: 90-mm combination, ORD No. 8733943, provides the major armament for the TANK, COMBAT, HALF TRACKED: 90-mm. M48A2, M48A1C.

The cannon consists of a tube, evacuator chamber, blast deflector, and breech mechanism assembly. The weapon is supported on two trunnions in the tank turret, which contains the operating controls and equipment for the weapon.

The combination gun mount supports the cannon in battery, recoil, and counterrecoil. It pivots in elevation and depression on the trunnion bearings. The major components of the combination gun mount are the gun mount shield assembly, the breech operating lever assembly, the concentric recoil mechanism assembly, the cal. .30 machinegun cradle assembly, and the elevating mechanism assembly.

Differences among models

The combination gun mount ORD No. 8733943 is a modified M87. It differs from the M41 in that the recoil mechanism assembly and cradle assembly were modified, and the splatter guards with their attaching hardware were eliminated on later models. A different elevating mechanism assembly is used in conjunction with combination gun mount ORD No. 8733943. Elevating mechanism assembly ORD No. 7971087 is the original model used with the weapon in the tank M48. Elevating mechanism assembly ORD No. 8733943, developed from ORD No. 7971087, has increased flange thickness of the front housing, relocated preformed packing, backup rings for the packing, and preformed packing for the piston rod rear guide. Elevating mechanism assembly ORD No. 8382217, developed from elevating mechanism assembly ORD No. 8370388, has the manifold needle valve removed and replaced with packing and plug to close the bore. Elevating mechanism assembly ORD No. 8686541 has rear housing flanges that do not contain ports.

Data plate location

The model and serial numbers of the cannon are stamped on the top of the breech ring. The identification plate of the gun mount is located on the right side of the cradle.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Cannon:

Weight: 2,370 lb
Weight of tube: 1,582 lb
Length (muzzle to rear face of breech ring w/blast deflector): 16 ft. 1½ in.
Rifling:
Length: 12 ft. 9½ in.
Number of grooves: 32
Twist, right hand: one turn in 25 calibers
Type of breechblock: vertical sliding
Type of firing mechanism: inertia percussion
Estimated accuracy life of tube: 750 equivalent full charge rounds

Mount:

Weight:
(less elevating mechanism) 2,845 rd
(including elevating mechanism) 3,097 rd
Type of recoil mechanism: concentric hydropneumatic
Number of recoil cylinders: 1
Length of recoil:
Normal: 1 ft
Maximum: 1 ft. 1½ in.
Capacity of recoil mechanism (incl. replenisher): 5.5 gal
Elevation (max): 19°
Depression (max): 9°
Traverse: 360°
Operation of firing linkage: manual or electric

AMMUNITION

Types—AP-T, APC-T, HE, HE-T, HEP-T, WP-T, TP-T, and HEAT-T

Muzzle velocity:
AP-T (M318A1C) 2,800 fps
HE-T (M71A1) 2,400 fps
HEAT-T (T42E3) 2,000 fps
Range:
- AP-T (M318A1C)...
- HE-T (M11A1)...
- HEP-T (T142E5)...

Rate of fire:...

**EQUIPMENT**

- Sighting and fire control:
  - Used with TANK, COMBAT, FULL TRACKED: 90-mm, M48, M48A1, M48C, M48A2, M48A3C.
  - FUSE SETTER: M14, M17
  - INDICATOR, AZIMUTH: M28A1 (T39E1)
  - MOUNT, PERISCOPE: M102A1 (T164)
  - MOUNT, TELESCOPE: M103 (T191)
  - PERISCOPE: M20A1
  - PERISCOPE: M27 (T35)
  - QUADRANT, FIRE CONTROL: ELEVATION, M18
  - QUADRANT, FIRE CONTROL: gunner's, M1, M1A1
  - TELESCOPE: M97C (T19E1)

- Used with TANK, COMBAT, FULL TRACKED: 90-mm, M48, M48A1, and M48C only.
- COMPUTER, BALLISTICS: M13 (T31)
  - DRIVE, BALLISTICS: M5 (T24E2)
  - INDICATOR, AZIMUTH, MECHANICAL: M28
  - MOUNT, TANK PERISCOPE: M104 (T165)
  - PERISCOPE: M1, M19, M26 (T25)
  - RANGE FINDER, FIRE CONTROL: M13 (T46E1)
  - SIGHT, PERISCOPE: M16 (T41)

- Used with TANK, COMBAT, FULL TRACKED: 90-mm, M48A2, M48A3C.
- CARD, RANGE, TANK: (no data available)

*For characteristics and data, see item in sections 12, 14, 15, 18, and 27.

**INSTRUCTIONAL MATERIAL**

- CARTRIDGE, 90-MILLIMETER DUMMY: M12B2

**STORAGE AND SHIPMENT DATA**

*Within Continental United States*

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*Outside Continental United States*

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CANNON 90-MILLIMETER GUN: M54 (T125); MOUNT, GUN: 90-MM, M88 (T170E1)

CANNON, 90-MILLIMETER GUN: M54 (T125) with MOUNT, GUN: 90-mm. M88 (T170E1), provides the major armament for the GUN. SELF-PROPELLED, FULL-TRACKED: 90-mm. M56. The cannon and mount combination is a high velocity weapon designed primarily for the M56 as an antitank weapon. It may be fired electrically by depressing a button on the traverse handwheel or mechanically by operating a lever attached to the right side of the front frame.

The cannon consists of three major parts: breech mechanism, tube, and tube support rails. The tube is screwed into the breech ring and has a counterweight at the muzzle end. The breech mechanism is opened manually for the first round by depressing the plunger at the top of the handgrip and pulling downward on the operating handle. Therefore, the breech is opened, the cartridge case is extracted, the percussion mechanism is cocked, and the breechblock is left in the open position through action imparted during counterrecoil. The cannon is then ready for loading the next round. Each round is loaded manually by the loader.

The gun mount M88 is trunnion-mounted to the top carriage and supports and guides the 90-mm gun M54. It consists of a large welded housing assembly supported underneath by front and rear cross bridge assemblies. It mounts the recoil mechanism, buffer assembly and hydraulic system, hand firing and safety levers, firing linkage, gun blast shield, telescope, and facilities to attach the upper end to the elevating screw.

Differences among models

Data plate location

The model and serial numbers of the gun are stamped on the forward portion of the top of the breech ring. The mount identification plate is located on the front cross frame.

Classification: Standard A (OTCM 36441).

CHARACTERISTICS

Cannon:

Weight (w/counterweight) ........................................... 2,440 lb
Weight of tube .................................................. 1,473 lb
Length .......................................................... 15 ft. 6½ in.
Rifling:

Length .................................................. 12 ft. 8¾ in.
Twist, right hand ........................................ one turn in 25 calibers
Type of breechblock ........................................ vertical sliding
Type of firing mechanism ................................ spring-actuated, inertia percussion
Estimated accuracy life of tube ........ 700 equivalent full charge rounds

Mount:

Weight (w/fluid) .................................................. 1,868 lb
Type of recoil mechanism ................................ hydrospring
Number of recoil cylinders ................................... 2
Length of recoil:

Normal ..........................................................
Maximum ..........................................................
Capacity of recoil mechanism (including air space) ................................ 8 gal
Elevation (max) ........................................ 15°

Depression (max) ........................................ 10°
Traverse, maximum, right or left ................................ 30°
Operation of firing linkage .......... manual or electrical

Types ............... AP-T, APC-T, HE, HE-T, HEAT, WP, TP-T, and HEAT-T

PERFORMANCE

Muzzle velocity:

APC-T, HEAT ........................................ 2,800 fps
AP-T, TP-T ........................................ 3,000 fps
HE, WP ........................................ 2,700 fps
HE-T, WP-T ........................................ 2,400 fps
HEAT-T ........................................ 4,000 fps

Range:

APC-T (2° 30 min elevation) ............................. 1,000 yd
HEAT (4° 5 min elevation) .................................... 7,000 yd
AP-T, TP-T (2° 16 min elevation) .................. 5,000 yd
HVAP-T, HYTP-T (2° 9 min elevation) ............ 5,000 yd
HE-FP (5° 13 min elevation) .............................. 2,000 yd
HE, WP (2° 41 min elevation) ....................... 5,000 yd
HE-T (4° 39 min elevation) ............................ 15,000 yd
WP-T (4° 53 min elevation) ............................ 14,260 yd
HEAT-T (4° 14 min elevation) ...................... 6,500 yd

Rate of fire

EQUIPMENT

Sighting and fire control:*

Installed on vehicle prior to issue:

MOUNT, TELESCOPE: M111 (T219)
BOXED AND STORED ON VEHICLE PRIOR TO ISSUE:

FIRING TABLE: FT 90-N-I and FT 90-N-1, CT
FUZE SETTER: M27 (T40)
QUADRANT, FIRE CONTROL: Gunner's M1A1, w/CH68
TELESCOPE: M104 (T186).

Basic Issue Items: See TM 9-2350-212-10 (app. III).

INSTRUCTIONAL MATERIAL

CARTRIDGE, 90-MILLIMETER: HVTP-T, M317A1, M317A2, M333.
M333A1
CARTRIDGE, 90-MILLIMETER, BLANK: M104
CARTRIDGE, 90-MILLIMETER, DUMMY: M12, M12B1, and M12B2

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

Length ..................................................
Width ...................................................
Height ..................................................
Gross weight ........................................
Ship tons ...........................................

Outside Continental United States

Shipped

Length ..................................................
Width ..................................................
Height ..................................................
Gross weight ........................................
Ship tons ...........................................

References: TM 9-2350-212-10, TM 9-1015-222-33, TM 9-1015-222-33P.

* For characteristics and data, see item in section 14 and 18.
CANNON, 105-MILLIMETER GUN: M68 (T254E2); MOUNT GUN: 105-MM COMBINATION, M116

CHARACTERISTICS

Cannon:
- Weight (complete) 2,486 lb
- Weight of tube 1,660 lb
- Length (muzzle to rear face of breech) 18 ft, 2½ in.
- Length of tube 17 ft, 6½ in.
- Rifling:
  - Length 17 ft, 6½ in.
  - Number of grooves 28
  - Twist, right-hand one turn in 18 calibers
- Type of breechblock sliding wedge, drop block, counter-recoil opening, spring closing
- Type of firing mechanism electric firing, automatic mechanically retracted firing pin
- Estimated accuracy life of tube 200 to 300 rd

Mount:
- Weight 5,752 lb
- Type of recoil mechanism concentric hydrospring constant recoil distance

Number of recoil cylinders
- Length of recoil:
  - Nominal
  - Maximum
- Capacity of recoil mechanism
- Elevation (max) +19°
- Depression (max) (minus 17.8 mil (gun forward) to minus 90 mil (approx) with gun directly over rear deck).
- Operation of firing linkage none (electrical circuit only)

AMMUNITION

Types
- APDS-T: HEP-T and HEAT-T

PERFORMANCE

- Muzzle velocity
- Range
- Rate of fire

EQUIPMENT

Sighting and fire control:
- Installed on vehicle prior to issue:
  - COMPUTER, BALLISTIC: M13A1
  - DRIVE, BALLISTICS: M19 (T24E2)
  - INDICATOR, AZIMUTH: M28A1
  - MOUNT, TANK PERISCOPE: M104A1
  - MOUNT, TELESCOPE: M114 (T199)
  - PERISCOPE: M24 (T41)
  - QUADRANT, FIRE CONTROL: elevation, M13A1
  - RANGE FINDER, FIRE CONTROL: M17C, w/case
  - SIGHT, INFINITY: M44C (T159E1)
  - SIGHT, PERISCOPE: M28C
  - TELESCOPE: articulated, M105C

Basic issue items:
- RANGE, tank (luminous)
- FUSE SETTER: M27 (T40)
- RANGE, tank (luminous)
- SIGHT, PERISCOPE: M28C

INSTRUCTIONAL MATERIAL

Subcaliber equipment:
- CARTRIDGE, 7.62-MILLIMETER: NATO ball, M69
- MACHINE GUN: 7.62-mm, tank, M33 (T190E2)

For characteristics and data, see items in sections 12, 14, 15, 18, and 19.
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<tr>
<th>Storage and Shipment Data</th>
<th>Outside-Continental United States</th>
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<td>Gross weight</td>
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<td>Ship tons</td>
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</table>

CANNON, 105-MILLIMETER HOWITZER: M49 (T96E1); MOUNT, HOWITZER: 106-MM, M85 (T67E1)

**CHARACTERISTICS**

**Cannon:**
- Weight: 942 lb
- Weight of tube: 595 lb
- Length: 13 ft, 9 in.
- Length of tube (muzzle to breech face of tube): 7 ft, 9 in.
- Rifling: 11 grooves
- Twist: Right hand, one turn in 29 calibers

**Mount:**
- Weight: 1015 lb
- Type of breechblock: Vertical sliding
- Type of firing mechanism: Spring actuated, inertia percussion
- Estimated accuracy life of tube: See item in sections 14, 18, 27, and 28.

**General**
- Cannon, 105-Millimeter Howitzer: M49 (T96E1) with Mount, Howitzer: 106-mm, M86 (T67E1), provides the major components for the 105-millimeter, full tracked, self-propelled howitzer M52 (T98E1) and M52A1.

The cannon consists of a tube screwed into a breech ring at the breech end, with an evacuator chamber and locknut mounted on the muzzle end. A vertical cylinder, an integral part of the left side of breech ring, houses the breechblock closing spring mechanism. The breechblock rides in the machined interior of the breech ring.

The mount consists primarily of a front shield and cradle. The front shield is an armor steel casting which supports the elevation trunnions of the cradle in self-aligning bearings. The cradle is a large cylindrical casting with a hollow bore. The bore of cradle contains front and rear follows which provide bearing support surfaces in which the cannon tube slides during recoil and counter-recoil. In addition, the cradle forms the outer cylinder of the recoil mechanism and mounts all the tipping parts including the replenisher assembly, breech operating and firing mechanism assembly, rotor shield, and elevating rack.

**Differences among models**
- Data plate location:
  - The model and serial numbers of the cannon are stamped on the front wall of the breech ring.
  - The mount and recoil mechanism identification plates are mounted on the breech operating and firing mechanism bracket.

**Classification:** Standard B (OTCM 38441).

**AMMUNITION**
- Types: HE, HEP, HEP-T, HEAT, HEAT-T, CHEM, and ILLUM

**PERFORMANCE**
- Muzzle velocity:
  - HEAT (charge not adjustable): 1,250 fps
  - HE (maximum zone charge): 1,550 fps

**Range:**
- HEAT (625 mils elevation): 6,700 yd
- HE (778.6 mils elevation): 12,205 yd

**Rate of fire:**
- Manual

**EQUIPMENT**
- Sighting and fire control:
  - FUZE SETTER: M27 or M22 and M13 and M28 or M14
  - MOUNT, TELESCOPE: M9A1 or M9
  - MOUNT, TELESCOPE: M109
  - PERISCOPE: M12, M16A1, M17, M23 (T85)
  - POST, AIMING: M1A2
  - QUADRANT, FIRE CONTROL: gunner's, M1A1 or M1, w/case
  - TABLE: firing (FT-106-M-I)
  - TELESCOPE: M101 (T169B1)
  - TELESCOPE, PANORAMIC: M106 (T169B1)

*For characteristics and data, see item in sections 14, 18, 27, and 28.
TRIPOD, SURVEYING: FSN 6075-240-1881 (issued by Corps
Engineers)

Basic Issue Items: See TM 9–7204.

INSTRUCTIONAL MATERIAL
CARTRIDGE, 105-MILLIMETER BLANK: M395
CARTRIDGE, 105-MILLIMETER DUMMY: M14
CARTRIDGE, 105-MILLIMETER: semifixed, empty, M1
CARTRIDGE, 105-MILLIMETER: semifixed, TP–T, M67

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length -----------------------------------------------
Width -----------------------------------------------

Outside Continental United States

Shipped
Length -----------------------------------------------
Width -----------------------------------------------
Height -----------------------------------------------
Volume -----------------------------------------------
Gross weight ----------------------------------------
Ship tons -------------------------------------------

7204.
MOUNT, GUN: 120-MM, COMBINATION, M89 (T154) OR M89A1
CANNON, 120-MILLIMETER, GUN: M58 (T123E1);

M68
1016-609-0782
M89
1015-788-5100
M89A1

General
CANNON, 120-MILLIMETER GUN: M68 (T123E1) with MOUNT, GUN: 120-mm, combination, M89, provides the major armament of TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 (T43E1) or with Mount M89A1 the major armament of TANK, COMBAT, FULL TRACKED: 120-MM GUN, M103A1.

The cannon principally consists of a tube, counterweight, evacuator chamber, and breech ring group with related parts. Ammunition is of the "separated" type, consisting of a fused or solid projectile and a propelling charge. The breech mechanism is designed for automatic opening of the breech during counterrecoil, and automatic closing by spring action upon insertion of a cartridge case. The round is ejected automatically upon opening of the breech.

The mount consists primarily of a shield, mount adapter, cradle, and equilibrator mechanism. In addition, it provides attachment for the breech operating and firing mechanism, coaxial machinegun mounts, and the equilibrator bracket. The mount supports the cannon and is attached to the adapter assembly which is secured in the turret by the trunnions. The recoil mechanism assembly absorbs the recoil forces of the cannon and provides counterrecoil to bring the cannon back to battery.

Differences among models

Data plate location
The tube and breech ring serial numbers of the cannon are stampings located on the breech end of the cannon and the top of the breech ring, respectively. The mount nameplate is located on the rear of the mount of the mount housing between the recoil cylinders.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Cannon:
- Weight (complete) ................. 6,280 lb
- Weight of tube ......... 4,600 lb
- Length (muzzle to rear face of breech ring assembly) .... 24 ft. 10\(\frac{1}{2}\) in.
- Length of tube .......... 22 ft. 6 in.
- Rifling:
  - Length ................. 20 ft. 4 in.
  - Twist, right hand .......... one turn in 26 calibers

Type of breechblock: vertical sliding
Type of firing mechanism: spring-actuated inertia percussion
Estimated accuracy life of tube: 

Mount:
- Weight: M89 ........ M89A1
- Type of recoil mechanism (M89 or M89A1) ....... multiple cylinder hydro spring
- Number of recoil cylinders (M89 or M89A1) ........ 4
- Capacity of recoil mechanism (M89 or M89A1) 20 gal
- Elevation (max) (M89 or M89A1) ........ 15°
- Depression (max) (M89 or M89A1) ........ 9°
- Operation of firing linkage (M89 or M89A1) manual or electrical

AMMUNITION

Types ............... AP-T, HE-T, WP-T, and TP-T

Muzzle velocity:
- HE ........ 2,600 fps
- AP-T ........ 3,500 fps

Range:
- HE ........ 19,910 yd
- AP-T ........ 26,290 yd

Rate of fire: 

EQUIPMENT

Sighting and fire control:
- Installed on tank M103 prior to issue:
  - DRIVE, BALLISTICS: M6 (T32E2)
  - INDICATOR, AZIMUTH, MECHANICAL: M30 (T25)
  - MOUNT, PERISCOPE: M106 (T176E2)
  - PERISCOPE: M20A1 or M20A1
  - QUADRANT, FIRE CONTROL: elevation, M13 (T21)
  - RANGE FINDER, FIRE CONTROL: M14 (T42E1)

- Installed on tank M103A1 prior to issue:
  - COMPUTER, BALLISTICS: M14 (T30)
  - CORRECTOR, CANT: M3 (T14)
  - DRIVE MOUNT, PERISCOPE: M6 (T36)
  - INDICATOR, AZIMUTH, MECHANICAL: M20A1 (T28E1)
  - INVERTER, ASSEMBLY: (ORD No. 860314)
  - MOUNT, TELESCOPE: M107 (T209)
  - PERISCOPE: M9 (T56E2)
  - QUADRANT, FIRE CONTROL: elevation, M14 (T21)
  - RANGE FINDER, FIRE CONTROL: M15 (T52E1)
  - SERVO MECHANISM, ELEVATION: M1 (T1)
  - SIGHT, INFINITY: M44 (T159)

* For characteristics and data, see item in sections 12, 14, 15, 16, 18, and 27.
TELESCOPE: M183 (T172)
TRANSMITTER, SUPERELEVATION: M23 (T14)
Boxed and stowed in vehicle prior to issue.
FIRING TABLE: FT 120-C-1
FUZE SETTER: M17 or M14
PERISCOPE: M17
PERISCOPE: M24
PERISCOPE: M27
QUADRANT, FIRE CONTROL: gunner's, M1A1 or M1, w/case


INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA
Within Continental United States

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Outside Continental United States

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</tr>
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GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-MM WEAPONS SYSTEM, M51, W/E
(CANNON: 75-MM, AUTOMATIC GUN, M35 (T83E6 OR T83E7); RECOIL MECHANISM: T47E2 OR M29 (T47E3); MOUNT, GUN: 75-MM, AA, M84 (T69))
PERFORMANCE

Muzzle velocity ........................................... 2,800 fps

Range:
Horizontal .............................................. 14,415 yd
Vertical .................................................. 10,000 yd

Rate of fire ................................................ 45 rd per min

EQUIPMENT

Sighting and fire control:
- FUZE SETTER: M27 (T40)
- FUZE SETTER: M28
- FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38)
- MOUNT, TELESCOPE: M24A1
- QUADRANT, FIRE CONTROL: gunner's, M1A1, W/CASE
- QUADRANT, FIRE CONTROL: range, M1A1
- TABLE, FIRING: FT 7AA-BG-1
- TABLE, FIRING: FT 7BK-1
- TELESCOPE, PANORAMIC: M2A7H

Basic Issue Items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

CARTRIDGE, 75-MILLIMETER, DUMMY: T146B1, w/FUZE, DUMMY, M59

* For characteristics and data, see item in sections 13, 14, and 18.

CARTRIDGE, 75-MILLIMETER: empty, M334, w/FUZE, inert, M1A5

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length ..................................................
Width ...................................................
Height ...................................................
Volume ..................................................
Gross weight .........................................
Ship tons .............................................

Outside Continental United States

Shipped
Length ..................................................
Width ..................................................
Height ..................................................
Volume ................................................
Gross weight ........................................
Ship tons ............................................

PRIME MOVER

TRACTOR, CARGO: M8A1

GUN, ANTIAIRCRAFT ARTILLERY TOWED: 90-MM, M117, W/E
(CANNON, 90-MILLIMETER GUN: M1A2 OR M1A3;
RECOIL MECHANISM: M1-SERIES; MOUNT, GUN: 90-MM, M1A2)

General

GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 90-mm, M117, w/e, consists of a CANNON, 90-MILLIMETER GUN: M1A2 or M1A3; RECOIL MECHANISM: M1-series; MOUNT, GUN: 90-mm, M1A2. The weapon is used against aircraft at medium altitudes. It may also be used against ground and waterborne targets.

The cannon M1A2 or M1A3 is a single-fire, recoil operated, semi-automatic weapon, using fixed, percussion primed ammunition. When mounted on the 90-mm antiaircraft gun mount, the gun cannon is intended primarily for antiaircraft fire but may be used also against ground and waterborne targets.

The mount M1A2 is of the trailer type with a two-wheel bogie for supporting the weight while traveling. In the firing position, the mount is lowered to the ground and the bogie is detached and rolled forward. The recoil mechanism is of the hydropneumatic type with a variable recoil feature to effect different lengths of recoil at various degrees of elevation. The mount is equipped with manual and power-operating elevating and traversing mechanisms. Elevation of the tipping parts is facilitated by spring-type equilibrators. The mount is equipped with electric brakes operated from the prime mover and also hand brakes.

The recoil mechanism is a variable hydropneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or mount. It is installed on the mount.

Differences among models

The composition of the steel in CANNON, 90-mm gun, M1A3 is the only difference between the M1A2 and the M1A3. The M1A3 meets new requirements for cold weather operations and fatigue resistance, and will allow retubing.

Data plate location

Classification: Standard B (OTCM 37727).

CHARACTERISTICS

Cannon and mount:

Overall:
Length ........................................ 20 ft, 10 in.
Width ........................................ 8 ft, 9 in.
Height ........................................ 9 ft, 4 in.

Cannon:
Weight (complete) ................................ 2,505 lb
Weight of tube ................................... 1,466 lb
Length (muzzle to rear face of breech ring) .... 15 ft, 6 in.
Length of tube .................................. 14 ft, 9 in.
Rifling:
Length ........................................ 12 ft, 8 in.
Number of grooves ............................... 32
Uniform twist, right hand ....................... one turn in 32 calibers
Type of breechblock .................. vertical, sliding
Type of firing mechanism .................. inertia
Estimated accuracy life of tube .................. 1,500 rd

Mount:
Weight of recoil mechanism ................... 1,650 lb
Number of recoil cylinders .................... 3
Length of recoil (variable):
Normal ........................................ 1 ft, 11½ in.
Maximum ...................................... 8 ft, 10 in.
Capacity of recoil mechanism .................. 41½ ps
Elevation (max) ................................ 80°
Depression (max) ............................... 6°
Operation of firing linkage .................. manual or electric

AMMUNITION

Types ........ Fixed: HE, WP, APC-T, HVAP-T, and SMOKE

PERFORMANCE

Muzzle velocity:
HE and WP ...................................... 2,700 fps
APC-T ........................................... 2,880 fps
HVAP-T (M332A1) .............................. 3,875 fps
Range:
- HE (ltd. by 30-sec MT fuse) 10,900 yd
- HE (w/PD fuse), SMOKE 19,560 yd
- APC-T (M32A1) 21,400 yd
- HVAP-T (M32A1) 16,700 yd
- Rate of fire 22 rd per min

EQUIPMENT

Sighting and fire control:
- BINOCULAR: M17A1, w/e
- FIRING TABLE: 90AA-E-3
- FIRING TABLE: 90-C-3
- FUZE SETTER: M13A1
- FUZE SETTER: M26
- FUZE SETTER: M28
- MOUNT, TELESCOPE: M28
- MOUNT, TELESCOPE: M54
- QUADRANT, FIRE CONTROL: gunner's, M1A1, w/case
- REMOTE CONTROL SYSTEM: M2A1
- TELESCOPE, ELBOW: M24A1
- TELESCOPE, ELBOW: M26A1

Basic Issue Items: See ORD 7 SNL D-28.

PRIME MOVER
7½ ton, 6 x 6, truck or 18-ton high speed tractor M4

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Inside Continental United States</th>
<th></th>
<th>Outside Continental United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUN M1A2 OR M1A3 w/mount M1A2, KD, w/equipment</td>
<td></td>
<td>GUN M1A2 OR M1A3 w/mount M1A2, KD, w/equipment</td>
</tr>
<tr>
<td>Shipped 1 gun M1A2 or M1A3 w/mount M1A2, KD, w/equipment per crate (fully sheathed, skid-type)</td>
<td></td>
<td>Shipped 1 gun M1A2 or M1A3 w/mount M1A2, KD, w/equipment per crate (fully sheathed, skid-type)</td>
</tr>
</tbody>
</table>

* For characteristics and data, see item in sections 14, 15, and 27.

Length 20 ft, 10⅞ in.
Width 8 ft, 7⅛ in.
Height 7 ft, 9⅛ in.
Volume 1,276.3 cu ft
Gross weight 33,429 lb
Ship tons 31.78

TIME TO EMPLACE

Gun alone 7 min
Gun w/FC equipment 30 min

INSTRUCTIONAL MATERIAL

BASE, DUMMY CARTRIDGE: M12 (spare)
CARTRIDGE, 90-MILLIMETER DUMMY: M12B2 w/fuse, MT, M45E2, inert.
CARTRIDGE, 90-MILLIMETER DUMMY, M12 w/fuse, dummy, M44A2.
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M14, w/e

References: SNL D-28, TM 9-1070.
TM 9-500


ORD A1135-A

General

GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 90-mm, M118, w/e, consisting of a CANNON, 90-MILLIMETER GUN: M2A1 or M2A2; RECOIL MECHANISM: M17-SERIES; FUZE, SETTER-RAMMER: M20; MOUNT GUN: 90-mm, M2A1, is a rapid-fire, high-velocity gun, firing armor-piercing, smoke, or high explosive fixed ammunition. The breech is opened automatically in counter-recoil after firing the first round and closed automatically when the round is ramm. The gun is loaded and fired manually. A combination FUZE SETTER-RAMMER: M20, motor drive, and electronic amplifier function as a unit automatically to set projectile fuzes according to fire control system or director data and to ram rounds into the gun chamber at high speeds. Rounds can be hand-rammed when the fuse setter-rammer is not operating. Armor-piercing ammunition is ramm manually. The gun is positioned to azimuth and elevation either manually or by the remote control system according to fire control system. For surface targets, when the required gun elevation is less than 15°, the gun is directed by a periscope-type telescope sighting system.

The cannon consists of a gun tube and breech mechanism. The tube includes the support assembly and recoil side rails, and the breech mechanism includes the breech ring, breechblock, and breech closing mechanism.

The mount consists of the equilibrators: elevating, traversing, and leveling mechanisms: top carriage: pedestal: and outriggers. Normally, the bogies are removed and the pedestal is emplaced on the ground for firing; however, the gun can be fired from the bogies in an emergency. The pedestal forms the base of the mount and chassis for attaching the bogies. It supports the top carriage and leveling mechanism. The cradle of recoil mechanism supports all of the tipping parts, the cannon assembly, recoil mechanism, counterrecoil buffer, and combination fuse setter-rammer. Spring equilibrators, mounted on the top carriage, counterbalance the overhanging weight of the cannon.

The recoil mechanism is a hydropneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or mount. It is installed on the mount.

Differences among models

The cannon M2A2 has a different composition steel in the breech ring. This allows the cannon M2A1 to be retubed. The gun mount M2A1 is the mount M2 modified for use with the fire control system M2SC or T3SC. A microrecoil switch was mounted on the recoil mechanism cradle and connected to the M2SC or T3SC. The indicator regulators M1A1 have been changed so as to affect the operating procedure. A gun junction box has been added as part of the remote control system. A signal box has been added to the mount M2A1. The difference in recoil mechanism M17, M17A1, and M17A2 is in the floating piston assemblies. The mechanism M17A1 is the M17 modified by the addition of a spacer in the floating piston and new type packings. The M17A2 is a new mechanism having a one-piece floating piston. The M17A3, M17A4, and M17A5 are the mechanisms M17, M17A1, and M17A2 modified for use on antiaircraft mount M2A1. The modification consists of the installation of a new-type firing handle in place of the firing lever handle. The new handle contains a safety lock actuated by a solenoid, which is controlled at the antiaircraft fire control system M2SC or T3SC. In order to install the new-type firing handle, it was also necessary to change the design of the link connecting the breech mechanism handle. This modification converts the present firing mechanism of the recoil mechanism M17, M17A1, and M17A2 so that it will operate in conjunction with the antiaircraft fire control system M2SC or T3SC.

Data plate location

The cannon tube serial number, manufacturer, and model designations are stamped on the upper surface of the tube, just forward of the tube support body. The mount nameplate is attached to the right side top carriage side frame.

Classification: Standard B (OTCM 37727)
CHARACTERISTICS

Cannon and Mount:

Overall:
- Length: 29 ft, 6 in.
- Width: 8 ft, 7 in.
- Height: 10 ft, 11 in.

Cannon:
- Weight (complete): 2,360 lb
- Weight of tube: 1,465 lb
- Length (muzzle to rear of recoil slide rail): 16 ft, 9 3/4 in.
- Length of tube: 14 ft, 9 3/4 in.

Rifling:
- Length: 12 ft, 8 in.
- Number of grooves: 32
- Uniform twist, right hand: One turn in 32 calibers
- Type of breechblock: vertical, sliding wedge
- Type of firing mechanism: percussion inertia, manual
- Estimated accuracy life of tube: 1,600 rd

Mount:
- Weight (approx): 6,014 lb.
- Elevation (max): 80°
- Depression (AA firing): minus 10 deg
- Depression (max): minus 10 deg
- Operation of firing linkage: manual or electric
- Tire size and type: 14.00 x 24, nondirectional "mud or snow" or bus balloon
- Tire pressure: 75 lb
- Type of brakes: electric-mechanical, compound
- Traverse: continuous 360-degrees

Recoil Mechanism:
- Type: hydropneumatic
- Number of recoil cylinders: 3
- Length of recoil:
  - Normal (0° elev): 3 ft, 4 in. to 3 ft, 9 in.
  - Normal (90° elev): 2 ft, 2 in. to 3 ft, 4 in.
- Capacity: 21/2 gal

AMMUNITION

Types (fixed): APC-T, SMOKE, WP, HE, HVAP-T, and TP

PERFORMANCE

Muzzle velocity:
- APC-T: 2,830 fps
- WP: 2,700 fps
- HE: 2,600 fps

Range:
- APC-T: 21,198 yd
- WP: 19,500 yd
- HE: 19,060 yd

Rate of fire:
- Sustained speed: 23 rd per min
- Rapid: 28 rd per min

EQUIPMENT

Sighting and fire control:
- AMPLIFIER: M1A2
- DRIVE, MOTOR: M2A2
- Fuze setter: M13A1, M23
- Fuze setter: M24
- Quadrant, fire control: gunner's, M1A1, w/case
- Remote control system, M23A1
- Sighting system, auxiliary: M7

Basic issue items: See ORD 7 SNL 3-33.

INSTRUCTIONAL MATERIAL

CARTRIDGE, 90 MILLIMETER; dummy, M12, M12B1, M12B2

GRAPHIC TRAINING AIDS: See DA Pam 310-6

STORAGE AND SHIPMENT DATA

Within Continental United States

Gun /w mount, KD, w/equipment.
- Shipped Length: 
- Width: 
- Height: 
- Volume: 
- Gross weight: 
- Ship tons: 

Gun and mount also shipped uncrated in traveling position.

Outside Continental United States

Shipped Length: 
- Width: 
- Height: 
- Volume: 
- Gross weight: 
- Ship tons: 

PRIME MOVER


* For characteristics and data, see item in sections 14 and 18.

** For characteristics and data, see item in section 24.
HOWITZER, PACK: 75-MM, M116, W/E (CANNON, 75-MILLIMETER PACK)
HOWITZER: M1A1; RECOIL MECHANISM: M1-SERIES;
CARRIAGE: HOWITZER (PACK). 75-MM, M8)

General
HOWITZER, PACK 75-mm, M116, w/e, consisting of CANNON, 75-MILLIMETER PACK HOWITZER: M1A1 RECOIL MECHANISM: M1A5, M1A7, or M1A8; on CARRIAGE: HOWITZER (pack), 75-mm, M8 is a general-purpose, towed, light field-artillery weapon. The howitzer is used for either direct or indirect fire and can be elevated to high angles to deliver plunging fire on a target. The weapon can be disassembled readily into nine major components for parachute packing in parachute delivery and into eight major components for mule pack in animal transport. In traveling position for towing behind a prime mover, the weapon is almost balanced on a two-wheel axle. A caster wheel can be attached to the trail to facilitate manual transport by the gun crew after parachute delivery.

The howitzer cannon consists of a tube, breech ring assembly, operating lever latch, breechblock, firing mechanism, and lock. The howitzer carriage consists of a cradle, equilibrator and rocker assemblies, elevating mechanism, axle and traversing mechanism, front and rear trail assemblies, and wheels and tires.

The recoil mechanism is a variable hydropneumatic type shock absorber that decreases the energy of the recoil gradually and avoids violent movement of the cannon or mount. It is installed on the mount.

Differences among models
The recoil mechanism M1A5 is a modified M1A4; the change being the redesign of the piston rod assembly and piston rod collar step. Stronger bolts are also used to fasten the cylinder support to the bottom sleigh. The M1A7 is a modified M1A5; the M1A7 incorporates a floating piston spacer and low temperature packing filler. This mechanism is filled with petroleum base hydraulic oil. The M1A8 is essentially the same as the M1A7, except that it is redesigned to incorporate a one-piece floating piston and low temperature packing filler.

Data plate location
The cannon data are stamped on the right side of the cannon tube just below the lifting eye. The recoil mechanism identification plate is located on the left side of the bottom sleigh.

Classification: Standard C (OTCM 87727).

CHARACTERISTICS
Cannon:
Weight (tube and breech mechanism) -- 842 lb
Weight of tube -- 221 lb
Length (with breech ring) -- 69 in.
Length of tube -- 8 ft. 11½ in.
Firing:
Length -- 8 ft. 5½ in.
Number of grooves -- 28
Twist, right hand -- one turn in 20 calibers
Type of breechblock -- horizontal sliding wedge
Type of firing mechanism -- continuous pull
Estimated accuracy life of tube -- 20,000 rd

Carriage:
Weight -- 918 lb
Type of recoil mechanism -- hydropneumatic
Number of recoil cylinders -- 2
Length of recoil:
Normal -- 2 ft. 8 in. to 2 ft. 7 in.
Maximun -- 2 ft. 5½ in.
Capacity of recoil mechanism -- 8 pt
Elevation (max) -- 45°
Depression (max) -- 8°
 Traverse -- R or L 8°
Operation of firing linkage -- manual
Tire size and type -- 6:00 x 16 standard
Tire pressure -- 20 lb

AMMUNITION
Types:
Semiammuniomed -- H E and SMOKE
Fixed -- HE and SMOKE

PERFORMANCE
Muzzle velocity:
Shell HE M46 (chg 4) -- 1,260 fps
Shell HE M46 (chg 1) -- 1,708 fps
Range (Shell HE M46) -- 8,620 yd
Rate of fire:
Short bursts: 6 rd per min
Prolonged firing: 3 rd per min

EQUIPMENT
Sighting and fire control:
- ADAPTER, TELESCOPE: M9
- BINOCULAR: M1A1, w/e
- MOUNT, TELESCOPE: M3A1
- POST, AIMING: M1A2
- QUADRANT, FIRE CONTROL: gunner's, M1A1, w/case
- TABLE, FIRING: FT 71-1-4
- TELESCOPE, ELBOW: M62A1C
- TELESCOPE, OR PANORAMIC: M1

Basic issue Items: See ORD 7 SNL C-30

INSTRUCTIONAL MATERIAL
Subcaliber equipment:
- GUN, 57-MILLIMETER: M1916 or M12
- MOUNT, 57-MILLIMETER: M5
- MOUNT, 57-MILLIMETER: M5 w/adapter
- CARTRIDGE, 76-MILLIMETER DUMMY: M19
- CARTRIDGE, 76-MILLIMETER DUMMY: M2A2

STORAGE AND SHIPMENT DATA

Howitzer only.
Shipped
Length: 6 ft 9 in.
Width: 2 ft 10 in.
Height: 8 ft
Volume: 48.8 cu ft
Gross weight: 1,860 lb
Ship tons: 0.14

*For characteristics and data, see item in sections 14, 18, and 27.

Howitzer M1A1 w/carriage M8 (KD) w/equipment
Shipped 1 howitzer M1A1 w/carriage M8 (KD) w/equipment per crate (fully sheathed, skid-type)
Length: 6 ft, 9 in.
Width: 3 ft, 10 in.
Height: 5 ft, 11 in.
Volume: 6.7 cu ft
Gross weight: 904 lb
Ship tons: 0.14

Outside Continental United States.

Howitzer only.
Shipped
Length: 5 ft, 9 in.
Width: ~
Height: ~
Volume: ~
Gross weight: ~
Ship tons: ~

Howitzer M1A1 w/carriage M8 (KD) w/equipment
Shipped 1 howitzer M1A1 w/carriage M8 (KD) w/equipment per crate (fully sheathed, skid-type)
Length: ~
Width: ~
Height: ~
Volume: ~
Gross weight: ~
Ship tons: ~

PRIME MOVER
3/4-ton, 4 x 4, truck; airplane C47-unit of parachute loads; glider GG-4A-unit loads.

HOWITZER, LIGHT, TOWED: 105-MM, M101 AND M101A1 (CANNON, 105-MILLIMETER HOWITZER: M2A1 OR M2A2; RECOIL MECHANISM: M2-SERIES; CARRIAGE, 105-MILLIMETER HOWITZER: M2A1 OR M2A2)

**Model**

<table>
<thead>
<tr>
<th>Howitzer Carriage Mechanism</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M101</td>
<td></td>
<td></td>
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<tr>
<td>M2A1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2A2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2A3</td>
<td>1015-322-9728</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2A4</td>
<td></td>
<td></td>
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<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2A5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2A6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General**

HOWITZER, LIGHT, TOWED: 105-MM, M101 or M101A1, consisting of a CANNON, 105-MILLIMETER HOWITZER; M2A1 or M2A2; RECOIL MECHANISM: M2-SERIES; CARRIAGE, 105-MILLIMETER HOWITZER: M2A1 or M2A2. A general purpose, towed, light field artillery weapon. It can be used for direct or indirect fire.

The cannon consists of a tube assembly, breech ring, and locking ring. The cannon is mounted on the recoil sleigh assembly. The firing mechanism is a continuous pull (self-cocking) type actuated by pulling a lanyard. The cannon is single-loaded and air-cooled, and uses semifixed ammunition.

The carriage consists of a single-axle and split-trail type. The trails are divided at emplacement, but drawn together and hocked during travel. A drawbar is provided for securing to a prime mover. The carriage consists of an equilibrator, shield, elevating mechanism, cradle, gears, elevating arc, traversing mechanisms, top carriage, wheels, and trails.

The recoil mechanism is a variable hydropneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or carriage. It is installed in the cradle of the carriage.

**Data plate location**

The howitzer cannon data are stamped on top of the breech ring. The carriage identification plate is attached to the left elevating arc. The recoil mechanism identification plate is attached to the left front of the sleigh.

**Classification**

M101 Standard B (OTCM 37568)
M101A1 Standard A (OTCM 37568)

**Characteristics**

<table>
<thead>
<tr>
<th>Howitzer, Light, Towed: 105-mm, M101 and M101A1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (approx) 19 ft, 8 in.</td>
</tr>
<tr>
<td>Width (approx) 7 ft, 1½ in.</td>
</tr>
<tr>
<td>Height (approx) M101 5 ft, M101A1 6 ft, 2 in.</td>
</tr>
<tr>
<td>Weight: M101 4,475 lb M101A1 4,590 lb</td>
</tr>
</tbody>
</table>

**Differences among models**

The major difference between M101 and M101A1 is the M101 has the M2A1 carriage and the M101A1 has the M2A2 carriage.

The muzzle end of the howitzer cannon M2A1 is straight while the M2A2 has a bell-shaped muzzle end.

The carriage M2A2 is equipped with a main shield group composed of right and left upper and lower shields, right and left top flaps, a bottom flap, and right and left auxiliary shields; while the carriage M2A1 is equipped with a right and left main shield and top shield.

Recoil mechanism M2A1 has a two-piece floating piston, with grease keeping the two halves separated; this mechanism is not satisfactory for temperatures below -20°F. In mechanism M2A2, spacers in the floating piston keep the two halves separated the required distance while the mechanism M2A3 is equipped with a one-piece floating piston; both of these mechanisms are satisfactory for operation at either normal or extreme cold temperatures. Recoil mechanisms M2A1, M2A2, and M2A3 which have been overhauled to use Teflon-aluminum seals were given M2A4 designations. The newly manufactured mechanisms, basically identical to the M2A4, were designated M2A5.
Cannon:
- Weight: 1,946 lb
- Weight of tube: 704 lb
- Length (muzzle to rear face of breech ring): 8 ft, 5¾ in.
- Number of grooves: 36
- Twist, right hand: one turn in 20 calibers
- Type of breechblock: horizontal sliding wedge
- Type of firing mechanism: continuous pull
- Estimated accuracy life of tube: 20,000 rd

Carriage:
- Weight (approx): M2AI: 2,496 lb, M2A2: 3,000 lb

Recoil mechanism:
- Type of recoil mechanism: hydropneumatic
- Number of recoil cylinders: 2
- Length of recoil:
  - Normal: 3 ft, 3 in. to 3 ft, 9 in.
  - Maximum: 4 ft, 3 in.
- Capacity of recoil mechanism: 8 to 10½ pts
- Elevation (max): +66°
- Depression (max): -5°
- Operation of firing linkage: manual
- Traverse, right or left: 23°

AMMUNITION
- Types: CHEM, HE, HEAT-T, HEP, HEP-T, ILLUM, BE (leaflet), SMOKE, TP-T, BLANK, and DUMMY

PERFORMANCE
- Muzzle velocity:
  - Shell, HE (maximum charge): 1,550 fps
  - Shell, HEAT (charge not adjustable): 1,250 fps
- Range:
  - Shell, HE (733.6 mils elevation and zone VII charge): 12,330 yd
  - Shell, HEAT (463.1 mils elevation—charge not adjustable): 3,500 yd
- Rate of fire:
  - First ½ minute: 8 rd per min
  - First 4 minutes: 4 rd per min
  - First 10 minutes: 3 rd per min
  - Prolonged fire: 100 rd per hour

EQUIPMENT
- Sighting and fire control:
  - AIMING CIRCLE: M2, w/e
  - POST AIMING: M1A1
  - BINOCULAR: M1A1, w/e
  - BINOCULAR: M17A1, w/e
  - COMPASS, M3, w/e
- PRIME MOVER
  - 2½-ton, 6 x 6, cargo truck or 13-ton high speed tractor, M1

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Basic Issue Items: See TM 9-325, C3.

OUTSIDE CONTINENTAL UNITED STATES

Howitzer only.

Shipped 1 per box (double-end style).

Length: 6 ft, 11½ in.
Width: 1 ft, 8½ in.
Height: 1 ft, 8½ in.
Volume: 1.200 cu ft
Gross weight: 1,200 lb
Ship tons: 0.56

Howitzer M2AI w/carriage M2AI or M2A2 (KD) w/equipment.

Shipped 1 per crate (fully sheathed skid-type crate).

Length: 11 ft, 11 in.
Width: 6 ft, 1½ in.
Height: 4 ft, 1½ in.
Volume: 6.425 cu ft
Gross weight: 7,425 lb
Ship tons: 7.55

REFERENCES
- SNL C-21, FM 6-75, TM 9-325, TM 9-3007, TM 9-1015-203-20P

TIME TO EMPLACE

3 min.
HOWITZER, SALUTING: 75-MM, M120, W/E (CANNON, 75-MILLIMETER PACK HOWITZER: SALUTING, M1A1C; RECOIL MECHANISM, 75-MILLIMETER PACK HOWITZER: SALUTING, M1A4C OR M1A6C; CARRIAGE, 75-MILLIMETER PACK HOWITZER: M8)

General
HOWITZER, SALUTING: 75-mm, M120, w/e (CANNON, 75-MILLIMETER PACK HOWITZER: SALUTING, M1A1C; RECOIL MECHANISM, 75-MILLIMETER PACK HOWITZER: SALUTING, M1A4C OR M1A6C; CARRIAGE, 75-MILLIMETER PACK HOWITZER: M8) is the HOWITZER, PACK: 75-mm, w/e (CANNON, 75-MILLIMETER PACK HOWITZER: MIAI) modified for saluting purposes by welding a safety device in the howitzer tube (CANNON, 75-MILLIMETER PACK HOWITZER: MIAI) to prevent entrance of a projectile and by inactivating the recoil mechanism. Four weld beads and a safety device of scrap steel are placed in the breech-end of the howitzer tube to prevent the insertion of a projectile. The oil reserve in the recoil mechanism is drained and the setscrew (for recuperator cylinder oil filling valve) is tack welded in place to prevent any future filling of the mechanism with oil. The nitrogen pressure in the recuperator cylinder is released and a 1/8-inch hole is drilled in the bottom of the recuperator cylinder approximately 4 inches from the air-end of the recuperator cylinder. The recuperator cylinder cover (ORD No. 5015891) is installed and tack welded in place; this will insure that nitrogen will not be added to the mechanism. A bead is welded along the left and right sides of the recoil slides in order to prevent the weapon from sliding out of battery in case the weapon is elevated.

The howitzer cannon M1A1C consists of a tube, breech ring assembly, operating lever latch, breechblock, firing mechanism, and lock.

The carriage M8 consists of the cradle, equilibrator and rocker assemblies, elevating mechanism, axle and traversing mechanism, front and rear trail assemblies, and wheels and tires.

The recoil mechanism is a variable hydropneumatic-type shock absorber which, in this case, has been inactivated.

Differences among models
Data plate location:
A stencil is used to stamp M1A1C on the tube before assembly after the modification to howitzer cannon M1A1 is performed. The recoil mechanism identification plate is located on the left side of the bottom sleigh. The cannon data is stamped on the right side of the tube just below the lifting eye.

Classification: Standard C (OTCM 37799).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1A1C or M1A6C</td>
<td>1015-699-9766</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1A1C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1A4C or M1A6C or M1A5C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIA1C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EQUIPMENT

Basic Issue Items:

AMMUNITION

Type: BLANK

PERFORMANCE

Weight (tube and breech mechanism) 342 lb
Weight of tube 222 lb
Length (with breech ring) 4 ft, 11 in.
Length of tube 3 ft, 11 1/8 in.
Rifling:
Number of grooves 28
Twist, right hand 1 turn in 20 calibers
Type of breechblock horizontal sliding wedge
Type of firing mechanism continuous pull
Estimated accuracy life of tube 20,000 rds
Elevation (max) 45° (800 mls)
Depression (max) -5° (225 mls)
Traverse, R or L -3° (135 mls)
Operation of firing linkage manual
Carriage:
Weight 6,000 x 16 standard
Tire size and type 6:00 x 16 standard
Tire pressure 20 lb
Recoil mechanism:
Type inactivated hydropneumatic
Number of recoil cylinders 2

4-26
## INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

#### Within Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Howitzer only:</td>
<td></td>
</tr>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>5 ft, 9 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft, 1 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>6.7 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>404 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.14</td>
</tr>
<tr>
<td>Howitzer M1A1 w/carriage M8 (KD) w/equipment:</td>
<td></td>
</tr>
<tr>
<td>Shipped 1 howitzer M1A1 w/carriage M8 (KD) w/equipment per crate (fully sheathed, skid-type):</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>5 ft, 9 in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft, 10 in.</td>
</tr>
<tr>
<td>Height</td>
<td>3 ft</td>
</tr>
<tr>
<td>Volume</td>
<td>48.8 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>1,859 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>1.22</td>
</tr>
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</table>

#### Outside Continental United States

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Howitzer only:</td>
<td></td>
</tr>
<tr>
<td>Shipped</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Howitzer M1A1 w/carriage M8 (KD) w/equipment per crate (fully sheathed, skid-type):</td>
<td></td>
</tr>
<tr>
<td>Shipped 1 howitzer M1A1 w/carriage M8 (KD) w/equipment per crate (fully sheathed, skid-type):</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

#### PRIME MOVER

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4-ton, 4 x 4, truck.</td>
<td></td>
</tr>
</tbody>
</table>

References: SNL C-20, TM 9-3061, TM 9-819, MWO C20-W23.
MORTAR, 81-MILLIMETER: M1, W/E (CANNON, 81-MILLIMETER MORTAR: M1, MOUNT, MORTAR: 81-MM, M4)

CHARACTERISTICS

Cannon

<table>
<thead>
<tr>
<th>Model</th>
<th>Mount</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1 w/animal pack transport equipment</td>
<td>M4</td>
<td>4-28630-30</td>
<td>1015-678-2027</td>
</tr>
<tr>
<td>M1 w/hand carrying equipment</td>
<td>M4</td>
<td>4-28630-40</td>
<td>1015-678-2026</td>
</tr>
<tr>
<td>M1 w/cavalry equipment</td>
<td>M4</td>
<td>4-28630-85</td>
<td>1015-678-2025</td>
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</tbody>
</table>

Mount

<table>
<thead>
<tr>
<th>Mount w/o baseplate</th>
<th>42.6 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseplate</td>
<td>46 lb</td>
</tr>
<tr>
<td>Elevation (approx)</td>
<td>40 to 86°</td>
</tr>
<tr>
<td>Traverse, right or left (approx)</td>
<td>6°</td>
</tr>
</tbody>
</table>

AMMUNITION

Types: HE; ILLUM; SMOKE, FS; SMOKE, WP; and TP

PERFORMANCE

Muzzle velocity:

<table>
<thead>
<tr>
<th>CARTRIDGE, 81-MILLIMETER: (full charge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE (M43A1) and TP (M43A1)</td>
</tr>
<tr>
<td>HE (M66 and M66A1)</td>
</tr>
<tr>
<td>ILLUM (M301A1 and M301A2)</td>
</tr>
<tr>
<td>SMOKE, FS (M57 and M57A1)</td>
</tr>
<tr>
<td>SMOKE, WP (M57 and M57A1)</td>
</tr>
</tbody>
</table>

PROJECTILE, 81-MILLIMETER: training, M68 (ignition cartridge only)

Maximum range (45-degree elevation):

<table>
<thead>
<tr>
<th>CARTRIDGE, 81-MILLIMETER: (full charge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE (M43A1) and TP (M43A1)</td>
</tr>
<tr>
<td>HE (M66 and M66A1)</td>
</tr>
<tr>
<td>HE (M66A2) (5 increment max)</td>
</tr>
<tr>
<td>ILLUM, M301A1 and M301A2</td>
</tr>
<tr>
<td>SMOKE, FS (M57 and M57A1)</td>
</tr>
<tr>
<td>SMOKE, WP (M57 and M57A1)</td>
</tr>
</tbody>
</table>

PROJECTILE, 81-MILLIMETER: training, M68 (ignition cartridge only)

Maximum range (45-degree elevation): 472.5 fps

Rate of fire:

<table>
<thead>
<tr>
<th>Normal</th>
<th>18 rd per min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum</td>
<td>30 rd per min</td>
</tr>
</tbody>
</table>

EQUIPMENT

Sighting and fire control:

POST, AIMING: M4 (pack transport)
POST, AIMING: M6 or M8 (when not pack transported)
POST, AIMING: M16
BINOCULAR: M17A2
FUZE SETTER: M14
FUZE SETTER: M25
SIGHT UNIT: M14A2

*For characteristics and data, see items in sections 14, 18, and 27.
SIGHT, BORE, OPTICAL: M68, w/3
TABLE, FIRING: 81-AD-1 (abr)
TABLE, FIRING: 81-AD-1 (abr)
TABLE, FIRING: 81-AE-1 (abr)
TABLE, FIRING: 81-AG-1 (abr)
TABLE, FIRING: SI-AH-I (abr)
TABLE, FIRING: 81-AM-1 (abr)
TABLE, FIRING: 81-AN-I (abr)
TABLE, FIRING: 81-AP-3 (abr)
TABLE, FIRING: 81-AS-1 (abr)
TABLE, FIRING: 81-B-3 (abr)
TABLE, FIRING: 81-B-3 (abr)
TABLE, FIRING: 81-BC-3 (abr)
TABLE, FIRING: 81-C-3 (abr)
TABLE, FIRING: 81-CD-3 (abr)
TABLE, FIRING: 81-D-3 (abr)
TABLE, FIRING: 81-F-2 (abr)
TABLE, FIRING: 81-V-2 (abr)
TABLE, FIRING: 81-V-2 (abr)
TABLE, FIRING: 81-W-2 (abr)
TABLE, FIRING: 81-Z-2 (abr)

Basic Issue Items: See ORD 7 SNL A-33.

INSTRUCTIONAL MATERIAL
FIN ASSEMBLY, 81-MILLIMETER CARTRIDGE: M6, for mortar cartridge, training, M68
GRAPHIC TRAINING AID: See DA Pam 310-5

PROJECTILE, 81-MILLIMETER: training, M68
TRAINER, MORTAR: subcaliber, pneumatic, M32 or M32A1

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped 1 mortar and 1 mount per wood box
Length ............................................. 4 ft, 7 in.
Width .............................................. 1 ft, 6 in.
Height ............................................. 1 ft, 3 in.
Volume ............................................ 8.5 cu ft
Gross weight ..................................... 230 lb
Ship tons ......................................... 0.21

Outside Continental United States
Shipped
Length .............................................
Width .............................................
Height ............................................
Volume ............................................
Gross weight ....................................
Ship tons ........................................


CHARACTERISTICS

Cannon:
- Weight: 38 lb
- Length of bore: 14.64 cal
- Type of firing mechanism: fixed firing pin

Mount:
- Weight: 81 lb
- Baseplate (M23 or M23A1): 48 lb
- Elevation (approx): 40 to 85°
- Traverse, right or left (approx): 4°

AMMUNITION

Types:
- HE: ILLUM; SMOKE, FS; SMOKE, WP; and TP

Muzzle velocity:
- CARTRIDGE, 81 MILLIMETER: (full charge)
  - HE (M45A1) and TP (M45A1): 693 fps
  - HE (M66 and M66A1): 578 fps
  - HE (M362): 770 fps
  - ILLUM (M301A1 and M301A2): 673 fps
  - SMOKE, FS (M57 and M57A1): 578 fps
  - SMOKE, WP (M57 and M57A1): 578 fps
  - SMOKE, WP (M67 and M67A1): 578 fps
  - PROJECTILE, 81 MILLIMETER: training, M68 (ignition cartridge only): 172.9 fps

Maximum range (45° elevation):
- CARTRIDGE, 81 MILLIMETER: (full charge)
  - HE (M45A1) and TP (M45A1): 3,886 yd
  - HE (M66 and M66A1): 3,586 yd
  - HE (M362): 3,987 yd
  - ILLUM (M301A1 and M301A2): 3,509 yd
  - SMOKE, FS (M57 and M57A1): 2,426 yd
  - SMOKE, WP (M57 and M57A1): 2,482 yd
  - PROJECTILE, 81 MILLIMETER: training, M68 (ignition cartridge only): 310 yd

Rate of fire:
- Normal: 18 rd per min
- Maximum: 30 rd per min

EQUIPMENT

Sighting and fire control:
- AIMING POST: M1A2 or M16
- FUZE SETTER: M14 (wrench type) or M17
- SIGHTUNIT, M64A1

For characteristics and data, see item in sections 14 and 18.
TABLE, FIRING: 81-AB-1
TABLE, FIRING: 81-AD-1 (abr)
TABLE, FIRING: 81-AE-1 (abr)
TABLE, FIRING: 81-AF-1 (abr)
TABLE, FIRING: 81-AG-1 (abr)
TABLE, FIRING: 81-AH-1 (abr)
TABLE, FIRING: 81-AJ-1 (abr)
TABLE, FIRING: 81-B-1 (abr)
TABLE, FIRING: 81-B-2 (abr)
TABLE, FIRING: 81-B-3 (abr)
TABLE, FIRING: 81-C-1 (abr)
TABLE, FIRING: 81-C-2 (abr)
TABLE, FIRING: 81-D-1 (abr)
TABLE, FIRING: 81-D-2 (abr)
TABLE, FIRING: 81-E-2 (abr)
TABLE, FIRING: 81-F-2 (abr)
TABLE, FIRING: 81-G-1 (abr)
TABLE, FIRING: 81-H-2 (abr)
TABLE, FIRING: 81-I-1 (abr)
TABLE, FIRING: 81-I-2 (abr)
TABLE, FIRING: 81-J-1 (abr)
TABLE, FIRING: 81-J-2 (abr)
TABLE, FIRING: 81-K-1 (abr)
TABLE, FIRING: 81-K-2 (abr)
TABLE, FIRING: 81-L-1 (abr)
TABLE, FIRING: 81-L-2 (abr)
TABLE, FIRING: 81-M-1 (abr)
TABLE, FIRING: 81-M-2 (abr)
TABLE, FIRING: 81-N-1 (abr)
TABLE, FIRING: 81-N-2 (abr)
TABLE, FIRING: 81-O-1 (abr)
TABLE, FIRING: 81-O-2 (abr)
TABLE, FIRING: 81-P-1 (abr)
TABLE, FIRING: 81-P-2 (abr)
TABLE, FIRING: 81-Q-1 (abr)
TABLE, FIRING: 81-Q-2 (abr)
TABLE, FIRING: 81-R-1 (abr)
TABLE, FIRING: 81-R-2 (abr)
TABLE, FIRING: 81-S-1 (abr)
TABLE, FIRING: 81-S-2 (abr)
TABLE, FIRING: 81-T-1 (abr)
TABLE, FIRING: 81-T-2 (abr)
TABLE, FIRING: 81-U-1 (abr)
TABLE, FIRING: 81-U-2 (abr)
TABLE, FIRING: 81-V-1 (abr)
TABLE, FIRING: 81-V-2 (abr)
TABLE, FIRING: 81-W-1 (abr)
TABLE, FIRING: 81-W-2 (abr)
TABLE, FIRING: 81-X-1 (abr)
TABLE, FIRING: 81-X-2 (abr)
TABLE, FIRING: 81-Y-1 (abr)
TABLE, FIRING: 81-Y-2 (abr)
TABLE, FIRING: 81-Z-1 (abr)
TABLE, FIRING: 81-Z-2 (abr)

Basic issue items: See TM 9-8064, C1.

INSTRUCTIONAL MATERIAL
GRAPHIC TRAINING AID: See DA Pam 216-5
PROJECTILE, 81-MILLIMETER: training, M68
FIN ASSEMBLY, 81-MILLIMETER CARTRIDGE: M6, for mortar cartridge, training, M68.
TRAINER, MORTAR: subcaliber, pneumatic, M22 or M22A1.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mortar per wood box

Length .................................................. 4 ft, 7 in.
Width .................................................... 7 in.
Height ................................................... 7 in.
Volume ................................................. 1.6 cu ft

Gross weight ........................................... 60 lb
Ship tons ............................................. 0.04

Shipped 1 mortar M23 (T62 unmodified), w/baseplate or 1 mortar M23A1 (T62 modified) w/baseplate per wood box.

Length .................................................. 3 ft
Width .................................................... 1 ft, 3 in.
Height .................................................. 9 in.
Volume ................................................ 2.9 cu ft
Gross weight ......................................... 78 lb
Ship tons ............................................. 0.07

Outside Continental United States

Shipped

Length ..................................................
Width ..................................................
Height ..................................................
Volume .................................................
Gross weight ...........................................
Ship tons ..............................................

Shipped

Length ..................................................
Width ..................................................
Height ..................................................
Volume .................................................
Gross weight ...........................................
Ship tons ..............................................

MORTAR, 4.2-INCH: (CANNON M30 ON MOUNT M24 OR M24A1) W/EQUIPMENT

CHARACTERISTICS

Cannon:
- Weight: 156.5 lb
- Length of bore: 6 ft
- Length overall: 5 ft, 8 1/2 in.
- Type of firing mechanism: fixed firing pin

Mount:
- Weight:
  - Mount M24A1 w/o baseplate: 290 lb
  - Mount M24A1 w/o baseplate (alternate rotator assembly): 321.5 lb
  - Base plate (M24A1): 193 lb
  - Mount M24 w/o baseplate: 321.5 lb
  - Mount M24 w/o baseplate (alternate rotator assembly): 290 lb
  - Base plate (M24): 221 lb
  - Base plate (M24-alt. manufacture): 228 lb
- Elevation (M24 and M24A1): 8 deg 47 min
- Minimum (in relation to vehicle): -45 deg
- Maximum (in relation to vehicle): 59 deg
- Traverse, right or left (M24 and M24A1): 7 deg, 2 min

AMMUNITION

Types: CHEM (CG, H, HD, HT), HE, ILLUM, and SMOKE, PWP, or WP.

PERFORMANCE

Muscle velocity:
- CARTRIDGE, 4.2-INCH: (full charge):
  - HE (M329 and M329B1): 960 fps
  - HE (M3A1, M2, and M3 alternate): 845 fps
  - CHEM (M3A1), M2, M3 alternate: 845 fps
  - ILLUM (M35): 915 fps

Maximum range:
- CARTRIDGE, 4.2-INCH (45° elevation):
  - HE (M329 and M329B1): 5,090 yd
  - HE (M3A1, M3, and M3 alternate): 5,090 yd
  - CHEM (M3A1, M2, M2 alternate): 5,090 yd
  - ILLUM (M35) (61° elevation): 6,872 yd

Rate of fire:
- Normal: 5 rd per min
- Maximum: 20 rd per min

EQUIPMENT

Sighting and fire control:

4–32
EQUIPMENT—Continued

For M30 mortar on M24 or M24A1 mount:

FUZE SETTER: M27
POST, AIMING: MIA2
QUADRANT, FIRE CONTROL: gunner’s, MIA1, w/case
SIGHTUNIT: M34A2
TABLE, FIRING: FT 4.2-F-1; FT 4.2-F-1; FT 4.2-F-1 (abr).
SCALE, GRAPHICAL FIRING: M67


INSTRUCTIONAL MATERIAL

CANNON, 60-MILLIMETER MORTAR, SUBCALIBER: M31.
GRAPHIC TRAINING AID: See DA Pam 310-5.
TRAINER, MORTAR: Subcaliber, pneumatic, M32 or M32A1.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mortar per wood box.

Length: 6 ft, 1/4 in.
Width: 1 ft, 1 3/8 in.
Height: 1 ft, 1 5/8 in.
Volume: 6.2 cu ft

Outside Continental United States

Gross weight: 236 lb
Ship tons: 0.16
Shipped 1 mortar per wood box (M24 or M24A1).

Length: 5 ft, 9 3/4 in.
Width: 3 ft, 11 3/4 in.
Height: 1 ft, 1 5/8 in.
Volume: 20.8 cu ft
Gross weight: 724 lb
Ship tons: 0.32

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons


* For characteristics and data, see item in sections 12, 14, and 18.
MOUNT, TRIPOD, RIFLE: M1917A2, W/E

**Characteristics**

- **Weight**: 53 lb
- **Dimensions (when folded for transportation)**:
  - **Length**: 2 ft, 8½ in.

**General**

MOUNT, TRIPOD, RIFLE: M1917A2, w/e, is a lightweight, portable, folding mount. The mount consists of a cradle assembly which rotates in a leg and socket group. Each tripod leg is adjusted separately and can be placed in any desired position. The cradle assembly supports the weapon at the gun pintle and at the elevating and traversing mechanism assembly. The gun pintle is easily disengaged from the cradle assembly; therefore, it may remain attached to the rifle, when the rifle is removed, to facilitate handling. This mount is an interim mount for the 57-mm and 75-mm recoilless rifles. It is to be replaced by MOUNT, TRIPOD, WEAPON: M74. It is similar to MOUNT, TRIPOD, MACHINE-GUN: caliber .30, M1917A1 except that the rear leg is shorter, being only 14 inches long.

**Differences among models**

- **Data plate location**
  The identification plate of the mount is located on the rear leg, directly above the tripod strap. Because the cradle assembly of the mount M1917A2 is identical to that of the caliber .30 machinegun tripod mount M1917A1, the designation M1917A1 may still be stamped on the right side of the cradle.

**Classification**: Standard B (OTCM 36841).

**Equipment**

Basic Issue Items: See ORD 7 SNL C-91.

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References**: SNL C-91, TM 9-3062, TM 9-3140.
RIFLE, RECOILLESS, 75-MILLIMETER: M20, W/E

RIFLE, RECOILLESS, 75-MILLIMETER: M20, W/E is a recoilless, portable weapon designed to be fired from the mounts M1917A2 or M76. It is an air-cooled single-loading weapon that uses fixed ammunition. The rifle is designed for direct or indirect fire.

The rifle consists of a barrel group and a breech mechanism group. The barrel group consists of a tube, tube handle, mounting bracket, hinge block, and vent bushing. The breech mechanism group is attached to the rear end of the barrel group and controls the opening and closing of the breech and the firing of the ammunition. The breech mechanism group consists of the breech operating handle housing, the trigger and firing components of the rifle, the closed-breech lock, breechblock, breechblock hinge, and extractor assembly.

Differences among models:

Data plate location:

Rifle data are stamped on the rear face of the barrel chamber. The tube data are stamped on the muzzle end of the barrel tube.

Classification: Limited Standard (OTCM 37119).

CHARACTERISTICS

Model | Major Item | Line item No. | Federal stock No. |
--- | --- | --- | --- |
M20 | 1015-691-1289 |

General:

RIFLE, RECOILLESS, 75-MILLIMETER: M20, W/E is a recoilless, portable weapon designed to be fired from the mounts M1917A2 or M76. It is an air-cooled single-loading weapon that uses fixed ammunition. The rifle is designed for direct or indirect fire.

The rifle consists of a barrel group and a breech mechanism group. The barrel group consists of a tube, tube handle, mounting bracket, hinge block, and vent bushing. The breech mechanism group is attached to the rear end of the barrel group and controls the opening and closing of the breech and the firing of the ammunition. The breech mechanism group consists of the breech operating handle housing, the trigger and firing components of the rifle, the closed-breech lock, breechblock, breechblock hinge, and extractor assembly.

Estimated usable life:

<table>
<thead>
<tr>
<th>Item</th>
<th>Usable Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tube</td>
<td>5,000 rd</td>
</tr>
<tr>
<td>Vent assembly</td>
<td>600 rd</td>
</tr>
</tbody>
</table>

AMMUNITION

Types: HE; HEAT-T; HEP-T; WP; and TP

Muzzle velocity:

<table>
<thead>
<tr>
<th>Type</th>
<th>Velocity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE</td>
<td>990 fps</td>
</tr>
<tr>
<td>HEP</td>
<td>1,000 fps</td>
</tr>
<tr>
<td>HEAT</td>
<td>1,400 fps</td>
</tr>
<tr>
<td>WP</td>
<td>965 fps</td>
</tr>
<tr>
<td>HEP-T</td>
<td>966 fps</td>
</tr>
<tr>
<td>HEAT-T</td>
<td>3,600 fps</td>
</tr>
<tr>
<td>HEP</td>
<td>7,180 fps</td>
</tr>
<tr>
<td>HEP-T</td>
<td>7,180 fps</td>
</tr>
<tr>
<td>Range</td>
<td></td>
</tr>
<tr>
<td>HE</td>
<td>965 yd</td>
</tr>
<tr>
<td>WP</td>
<td>966 yd</td>
</tr>
<tr>
<td>HEP</td>
<td>3,600 yd</td>
</tr>
<tr>
<td>HEAT</td>
<td>7,180 yd</td>
</tr>
</tbody>
</table>

Rate of fire:

EQUIPMENT

Sighting and fire control:

- BINOCULAR: M17A1
- MOUNT, TELESCOPE: M78
- QUADRANT, FIRE CONTROL: gunner's, M * 11, with CASE
- SIGHTUNIT: M34A1 or M34A2 or M34
- TABLE, FIRING: FT-BJ-2 (abr)
- TABLE, FIRING: FT 75-BJ-1 (abr)
- TABLE, FIRING: FT 75-BB-3 (abr)
- TABLE, FIRING: FT 75-B-1 (abr)
- TELESCOPE: M800 or M85A1 or M85C

Basic issue items: See ORD 7 SNL C-74.

INSTRUCTIONAL MATERIAL

RIFLE, CALIBER .30, SUBCALIBER: M7
CARTRIDGE, CALIBER .30: ball, M2

GRAPHIC TRAINING AID AND DEVICES: See DA Pam 310-5

AGO 5711A

4-35
# Storage and Shipment Data

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>7 ft, 19/16 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>1 ft, 5 5/16 in.</td>
</tr>
<tr>
<td></td>
<td>Height</td>
<td>1 ft, 11 11/16 in.</td>
</tr>
<tr>
<td></td>
<td>Volume</td>
<td>12.1 cu ft</td>
</tr>
<tr>
<td></td>
<td>Gross weight</td>
<td>240 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>7 ft, 19/16 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>1 ft, 5 5/16 in.</td>
</tr>
<tr>
<td></td>
<td>Height</td>
<td>1 ft, 11 11/16 in.</td>
</tr>
<tr>
<td></td>
<td>Volume</td>
<td>12.1 cu ft</td>
</tr>
<tr>
<td></td>
<td>Gross weight</td>
<td>240 lb</td>
</tr>
<tr>
<td></td>
<td>Ship tons</td>
<td>0.3</td>
</tr>
</tbody>
</table>

References: FM 23-81, SNL C-74, TM 9-3140, TM 9-3140-34.
RIFLE, 90 MILLIMETER: M67, W/E

**General**

RIFLE, 90 MILLIMETER: M67, w/e, is a lightweight, portable weapon. The rifle M67 is designed to be fired from the ground or from the shoulder, and is an air-cooled, single-loading weapon using fixed ammunition. The rifle M67 is designed for direct firing only, and sighting and fire control instruments for this purpose are furnished with the weapon. The rifle M67 consists basically of a front mounting bracket group, cable assembly, and face shield group, breech and hinge mechanism group, rear mounting bracket group, and rifle tube.

**Differences among models**

Data plate location: The rifle identification data are stamped near the breech-end, on top of the rifle tube.

Classification: Standard A (OTCM 37119).

**CHARACTERISTICS**

| Weight | 35 lb |
| Length | 4 ft, 5 in. |

**Rifling:**

- Twist, right-hand: one turn in 200 calibers
- Type of breechblock: interrupted thread
- Type of firing mechanism: percussion
- Estimated usable life, tube: 2,000 rds

**AMMUNITION**

Type: HEAT

**PERFORMANCE**

Muzzle velocity: HEAT 700 fps

Range: HEAT 450 meters

**EQUIPMENT**

Sighting and fire control:

- LIGHT, INSTRUMENT: T25
- MOUNT, TELESCOPE: M19
- TABLE, FIRING: FT 80-5-1
- TELESCOPE: M193

Basic issue items: See appendix III, TM 9-1015-223-12.

**INSTRUCTIONAL MATERIAL**

GRAPHIC TRAINING AID: See DA Pam 10-5.

**STORAGE AND SHIPMENT DATA**

Within Continental United States

Shipped 1 rifle per shipping container:

- Length: 4 ft, 10% in.
- Width: 1 ft, 7 in.
- Height: 1 ft, 8% in.
- Volume: 12.06 cu ft
- Gross weight: 100 lb
- Ship tons: 0.30

Outside Continental United States

Shipped 1 rifle per shipping container:

- Length: 4 ft, 10% in.
- Width: 1 ft, 7 in.
- Height: 1 ft, 8% in.
- Volume: 12.06 cu ft
- Gross weight: 100 lb
- Ship tons: 0.30


* For characteristics and data, see item in section 14.
RIFLE, 105 MILLIMETER: M27 OR M27A1; MOUNT, RIFLE:
105-MM, M75 OR M75A1, W/E

GENERAL
RIFLE, 105 MILLIMETER: M27 or M27A1 on MOUNT, RIFLE:
105-mm, M75 or M75A1, is a lightweight, portable, air-cooled,
single-loading, recoilless weapon designed to fire fixed ammunition.
They are employed as antitank and antipersonnel weapons.
The rifle consists of a tube, firing cable, fulcrum ring, breech-
block operating lever assembly, chamber, trunnion assembly, trun-
nion ring, and trigger block.
The mount consists of the equilibrator and elevating mechanism
assembly, traveling lock assembly, and a top and bottom carriage
assembly. With the use of an adapter, the mount is designed for
truck mounting, the adapter being attached to the bottom carriage.

DIFFERENCES AMONG MODELS
The difference between the mount M75 and M75A1 is in the
adapter. The mount M75A1 has an aluminum adapter light enough
to be handled by one man and in addition can be attached to all
three types of “jeeps.” The mount M75 has a steel adapter. A
forcing cone was added in the chamber of the rifle M27, making
it a M27A1.

DATA PLATE LOCATION
Classification: Standard C (OTCM 37119).

CHARACTERISTICS
Rifle w/o mount:

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M27</td>
<td>4-35910-10</td>
<td>1015-324-9493</td>
</tr>
<tr>
<td>M37</td>
<td>4-35910-15</td>
<td>1015-322-9743</td>
</tr>
<tr>
<td>M27A1</td>
<td>4-35910-20</td>
<td>1015-321-0192</td>
</tr>
<tr>
<td>M37A1</td>
<td>4-35910-25</td>
<td>1015-322-9742</td>
</tr>
</tbody>
</table>

Type of firing mechanism ...................................... percussion

Estimated accuracy life ........................................ 2,000 rd
Estimated life of vent assembly ............................... 600 rd

Mount:

<table>
<thead>
<tr>
<th>Mount</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/adapter for M75</td>
<td>336 lb, 8 oz</td>
</tr>
<tr>
<td>W/adapter for M75A1</td>
<td>272 lb</td>
</tr>
</tbody>
</table>

Elevation ...................................................... 60°
Depression .................................................... 18°
Traverse:

| M75  | 60° |
| M75A1 | 60° |

AMMUNITION

Types ..................................................... HE, HEAT, HEP, HEP-T, HEAT-T, and WP

PERFORMANCE

Muzzle velocity:

<table>
<thead>
<tr>
<th>Type</th>
<th>Speed (fps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE, WP</td>
<td>1,120</td>
</tr>
<tr>
<td>HEAT</td>
<td>1,250</td>
</tr>
<tr>
<td>M321</td>
<td>1,650</td>
</tr>
<tr>
<td>M341</td>
<td>1,265</td>
</tr>
<tr>
<td>HEP</td>
<td>1,690</td>
</tr>
<tr>
<td>HEP-T</td>
<td>1,265</td>
</tr>
<tr>
<td>HEAT</td>
<td>1,245</td>
</tr>
</tbody>
</table>

Range:

<table>
<thead>
<tr>
<th>Type</th>
<th>Range (yd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE (at 43° elevation)</td>
<td>9,367</td>
</tr>
<tr>
<td>WP (at 43° elevation)</td>
<td>9,245</td>
</tr>
<tr>
<td>M321 (at 6° elevation)</td>
<td>8,500</td>
</tr>
<tr>
<td>M341 (at 8° elevation)</td>
<td>8,000</td>
</tr>
<tr>
<td>HEP (at 9° elevation)</td>
<td>8,600</td>
</tr>
<tr>
<td>HEP-T (at 10° elevation)</td>
<td>7,625</td>
</tr>
</tbody>
</table>

EQUIPMENT

Sighting and fire control:*

| MOUNT, SIGHT: M86 (T156) |
| MOUNT, TELESCOPE: M85 (T116) |
| TABLE, FIRING: FT 105-AH-3 (abr) |
| TABLE, FIRING: FT 105-AI-2 (abr) |

* For characteristics and data, see item in sections 14 and 15.
TABLE, FIRING: FT 106-AK-1 (abr)
TABLE, FIRING: FT 106-AO-2 (abr)
TABLE, FIRING: FT 106-AP-2 (abr)
TELESCOPE: M94 or M96

Basic Issue Items: See ORD 7 SNL C-77.

INSTRUCTIONAL MATERIAL

GRAPHIC TRAINING AIDS AND DEVICES: See DA Pam 810-6.

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>12 ft. 1 in.</td>
<td>Width</td>
<td>2 ft. 2½ in.</td>
</tr>
</tbody>
</table>

Within Continental United States

Height 1 ft. 6½ in.
Volume 42 cu ft
Gross weight 470 lb
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References: FM 21-8, SNL C-77, TM 9-8053.
RIFLE, 106-MILLIMETER: M40A1 OR M40A1C; W/RIFLE, CALIBER .50, SPOTTING: M8C; MOUNT, RIFLE: 106-MM, M79, M92 (T173), OR M149E5

General
RIFLE, 106-MILLIMETER: M40A1 or M40A1C; w/RIFLE, CALIBER .50, SPOTTING: M8C; MOUNT, RIFLE: 106-mm, M79, M92 (T173), or M149E5, is a recoilless, air-cooled, breech-loading, portable weapon capable of defeating heavy armor. The rifle M40A1, with mount M79 is designed for use as a ground antitank weapon or as a self-propelled antitank weapon when mounted on the body of 1½-ton 4 x 4 utility trucks M38 and M38A1. The rifle M40A1 is designed for use on the light weapons carrier M27 (mule) with the tripod M27 provided for ground use. The rifle M40A1 with mount M92 (T173) is designed for use as a ground auxiliary antitank weapon in conjunction with multiple 106-mm full-tracked, self-propelled rifle M50. The breech-block operating lever of the 106-mm rifle M40A1 is designed to provide clearance for movement of the lever when the rifle is used as part of the multiple 106-mm full-tracked, self-propelled rifle M50.

The mount M79 incorporates an integral elevating and traversing base assembly of the wheelbarrow-tripod type which is designed for use as both ground mount and for mounting on 1½-ton 4 x 4 utility trucks M38 and M38A1. The mount M149E5 provides six mounting positions for six rifles M40A1C.

The rifles M40A1 and M40A1C consist of a barrel group, breech-block group, vent assembly, and firing cable group. The barrel group is composed principally of a rifle tube, chamber, quick-breakdown sleeve, spotting rifle front mounting bracket, and spotting rifle rear mounting bracket. The breech-block group is composed principally of a firing pin housing assembly, breech-block hinge, cocking cam plate, breech-block operating lever dog, extractor, rear, and breech-block operating lever assembly. The vent assembly consists of a ring assembly, recoil compensating ring, and ring retaining screw. The firing cable group is composed principally of the caliber .50 spotting rifle firing cable, 106-mm firing cable, rifle firing cable operating levers, trigger, trigger spring, trigger housing, trigger housing cover, and lanyard rod assembly.

The caliber .50 spotting rifle M8C consists of the magazine assembly, bolt slide group, bolt assembly, firing mechanism assembly, gas cylinder group, and barrel group. The mount M79 is composed of an elevating and firing assembly, traversing assembly, and elevating and traversing base assembly.

The M92 (T173) is composed of an elevating and firing assembly, traversing assembly, and adapter assembly. The tripod M27 is a three-legged folding base for the mount M92 when the weapon is used on the ground. The M149E5 consists principally of the turret, elevating mechanism, traversing mechanism, and the weapons mount and control system.

Differences among models
The projectile indicator has been added to the barrel of the 106-mm rifle M40A1C. The bottom of the breech-block operating lever of the 106-mm rifle M40A1C is arranged so that it can be engaged by a breech actuator for hydraulic operation of the breech between the closed and safe positions when the rifle is used as part of the multiple 106-mm full-tracked, self-propelled rifle M50. The breech-block operating lever of the 106-mm rifle M40A1C is designed to provide clearance for movement of the lever when the rifle is used as part of the multiple 106-mm full-tracked, self-propelled rifle M50.

The mount M79 incorporates an integral elevating and traversing base assembly of the wheelbarrow-tripod type which is designed for use as both ground mount and for mounting on 1½-ton 4 x 4 utility trucks M38 and M38A1. The mount M149E5 does not incorporate an integral base assembly but instead is mounted on a separate tripod. The 106-mm rifle mount M92 (T173) is basically identical to the traversing and elevating and firing assemblies of the 106-mm rifle mount M79 except for the addition of an adapter assembly for attaching the mount on the tripod. The mount M149E5 provides six positions for six rifles whereas the M79 and M92 (T173) provide one each.

Data plate location
Rifles M40A1 and M40A1C data appear on the rear face of the rifle chamber. Mounts M79 and M92 (T173) identification plates are located on the left side of the traversing assembly. Rifle M8C data appears on top of the receiver. Mount M149E5 data is located on the rear face of the magazine assembly.

Classification
Rifle M40A1 with mount M79............Standard A (OTCM 38641)
Rifle M40A1C with mount M92 (T173)..................Standard A (OTCM 37594)
CHARACTERISTICS

Rifle w/mount (M40A1 or M40A1C):

<table>
<thead>
<tr>
<th>Weight (rifle only)</th>
<th>26 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (rifle with spotting riflescope and accessories)</td>
<td>28 lb</td>
</tr>
<tr>
<td>Length</td>
<td>11 ft, 2 in.</td>
</tr>
<tr>
<td>Length of tube</td>
<td>9 ft, 4 in.</td>
</tr>
<tr>
<td>Rifling:</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>95% in.</td>
</tr>
<tr>
<td>Number of grooves</td>
<td>36</td>
</tr>
<tr>
<td>Twist, right-hand</td>
<td>one turn in 20 calibers</td>
</tr>
<tr>
<td>Type of breechblock</td>
<td>interrupted thread</td>
</tr>
<tr>
<td>Type of firing mechanism:</td>
<td></td>
</tr>
<tr>
<td>M40A1 or M40A1C w/mount M79 or M92 (TI78)</td>
<td>percussion</td>
</tr>
<tr>
<td>M40A1C w/mount M149E6</td>
<td>percussion and electrical</td>
</tr>
<tr>
<td>Estimated accuracy life</td>
<td>2,500 yd</td>
</tr>
</tbody>
</table>

Mounts:

<table>
<thead>
<tr>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>M79</td>
</tr>
<tr>
<td>M92 (TI78)</td>
</tr>
<tr>
<td>M149E6</td>
</tr>
</tbody>
</table>

Elevation (maximum):

| M79 | 45° |
| M92 (TI78) | 40° |
| M149E6 | 30° |

Depression (maximum):

| M79 | -17° |
| M92 (TI78) | -17° |
| M149E6 | -10° |

 Traverse (R or L): 800°

Operation of firing linkage:

| M79 | manual |
| M92 (TI78) | manual |
| M149E6 | manual and electrical |

AMMUNITION

Types: HEAT and HEP-T

PERFORMANCE

Muzzle velocity:

| HEAT | 1,650 fps |
| HEP-T | 1,685 fps |

Range:

| HEAT (45° elevation) | 3,000 yd |
| HEP-T (50° elevation) | 7,615 yd |

EQUIPMENT

Sighting and fire control:

For M40A1 or M40A1C rifle on mount M149E6:

MOUNT, TELESCOPE: M90 (TI88)
TABLE, FIRING: FT 106-A-1 (abra)
TELESCOPE, ELBOW: M92D (TI68El)

Basic issue items: See ORD 7 SNL C-93 and TM 9-2350-218-12.

INSTRUCTIONAL MATERIAL

CARTRIDGE, CALIBER .30: ball, M2
RIFLE, CALIBER .50, SUBCALIBER: M9

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Volume</td>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Volume</td>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SNL C-93, TM 9-1000-205-12, TM 9-1010-222-34, TM 9-2350-212-12.

*For characteristics and data, see item in section 14.
# RIFLE, CALIBER .30, SUBCALIBER: M7

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M7</td>
<td></td>
<td>1015-730-5872</td>
</tr>
</tbody>
</table>

**General**

RIFLE, CALIBER .30, SUBCALIBER: M7, consists mainly of a 75-mm recoilless rifle cartridge case, a modified, vented caliber .30 machinegun barrel, a cut-off 75-mm recoilless rifle projectile, and a breech assembly. It is used in training personnel to operate the 75-mm recoilless rifle M20 or T21E12. The primer body is removed from the 75-mm cartridge case. A pin which is fixed to the base of the 75-mm cartridge case fits into a small slot in the breech body and prevents the breech body from turning when the training device is assembled. The breech body has a door cover which contains the firing pin. Holes, drilled from the outer surface of the caliber .30 machinegun barrel into the bore, allow a portion of the propellant gases to escape through the 75-mm cartridge case into the 75-mm recoilless rifle chamber, and finally through the openings in the breech of the 75-mm recoilless rifle. This results in a miniature back-blast and at the same time reduces the muzzle velocity of the subcaliber projectile to approach that of the 75-mm recoilless rifle ammunition. The muzzle-end of the caliber .30 machinegun barrel, which is threaded on its outer surface, protrudes through a hole drilled in the cut-off 75-mm projectile. The 75-mm projectile is cut off just forward of the rotating band, and when assembled, the projectile base slides into the cartridge case and is held in place by the breech body which screws onto the end of the caliber .30 machinegun barrel.

**Differences among models**

**Data plate location**

Classification: Standard C (OTCM 38641).

**CHARACTERISTICS**

- **Weight**: 
- **Length overall**: 2 ft, 4 3/8 in.
- **Length of tube**: 1 ft, 11 5/8 in.

**Rifling**

- **Length**: 1 ft, 9 3/4 in.
- **Twist, right-hand**: one turn in 10 in.
- **Number of grooves**: 4

**AMMUNITION**

- **Type**: cartridge, ball, cal. .30, M2

**PERFORMANCE**

- **Muzzle velocity**: 1,300 fps
- **Range**: 1,950 yd

**EQUIPMENT**

Sighting and fire control:

Use sighting equipment issued with primary weapon listed in GENERAL paragraph.

Basic issue items: See ORD SNL C-35, section 18.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

Within Continental United States:

- Shipped 2 rifles per wood box.
- Length: 2 ft, 8 1/2 in.
- Width: 9 in.
- Height: 5 1/2 in.
- Volume: 1 cu ft
- Gross weight: 65 lb
- Ship tons: 0.026

Outside Continental United States:

- Shipped 2 rifles per wood box.
- Length: 2 ft, 8 1/2 in.
- Width: 9 in.
- Height: 5 1/2 in.
- Volume: 1 cu ft
- Gross weight: 65 lb
- Ship tons: 0.026

**References**: SNL C-35, section 18; TM 9-3140; TM 9-3140-34.
RIFLE, CALIBER .30, SUBCALIBER: M9

Data plate locations

Classifications: Standard A (OTCM 36641).

General

RIFLE, CALIBER .30, SUBCALIBER: M9, consists of a cartridge case, modified caliber .30 machinegun barrel, cutoff projectile, and a breech assembly. It is used to provide more extensive training in laying and firing the 106-mm rifle M40A1 or M40A1C than would be permissible with the larger ammunition. The use of smaller bore ammunition prevents wear on the regular piece during practice and is less costly. The primer body is removed from the 106-mm cartridge case and a hole is drilled through the base of the cartridge case to receive the barrel bushing. A pin in the base of the cartridge case projects into a small slot in the bushing and prevents the bushing from turning when the rifle is assembled. The barrel has 24 holes drilled in its bore to reduce the muzzle velocity of the subcaliber round. Perforating the barrel also creates a back blast which simulates the back blast of the 106-mm rifle. The caliber .30 barrel is held in place at the muzzle end by a barrel nut which fits inside of the cutoff projectile. The subcaliber round is hand fed into the caliber .30 barrel chamber. The barrel bushing has a trapdoor or hinge which contains a floating firing pin. The 106-mm rifle firing pin is used to strike the subcaliber rifle M9 pin by percussion, thus causing the subcaliber rifle firing pin to indent the cartridge. The cartridge case is extracted by hand. The extractor of the 106-mm rifle is removed when using the subcaliber rifle M9 to prevent removal of the rifle M9 each time the breechblock is opened.

Characteristics

Length overall ........................................... 2 ft, 1 in.
Rifflng:
Length .................................................. 1 ft, 9% in.
Twist, right-hand ..................................... one turn in 10 in.
Number of grooves ................................. 4

Ammunition

Type ............................................. Cartridge, ball, cal. .30, M2

Performance

Muzzle velocity ....................................... 1,800 fps
Range (maximum) ..................................... 1,860 yd

Equipment

Instructional Material

Storage and Shipment Data

Within Continental United States

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References: SNL C-33, Section 22; TM 9-1000-205-12; FM 23-82.
CANNON, 105 MILLIMETER HOWITZER: XM103; MOUNT, HOWITZER: 105-MM, XM139

**General**
CANNON, 105 MILLIMETER HOWITZER: XM103 with MOUNT, HOWITZER: 105-mm, XM139, provides the primary armament for HOWITZER, LIGHT, SELF-PROPELLED: 105-mm, T195E1 and is primarily used for high trajectory fire.

The mount supports the cannon within a cradle and pivots in self-aligning bearings, located at each side of the cradle. The mount also provides mounting facilities for the elevation quadrant, direct fire telescope, and linkage mounts for the panoramic telescope.

The recoil mechanism is of the hydrosting, constant retarding force type.

**Differences among models**

**Data plate location**

**Classification**

**CHARACTERISTICS**

**Cannon:**
- Weight: W/mount and fluid ........................................ 2,480 lb
- Inclining evacuator and ring lock ............................ 950 lb
- Shield .......................................................... 866 lb
- Length:
  - Overall ........................................ 140.15 in.
  - W/muzzle brake .................................... 131.67 in.
- Tube .................................................. 124.40 in.
- Riffling:
  - Length ........................................ 110 in.
  - Number of grooves .................................... 36
  - Twist, right-hand: one turn in 35 calibers to 112.725 in, one turn in 18 calibers from 112.725 in. to muzzle
- Type of breechblock: sliding wedge drop block
- Type of firing mechanism: percussion
- Estimated accuracy life of tube: 1,186 lb

**Mount:**
- Weight (w/fluid) ........................................ 1,186 lb
- Type of recoil mechanism: hydrosting
- Number of recoil cylinders: 1 concentric
- Length of recoil:
  - Normal .................................................. 12 in.
  - Maximum ........................................... 14 in.
- Capacity of recoil mechanism: 21 qt
- Elevation ........................................... 76 deg
- Depression ........................................... 6 deg
- Traverse (left or right) ................................ 360 deg

**AMMUNITION**
- Types: gas, HE, smoke, smoke (colored and WP), blank, dummy

**PERFORMANCE**
- Muzzle velocity: 1,550 fps
- Range: 12,000 meters

**EQUIPMENT**
- Sighting and fire control:
  - BINOCULAR: M1A1
  - FUZE SETTER: M26 with CASE, CARRYING: M46
  - FUZE SETTER: M27
  - MOUNT, TELESCOPE: T206
  - MOUNT, TELESCOPE: T208
  - PERISCOPE, TANK: M27
  - PERISCOPE, TANK: XM45
  - POST, AIMING: M1A2 w/COVER, AIMING POST: M41
  - QUADRANT, FIRE CONTROL: elevations, M15 (T282)
  - QUADRANT, FIRE CONTROL: gunner's, M1A1, w/CASE CARRYING: M25
  - REFLCTOR, AIMING POST: clear, M1
  - TELESCOPE, ELBOW: T176E3
  - TELESCOPE, PANORAMIC: T177
- Basic Issue Items: See TM 9-2350-217-20

*For characteristics and data, see items in sections 14, 15, 23, and 27.*
## INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

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MOUNT, GUN: SUBCALIBER, CAL. .50, M19

General
MOUNT, GUN: SUBCALIBER, CAL. .50, M19, is used with a fixed heavy barrel, cal. .50 BROWNING MACHINEGUN M2*, for training purposes only. It provides practice in laying and firing the gun, ANTI-AIRCRAFT ARTILLERY, SELF-PROPELLED; TWIN, 40-MM, M42A1**. It is installed in the left-hand breech casing of the gun in place of the left automatic loader assembly. The ammunition box located on the left side of the mount holds 40 rounds of linked ammunition for the machine-gun. Actuating the firing linkage (to the striker firing mechanism assembly) of the 40-mm gun operates the firing linkage (to the solenoid, firing backplate) of the mount, to fire the cal. .50 machine-gun single shot. The empty cartridge cases fall into the clip collecting bag while the links are ejected through the ammunition chute into the bag. A boresight hole in the mount coincides with the line of the bore of the 40-mm gun.

Differences among models
Classification: Standard A.

CHARACTERISTICS

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<th>Weight</th>
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For characteristics and data, see item in section 2.

**For characteristics and data, see item in section 23.
HOWITZER, LIGHT, TOWED: 105-MM, M102 (CANNON, 105-MM HOWITZER: M137, RECOIL MECHANISM, 105-MM HOWITZER: M37; CARRIAGE, 105-MM HOWITZER: M31)

**CHARACTERISTICS**

**Howitzer:**
- Weight: 3,017.5 lb
- Length: 283½ in.
- Width: 76 in.
- Height: 62½ in.
- Ground clearance: 11½ in.
- Tires:

**Suspension system:**
- Site: 7.00 x 16, 4 ply
- Pressure: Transport - 40 psi, Tactical - 20 psi

**Traversing mechanism:**
- Size: 16 x 24 x 10E
- Pressure, operating: 4-6 psi
- Elevation range: -89 mls to +1,333 mls
- Traverse range: -6,400 mls
- Maximum towing speed:
  - Cross-country: 10 mph
  - Improved roads: 35 mph
- Brakes: Hand parking

**Ammunition**

**Performance**
- Rate of fire:
  - Maximum (nds per min - first 3 min): 10
  - Sustained: 3 rds per min

**Equipment**
- Sighting and fire control:
  - COLLIMATOR, INFINITY AIMING REFERENCE: M1
  - CORRECTOR, CANT: M4
  - FUZE SETTER: M28
  - FUZE SETTER SET: M43
  - MOUNT, TELESCOPE: M134
  - QUADRANT, FIRE CONTROL: M1A1, gunners, w/case carrying
  - QUADRANT, FIRE CONTROL: M14, (Elevation)
  - TELESCOPE, PANORAMIC: M114
  - TELESCOPE, ELBOW: M114

**Instructional material**

*For characteristics and data, see item in sections 14 and 18.

AGO 6716A

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## STORAGE AND SHIPMENT DATA

**Within Continental United States**

- **Shipped 1 howitzer uncrated per flatcar.**
  - **Length**: 202 in.
  - **Width**: 77 in.
  - **Height**: 66 in.
  - **Volume**: 594 cu ft
  - **Gross weight**: 3,415 lb
  - **Ship tons**: 1.707

---

**Outside Continental United States**

- **Length**
- **Width**
- **Height**
- **Volume**
- **Gross weight**
- **Ship tons**

---

**PRIME MOVER**

- ¾-ton, 4 x 4 truck.

**References:** TM 9-1015-234-12, TM 9-1015-234-25.
SECTION 5

GUNS, OVER 150-MM THROUGH 200-MM
(CLASS 1025)

(Includes gun and howitzer cannons, and towed gun and howitzer.)

BATTLE GROUP ATOMIC WEAPON SYSTEM: M29 (XM29) GUN, RECOILLESS, 155-MILLIMETER; N64 (XM64E2) W/GUN, 37-MILLIMETER, SPOTTING: XM77E1; MOUNT, TRIPOD, RECOILLESS GUN: 155-mm, M121 (XM121).......................................................... 5-2

CANNON, 155-MILLIMETER GUN: M46 (T80); MOUNT, GUN: 155-mm and 8-inch howitzer, M86 (T85) ....................................................... 5-3

CANNON, 155-MILLIMETER HOWITZER: M45 (T186E1); MOUNT, HOWITZER: 155-mm, M80 (T167) .......................................................... 5-5

CANNON, 155-MILLIMETER HOWITZER: M126 (T255E3); MOUNT, HOWITZER: 155-mm, M127 (XM127) (See page 5-11).

CANNON, 175-MILLIMETER GUN: M113; MOUNT, GUN-HOWITZER: M158; RAMMER AND LOADER ASSEMBLY, ORD NO. 10898300; MECHANISM, FIRING, CANNON: M35 (See page 5-13).

GUN, FIELD ARTILLERY, TOWED: 155-mm, M59, w/e (CANNON, 155-MILLIMETER GUN: M2 or M2A1; RECOIL MECHANISM: M3-series; CARRIAGE, 155-MILLIMETER GUN: M1)...................... 5-7

HOWITZER, MEDIUM, TOWED: 155-mm M114 and M114A1, w/e (CANNON, 155-MILLIMETER HOWITZER: M1 or M1A1; RECOIL MECHANISM: M6-series; CARRIAGE, 155-MILLIMETER HOWITZER: M1A1 or M1A2).............................................. 5-9
BATTLE GROUP ATOMIC WEAPON SYSTEM: M29 (XM29) (GUN, RECOILLESS, 155-MILLIMETER: M64 (XM64E2) W/GUN, 37-MILLIMETER, SPOTTING: XM77E1; MOUNT, TRIPOD, RECOILLESS GUN: 155-MM, M121 (XM121))

Major Item

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General

BATTLE GROUP ATOMIC WEAPON SYSTEM: M29 (XM29) (GUN, RECOILLESS, 155-MILLIMETER: M64 (XM64E2) W/GUN, 37-MILLIMETER, SPOTTING: XM77E1; MOUNT, TRIPOD, RECOILLESS GUN: 155-MM, M121 (XM121), is a smooth bore, vehicle transported, front line infantry weapon with a nuclear capability. It can be fired from a ground mount or vehicle.

The 37-millimeter spotting gun XM77E1 is composed of 37-millimeter gun cannon XM128E1, with bracket and 37-millimeter spotting gun recoil mechanism XM66E3.

The 155-mm recoilless gun M64 (XM64E2), is an open breech, recoilless, single shot, smooth bore muzzle loaded weapon. The gun is supported on the 155-mm tripod mount M121 (XM121) by two trunnions attached to the barrel, located near the chamber portion, and a bracket that accommodates the elevating mechanism. Two lugs for mounting the telescope mount holder M6 (XM6E1) are provided on the trunnion ring. The gun is not equipped with a firing mechanism: a mechanically operated firing device is provided in each propelling charge. Two handles are attached to the barrel and two to the breech end of the gun for easy handling.

The 37-millimeter spotting gun cannon XM128E1 (Component of 37-millimeter spotting gun XM77E1) is a single-shot, breech-loading, manually operated, smoothbore cannon with a vertical sliding wedge breechblock. The spotting gun is mounted coaxially under the gun M64 in a bracket secured to the muzzle end of the gun M64.

The 155-mm recoilless gun tripod mount M121 (XM121), consisting of the carriage assembly and tripod assembly, permits use of the weapon on the ground. The carriage is used to support the gun when mounted on the tripod or on TRUCK, UTILITY: 114-ton, 4 X 4, M38A1D, and contains elevating and traversing mechanisms, plus a clamp ring which secures the carriage to the tripod or vehicle adapter post. The tripod consists of a center post with three legs attached by means of a leg loss on the center post.

Adapter kits mounted on the 114-ton utility truck M38A1D and CARRIER, PERSONNEL, FULL TRACKED; armored, M108/ M113A1 dazzles provide for the transportation of battle group atomic weapon system M29.

Differences among models

Data plate location

| Gun, M64—Near the top of the trunnion bracket. | Gun, XM77E1—Stamped on the front of the mounting bracket. | Mount, tripod, M121—Right side of the carriage assembly. |

Classification: Standard A (AMCTCM 279)

CHARACTERISTICS

Weapon system (tripod-mounted):

| Weight (including spotting equipment) | approx 361 lb |
| Weight (without spotting equipment)  | approx 271 lb |

Gun, M64:

| Weight (emplacement)       | 3 meters radius |
| Height                     | 6 ft., 6 in.   |

Gun, XM77E1:

| Weight (including bracket) | approx 241 lb |
| Length (without spotting equipment) | 3 ft., 4 in. |

Type of breech mechanism: vertical sliding wedge
Type of firing mechanism: inertia percussion

For characteristics and data, see item in section 24.

Characteristics and data will be included at a later date.

For characteristics and data, see item in section 25.
Mount. XM121:

Tripod assembly:
- Weight: 34 lb
- Height: 2 ft 11 in
- Length (folded): 4 ft 2 in

Carriage assembly:
- Weight: 60 lb
- Height: 1 ft 6 in
- Width: 1 ft 1 in

AMMUNITION

Gun, M64:
- Types: nuclear, practice, training dummy

Gun, XM77E1:
- Types: dummy, spotting

PERFORMANCE

Muzzle velocity: 4,000 meters

EQUIPMENT

Sighting and fire control:
- HOLDER, TELESCOPE MOUNT: M6 (XM6)
- MOUNT, TELESCOPE: M117 (XM117)
- POST, AIMING: M1A2
- QUADRANT, FIRE CONTROL: gunner's, M1A1, w/case, carrying
- TELESCOPE, ELBOW: M107 (XM107)
- THERMOMETER, SELF-INDICATING, BIMETALLIC: M1A1, w/e

Auxiliary sighting and fire control:
- CASE, TELESCOPE: M121
- CHEST, M14 (aiming post light M14)
- LIGHT, AIMING POST: M14
- LIGHT, INSTRUMENT: M30
- AIMING CIRCLE: M5, w/e
- BINOCULAR: M16A1, w/e
- BOARD, PLOTTING: M16
- COMPASS, MAGNETIC, UNMOUNTED: M2, w/e

INSTRUCTIONAL MATERIAL

CARTRIDGE, 37 MILLIMETER, DUMMY: XM45L

CHARGE, PROPELLING, ATOMIC PROJECTILE, DUMMY: M7 (XM7)

PISTON, LAUNCHING, ATOMIC PROJECTILE, DUMMY: M4 (XM1)

PROJECTILE, ATOMIC, SUPERCALIBER, 279-MILLIMETER, DUMMY: M421 (XM421)

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped one weapon system in two wooden boxes.

Length:
- Box 1: 4 ft 11 in
- Box 2: 8 ft 9¼ in

Width:
- Box 1: 1 ft 7¼ in
- Box 2: 2 ft 7 in

Height:
- Box 1: 1 ft 2¼ in
- Box 2: 1 ft 9 in

Volume:
- Box 1: 9.9 cu ft
- Box 2: 39.8 cu ft

Gross weight (box 1 plus box 2): 690 lb

Ship tons:
- Box 1: 0.248
- Box 2: 0.996

CANNON, 155-MILLIMETER GUN: M46 (T80); MOUNT, GUN: 155-MM AND 8-INCH HOWITZER, M86 (T58)

General

The CANNON, 155-MILLIMETER GUN: M46 (T80) with MOUNT, GUN: 155-MILLIMETER AND 8-INCH HOWITZER, M86 (T58), provides the major armament for the GUN, SELF-PROPELLED, FULL TRACKED: 155-mm, M53 (T97).

The 155-mm gun cannon consists principally of a firing lock, breech lock counterbalance assembly, breech mechanism group, and gun tube and breech ring group. The cannon tube is supported and aligned in the mount by means of a finish-machined bearing surfaces on the rear half of the tube. The breech mechanism is hinged on the right side of the breech ring body to swing laterally when the breech is opened. A breechlock counterbalance assembly is connected between the top of the breech ring body and the breech block carrier hinge pin, to offset the weight of the breechblock and carrier during breech opening and closing operations. The firing lock is mounted in the breech mechanism.

The 155-mm and 8-inch howitzer mount M86 includes the recoil mechanism, recoil mechanism replenisher assemblies, and cradle group. The cradle provides a central bore in which the gun tube slides during recoil and counterrecoil. The tube is secured against rotation within the cradle by means of the cradle torque key located at the lower front of the cradle.

Differences among models

Data plate location

The combined gun and mount identification plate is located on the upper left recoil cradle ring.

Classification: Standard A (OTCM 38841).

CHARACTERISTICS

Cannon:

- Weight (complete) 7,168 lb
- Weight of tube 5,825 lb
- Length of cannon (muzzle to rear face of firing lock hammer) 24 ft, 3½ in.
- Length of tube

Rifling:

- Length 10 ft, 2½ in.
- Number of grooves 48
- Twist, right-hand one turn in 35 calibers
- Type of breechblock stepped-thread, interrupted-screw, horizontal-swing.
- Type of firing mechanism percussion inertia

Estimated accuracy life of tube 1,800 rd

Mount:

- Weight 4,800 lb
- Type of recoil mechanism hydrospring
- Number of recoil cylinders 4
- Length of recoil:
  - Normal
  - Maximum
- Capacity of recoil mechanism (including replenisher assembly) 25 gal
- Elevation (max) 65°
- Depression (max) -5°
- Traverse (right or left) 30°
- Operation of firing linkage manual

AMMUNITION

Types HE, CHEM, separate loading, SMOKE, and ILLUM

Propelling charge M19

PERFORMANCE

Muzzle velocity (shell, HE, max some charge) 2,900 fps

Range (max) 25,715 yd

Rate of fire

EQUIPMENT

Sighting and fire control installed on self-propelled vehicle M53 prior to issue:

INDICATOR, AZIMUTH, MECHANICAL: T27

* For characteristics and data, see item in sections 14, 18, 27, and 28.
MOUNT, TELESCOPE: M99A1C
MOUNT, TELESCOPE: M101
Boxed and stowed on self-propelled vehicle M53 prior to issue:
FUZE SETTER: M26 or M27
FUZE SETTER: M28 or M14
PERISCOPE: M18
PERISCOPE: M16A1
PERISCOPE: M17
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: M1A1 or M1, w/case
TELESCOPE: M99
TELESCOPE: M99C
TELESCOPE, PANORAMIC: M100
TRIPOD, SURVEYING: (FSN 6675-2-00-1881) (issued by
the Corps of Engineers).

Basic Issue Items: See TM 9-2350-210-12.

INSTRUCTIONAL MATERIAL
PROJECTILE, 155-MILLIMETER, EMPTY: M101
PROJECTILE, 155-MILLIMETER, DUMMY: M7
CHARGE, PROPELLING, 155-MILLIMETER: M100

STORAGE AND SHIPMENT DATA

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References: SNL D-49, TM 9-2850-210-12, TM 9-8255.
CANNON, 155-MILLIMETER HOWITZER: M45 (T186E1); MOUNT, HOWITZER: 155-MM, M80 (T167)

**Secondary item**

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**General**

The CANNON, 155-MILLIMETER HOWITZER: M45 (T186E1) with MOUNT, HOWITZER: 155-mm, M80 (T167), provides the major armament for the HOWITZER, SELF-PROPELLED, FULL-TRACKED, 155-mm, M45 (T186) or M45A1.

The cannon is composed principally of the cannon tube, breech ring group, breech mechanism assembly, counterbalance assembly, and firing mechanism M34. The cannon is mounted through the central bore of the howitzer mount cradle which forms the slide for the howitzer tube during recoil and counterrecoil. A howitzer cradle torque key engages a keyway in the cannon bore and prevents rotation of the cannon tube.

The mount consists principally of a howitzer mount rammer assembly, four recoil cylinder assemblies, two recoil mechanism replenisher assemblies, and the following group of parts: structure, cradle shield, equilibrator, and elevating mechanism.

**Characteristics**

**Type of breechblock** interrupted stepped thread

**Type of firing mechanism** percussion

**Estimated accuracy life of tube**

**Mount**

- **Weight** 10,840 lb
- **Type of recoil mechanism** hydrostatic
- **Number of recoil cylinders** 4
- **Length of recoil**
  - Normal: 1 ft, 7¾ in.
  - Maximum: 1 ft, 7 1/8 in.
- **Capacity of recoil mechanism (includes replenisher)** 17 gal
- **Elevation (max)** 85°
- **Depression (max)** 60°
- **Traverse, maximum, Right or Left** 80°
- **Operation of firing linkage** manual or electrical

**Ammunition**

- **Types** Separate-loading-HE, ILLUM, SMOKE, and BE SMOKE

**Performance**

- **Muzzle velocity (max)**
  - M3 charge: 1,220 fps
  - M4A1 charge: 1,860 fps
- **Range (HE) (max)**
  - M3 charge: 9,700 meters
  - M4A1 charge: 14,600 meters
- **Rate of fire**

**Equipment**

**Sighting and fire control**

- Installed on vehicle prior to issue:
  - MOUNT, TELESCOPE: M96 (T196)
  - MOUNT, TELESCOPE: M96 (T189)
  - Boxed and stowed on vehicle prior to issue:
    - FUZE SETTER: M23 or M27 or M22
    - FUZE SETTER: M23
    - SEMI-SCOPE, PANORAMIC: M1A2

- QUADRANT, FIRE CONTROL: M1A1, w/case or M1A1 or M1A2
- TELESCOPE, PANORAMIC: M1A1

* For characteristics and data, see item in sections 14, 18, and 25.
## TELESCOPE: M93 (T113)

TRIPOD, SURVEYING: FSN 6675-20-1881 (issued by Corps of Engineers).

Basic Issue Items: See TM 9-7004, C2.

### INSTRUCTIONAL MATERIAL

- TELESCOPE, 155-MILLIMETER DUMMY: M1
- BAND, DUMMY PROJECTILE: front and rear
- CHARGE, PROPELLING, 155-MILLIMETER DUMMY: M2
- PROJECTILE, 155-MILLIMETER DUMMY: M3

### STORAGE AND SHIPMENT DATA

**Within Continental United States**

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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
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</table>

**Outside Continental United States**

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<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>


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Pages 5-7 and 5-8 are rescinded by C 3.

Differences among models

The cannon M1A1 uses steels with increased physical properties. The carriage M1A1 is equipped with a rack and pinion-type firing jack, while the carriage M1A2 is equipped with a screw-type firing jack. The traveling locks of the M1A2 are equipped with a firing jack hanger while the traveling locks of the M1A1 are not so equipped.

The differences between the recoil mechanisms are not apparent to the using arm. They function and are serviced in the same manner. The differences between the recoil mechanisms pertain to the floating piston and suitability for use in extreme climatic conditions. Recoil mechanisms M6, M6B1, and M6B2 will perform satisfactorily in temperatures down to -20°F. If lower temperatures are anticipated and the carriage is not equipped with either recoil mechanism M6A1 or M6A2, the Ordnance maintenance personnel are to be notified.

Classification

Cannon M1 or M1A1:
W/carriage M1A1 — Standard B (OTCM 87119)
W/carriage M1A2 — Standard A (OTCM 8844)

CHARACTERISTICS

Cannon and mount:

Overall:
Length — 24 ft
Width — 8 ft
Height — 8 ft 11 in.
Cannon:
Weight: 3,825 lb
Weight of tube: 2,995 lb
Length (muzzle to rear end of breech mechanism): 12 ft, 6 3/8 in.
Length of tube: 11 ft, 10 5/6 in.
Rifling:
Length: 113 ft, 1 9/16 in.
Number of grooves: 48
Twist, right-hand: One turn in 25 calibers
Type of breech mechanism: stepped-thread, interrupted-screw
Type of firing mechanism: percussion hammer
Estimated accuracy life of tube: 15,000 rd
Carriage:
Weight (approx): 8,875 lb
Elevation (max): 63°
Depression (max): 2°
Operation of firing linkage: manual
Traverse: R 25°, L 24°
Tire size and type: 14:00 x 20 combat
Tire pressure: 55 lb
Type of brakes: air service, mechanical parking brakes
Recoil mechanism:
Type: hydropneumatic
Number of recoil cylinders: 3
Length of recoil:
Maximum elevation: 3 ft, 6 in.
Minimum elevation: 5 ft
Capacity of recoil mechanism: 6 gal
AMMUNITION
Types: HE, CHEM, ILLUM, SMOKE and SMOKE (BE), separate loading.
Type of charge: base and increment
Flash reducer M2 is used with propelling charge M4 or M4A1 to reduce muzzle flash when firing at night.
PERFORMANCE
Muzzle velocity:
HE, CHEM, SMOKE BE (Chg 7): 1,860 fps
SMOKE BE (colored) (Chg 7): 1,952 fps
ILLUM (Chg 5 only): 1,160 fps
Range (max):
HE, CHEM (Chg 7): 14,455 yd
SMOKE BE (HC) (Chg 7): 9,790 yd
SMOKE BE (colored) (Chg 7): 9,780 yd
ILLUM (Chg 5 only) (limited by 25 sec fuze): 7,100 yd
(limited by 25 sec fuze): 6,900 yd
Rate of fire:
First 1/2 min: 2 rd
First 4 min: 8 rd
First 15 min: 16 rd
Prolonged fire: 40 rd per hr
EQUIPMENT
Sighting and fire control:
On-carriage:
MOUNT, TELESCOPE: M2
TELESCOPE, PANORAMIC: M12A7C
Off-carriage:
FUZE SETTER: M26 or M27
FUZE SETTER: M38
POST, AIMING: M1A2

QUADRANT, FIRE CONTROL: M1A1, w/case
THERMOMETER, * SELF-INDICATING: BIMETALLIC: M1, w/e.
WATCH, WRIST: (all services)


INSTRUCTIONAL MATERIAL

SUBCALIBER EQUIPMENT:
CANNON, 37-MILLIMETER GUN, SUBCALIBER: M1916 on MOUNT GUN:
subcaliber, 37-mm, M10, w/RECOIL MECHANISM: 37-mm gun M1916, w/e.
PROJECTILE, 155-MILLIMETER, DUMMY: M1
PROJECTILE, 155-MILLIMETER, DUMMY: M1 and M1B1
CHARGE, PROPELLING, 155-MILLIMETER, DUMMY: M2

SHIPMENT AND STORAGE DATA

Within Continental United States

Howitzer and carriage (KD) w/equipment:
Number per crate (fully sheathed skid-type crate) 
Length 
Width 
Height 
Volume 
Gross weight 
Ship tons

Howitzer M1 only:
Number per crate (double-end style) 
Length 
Width 
Height 
Volume 
Gross weight 
Ship tons

Outside Continental United States

Howitzer and carriage (KD) w/equipment:
Number per crate (fully sheathed skid-type crate) 
Length 
Width 
Height 
Volume 
Gross weight 
Ship tons

Howitzer M1 only:
Number per crate (double-end style) 
Length 
Width 
Height 
Volume 
Gross weight 
Ship tons

PRIME MOVER

4-ton, 6 x 6, cargo truck or 18-ton high-speed tractor M5

TIME TO EMPLACE

5 min

References: TM 9-331A, SNL C-38, TM 9-1025-200-20P

* For characteristics and data, see item in sections 14, 18, 26, and 29.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M123A1</td>
<td>K57940</td>
<td>1025-994-8931</td>
</tr>
</tbody>
</table>

**General**

HOWITZER, MEDIUM, TOWED: AUXILIARY PROPELLED, 155-MM, M123A1, W/EQUIPMENT, is a medium field artillery weapon consisting of CANNON, 155-MILLIMETER HOWITZER: M1 or M1A1; RECOIL MECHANISM: M6, M6A2 or M6B1; CARRIAGE, 155-MILLIMETER HOWITZER: M32; a hydraulic power unit driven by a 20 horsepower gasoline engine; two-wheel drive units connected to the power unit by four hydraulic lines which drive the carriage wheels; a removable caster assembly to support the trails when maneuvering the weapon; and a mechanical jack for raising and lowering the trails as needed. This propulsion system provides more efficient maneuverability and accurate positioning of the weapon by the driver.

**Differences among models**

Classification: Standard A.

**Cannon and carriage:**

Overall:
- **Length**:
  - M1: 24 ft
  - M1A1: 23 ft
- **Width (traveling position) (outside wheel)**:
  - M1: 110 in.
  - M1A1: 110 in.
- **Height (traveling position)**:
  - M1: 76½ in.
  - M1A1: 76½ in.

**Cannon:**

- **Weight**:
  - M1: 3,925 lb
  - M1A1: 3,760 lb
- **Weight of tube**:
  - M1: 2,996 lb
  - M1A1: 2,920 lb
- **Length (muzzle to rear end of breech mechanism)**:
  - M1: 12 ft, 5-3/16 in.
  - M1A1: 12 ft, 5-3/16 in.
- **Length of tube**:
  - M1: 11 ft, 10 07/64 in.
  - M1A1: 11 ft, 10 07/64 in.
- **Rifling**:
  - **Length**:
    - M1: 113.10 in.
    - M1A1: 113.10 in.
  - **Number of grooves**:
    - M1: 48
    - M1A1: 48
  - **Twist, right-hand**:
    - M1: one turn in 25 calibers
    - M1A1: one turn in 25 calibers
- **Type of breechblock**:
  - M1: stepped thread, interrupted-screw
  - M1A1: stepped thread, interrupted-screw

**Type of firing mechanism**

- Percussion hammer

**Estimated accuracy life of tube**

- M1: 3,000 rds
- M1A1: 15,000 rds

**Carriages**

- **Weight**:
  - M1: 8,208 lb
  - M1A1: 8,208 lb
- **Elevation**:
  - M1: 63 deg
  - M1A1: 63 deg
- **Depression**:
  - M1A1: -2 deg

**Operation of firing linkage**

- Manual

**Traverse**

- M1: R 26 deg, L 24 deg
- M1A1: R 26 deg, L 24 deg

**Tire size and type**

- Carriage: 14.00 x 20, earth mover casing, 6.00 x 9, regular nonskid thread.

**Tire pressure**

- Carriage tires: 50 lb
- Caster tire: 35 lb

**Type of brakes**

- Air service, mechanical parking brakes

**Recoil mechanism**

- Type of recoil mechanism:
  - M1: Hydro pneumatic
  - M1A1: Hydro pneumatic
- Number of recoil cylinders:
  - M1: 3
  - M1A1: 3
- **Length of recoil**:
  - Maximum elevation: 3 ft, 6 in.
  - Minimum elevation: 3 ft, 6 in.
  - Capacity of recoil mechanism: 6 gal

**Engine**

- **Manufacturer**: Continental Motors Corp.
- **Model**: A4A084-1
- **Type**: Gasoline, overhead valve, 4-cycle
- **Cylinders**: 4
- **Displacement**: 81 cu in.

**AMMUNITION**

- Types:
  - HE, CHEM, ILLUM, SMOKE
- **Type of charge**: Separate loading base and increment
- **Flash reducer**: M2

**PERFORMANCE**

- **Muzzle velocity**: 1,850 fps
- **Range (max) (with full charge)**: 16,335 yd
- **Rate of fire**:
  - Rapid bursts: 3 rds per min
  - Prolonged firing: 1 rd per min
EQUIPMENT

Sighting and fire control:

- **On-carriage:**
  - MOUNT TELESCOPE: M25 (7578429) (remains intact on end item)
  - TABLE, FIRING: FT 155-Q-3
  - TELESCOPE, PANORAMIC: M12A7C (7572260)

- **Off-carriage:**
  - FUZE, SETTER: M28 and M28 (T46)
  - LIGHT, AIMING POST: M14
  - POST, AIMING: M1A2
  - QUADRANT, FIRE CONTROL: M1A2, w/case
  - THERMOMETER, SELF-INDICATING, BIMETALLIC: M1, w/equipment
  - WATCH, WRIST: (all services)

Basic Issue Items: See TM 9-1025-200-12.

INSTRUCTIONAL MATERIAL

Subcaliber equipment:

- GUN, SUBCALIBER, 37-MM: CANNON, M1916, on MOUNT, M1A1, w/RECOIL MECHANISM, M1916, w/EQUIPMENT.

SHIPMENT AND STORAGE DATA

**Within Continental United States**

Shipped 1 howitzer uncrated.

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<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
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<tbody>
<tr>
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<tr>
<td>Width</td>
<td>90 in.</td>
</tr>
<tr>
<td>Height</td>
<td>90 in.</td>
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<tr>
<td>Volume</td>
<td>1,440 cu ft</td>
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<td>Gross weight</td>
<td>13,500 lb</td>
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<tr>
<td>Ship tons</td>
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**Outside Continental United States**

Shipped 1 howitzer uncrated.

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</tr>
<tr>
<td>Ship tons</td>
<td>6.75</td>
</tr>
</tbody>
</table>

PRIME MOVER

5-ton, 6 x 6 cargo truck.

TIME TO EMEPLACE


*For characteristics and data, see item in sections 14, 18, 26, and 28.
CANNON, 155 MILLIMETER HOWITZER: T255E3; MOUNT, HOWITZER: 155-MM, XM127

General

CANNON, 155 MILLIMETER HOWITZER: T255E3 with MOUNT, HOWITZER: 155-mm, XM127, provides the primary armament for HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, T196E1.*

The breech mechanism is a semiautomatic screw block type, designed for separate-loading ammunition. Breech opening is accomplished by utilizing the energy of counterejection and closing by a laminated torsion spring. Firing is accomplished by MECHANISM, FIRING, CANNON: M3G, which uses cartridge-type primers fired by a continuous roll percussion mechanism.

The mount consists of a cradle assembly that mounts the hydraulic variable recoil mechanism, cradle cam, equilibrator arm, recuperator, replenisher, buffer, upper and lower rotors, bump stops, and dust shield. Pads and brackets are provided for mounting the fire-control equipment.

Differences among models

Data plate location

Classification

CHARACTERISTICS

Cannon:
- Weight: 3,130 lb
- Length: 181.01 in.
- Tube: 148 in.
- Rifling: 116.82 in.
- Number of grooves: 48
- Twist, hand: one turn in 20 calibers
- Type of breech block: Welin-step thread
- Type of firing mechanism: percussion manual
- Estimated accuracy life of tube: 15,000 rd (EFC)

Mount:
- Weight (w/oil): 3,130 lb

Types of recoil mechanism: hydro pneumatic
Number of recoil cylinders: 2
Length of recoil:
- Normal: high elevation 24 in.
- Maximum: low elevation 36 in.
- Capacity of recoil mechanism: 6 gal
- Elevation: +75 deg
- Depression: -5 deg
- Traverse (left or right): 360 deg

AMMUNITION

Types: EB, HE, illumin, smoke (colored and WP), dummy

PERFORMANCE

Muzzle velocity: 1,850 fps
Range: 16,600 yd
Rate of fire:
- Normal: 1 rd per min
- Rapid: 3 rds per min

EQUIPMENT

Sighting and fire control:**
- BINOCULAR: M17A1
- FUZE SETTER: M36, w/CASE, CARRYING, M66
- FUZE SETTER: M27 or M14
- MOUNT, TELESCOPE: T206
- MOUNT, TELESCOPE: T208
- PERISCOPE, TANK: M27
- PERISCOPE, TANK: XM42
- REFLECTOR, AIMING POST: clear, M1 and red, M2, w/CASE, CARRYING, M144
- TELESCOPE, ELBOW: T176E2
- TELESCOPE, PANORAMIC: T177

Basic Issue Items: See TM 9-550-217-10

INSTRUCTIONAL MATERIAL
<table>
<thead>
<tr>
<th>Shipped Within Continental United States</th>
<th>Shipped</th>
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<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
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<td>Ship tons</td>
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</table>

References: TM 9-2350-217-10
CANNON, 175 MILLIMETER GUN: M113 (T256E3); MOUNT, GUN-HOWITZER: M158; RAMMER AND LOADER ASSEMBLY, ORD NO. 10898300; MECHANISM, FIRING, CANNON: M35

Illustration will be added at a later date.

<table>
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<tr>
<th>Model</th>
<th>Secondary Item</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANNON, 175 MILLIMETER GUN: M113 (T256E3) with MOUNT, GUN-HOWITZER: M158, RAMMER AND LOADER ASSEMBLY, ORD No. 10898300, and MECHANISM, FIRING, CANNON: M35, provides the armament for GUN, FIELD ARTILLERY, SELF-PROPELLED: 175-mm, M107 (T256E3).</td>
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</table>

The cannon MU8 consists of a tube assembly screwed into an internal thread in a breech ring and locked in place by a key and a screw. The tube assembly is of monobloc (one-piece) construction. The chamber and bore are chrome-plated. Longitudinal rails secured to three hoops shrunk onto the jacket maintain the alignment of the cannon in the mount. The breech consists of an outer breech ring containing internal threads into which the tube is threaded.

The gun-howitzer mount M158 includes the recoil mechanism of the hydropneumatic variable recoil type, which controls the forces created by firing and checks the movement of the recoiling parts gradually, to avoid displacement of the vehicle, and also returns the recoiling parts into their original position. The major components are the recoil, counterrecoil, and recuperator cylinders, contained in the gun cradle and the replenisher cylinder.

The rammers and loader assembly operates to lift a projectile from the rear or left side of the vehicle, position it for ramming, and ram it into the cannon chamber. Hydraulic power for operation is obtained from the vehicle hydraulic system. Operation can also be accomplished manually by means of handcranks.

The firing mechanism is a percussion type and is operated manually by a lanyard.

*For characteristics and data, see Item in section 28.
Oil capacity ............................ 16 gal
Oil reserve:
  Replenisher ............................ 2 pt
  Recuperator ............................ 2 pt
Elevation (max) ........................ 45 deg
Depression .............................. 0 deg
Turret traverse (right or left) ......... 30 deg
Traversing and elevating operation .... manual or hydraulic

AMMUNITION
Type ........................................ HE
Loading ..................................... separate

PERFORMANCE
Muzzle velocity .......................... 3,000 fps
Range (maximum) ......................... 32,800 meters
Allowable recoil (variable) ............
Rate of fire:
  Normal .................................. 1 rd per 2 min
  Maximum .................................. 1 rd per min
Maximum number of rounds fired consecutively
  at max rate ................................
Maximum powder pressure permitted .... 50,000 psi
Average accuracy life ..................... 400 rd (EFC)

EQUIPMENT
Sighting and fire control*
  Installed on self-propelled gun M107 prior to issue:
    MOUNT, TELESCOPE: direct fire, M188
    MOUNT, TELESCOPE: panoramic, M197 (T19E2)
  Boxed and stowed on self-propelled gun M107 prior to issue:
    BINOCULAR: M17A1
    FUZE SETTER: M26 and M27
    LIGHT, INSTRUMENT: M62
    PERISCOPE, TANK: M17

POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: elevation, M15 (T23E2)
QUADRANT, FIRE CONTROL: gunner’s, M1A1
REFLECTOR, AIMING POST: clear, M1
REFLECTOR, AIMING POST: red, M2
SCALE, GRAPHICAL FIRING:
  SCALE, GRAPHICAL FIRING: site
TELESCOPE, ELBOW: direct fire, M116C
TELESCOPE, PANORAMIC: M16 (T146)

Basic Issue Items: See TM 9-2300-216-10

INSTRUCTIONAL MATERIAL
PROJECTILE, 175 MILLIMETER, DUMMY:
  CHARGE, PROPELLING, 175 MILLIMETER, DUMMY:
  PRIMER, PERCUSSION INERT:

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 1 gun cannon
Length .................................
Width ...................................
Height ...................................
Volume ...................................
Gross weight ................................
Ship tons ................................

Outside Continental United States

Shipped 1 gun cannon
Length .................................
Width ...................................
Height ...................................
Volume ...................................
Gross weight ................................
Ship tons ................................


* For characteristics and data, see item in sections 12, 14, 18, and 27.
SECTION 6

GUNS, OVER 200-MM THROUGH 300-MM

(CLASS 1030)

(Includes howitzer cannon, towed howitzer, and motorized gun.)

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CANNON, 8-INCH HOWITZER: M2A1E1; MOUNT, GUN-HOWITZER: M15A1; RAMMER AND LOADER ASSEMBLY, ORD No. 10898; MECHANISM, FIRING, CANNON: M35 (See page 6-9)

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CANNON, 8-INCH HOWITZER: M47; MOUNT, GUN: 155-mm and 8-inch howitzer, M86 (T58) 6-2

---

GUN, HEAVY, MOTORIZED; 280-mm, M65, w/e (CANNON, 280 MILLIMETER GUN: M66 (T131); RECOIL MECHANISM: M32 (T80E3) AND T81 OR M32 (T80E3) AND M33 (T81E1); CARRIAGE, 280 MILLIMETER GUN: M30 (T72) 6-4

---

HOWITZER, HEAVY, TOWED: 8-inch, M115, w/e (CANNON, 8-INCH HOWITZER: M2 OR M2A1; RECOIL MECHANISMS: M4-series; CARRIAGE, 8-INCH HOWITZER: M1) 6-6
CANNON, 8-INCH HOWITZER: M47 (T89); MOUNT, GUN: 155-MM
AND 8-INCH HOWITZER, M86 (T58)

SECONDARY ITEM

<table>
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<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M47 (T89)</td>
<td>1030-723-8500</td>
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<tr>
<td>M86 (T58)</td>
<td>1026-729-3839</td>
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</table>

**General**

The CANNON, 8-INCH HOWITZER: M47 (T89) with MOUNT, GUN: 155-MM and 8-inch howitzer, M86 (T58), provides the major armament for the HOWITZER, SELF-PROPELLED, FULL TRACKED: 8-inch, M55 (T108).

The 8-inch howitzer cannon M47 consists principally of a firing lock, breechblock counterbalance assembly, breech mechanism group, and gun tube and breech ring group. The gun is supported and aligned in the mount by means of finish-machined bearing surfaces on the rear half of the tube. The breech mechanism is hinged at the right side of the breech ring body to swing laterally when the breech is opened. A breechblock counterbalance assembly is connected between the top of the breech ring body and the carrier hinge pin, to offset the weight of the breechblock and carrier during breech opening and closing operations. The firing lock is mounted in the breech mechanism.

The 155-mm and 8-inch howitzer gun mount M86 (T58) includes the recoil mechanism, recoil mechanism replenisher assemblies, and cradle group. The cradle provides a central bore in which the cannon tube slides during recoil and counter-recoil. The tube is secured against rotation within the cradle by means of the cradle torque key located at the lower front of the cradle.

**Differences among models**

**Data plate location**

The combined gun and mount identification plate is located on the upper left recoil cradle ring.

**Classification:** Standard B (OTCM 36841).

**CHARACTERISTICS**

Cannon:

| Weight | 6,120 lb |

Mount:

| Weight | 4,777 lb |
| Length (muzzle to rear face of firing lock hammer) | 18 ft, 3% in. |
| Length of tube | |

**Rifling:**

| Length | 18 ft, 3% in. |
| Number of grooves | 48 |
| Twist, right-hand | one turn in 26 calibers |

Type of breechblock:

- stepped thread, interrupted-screw, horizontal-swing.

Type of firing mechanism:

- percussion inertia

Estimated accuracy life of tube: 6,000 rounds

**AMMUNITION**

| Weight | 4,800 lb |
| Type of recoil mechanism | hydropneumatic |
| Number of recoil cylinders | 4 |
| Length of recoil: |
| Normal | |
| Maximum | |
| Capacity of recoil mechanism | 25 gal |
| Elevation (max) | 65° |
| Depression (max) | -5° |
| Operation of firing linkage | manual |

**PERFORMANCE**

| Muzzle velocity | 1,950 fps |
| Range | 18,510 yd |
| Rate of fire | 8 rounds per minute |

**EQUIPMENT**

Sighting and fire control:

- Installed on self-propelled vehicle M65 prior to issue:
  - INDICATOR, AZIMUTH, MECHANICAL: T27
  - MOUNT, TELESCOPE: M99A1C (T1195E6)
  - MOUNT, TELESCOPE: M101 (T181)

* For characteristics and data, see item in sections 14, 18, 27, and 28.
Boxed and stowed on self-propelled vehicle, M85 prior to issue:
FUZE SETTER: M26 or M27
FUZE SETTER: M28 or M14
PERISCOPE: M18
PERISCOPE: M17
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: M1A1, W/CASE or
QUADRANT, FIRE CONTROL: M1, W/CASE
TELESCOPE: M90C (T159E1)
TELESCOPE, PANORAMIC: M100 (T149E1)
TRIPOD, SURVEYING: FSN 6675-240-1881 (issued by Corps of Engineers).
Basic Issue Items: See TM 9-2350-210-12.

INSTRUCTIONAL MATERIAL
CHARGE PROPELLING, 8-INCH DUMMY: M4
PROJECTILE, 8-INCH DUMMY: M14

STORAGE AND SHIPMENT DATA
Within Continental United States

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<th>Item</th>
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<tr>
<td>Ship tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GUN, HEAVY, MOTORIZED: 280-MM, M65, W/E (CANNON, 280-MILLIMETER
GUN: M66 (T131); RECOIL MECHANISM: M32 (T80E3) AND T81 OR
M32 (T80E3) AND M33 (T81E1); CARRIAGE, 280-MILLIMETER GUN: M30 (T72))

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Carriage</th>
<th>Recoil mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>M65</td>
<td>M30</td>
<td>M32 (T80E3) and T81</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-16890-10</td>
</tr>
<tr>
<td>M66</td>
<td>M30</td>
<td>M32 (T80E3) and M33 (T81E1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-16890-11</td>
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</tbody>
</table>

General
The GUN, HEAVY, MOTORIZED: 280-mm, M65 w/e, consisting of a CANNON, 280-MILLIMETER GUN, M66; RECOIL MECHANISM: M32 (T80E3) and T81 or M32 (T80E3), and M33 (T81E1) with CARRIAGE: GUN, 280-MILLIMETER: M30, is a mobile, long range, heavy artillery weapon intended for attack on enemy communication centers or field fortifications, especially of masonry or concrete, for counterbattery fire on enemy long range artillery, and for possible use in coast defense operations. It is operated as a fixed mount but is strategically mobile when the gun tube is retracted and the carriage is loaded on the completely detachable units of the heavy artillery transporter T10.

The cannon consists of the tube, jacket, breech ring, and breech bushing as an integral unit, and a detachable breechblock and breech operating mechanism. It is built-up type with the jacket shrunk onto the tube and the breech ring shrunk onto the breech end of the jacket. An extended portion of the jacket forward of the breech ring is of uniform diameter and smoothly finished to provide a bearing surface in the cradle during the recoil and retraction of the tube to the traveling position. Retraction is further facilitated, and the tube supported, by wheels attached to the breech ring which run on rails on the top carriage. Gas erosion of the breechblock is prevented by a DeBangue type obturator. Ammunition is separate-loaded.

The gun carriage proper is comprised of three elements: the top carriage, firing base, and float. The top carriage is a rigid, rectangular structure supporting the gun and its various operating mechanisms. The firing base and float are connected by longitudinal tie rods and constitute the bottom carriage upon which the weapon recoils and traverses, and through which it has emplacement contact with the ground. Traversing is accomplished manually through an arc of 16° upon the ball pintle of the firing base and the float. However, the float may be lifted from the ground to traverse the weapon 360° upon the firing base.

The recoil mechanism is of the double recoil type in which the gun tube and top carriage are separately recoiling masses, and which utilizes the weight of the top carriage to absorb recoil force. The primary recoil mechanism is a hydropneumatic type consisting of two recoil cylinders and a recuperator cylinder assembled with a manifold. It is one of the tipping parts and is attached to the cradle below and parallel to the gun tube. The secondary recoil mechanism is a hydropneumatic type consisting of a recoil cylinder and recuperator cylinder attached to the firing bolsters and connected to the elevating pinion shaft housing integral with the top carriage.

Differences among models

Data plate location
The model and serial numbers of the cannon (formerly gun) are stamped on the upper top surface of the breech ring. The carriage nameplate is attached to the right frame member toward the rear. The primary recoil mechanism nameplate is attached to the lower right side of the recoil mechanism manifold. The secondary recoil mechanism nameplate is attached to the upper face of the recoil mechanism manifold.

Classification: Standard B (OTCM 37119).

CHARACTERISTICS

Cannon:
Weight ..............................................42,060 lb
Length (without muzzle brake) ........................42 ft, 8½ in.
Length of tube ..................................41 ft, 9½ in.
Rifling:
Length ...........................................34 ft, 9½ in.
Number of grooves ................................12
Twist, right-hand ................................one turn in 29 calibers
Type of breechblock ...............................Interrupted step-thread
Type of firing mechanism .........................Electrical contact-percussion hammer
Estimated accuracy life of tube .....................300 rds
Carriage:
Type of recoil mechanism:
Primary ............................................hydropneumatic
Secondary ........................................hydropneumatic
Number of recoil cylinders:
Primary ................................................2
Secondary .............................................1
Length of recoil:
Primary (max allowable at 55 deg) ............3 ft, 6 in.
(max allowable at 10 deg) .....................2 ft, 8 in.
(normal) ...........................................
Secondary (max allowable at 55 deg) ............3 ft, 4 in.
(max allowable at 10 deg) .....................8 ft
Capacity of recoil mechanism (including recuperator):
Primary .............................................49.1 gal
Secondary .........................................20.8 gal
Elevation (max) ....................................55°
Depression (max) ....................................0°
Operation of firing linkage .....................manual

AMMUNITION
Type .................................................HE and separate loading
NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE
Muzzle velocity (HE, max zone) ..................2,500 fps
Range (HE) ..........................................31,400 yd

EQUIPMENT
Sighting and fire control:* 
BINOCULAR: M17A1, w/e
FUZE SETTER: M26
FUZE SETTER: M28
MOUNT, TELESCOPE: M80
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: M1A1 (elevation)
QUADRANT, FIRE CONTROL: gunner's M1A1, w/case
TABLE, FIRING: FT 280-A-1 (Confidential)
TABLE, FIRING: FT 280-B-1 (Change No. 1 is Confidential, only.)

*For characteristics and data, see item in sections 14, 18, 27, and 28.

TELESCOPE, PANORAMIC: M14A7C
TRIPOD, SURVEYING: FSN 6975-240-1881 (To be issued with
POST, AIMING, M1 series only when issued for Arctic use.)
(issued by Corps of Engineers)
Basic issue items: See TM 9-388-1, C9.

INSTRUCTIONAL MATERIAL
ASSEMBLY, BASE CHARGE: (For 280-mm dummy propelling
charge T78).
ASSEMBLY, INCREMENT CHARGE: (For 280-mm dummy pro-
pelling charge T78).
EXTRACTOR, DUMMY PROJECTILE, HAND: 280-mm
PROJECTILE, 280 MILLIMETER: dummy, T299E2
SPARE PARTS SET, 280 MILLIMETER DUMMY PROJECTILE:
T299E2.

STORAGE AND SHIPMENT DATA
Within Continental United States

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<tr>
<th></th>
<th>Shipped</th>
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<tbody>
<tr>
<td>Length</td>
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<tr>
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<td>Volume</td>
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<tr>
<td>Gross weight</td>
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</tr>
<tr>
<td>Ship tons</td>
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Outside Continental United States

<table>
<thead>
<tr>
<th></th>
<th>Shipped</th>
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<tbody>
<tr>
<td>Length</td>
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</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

PRIME MOVER
Transporter, heavy artillery, T10 consisting of:
Front chassis, truck tractor, M249 .............4 x 4
Rear chassis, truck tractor, M250 .............4 x 4

References: TM 9-328-11, TM 9-8010, TM 9-1080-201-20P.
HOWITZER, HEAVY, TOWED: 8-INCH, M115, W/E (CANNON, 8-INCH HOWITZER: M2 OR M2A1; RECOIL MECHANISMS: M4-SERIES; CARRIAGE, 8-INCH HOWITZER: M1)

The cannon consists of a tube, breech ring, and breech mechanism. The tube is screwed into an internal thread in the breech ring and locked in place by three screws. The breech mechanism, attached to the breech ring, consists of the breechblock carrier assembly, breechblock assembly, counterbalance assembly, obturating group, and operating lever assembly. Bearing surface for support and alignment on the mount is provided by smoothly finished longitudinal rails. The breech ring carries lugs on the side for support of the breechblock carrier and on the bottom for attachment of the recoil mechanism.

The carriage consists of equilibrator assemblies, elevating and traversing mechanisms, two single-wheel, single-axle heavy limber M2, four dual-wheel, two-axle bogie, and two trails. Four spades, carried on the trails, are used to emplace the weapon.

The recoil mechanism is a variable hydropneumatic type shock absorber that decreases the energy of the recoil gradually and so avoids violent movement of the cannon or carriage. It is installed in the cradle of the carriage.

Differences among models

The cannon M2A1 is ballistically and physically interchangeable with the cannon M2. Both the M2 and M2A1 are capable of being mounted on the carriages M1 and recoil mechanisms, M4, M4A1, M4A2 or M4A3. The M2A1 has approximately the same weight and center of gravity as the M2 but is designed with superior strength steels. The breech ring and mating tube threads on the M2A1 material conform to present cannon thread standards; this prevents the M2A1 breech rings and tubes from being interchangeable with corresponding components of the M2. All other components of the cannon are basically interchangeable.

The recoil mechanism M4A1 is basically the M4 with a new type floating piston ORD No. 715716 incorporated in the mechanism to reduce leakage of nitrogen. The recoil mechanism M4A3 is the M4Al which has been modified by inserting spacers in the present floating pistons to keep the two halves separated the required distance. The mechanism M4A3 is the new manufacture of the M4A1 with a one-piece floating piston.

Data plate location

The cannon identification plate is located on the breech end; the carriage identification plate above the elevating wheel; the limber identification plate on the limber lift bracket; and the recoil mechanism on the right side, breech end of the cradle.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Cannon and mount:

Overall:
- Length 482 in.
- Width 112 in.
- Height 103 in.

Cannon:
- Weight (complete w/breech mechanism) 9,146 lb
- Weight of tube 8,436 lb
- Length 17 ft, 1¾ in.
- Length of tube (muzzle to rear face of breech ring) 18 ft, 10½ in.

Rifling:
- Length 18 ft, 8½ in.
- Number of grooves 64
- Twist, right hand one turn in 21 calibers

Type of breechblock "interrupted screw stepped thread"
Type of firing mechanism "percussion hammer"

Estimated accuracy life of tube: 8,800 rd

Carriage:
- Elevation (max) 45°
- Depression (max) -2°
- Traverse 360° R or L
- Tire size and type 11:20 x 20, standard
- Tire pressure: Carriage 45 lb, Limber 66 lb
Recoil mechanism:
- Type of recoil mechanism: hydropneumatic (variable)
- Number of recoil cylinders: 3
- Length of recoil:
  - Normal recoil (at 375 mils elevation): 4 ft, 3 in
  - Recoil at 800 to 425 mils elevation (supercharge): 5 ft, 7 in
- Capacity of recoil mechanism: 15'³ gal

AMMUNITION
- Types: separate-loading HE
- Type of charge: base and increment
- Weights:
  - Projectile: 200 lb
- Powder charge:
  - Green bag (5 zones): 13.38 lb
  - White bag (7 zones): 28.75 lb
- Flash reducer M8 is used with propelling charge M2 to reduce muzzle flash when firing at night.

NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE
- Muzzle velocity (average velocity with a new howitzer): 1.950 fps
- Range (max): 18,510 yd
- Rate of fire:
  - Normal: 1 round per 2 min
  - Maximum: 1 round per min

EQUIPMENT
- Sighting and fire control:
  - On-carriage equipment:
    - FUZE SETTER: M26
    - MOUNT, QUADRANT: M1
    - MOUNT, TELESCOPE: M16A1
    - QUADRANT, FIRE CONTROL: gunner's M1A1 w/case
    - TELESCOPE, ELBOW: M16A1
    - TELESCOPE, PANORAMIC: M1A1
  - Off-carriage equipment:
    - POST, AIMING: M1A2
    - TABLE, FIRING: FT 9-J-1
    - THERMOMETER, SELF-INDICATING, BIMETALLIC: M1
    - WATCH, WRIST: (all services)

Basic Issue Items: See ORD 7 SNL D-29,

INSTRUCTIONAL MATERIAL

Subcaliber equipment:
- CANNON, 57-MILLIMETER GUN: M101 on MOUNT, GUN: subcaliber, 57-mm, M101, w/RECOIL MECHANISM: 57-mm gun M101, w/e.
- PROJECTILE, 8-INCH HOWITZER, DUMMY: M14
- PROJECTILE, 8-INCH GUN OR HOWITZER, DUMMY: M1A1

STORAGE AND SHIPMENT DATA

Cannon w/carriage M1 and limber M5 (KD) in two packages:
- Pkg. No. 1/2—Cannon:
  - Length (overall): 16 ft, 9 in
  - Width: 4 ft, 6 in
  - Height: 8 ft, 13/ in
  - Gross weight: 4,156.9 lb
  - Ship tons: 3.92

Pkg. No. 2/2—Carriage M1 w/limber M5 and equipment:
  - Length: 16 ft, 9 in
  - Width: 4 ft, 6 in
  - Height: 8 ft, 13/ in
  - Gross weight: 3,489 lb
  - Ship tons: 3.92

Heavy carriage limber M5 (KD):
  - Length: 8 ft, 11/ in
  - Width: 4 ft, 6 in
  - Height: 8 ft, 13/ in
  - Gross weight: 3,489 lb
  - Ship tons: 3.92

Note. Cannon, carriage and limber also shipped uncrated in traveling position.

Outside Continental United States

Cannon w/carriage M1 and limber M5 (KD) in two packages:
- Pkg. No. 1/2—Cannon:
  - Length (overall): 18 ft, 1 in
  - Width: 2 ft, 7/ in
  - Height: 3 ft, 2/ in
  - Gross weight: 11,250 lb
  - Ship tons: 3.94

Pkg. No. 2/2—Carriage M1 w/limber M5 and equipment:
  - Length: 16 ft, 9 in
  - Width: 4 ft, 6 in
  - Height: 8 ft, 13/ in
  - Gross weight: 3,489 lb
  - Ship tons: 3.92

Heavy carriage limber M5 (KD):
  - Length: 8 ft, 11/ in
  - Width: 4 ft, 6 in
  - Height: 8 ft, 13/ in
  - Gross weight: 3,489 lb
  - Ship tons: 3.92

PRIME MOVER

18-ton, high-speed tractor M4 or 7½-ton 6 x 6, truck, M5

TIME TO EMPLACE

1/3 to 6 hr.

References: SNL D-29, TM 9-3004, TM 9-1350, TM 9-1080-203-20P.
CANNON, 8-INCH HOWITZER: M2A1E1; MOUNT, GUN-HOWITZER: M158; RAMMER AND LOADER ASSEMBLY ORD NO. 10898300; MECHANISM, FIRING, CANNON: M35

(Illustration will be added at a later date)

General

CANNON, 8-INCH HOWITZER: M2A1E1 with MOUNT, GUN-HOWITZER: M158, RAMMER AND LOADER ASSEMBLY ORD No. 10898300 AND MECHANISM, FIRING, CANNON: M35, provides the major armament for the HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M110 (T236El). The 8-inch howitzer cannon M2A1E1 consists of a barrel assembly screwed into an internal thread in a breech ring and locked in place by three screws. The barrel assembly is of monobloc (one-piece) construction. The chamber and bore are chrome-plated. Bearings for support and alignment in the mount are provided by longitudinal rails attached to three hoops shrunk on the jacket. The rear half of the breech ring is lined with a breech ring bushing to accommodate an interrupted screw-type breechblock and a bolt for connection to the recoil mechanism.

The gun-howitzer mount M158 includes the recoil mechanism of the hydropneumatic variable recoil type, which controls the forces created by firing and checks the movement of the recoiling parts gradually, to avoid displacement of the vehicle, and also returns the recoiling parts to their original position. The major components are the recoil, counterrecoil, and recuperator cylinders, contained in the gun cradle, and the replenisher cylinder.

The rammer and loader assembly operates to lift a projectile from the rear or left side of the vehicle, position it for ramming, and ram it into the cannon chamber. Hydraulic power for operation is obtained from the vehicle hydraulic system. Operation can also be accomplished manually by means of handwheels. The firing mechanism is a percussion type and is operated manually by a lanyard.

Differences among models

Data plate location

Classification:

Mount, M158

Cannon, M2A1E1

* For characteristics and data, see item in section 23.

---

<table>
<thead>
<tr>
<th>Cannon</th>
<th>Mount</th>
<th>Mechanism</th>
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<tbody>
<tr>
<td>M2A1E1</td>
<td>M158</td>
<td>M35</td>
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<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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<tr>
<td>Weight, cannon complete</td>
<td>10,240 lb</td>
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<tr>
<td>Barrel assembly</td>
<td>8,490 lb</td>
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<tr>
<td>Breech mechanism</td>
<td>1,769 lb</td>
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<tr>
<td>Tipping parts</td>
<td>1,740 lb</td>
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<tr>
<td>Length, tube</td>
<td>16 ft, 10.5 in.</td>
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<tr>
<td>Casing</td>
<td>17 ft, 9 in.</td>
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<tr>
<td>Number of grooves</td>
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<td>Bore, calibers</td>
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<tr>
<td>Diameter, breechblock</td>
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<tr>
<td>Type of breechblock</td>
<td>Interrupted screw, stepped thread</td>
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<tr>
<td>Type of firing mechanism</td>
<td>Percussion</td>
</tr>
<tr>
<td>Operation</td>
<td>Manual, by lanyard</td>
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<td>Mount</td>
<td>4,500 lb</td>
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<tr>
<td>Weight, recoil mechanism</td>
<td>3,925 lb</td>
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<tr>
<td>Type</td>
<td>Hydropneumatic</td>
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<tr>
<td>Number of recoil cylinders</td>
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<tr>
<td>Length of recoil, normal</td>
<td>High elevation: 28 to 30 in.</td>
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<tr>
<td>Maximum</td>
<td>Low elevation: 55 to 70 in.</td>
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<td>Equilibrator</td>
<td>Pneumatic</td>
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<td>Type of recoil oil</td>
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<tr>
<td>Oil capacity</td>
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<tr>
<td>Oil reserve</td>
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<tr>
<td>Recuperator</td>
<td>2 pt</td>
</tr>
<tr>
<td>Elevation (max)</td>
<td>65 deg</td>
</tr>
<tr>
<td>Depression</td>
<td>6 deg</td>
</tr>
<tr>
<td>Turret traverse (right or left)</td>
<td>30 deg</td>
</tr>
<tr>
<td>Traversing and elevation operation</td>
<td>Manual or hydraulic</td>
</tr>
</tbody>
</table>

AMMUNITION

Type | HE, dummy |
Loading | Separate
PERFORMANCE
Muzzle velocity ...........................................1,550 fps
Range (maximum) ........................................16,930 meters
Allowable recoil (variable) ..............................70 in.
Rate of fire:
Normal ......................................................1 rd per 2 min
Maximum ....................................................1 rd per 1 min
Maximum number of rounds fired consecutively
at max rate .................................................
Maximum powder pressure permitted .................
Average accuracy life ....................................

EQUIPMENT
Sighting and fire control:
Installed on self-propelled howitzer M110 prior to issue:
MOUNT, TELESCOPE: direct fire, M188
MOUNT, TELESCOPE: panoramic, M127 (T105E2)
Boxed and stowed on self-propelled howitzer M110 prior to issue:
BINOCULAR: M1TA1
FUZE SETTER: M26 and M27
LIGHT, INSTRUMENT: M22
PERISCOPE, TANK: M17
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: elevation, M15 (T23E2)
QUADRANT, FIRE CONTROL: gunner's, M1A1
REFLECTOR, AIMING POST: clear, M1
REFLECTOR, AIMING POST: red, M2
SCALE, GRAPHICAL FIRING: M71
SCALE, GRAPHICAL FIRING: site, M72
TELESCOPE, ELBOW: direct fire, M116C
TELESCOPE, PANORAMIC: M115 (T146)

Basic Issue Items: See TM 9-2800-216-10

* For characteristics and data, see item in sections 12, 14, 18, and 27.

INSTRUCTIONAL MATERIAL
PROJECTILE, 8-INCH, DUMMY: M14
PROJECTILE, 8-INCH, DUMMY: MK1
CHARGE, PROPELLING, 8-INCH, DUMMY: M4
PRIMER, PERCUSSION INERT: MK2A4

STORAGE AND SHIPMENT DATA
Within Continental United States

Shipped 1 howitzer cannon
Length ..............................................
Width ..............................................
Height .............................................
Volume ...........................................
Area ..............................................
Gross weight ....................................
Ship tons ......................................

Outside Continental United States

Shipped 1 howitzer cannon
Length ..............................................
Width ..............................................
Height .............................................
Volume ...........................................
Area ..............................................
Gross weight ....................................
Ship tons ......................................

Reference: TM 9-2800-216-10
### SECTION 7
LAUNCHERS, ROCKET AND PYROTECHNIC
(CLASS 1055)

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>CART ASSEMBLY, TRANSPORT, 762 MILLIMETER ROCKET: M465</td>
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</tr>
<tr>
<td>CART, ROCKET TRANSPORT, 318 MILLIMETER: M14</td>
<td></td>
</tr>
<tr>
<td>HANDLING UNIT, ROCKET, TRAILER MOUNTED: 762-mm, M405 and M405A1</td>
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<tr>
<td>HANDLING UNIT, ROCKET, TRUCK MOUNTED: 318-mm, M572</td>
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<tr>
<td>HEATING AND TIE DOWN UNIT, 762 MILLIMETER ROCKET, TRUCK MOUNTED: M78 and M78A1</td>
<td></td>
</tr>
<tr>
<td>LAUNCHER, ROCKET: 3.5-inch, M20, M20B1, M20A1, M20A1B1, w/e</td>
<td>7-2</td>
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<tr>
<td>LAUNCHER, ROCKET: multiple, 115-mm, M91 (T145) w/e</td>
<td>7-4</td>
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<tr>
<td>LAUNCHER, ROCKET: 318-mm, M34, w/e</td>
<td>7-5</td>
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<tr>
<td>LAUNCHER, ROCKET: 762-mm, M33, w/e</td>
<td>7-6</td>
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<td>LAUNCHER, ROCKET: 762-mm, truck-mounted, M289, w/e</td>
<td>7-7</td>
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<tr>
<td>LAUNCHER, ROCKET: 762-mm, truck-mounted, M386, w/e</td>
<td>7-9</td>
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</table>
LAUNCHER, ROCKET: 3.5-INCH, M20, M20B1, M20A1, M20A1B1, W/E

**Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
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<tbody>
<tr>
<td>M20</td>
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<td>1055-973-0054</td>
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<tr>
<td>M20A1</td>
<td>4-20800-20</td>
<td>1055-840-1541</td>
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<td>M20A1B1</td>
<td>4-20800-30</td>
<td>1055-840-1842</td>
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<tr>
<td>M20B1</td>
<td>4-20800-40</td>
<td>1055-991-0217</td>
</tr>
</tbody>
</table>

**Data plate location**

The model and serial numbers are stamped at the rear end of the rear barrel of the launcher M20 and are cast on top of the rear barrel of launcher M20B1.

**Classification:** Standard A (OTCM 86841).

**CHARACTERISTICS**

- **Weight of launcher (approx):**
  - M20 or M20A1 (w/o bipod and monopod) ................ 18 lb
  - M20B1 or M20A1B1 (w/o bipod and monopod) ........... 12 lb
- **Length overall:**
  - Assembled for firing .................................. 5 ft, 1 in.
  - Assembled for carrying (approx) ..................... 2 ft, 6 in.
- **Type of firing mechanism** ......................... electrical

**AMMUNITION**

- **Types** ............................................... HEAT, WP, and practice

**PERFORMANCE**

- **Muzzle velocity:**
  - HEAT (M35) ........................................... 485 fps
  - HEAT (M28A2) ......................................... 317 fps
- **Range:**
  - HEAT (M35) ........................................... 1,300 yd
  - HEAT (M28A2) ......................................... 945 yd
- **Rate of fire** ........................................

**EQUIPMENT**

- **Sighting and fire control:**
  - The following, which are part of the launcher, are used for sighting:
    - SIGHT: reflecting, asy (ORD No. 1152947) (M20A1 or M20A1B1).
    - SIGHT: reflecting, asy (ORD No. 1141999) (M20 or M20B1).
- **Basic Issue Items:** See ORD 7 SNL B-42.

**INSTRUCTIONAL MATERIAL**

**GRAPHIC TRAINING AID AND DEVICES:** See DA Pam 310-5.

*For characteristics and data, see item in section 14.
STORAGE AND SHIPMENT DATA

Within and Outside Contiguous United States

Shipped 4 launchers per wood box (VCI pack).

Length: 3 ft. 5 in.

Width:
- M20 or M20B1: 2 ft. 8½ in.
- M20A1 or M20A1B1: 2 ft. 9½ in.

Height: 1 ft. 4 in.

Volume:
- M20 or M20B1: 11.0 cu ft
- M20A1 or M20A1B1: 11.5 cu ft

Gross weight:
- M20 or M20B1: 135 lb
- M20A1 or M20A1B1: 150 lb

Ship tons: 0.28

LAUNCHER, ROCKET: MULTIPLE, 115-MM, M91 (T145), W/E

General
LAUNCHER, ROCKET: multiple, 115-MM, M91, is a 46-tube, cluster type launcher designed to launch the 115-MM chemical rocket, M45. The rockets are packaged, shipped, stored and fired from the shipping and firing containers which are muzzle loaded into the launcher cluster openings and are fired electrically in a nonadjustable, preset sequence, that will allow only one rocket to be fired at a time. The launcher is primarily used for area coverage where dispersion of chemical agent is desirable. The primary source of firing voltage is supplied from a fully charged 24 volt, truck mounted battery. The emergency, or secondary, electrical power is supplied from a thermal cell battery located in the remote firing box assembly. The launcher may be transported by helicopter and fired from the ground, or transported by and fired from a ½ ton, M85 cargo truck. The M91 can be manhandled on its wheels for short distances but is not designed to be towed.

Differences among models

Data plate location
The launcher nameplate is attached to the left side of the cluster.

Classification: Standard A (for USMC use) (OTCM 37435).

CHARACTERISTICS

Weight:
- Launcher w/rockets: 4,213 lb
- Launcher w/o rockets: 1,200 lb
- Length: 12 ft, 8 in.
- Height: 5 ft, 7 in.
- Width: 9 ft, 9 in.
- Turning radius (hand): 360 deg
- Steering depth, w/kit for vehicle: 72 in.
- Tire pressure: 25 psi

Elevation:
- Maximum: 1,085.66 mils
- Minimum: 14.22 mils

 Traverse, R or L: 177.77 mils

AMMUNITION

Type (rocket—M45 (T108))
- Chemical
- Dummy
- Training

PERFORMANCE

Range (max): 15,000 yd

EQUIPMENT

Sighting and fire control:
- HOLDER, TELESCOPE MOUNT: XM7
- POST, AIMING: MIA2
- QUADRANT, FIRE-CONTROL: MIA1, w/case, carrying M42
- SIGHTUNIT: M84AC (early production launchers)
- SIGHTUNIT: M6 (XM83E2) (later production launchers)
- TABLE, FIRING, ROCKET: FTR-115-C-1

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 launcher disassembled, w/e per wood shipping container.
- Length: 9 ft, 1 in.
- Width: 6 ft, 4 in.
- Height: 9 ft, 1 in.
- Gross weight: 2,656 lb
- Ship tons: 7.62

Outside Continental United States
Shipped 1 launcher disassembled, w/e per wood shipping container.
- Length: 9 ft, 1 in.
- Width: 6 ft, 4 in.
- Height: 9 ft, 1 in.
- Gross weight: 3,063 lb
- Ship tons: 7.62

LAUNCHER, ROCKET: 318-MM, XM34, W/E

General
LAUNCHER, ROCKET: 318-mm, XM34, w/e, is a mobile, field artillery type launcher which provides a base for launching large caliber, free-flight, fin-stabilized, surface-to-surface rockets. It is a helicopter-transportable launcher, designed to be airlifted in phase 1 (parachute and assault landing) airborne operations, towed by standard military vehicles with full ground mobility, or moved by hand for short distances. The launcher is composed principally of a launching beam rail assembly, top carriage assembly, elevating mechanism assembly, and bottom carriage assembly. Jack assemblies enable emplacement on a 5° slope and final cant correction of the launching beam. Traverse of the launching beam to the right or left is provided by means of a pinion and rack-type traverse mechanism. The launching beam is elevated by a double extension ball screw mechanism and traversed by a rack and pinion drive system. The beam is cross-leveled by the two jack assemblies which connect the front floats to the bottom carriages.

Differences among models

Data plate location
The identification plate for the launcher XM34 is located below the trunnion on the rear-left side of the launcher.

Classification: Limited production (OTCM 37244).

CHARACTERISTICS

Weight:
- Launcher, w/rocket, w/too kit: 2,333 lb
- Launcher, w/o rocket, w/o tool kit: 1,817 lb

Length: 18 ft, 2 in.

Height:
- Launcher, w/rocket (to top of fins): 6 ft, 6½ in.
- Launcher, w/o rocket: 4 ft, 1½ in.

Width: 6 ft, 2 in.

Road clearance: 11 in.

Turning radius:
- W/3½-ton: 21 ft, 2 in.
- W/1½-ton: 17 ft, 6 in.

Feeding depth, w/o fording kit: 12 ft, 6 in.

Tire pressure: 20 psi

Elevation:
- Maximum (on level ground): 65° (977.79 miles)
- Minimum (on level ground): 0° (0 miles)
- Traverse, R or L: 16° (566.67 miles)

AMMUNITION

Type (rocket XM61): flash smoke

NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE

Velocity:

Ranges:

Rate of fire:

EQUIPMENT

Sighting and fire control:
- HOLDER, TELESCOPE MOUNT: XM7
- POST, AIMING: M1A2
- QUADRANT, FIRE CONTROL: M1A1, gunner's, w/CASE
- SIGHTUNIT: M84A2C, w/CASE

Basic issue items: See TM 9-1055-212-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

| Shipped | Length | 18 ft, 1 in.
| Width | 6 ft, 2 in.
| Height | 6 ft, 6½ in.
| Volume | 502 cu ft
| Gross weight | 1,850 lb
| Ship ton | 9.08

Outside Continental United States

| Shipped | Length | 18 ft, 1 in.
| Width | 6 ft, 2 in.
| Height | 6 ft, 6½ in.
| Volume | 502 cu ft
| Gross weight | 2,333 lb
| Ship ton | 19


* For characteristics and data, see Item in sections 14 and 18.
LAUNCHER, ROCKET: 762-MM, M33, W/E

Major item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M33</td>
<td>4-9051-01</td>
<td>1005-407-0836</td>
</tr>
</tbody>
</table>

General

LAUNCHER, ROCKET: 762-mm, M33, w/e, is a helicopter-transportable field artillery weapon which provides a basis for launching surface-to-surface, large caliber, free-flight, fin-stabilized rockets against terrestrial targets. It consists principally of a launching beam assembly, top carriage assembly, bottom carriage assembly, and elevating and traversing mechanisms. Elevation is accomplished by screw-type mechanisms which can be operated manually or electrically with an elevating tool assembly. Traversing is accomplished by a rack and sprocket shaft which is manually operated. Cross-leveling and stabilizing are accomplished manually by four screw-type leveling jack assemblies. The launcher is primarily a helicopter-transportable weapon; however, it may be airdropped from a cargo plane, carried in an assault aircraft, towed by a motor vehicle, or towed manually for short distances.

Differences among models

Data plate location

The identification plate for the launcher M33 is located on the left-rear side of the top carriage assembly.

Classification: Standard A (OTCM 87711 and 87479).

CHARACTERISTICS

Weight:

- Launcher w/rocket: 10,328 lb
- Launcher w/o rocket: 4,375 lb

Length:

- Launcher w/rocket: 32 ft
- Launcher w/o rocket: 28 ft, 10 in.

Height:

- Launcher w/rocket: 10 ft
- Launcher w/o rocket, w/o fins: 7 ft, 7 in.
- Launcher w/o rocket: 6 ft, 11 in.

Road clearance: 9 in.

Departure angle: 22°

Turning radius: 58 ft, 7 in.

Tire pressure: 55 psi

Elevation:

- Maximum: 62° (1,102 mils)
- Minimum: -1° (16 mils)

 Traverse, R or L: 10° (177.78 mils)

AMMUNITION

Type (Rocket—M31-series and XM50): HE and practice

NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE

Velocity: (classified)

Range: (classified)

Rate of fire: (classified)

EQUIPMENT

Sighting and fire control:

- POST, AIMING: MIA2
- SIGHTUNIT: XM45 (modified)
- TABLE, FIRING: FTR 762-C-I, FTR 762-D-I, FTR 762-C-1WC, FTR 762-D-1WC.

Basic Issue Items: See TM 9-1055-204-12.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped

<table>
<thead>
<tr>
<th></th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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Outside Continental United States

Shipped

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<th></th>
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<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


* For characteristics and data, see item in section 18.
LAUNCHER, ROCKET: 762-MM, TRUCK-MOUNTED, M289, W/E

General
LAUNCHER, ROCKET: 762-mm, truck-mounted, M289, w/e, is a mobile, heavy field artillery type launcher which provides a base for launching surface-to-surface, large caliber, free-flight, fin-stabilized rockets against terrestrial targets. The launcher M289 is composed of the 762-mm rocket launcher (ORD No. 8417300) and the 5-ton, 6 x 6 truck chassis M139D (ORD No. 8418451). The launcher M289 consists of a 5-ton 6 x 6 chassis (M139D) which is equipped with five screw-type leveling jack assemblies, a launching beam assembly, elevating mechanism group, traversing mechanism group, and the electrical system. The jack assemblies are used to level the launcher on any lengthwise slope of 15° or less. The launcher is also cross-leveled 100 percent with the leveling jack assemblies and leveling vials mounted on the launcher. The launcher is equipped for power and manual elevating but provides for manual traversing only.

Differences among models
Data plate location
The 5-ton 6 x 6 truck chassis M139C identification plate is mounted on the instrument panel to the right of the instrument cluster. When the 762-mm rocket launcher ORD No. 8417300 is mounted on the chassis M139C, this chassis is modified and becomes an M139D chassis. The weight and dimensional data on this identification plate is not applicable when the launcher has been mounted on the truck chassis in which case the weight and dimensional data contained in the tabulated data portion of TM 9-1066-202-10 will apply. The gasoline-engine generator set M16 identification plate is mounted on the right side of the top carriage assembly. The rocket launcher M289 identification plate is mounted on the right side of the top carriage assembly.

Classification: Standard B (OTCM 37119).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M289</td>
<td>4-20660-10</td>
<td>1065-034-8069</td>
</tr>
</tbody>
</table>

Weight:
Launcher w/rocket ........................................ 47,600 lb
Launcher w/o rocket ........................................ 41,400 lb

Length:
Launcher w/rocket ........................................ 46 ft, 1 in.
Launcher w/o rocket ........................................ 42 ft, 4 in.

Height:
Launcher w/rocket ........................................ 12 ft, 7 in.
Launcher w/o rocket ........................................ 12 ft, 6 in.

Width

Road clearance ........................................ 10 ft
Turning radius .......................................... 84 ft

Fording depth (max):
w/foring kit ........................................ 6 ft, 6 in.
W/o foring kit ........................................ 2 ft, 6 in.

Tire pressure:
Front tires ........................................ 60 psi
Rear tires ........................................ 46 psi

Elevation:
Maximum ........................................ 60° (1,066.66 mls)
Minimum ........................................ 5° (88.85 mls)

Traverse, R or L ........................... 15° (266.66 mls)

AMMUNITION
Types (rocket—M31-series and XM60) .............. HE and practice
NUCLEAR ORDNANCE: See section 10 (when data is available).

PERFORMANCE
Range (at 45° elevation) ...................... (classified)
Rate of fire ................................ ...... (classified)

EQUIPMENT
Sighting and fire control:
MOUNT, QUADRANT: M1
MOUNT, TELESCOPE: M9
POST, AIMING: M1A2
QUADRANT, FIRE CONTROL: M1A1, w/CASE
TABLE, FIRING: 762-B-2
TELESCOPE, PANORAMIC: M12A7
TRIPOD, SURVEYING: FSN 6676-240-1881 (To be issued w/AIMING POST M1 series ONLY when issued for arctic use.) (Issued by Corps of Engineers.)

Basic issue Items: See TM 9-1055-203-10 and C1.

* For characteristics and data, see item in sections 14, 18, and 28.
INSTRUCTIONAL MATERIAL

GRAPHIC TRAINING AID: See DA Pam 310–5.

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncrated w/beam</td>
<td>42 ft, 4 in.</td>
<td></td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>39 ft, 3 1/2 in.</td>
<td></td>
</tr>
<tr>
<td>Beam on two skid bases</td>
<td>42 ft, 4 in.</td>
<td></td>
</tr>
<tr>
<td>Width:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncrated (w/ or w/o beam)</td>
<td>10 ft</td>
<td></td>
</tr>
<tr>
<td>Beam on two skid bases</td>
<td>4 ft, 11 in.</td>
<td></td>
</tr>
<tr>
<td>Height:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncrated w/beam</td>
<td>11 ft, 10 in.</td>
<td></td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>8 ft, 10 in.</td>
<td></td>
</tr>
<tr>
<td>Beam on two skid bases</td>
<td>2 ft, 7 1/2 in.</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Gross weight:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncrated w/beam</td>
<td>41,800 lb</td>
<td></td>
</tr>
<tr>
<td>Uncrated w/o beam</td>
<td>36,100 lb</td>
<td></td>
</tr>
<tr>
<td>Beam in crate</td>
<td>9,660 lb</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outside Continental United States</th>
<th>Length</th>
<th>42 ft, 4 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>16 ft</td>
</tr>
<tr>
<td></td>
<td>Height:</td>
<td>12 ft, 6 1/2 in.</td>
</tr>
<tr>
<td></td>
<td>w/o beam</td>
<td>10 ft, 2 in.</td>
</tr>
<tr>
<td></td>
<td>Volume</td>
<td>5,291.26 cu ft</td>
</tr>
<tr>
<td>Gross weight:</td>
<td>w/beam</td>
<td>42,400 lb</td>
</tr>
<tr>
<td></td>
<td>w/o beam</td>
<td>36,700 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>107.28</td>
<td></td>
</tr>
</tbody>
</table>

LAUNCHER, ROCKET: 762-MM, TRUCK-MOUNTED, M386, W/E

**General**

The LAUNCHER, ROCKET: 762-mm, truck-mounted, M386, w/e, is a mobile, heavy field artillery type launcher which provides a base for launching surface-to-surface, large caliber, free-flight, fin-stabilized rockets. It is composed of the 762-mm rocket launcher (ORD No. 8417300) and the 6-ton 6 x 6, M139 (modified) chassis.

The launcher M386 consists of the chassis which is equipped with a gasoline generator set M26, launching beam assembly, elevating mechanism assembly, traversing mechanism group, equilibrator assemblies, and the electrical system. Three screw-type jacks are used to provide stability when elevating or firing the launcher.

Elevation of the launcher is either done manually or by power. Traversing is accomplished by a rack and pinion which is operated manually.

**Differences among models**

Data plate location:

The identification plate for the rocket launcher M386 is fastened to the top carriage near the center of the left side. The gasoline engine-generator set M26 data plate is riveted to the front side of the generator control box.

Classification: Standard A (OTCM 3654).

**Characteristics**

<table>
<thead>
<tr>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M386</td>
<td>1665-601-6900</td>
</tr>
</tbody>
</table>

**Weight:**

- Launcher w/rocket: 40,103 lb
- Launcher w/o rocket: 34,260 lb

**Length:**

- Launcher w/rocket: 36 ft, 8 in.
- Launcher w/o rocket: 32 ft, 5 in.

**Height:**

- Launcher w/rocket, fins installed: 12 ft, 8 in.
- Launcher, w/o rocket, w/o fins: 11 ft, 8 in.
- Launcher, w/o rocket: 9 ft, 8 in.

**Width:**

- 9 ft, 8 in.

**Road clearance:**

- 1 ft, 2 in.

**Turning radius:**

- 17 ft, 6 in.

**Fording depth (max):**

- w/fording kit: 5 ft
- w/o fording kit: 2 ft, 5 in.

**Tire pressure:**

- Front tires: 60 lb
- Rear tires: 60 lb

**Elevation:**

- Maximum: 70° (1,244.44 mile)
- Minimum: 0° (0 mile)
- Traverse, R or L: 15° (266.67 mile)

**Ammunition**

Type (rocket—M31-series and XM60) — HE and practice

Nuclear ordnance: See section 10 (when data is available).

**Performance**

- Velocity: (classified)
- Range: (classified)
- Rate of fire: (classified)

**Equipment**

- Sighting and fire control:
  - MOUNT, QUADRANT: M1
  - MOUNT, TELESCOPE: M30
  - POST, AIMING: M2A2
  - QUADRANT, FIRE CONTROL: M1A1, w/case
  - TELESCOPE, PANORAMIC: M12A7C
  - TABLE, FIRING: FT-R762-1-1 and FT-R762-1-1

**Basic issue items:** See TM 9-1066-206-10 and Cl.

**Instructional material**

- Graphic training aid: See DA Pam 310-3.

**Storage and shipment data**

**Within Continental United States**

- Shipped length: 32 ft, 6 in.
- Width: 9 ft, 6 in.
- Height: 8 ft, 9 in.
- Volume: 2,694 cu ft
- Gross weight: 34,682 lb
- Ship tons: 67.35

**Outside Continental United States**

- Shipped length: 32 ft, 5 in.
- Width: 9 ft, 6 in.
- Height: 8 ft, 9 in.
- Volume: 2,694 cu ft
- Gross weight: 34,682 lb
- Ship tons: 67.35

**References:**

- TM 9-1066-206-10
- TM 9-1066-206-20
- TM 9-1066-206-20P
- TM 9-1066-206-36
- TM 9-1066-206-36P

* For characteristics and data, see item in sections 14 and 18.
SECTION 8
ASSEMBLIES INTERCHANGEABLE BETWEEN WEAPONS
IN TWO OR MORE CLASSES
(CLASS 1090)
(Includes tripod mount)
MOUNT, TRIPOD, WEAPON: M74

General
MOUNT, TRIPOD, WEAPON: M74, is a lightweight portable folding mount made of aluminum. It is used primarily for ground fire. This mount has as a central member a socket with three projecting lugs. Attached to these lugs are three legs which may be clamped independently in various positions. It is equipped with a spring-type recoil mechanism and a screw-type elevating and traversing mechanism. This mount was designed to replace MOUNT, TRIPOD, MACHINE GUN: caliber .30, M1917A1 for mounting MACHINE GUN, CALIBER .30; Browning, M1917A1, M1919A4, flexible, M1919A4E1, and M1919A5. It also mounts the 17-mm and 75-mm rifles for antitank ground fire.

Differences among models

Data plate location
The identification plate containing the name, model designation, manufacturer, and serial number is located on the left-hand side of the cradle and pintle group.

Classification: Standard B (OTCM 38841).

CHARACTERISTICS

Weight (approx) 29½ lb
Height (legs locked in “O” position) 21 in.
Spread between rear legs (legs locked in “O” position) 33 in.
Distance front leg to midpoint between rear legs 39½ in.
Traverse 360°

EQUIPMENT
Sighting and Fire Control
Basic Issue Items: See ORD 7 SNL A-4.

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 mount per wood box.
Length 2 ft, 10 in.
Width 1 ft, 9 in.
Height 1 ft, 2 in.
Volume 8.5 cu ft
Gross weight 75 lb
Ship tons 0.18

Outside Continental United States

Shipped mount per
Length
Width
Height
Volume
Gross weight
Ship tons

ARMAMENT SUBSYSTEM, HELICOPTER, 7.62-MILLIMETER MACHINEGUN, 2.75-INCH ROCKET LAUNCHER: XM16 (MACHINEGUN, 7.62-MILLIMETER: M60CA1; MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM (7792569); LAUNCHER, ROCKET: XM157 OR XM158; MOUNT, ROCKET LAUNCHER, 2.75-INCH, HELICOPTER ARMAMENT SUBSYSTEM (11700100))

The subsystem is composed of four MACHINEGUNS, 7.62-MM: M60CA1; one MOUNT, MACHINEGUN, 7.62-MM, HELICOPTER ARMAMENT SUBSYSTEM; two LAUNCHER, ROCKETS: airborne, 2.75-inch FFAR, XM157 or XM158*; and one MOUNT, ROCKET LAUNCHER, 2.75-inch HELICOPTER ARMAMENT SUBSYSTEM*. The machinegun portion of the subsystem (four machineguns and mount) is substantially the same as the M6 armament subsystem. The rocket launcher mount is composed of left-hand and right-hand rack and support assemblies, which carry the rocket launchers; a rocket inter­valometer, mounted in the instrument console in the helicopter cabin, one Infinity reflex sight XM60 and one sight roof mount, fixed to the helicopter cabin roof above the pilot’s windshield. When the subsystem is energized, the rocket launcher portion provides the pilot with the capability of firing seven pairs of rockets in addition to the suppressive fire capability of the machinegun portion of the subsystem. As in the M6 armament subsystem, the copilot uses a sighting station to control and direct machinegun fire. When the copilot has released the sighting station switches, machinegun mounts return to the stow position of zero azimuth and zero elevation. The machineguns may then be fired from the appropriate switch on either cyclic stick, with the helicopter being maneuvered to aim the guns. When rocket fire is desired, the pilot selects the number of rocket pairs to be fired, slikes the target through the infinity reflex sight, and maneuver the helicopter to aim the rockets. Rockets are fired from a switch on the cyclic stick. Machinegun and rocket firing circuits are interconnected so that while the rocket firing switch is depressed, machinegun firing circuits are interrupted.

Differences among models:
- LAUNCHER, ROCKET: airborne, 2.75-inch FFAR. XM157 is a seven-tube nonrepairable launcher with a fixed hook-type firing contact imbedded at the rear of each tube. Launcher XM157 has a smooth cylindrical outer tube cover and is loaded from the front.
- LAUNCHER, ROCKET, AIRCRAFT: 2.75-inch, XM158 is a seven-tube repairable launcher with a swing-away firing contact secured to the outer surface of each tube. There is no overall tube cover; tubes are painted for protection and are bound together at the suspension lugs by front and rear sets of straps. The launcher is loaded from the rear.

Data plate locations:
- Data plates are attached to the back of each mount assembly, to the left-front side of the rocket launcher XM157, to the front hard point of the rocket launcher XM158, to the sighting station just under the sunshade, to the body of the control box panel, to the sight XM60; and to the sight mount.

Classification

Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (w/machineguns and rocket launchers, w/o ammunition)</td>
<td>(approx) 588 lb</td>
</tr>
<tr>
<td>Launcher elevation limit</td>
<td>+88.9 mils</td>
</tr>
<tr>
<td>Launcher depression limit</td>
<td>-88.9 mils</td>
</tr>
</tbody>
</table>

*Characteristics and data will be added at a later date.
AMMUNITION

7.62-mm -------------------------------- capacity 6,000 rds
Types -------------------------------- ball, AP, tracer, dummy
2.75-inch rockets ----------------------- capacity 14 rockets
Types -------------------------------- HE, practice, inert

PERFORMANCE

Rate of fire (machineguns) 2,200 rds per min
Rate of fire (rockets) six pairs per second

EQUIPMENT

Basic Issue Items: See TM 9-1090-201-12.

INSTRUCTIONAL MATERIAL

References: TM 9-1090-201-12, TM 9-1090-201-35, TM 9-1090-
201-ESC, TM 35-1820-211-10.

STORAGE AND SHIPMENT DATA

References: TM 9-1090-201-12, TM 9-1090-201-35, TM 9-1090-
201-ESC, TM 35-1820-211-10.
SECTION 9
MISCELLANEOUS WEAPONS AND EQUIPMENT
(CLASS 1095)
(Includes pyrotechnic pistol, hand pyrotechnic and ground signal projectors, and bayonet and bayonet-knife scabbards.)

<table>
<thead>
<tr>
<th>Item</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PISTOL, PYROTECHNIC: AN-M8, W/MOUNT: pyrotechnic pistol, M1</td>
<td>9-2</td>
</tr>
<tr>
<td>PROJECTOR, PYROTECHNIC, HAND: M9</td>
<td>9-3</td>
</tr>
<tr>
<td>PROJECTOR, SIGNAL, GROUND: M1A1</td>
<td>9-4</td>
</tr>
<tr>
<td>SCABBARD, BAYONET: M1917</td>
<td>9-5</td>
</tr>
<tr>
<td>SCABBARD, BAYONET-KNIFE: M8 and M8A1</td>
<td>9-6</td>
</tr>
<tr>
<td>SIMULATOR, MACHINEGUN FIRE, CAL .30 (ORD No. 8429609) and SIMULATOR, RIFLE FIRE: CAL .30 (ORD No. 8429807)</td>
<td>9-7</td>
</tr>
</tbody>
</table>
**PISTOL, PYROTECHNIC: AN-M8, W/MOUNT: PYROTECHNIC PISTOL, M1**

**General**

PISTOL, PYROTECHNIC: AN-M8, is a double-action, single-loading pistol used for projecting flares or signaling between troops, from ground troops to aircraft, from aircraft to aircraft, or from aircraft to ground troops. MOUNT: pyrotechnic pistol, M1, is used only when signaling from aircraft and is attached to the fuselage. The pistol is retained in the mount by lugs on the muzzle end of the barrel. Flares or signals may be loaded into the pistol from either the muzzle or breech end.

**Differences among models**

Data plate location
- Data are located on right-hand side plate of pistol.

Classification: Standard A (OTCM 38841).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Major Item</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN-M8</td>
<td>4-29300-00</td>
<td>1095-726-5820</td>
</tr>
<tr>
<td>AN-M8 with mount M1</td>
<td>4-29310-00</td>
<td>1095-726-5657</td>
</tr>
</tbody>
</table>

**AMMUNITION**

Types
- FLARE, AIRCRAFT: parachute, M9A1; SIMULATOR, PROJECTILE, AIRBURST: M74 and M9A1: SIGNAL, ILLUMINATION, AIRCRAFT: double star (green-green, green-yellow, red-green, red-red, red-yellow, yellow-yellow), single star (green, red, yellow),
- Green tracer (green-red star, red-red star), red tracer (green-green star, green-red star, red-red star), yellow tracer (red-yellow star), night drift.

**PERFORMANCE**

Maximum range:
- FLARE, AIRCRAFT: M9A1 ... 80 ft (projected from airplane in flight)
- SIMULATOR, PROJECTILE, AIRBURST: M74 (45° elevation) ... 100 ft (height of burst above ground)
- SIGNAL, ILLUMINATION, AIRCRAFT (all models) ... (approx) 250 ft altitude

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

Shipped 25 pistols and mounts per wood box (VCI pack).
- Length ... 3 ft, 9 in.
- Width ... 1 ft, 11 in.
- Height ... 1 ft, 5 in.
- Volume ... 148 cu ft
- Cross weight ... 148 lb
- Ship tons ... 0.09

Shipped 10 pistols and mounts per wood box (VCI pack).
- Length ... 2 ft, 3 in.
- Width ... 1 ft, 8 in.
- Height ... 1 ft, 11 in.
- Volume ... 3.6 cu ft
- Cross weight ... 60 lb
- Ship tons ... 0.09

PROJECTOR, PYROTECHNIC, HAND: M9

General

PROJECTOR, PYROTECHNIC, HAND: M9, is a manually-operated, muzzle-loading projector used for projecting flares or signals for signaling between ground troops or from ground troops to aircraft. This projector has no trigger and is fired by striking the rounded base of the hand knob against the hand or the ground.

Differences among models

Data plate location

The name and model number of the projector are stamped in the breech plate.

Classification: Limited standard (OTCM 37119).

CHARACTERISTICS

Weight .................................................. 1 lb
Length overall .......................................... 8 in.
Length of barrel ........................................ 6 in.
Diameter of bore ....................................... 1½ in.
Operation ............................................. manual
Cooling .................................................. air

AMMUNITION

Types SIGNAL, ILLUMINATION, AIRCRAFT: double star (green-green, green-yellow, red-green, red-red, red-yellow, yellow-yellow), single star (green, red, yellow), green tracer (green-red star, red-red star), red tracer (green-green star, green-red star, red-red star), yellow tracer (red-yellow star), night drift.

PERFORMANCE

Maximum range:

SIGNAL, ILLUMINATION, AIRCRAFT
(all models) ........................................... (approx) 250 ft altitude

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 80 projectors per wood box (VCI pack).

Length .................................................. 3 ft, 2 in.
Width .................................................... 1 ft, 6½ in.
Height .................................................... 1 ft, 3 in.
Volume .................................................. 8.8 cu ft
Gross weight .......................................... 146 lb
Ship tons ............................................. 0.15

Outside Continental United States

Shipped 40 projectors per wood box (VCI pack).

Length .................................................. 1 ft, 8½ in.
Width .................................................... 1 ft, 6½ in.
Height .................................................... 1 ft, 3 in.
Volume .................................................. 3.2 cu ft
Gross weight .......................................... 76 lb
Ship tons ............................................. 0.08

PROJECTOR, SIGNAL, GROUND: M1A1

General

PROJECTOR, SIGNAL, GROUND: M1A1, is a manually-operated, muzzle-loading projector which is used for projecting high-burst ranging signals from the ground and field artillery training.

Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1A1</td>
<td>4-01210-10</td>
<td>1095-721-2570</td>
</tr>
</tbody>
</table>

Weight (w/body assy) .............. 12 lb, 11 oz
Length:  
Overall ................ 4 ft, 9 1/2 in.
(w/o body assy & spike) .......... 1 ft, 9 1/2 in.
(w/body assy w/o spike) .......... 4 ft, 1 in.
Barrel ................................ 1 1/2 in.
Diameter of bore ................ 1.436 in.
Control .......................... lanyard
Operation ....................... manual
Cooling ........................... permanent

Ammunition

Type ................................. SIMULATOR, PROJECTILE AIRBURST: M27

Performance

Maximum range (approx) .................. 650 ft altitude

Equipment

Basic Issue Items

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped 6 projectors per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft, 6 1/2 in.</td>
<td>1 ft, 6 1/4 in.</td>
<td>1 ft, 7 in.</td>
<td>6.9 cu ft</td>
<td>140 lb</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 2 projectors per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft, 6 1/2 in.</td>
<td>1 ft, 6 1/4 in.</td>
<td>7 in.</td>
<td>2.8 cu ft</td>
<td>65 lb</td>
<td>0.07</td>
</tr>
</tbody>
</table>

SCABBARD, BAYONET: M1917

General
SCABBARD, BAYONET: M1917, is used to facilitate the carrying of BAYONET: M1917, when not in use. It is made of olive-drab plastic with steel trimming and is designed for a 17-inch long blade.

Differences among models

Data plate location

Classification: Limited standard (OTCM 67119).

CHARACTERISTICS

Weight: approx 18.5 lb.
Length overall: approx 18.5 in.
Width: 1.5 in.

EQUIPMENT

Basic Issue Items

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPLMENT DATA

Within Continental United States

Shipped 200 scabbards per wood box.
Length: 3 ft, 8 1/2 in.
Width: 1 ft, 8 1/2 in.
Height: 1 ft, 8 1/2 in.
Volume: 9.6 cu ft
Gross weight: 148 lb
Ship tons: 0.24

Outside Continental United States

Shipped 50 scabbards per wood box.
Length: 1 ft, 10 1/2 in.
Width: 1 ft, 1 1/2 in.
Height: 1 ft, 3 1/4 in.
Volume: 2.8 cu ft
Gross weight: 60 lb
Ship tons: 0.07

References: SNL B-8, TM 9-2205.

* For characteristics and data, see item in section 2.
SCABBARD, BAYONET-KNIFE: M8 AND M8A1

General

SCABBARD, BAYONET-KNIFE: M8 and M8A1 are used to facilitate the carrying of BAYONET-KNIFE: M4, M5, M5A1, and M6. They have a strap which is snapped around the grip of the knife. They are also provided with a leather thong by means of which the point of the scabbard may be tied to the leg of the wearer when the scabbard is worn on the belt. The scabbards are made of olive-drab webbing and plastic with metal trimming and are designed for a 6%-inch blade.

Differences among models

The scabbard M8 has a belt strap without a double hook. The scabbard M8A1 has a belt strap assembly which contains a double hook for fastening it to a cartridge belt.

Data plate location

The model number of the scabbard is stamped on the outer ferrule.

Classification: Standard B (OTCM 36841).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8</td>
<td>1098-726-5769</td>
<td></td>
</tr>
<tr>
<td>M8A1</td>
<td>1098-688-0388</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
<th>Length overall:</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8</td>
<td>approx 13½ in.</td>
</tr>
<tr>
<td>M8A1</td>
<td>approx 14½ in.</td>
</tr>
</tbody>
</table>

Basic Issue Items

INSTRUCTIONAL MATERIAL

For Graphic Training Aids and Devices, see DA Pam 319-6.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 200 bayonet-knives per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft. 1½ in.</td>
<td>1 ft. 5¾ in.</td>
<td>1 ft. 4 in.</td>
<td>8.2 cu ft</td>
<td>145 lb</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 100 bayonet-knives per wood box (VCI pack).

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft. 2½ in.</td>
<td>1 ft. 5¾ in.</td>
<td>1 ft. 4 in.</td>
<td>4.4 cu ft</td>
<td>70 lb</td>
<td>0.11</td>
</tr>
</tbody>
</table>

References: SNL B-8, TM 9-2985.

* For characteristics and data, see item in section 2.
SIMULATOR, MACHINEGUN FIRE: CAL .30 (ORD NO. 8429609) AND
SIMULATOR, RIFLE FIRE: CAL .30 (ORD NO. 8429307)

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORD No. 8429609</td>
<td></td>
<td>1065-022-9990</td>
</tr>
<tr>
<td>ORD No. 8429307</td>
<td></td>
<td>1065-665-0497</td>
</tr>
</tbody>
</table>

General

SIMULATOR, MACHINEGUN FIRE: cal .30 (ORD No. 8429609) and SIMULATOR, RIFLE FIRE: cal .30 (ORD No. 8429307), are weapons which fire 18 rounds of caliber .30 ammunition to simulate machinegun or rifle fire. The rounds are fired sporadically in both timing and direction. The two simulators are similar in operation with the machinegun fire simulator firing bursts of three or four shots and the rifle fire simulator firing single shots. The timer may be set to start firing up to 1 hour in 5-minute increments. The simulators are electrically operated, battery-powered units designed to be dropped from a plane. Four or five minutes after the last shot is fired, they destroy themselves.

Differences among models

The machinegun fire simulator has a timer that is set to fire three or four shots at a time while the timer in the rifle fire simulator is set to fire single shots only.

Data plate location:

Classification: Limited production (OTCM)

CHARACTERISTICS

| Diameter | 4⅛ in. |
| Length   | 12 in.  |
| Weight   | 17 lb   |
| Type of operation | electrical |
| Power    | Batteries (DRY) |
| Firing circuit | 4⅛ volt |

Time-Delay ................. up to 60 min (in 5 min increments)
Direction of timer sweep arm ................. clockwise
Parachute (paper carton or canvas bag) ................. 6 ft dia.

AMMUNITION

Cal .30, M2 ball (only)

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped per
Length ...........................................
Width ...........................................
Height ...........................................
Volume ...........................................
Gross weight ....................................
Ship tons ........................................

Outside Continental United States

Shipped per
Length ...........................................
Width ...........................................
Height ...........................................
Volume ...........................................
Gross weight ....................................
Ship tons ........................................

References: TM 9-1095-202-10
## SECTION 10

**NUCLEAR ORDNANCE**

*(CLASS 1100)*

*(Includes atomic training warhead sections)*

<table>
<thead>
<tr>
<th>Warhead Section, Atomic, Training</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>M40</td>
<td>10-2</td>
</tr>
<tr>
<td>XM52</td>
<td>10-3</td>
</tr>
<tr>
<td>M72</td>
<td>10-4</td>
</tr>
<tr>
<td>M74</td>
<td>10-5</td>
</tr>
<tr>
<td>XM99</td>
<td>10-6</td>
</tr>
</tbody>
</table>
WARHEAD SECTION, ATOMIC, TRAINING: M40

WARHEAD SECTION, ATOMIC, TRAINING: M40 consists of the atomic warhead to guided missile training adaptation kit case M108, which carries at its forward end a dummy static tube, and houses the training radar fuze, burst switch control dial, sequential timer, ballistic center, terminal board, rotary switch, training baro-switch, training interconnecting box, dummy battery power supply, resistors, capacitor, relays, electrical connectors and receptacles, cable assemblies, pneumatic tank and valve, and other components simulating the internal parts of the operational warhead section. The M40 trainer has the same external configuration as the operational warhead section. It is a Not-To-Be-Fired Item containing inert components. These components provide an effective method of instructing operator and maintenance personnel without the necessity of using operational items, in proficiency atomic training of the LA CROSSE rocket firing batteries, in all operations pertaining to the war reserve warhead section equipment they will later use. No explosive hazard exists with the M40 trainer, but proper procedures should be observed in training; however, so that when a live unit is handled, safety will be a normal routine.

General

DIFFERENCES AMONG MODELS

Data plate location

Classfication

CHARACTERISTICS

CLASSIFIED

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped per shipping container

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped per shipping container

Length

Width

Height

Volume

Gross weight

Ship tons

References: TM 9-1100-400-35P
WARHEAD SECTION, ATOMIC, TRAINING: XM52

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XM52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General**

WARHEAD SECTION, ATOMIC, TRAINING: XM52 consists of the atomic warhead to rocket training adaptation kit case XM88, which houses the atomic training warhead, timer, simulator and components designed to simulate the internal parts of an operational warhead section and give the same indications during electrical test as would be received from the operational adaptation kit. These components provide an effective method of instructing operator and maintenance personnel without the necessity of using operational items in proficiency atomic training of the LITTLE JOHN rocket firing batteries, in all operations pertaining to the war reserve warhead section equipment they will later use. A jumper in the warhead connector provides the same test indications as a warhead in an operational warhead section. The XM52 trainer has the same external configuration as the operational warhead section. No explosive hazard exists with the XM52 warhead section. Proper procedures should be observed in training, however, so that when a live unit is handled, safety will be a normal routine.

**Differences among models**

**Data plate location**

The identification data are stenciled with white stencil ink, and "TRAINING ONLY" with red stencil ink on the outside surface of the trainer case structure.

**Classification**

CLASSIFIED

**CHARACTERISTICS**

**PERFORMANCE**

**EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Shipped</th>
<th>per shipping container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

WARHEAD SECTION, ATOMIC, TRAINING: M72

General
WARHEAD SECTION, ATOMIC, TRAINING: M72 consists of the atomic warhead to rocket training adaptation kit case, which houses the atomic training warhead, the selector, ballistic, digital read-out, and pressure checkout assemblies, adaptation kit sub-assembly, and timer. The M72 trainer is a Not-To-Be-Fired training aid, designed to familiarize the HONEST JOHN battalion or battery with required mating, testing and firing of the war reserve warhead section in proficiency operator and maintenance atomic training. It incorporates dummy components, is similar to the war reserve warhead section in size, shape, weight, center of gravity and all external controls, connections, and features, and simulates the functions and electrical indications of the war reserve warhead section, when used for training and testing. Prefire testing of the M72 warhead section requires no external test equipment, as it contains a hand-powered generator which furnishes power for test purposes. The test circuits furnish a GO-NO GO type indication by the illumination of lamps. A switch allows the instructor to simulate a GO-NO GO indication, in training. The M72 trainer has been made rugged to afford continual assembly, disassembly, and checkout. It does not contain any nuclear, explosive, or radioactive components. The same, normal, handling procedures as prescribed for the war reserve warhead sections should be exercised, however, in training, since one purpose of this training aid is to familiarize the trainee with the handling care required of the war reserve warhead sections.

Differences among models

Date plate location
The identification data are stenciled with white stencil ink, and "TRAINING ONLY" with red stencil ink on the outside surface of the trainer case structure.

Classification: Standard A  (CTCM 87812)
WARHEAD SECTION, ATOMIC, TRAINING: M74

General

WARHEAD SECTION, ATOMIC, TRAINING: M74 consists of a warhead section and a forward body section carrying at its forward end a self-aligning static tube (Static probe). The warhead section is fabricated of sheet steel and houses the cartridge assembly, cables, pneumatic system, and dummy warhead with concrete ballasts, and is equipped with an instructor's control panel. This panel is not incorporated in war reserve materiel and is used in training to induce the malfunctions (in the cartridge assembly, warhead, and missile cable circuits) that can be detected by the test set and the launcher control indicator, and to regulate cartridge and warhead pneumatic pressure. The forward body section is a sheet steel unit and incorporates the dummy "transponder" control group. The forward self-aligning static tube (static probe) consists of a steel static tube probe, a plastic vane and body assembly, aft yoke and collar which facilitates assembly of static tube to forward body section. To prevent use on war reserve materiel, the O-ring end of the static tube is substantially oversized so that it will not mate to a war reserve forward body section. The M74 trainer is a Not-To-Be-Fired training item containing inert components which simulate the war reserve items. It is designed to provide proficiency training and testing of operator and maintenance personnel of a NIKE-HERCULES battery in the operations pertaining to the war reserve warhead section. The M74 warhead section simulates the war reserve warhead section physically, and conforms to the required weight, center of gravity, external and internal configurations, and its internal circuits provide the same electrical responses as war reserve materiel. All Safety Procedures for war reserve must be complied with in training, to familiarise the personnel thoroughly in war reserve safety requirements. The M74 trainer is used in performing disarm procedures simulating the war reserve item.

Differences among models

Differences within M74 trainers: M74 trainers serial numbered from 1 through 184 use "baro" simulators with terminal boards in the cartridge assembly and a "prony brake" system in conjunction with the servo mechanisms. Those serial-numbered from 186 on use "baro" simulators with connectors, instead of terminal boards in the cartridge assembly, and use a resistor to replace the "prony brake".

Data plate location

The identification data are stenciled with white stencil ink, and "TRAINING ONLY" with red stencil ink on both sides of the warhead section and the forward body section.

Classification: Limited production (OTCM 37320)

CHARACTERISTICS

Performance

Equipment

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped per shipping container

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped per shipping container

Length

Width

Height

Volume

Gross weight

Ship tons

WARHEAD SECTION, ATOMIC, TRAINING: XM99

General
WARHEAD SECTION, ATOMIC, TRAINING: XM99 consists of the atomic warhead to rocket training adaptation kit case XM88, which houses the test panel, height of burst selector switch, timer, safe plate and arm plug, simulated locking ring, and other components simulating the internal parts of the operational warhead section. The safe plate and arm plug is designed to prevent interchangeability with the safe plate and arm plug used with an operational warhead section. The XM99 trainer has the same external configuration, weight, and balance and is designed to simulate the operational warhead section for operator and maintenance training of the LITTLE JOHN rocket firing batteries in all operations pertaining to the war reserve warhead equipment they will later use. Simulating components are used within the training adaptation kit XM88 to give the same indications during electrical tests as would be received from the operational adaptation kit. Prefire checkout and fuse setting are performed in the same manner as with an operational warhead section. The height of burst selector switch is purely mechanical, to simulate the various switch positions for training purposes. The XM99 trainer test panel area contains provisions for simulating continuity and timer malfunctions that can be detected by the test set, in training. The XM99 trainer can be mated to a rocket motor training device, but will not mate with an operational rocket motor. No explosive hazard exists with the XM99 trainer, but proper procedures should be observed in training, however, so that when a live unit is handled, safety will be a normal routine.

Differences among models

Date plate location
The identification data are stenciled with white stencil ink, and "TRAINING ONLY" with red stencil ink on the outside surface of the trainer case structure.
SECTION 11
FIRE CONTROL DIRECTORS
(CLASS 1210)

DIRECTOR: M15 (T41E2)
For data and characteristics, see FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) (Section 13).
SECTION 12
FIRE CONTROL COMPUTING SIGHTS AND DEVICES
(CLASS 1220)

(Includes ballistics computers; ballistics drives; computing sights; graphical firing scales; graphical firing fan tables; plotting boards; and slide rule).

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The combat tanks that the ballistics computer are used with are:
- The ballistics computer M13 is used with RANGE FINDER, FIRE CONTROL: M13 in the TANK, COMBAT, FULL TRACKED: 90-mm gun, M48, M48A1, and M48C and TRAINER, TANK GUNNERY: 90-mm M26.
- The ballistics computer M13A1C is used with RANGE FINDER, FIRE CONTROL: M17 in the TANK, COMBAT, FULL TRACKED: 105-mm gun, M60 and TRAINER, TANK GUNNERY: 105-mm gun, M60.
- The ballistics computer M13A1D is used with RANGE FINDER, FIRE CONTROL: M17C in the TANK, COMBAT, FULL TRACKED: 105-mm gun, M60 and TRAINER, TANK GUNNERY: 105-mm gun, M60.
- The ballistics computer M13A2 is used with RANGE FINDER, FIRE CONTROL: M17A1 in the TANK, COMBAT, FULL TRACKED: 155-mm gun, M59A1.
- The ballistics computer M13B1C is used with RANGE FINDER, FIRE CONTROL: M17B1C in the TANK, COMBAT, FULL TRACKED: 90-mm gun, M48A1.

Differences among models
The main differences between the six models of the ballistics computer are that M13 and M13A1 have the range scale graduated.

For characteristics and data, see items in sections 14 and 23.
in yards, and M13A1C, M13A1D, and M13A2 have the range scale graduated in meters. M13 requires disassembly of reset bracket to remove switch, and in M13A1, M13A1C, and M13A1D the switch can be removed without disassembling the reset bracket. M13 has a one-piece seal in the plate of ammo selector shaft. M13A1 and M13A1C have two-piece seal, and M13A1D has two-piece seal and stops on the ammo selector shaft. M13 has an integral guard and cover of the circuit breaker; its ammo-selector wheel access hole housing is not drilled, it has an integral light conductor rod clip bracket of the counter assembly, and its outer dial has to be removed before removing the light ring, which has lower bracket. M13A1, M13A1C, and M13A1D have separate switch guard of circuit breaker, and have a separate light conductor rod clamp bracket of counter assembly, and their light ring has no bracket and can be removed at any time. M13, M13A1, and M13A1C have a full set and spares of superheater cams, and their computer mount is part of the computer. M13A1D has no cant drive output shaft cover, no spare cam box, and its computer mount is part of the tank.

The M13A2
The M13B1C (Data will be added at a later date).

Data plate location
The identification plate is located on the front panel of the housing.

Classification:
M13 .................................. Standard B
M13A1 .................................. Standard B (OTCM 3978)
M13A1C .................................. Standard A (OTCM 3708)
M13A1D .................................. Standard A (OTCM 3708)
M13A2 ..................................
M13B1C ..................................

CHARACTERISTICS
Length, overall ................................... 1 ft. 2.1 in.
Height, less output and input shafting .......................... 1 ft. 2.5 in.
Depth, overall ...................................... 11.1 in.
Weight, output and input shafting included ...................... 88.0 lb.

Range limits:
Input from range finder M13, M13A1 ...................... 500 to 4,000 yd.
From computer, manual operation ..................... 0 to 3,000 yd.
Input range from range finder M17, M17C .................. 0 to 4,000 meters
From computer, manual operation ..................... 0 to 4,000 meters
Superheater ....................................... ±100 mils
Range correction ................................... ±15 percent

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped, ballistics computers per shipping container.
Length ............................................. 21 ½ in.
Width ............................................. 17 ½ in.
Height ............................................. 20 in.
Volume ............................................ 4.86 cu ft
Gross weight ..................................... 83 lb.
Ship weight ...................................... 0.12

Outside Continental United States

Shipped, ballistics computers per shipping container.
Length ............................................. 21 ½ in.
Width ............................................. 17 ½ in.
Height ............................................. 20 in.
Volume ............................................ 4.86 cu ft
Gross weight ..................................... 83 lb.
Ship weight ...................................... 0.12

COMPUTER, BALLISTICS: M14 (T33)

General
COMPUTER, BALLISTICS: M14 is used with TANK, COMBAT, FULL TRACKED: 120-mm gun, M103A1. The computer consists of a computer main housing assembly, range servo amplifier assembly, and circuit breaker assembly. The computer receives range data by a synchro transmitting system from the range finder. The computer then applies ammunition data and any required ballistic corrections. Both ammunition data and ballistic corrections are introduced manually into the computer. The product is the superelevation angle (elevation above the line-of-sight) required for the particular ammunition being fired at the measured range. This superelevation data is then transmitted from the computer by four mechanical and one electrical output to the periscope, the superelevation signal generator, superelevation transmitter, cant corrector, and range finder cant corrector.

Differences among models

Data plate location
The identification plate (nameplate) for the ballistics computer is located on the computer main housing assembly. The identification plate for the range servo amplifier assembly is located on the range servo amplifier housing.

Classification: Standard A (OTCM 80840).

CHARACTERISTICS
Computer main housing assembly:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1 ft</td>
</tr>
<tr>
<td>Height</td>
<td>1 1/2 ft, 7 in.</td>
</tr>
<tr>
<td>Depth</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>70 lb</td>
</tr>
</tbody>
</table>

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14</td>
<td></td>
<td>1220-622-4934</td>
</tr>
</tbody>
</table>
Range limits:
- Input from range finder: 500 yd to 5,000 yd
- Output from computer: 0 yd to 4,800 yd
- Superelevation: ± 70 mil
- Range correction: ± 15%
- Electrical operating voltage: 24 ± 0.5 V dc, 115 ± 11.5 V ac, 400 ± 40 cps

Range servo amplifier assembly:
- Length: 9½ in.
- Height: 3 in.
- Depth: 5½ in.
- Weight: 12 lb

Circuit breaker assembly:
- Length: 6¾ in.
- Height: 6¼ in.
- Depth: 5 in.
- Weight: 8 lb

Performance Equipment

Basic issue item: See TM 9-2850-214-10.

Storage and Shipment Data

Within Continental United States:
- Shipped 1 ballistic computer per shipping container
- Length: 2 ft, 2½ in.
- Width: 1 ft, 8½ in.
- Height: 2 ft, 1¼ in.
- Volume: 7.925 cu ft
- Gross weight: 117.92 lb
- Ship tons: 0.25

Outside Continental United States:
- Shipped 1 ballistic computer per shipping container
- Length: 2 ft, 2½ in.
- Width: 1 ft, 8½ in.
- Height: 2 ft, 1¼ in.
- Volume: 7.925 cu ft
- Gross weight: 117.92 lb
- Ship tons: 0.25

COMPUTER, GUN DIRECTION, M18 W/E

Model M18, w/e Line item No. 4-10742-06
Federal stock No. 1220-448-0121

General

COMPUTER, GUN DIRECTION, M18 is a portable general-purpose, digital computer capable of solution of fire control problems for five selected weapons. Information on two types of weapons is preloaded into the memory of the computer. Additional information affecting the ballistics of the battery weapons may be inserted by the operator. Meteorological data may be entered by mechanical tape reader or manually through the keyboard. The computer is mounted on the gun computer table. Certain connections for power are made through electrical connectors on the table. Three-phase, 120/208 volt, 400 cycle prime power is supplied from a generator set through a cable assembly.

The computer is housed in a watertight case having removable front and rear covers.

Differences among models

Data plate location

The identification plate is located on the top portion of the computer case.

Classification: Standard A (OTCM 3783).

CHARACTERISTICS

Weight (approx.): Computer 200 lb
Table 10 lb
Cable and reel, assy. 123 lb
Cable and bracket adapter 5 lb

Depth:
Computer 2 ft. 10 in.
Table 2 ft. 7 in.

Width:
Computer 2 ft. 5 in.
Table 2 ft. 4 in.
Cable and reel, assy. 11 in.
Cable and bracket adapter 4 in.

Height:
Computer 15 in.

Table:

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legs closed</td>
<td>5 in.</td>
</tr>
<tr>
<td>Legs open, retracted</td>
<td>1 ft. 9 in.</td>
</tr>
<tr>
<td>Legs extended</td>
<td>2 ft. 3 in.</td>
</tr>
<tr>
<td>Cable and reel, assy. (dia)</td>
<td>2 ft. 3 in.</td>
</tr>
<tr>
<td>Cable and bracket adapter</td>
<td>30 in.</td>
</tr>
</tbody>
</table>

Operating temperature range: −40° to 125° F. ambient
Input frequency: 400 cps ±2 percent
Input voltage: 120/208 ±5%, 3 phase, 4 wire
Power: 0.7 kw per computer mercury unit
Type: magnetic disk
Capacity: 8,192 words (units)

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and Outside Continental United States

Shipped 1 computer, w/table per plastic case.

Length 41 1/2 in.
Width 25 in.
Height 23 1/2 in.
Volume 18 cu ft
Gross weight 350 lb
Ship tons 0.45

Shipped 1 cable and reel, assy per wood box.

Length 25 in.
Width 25 in.
Height 11 1/2 in.
Volume 5 cu ft
Gross weight 157 lb
Ship tons 0.12

References: TM 9-1220-221-10/1, TM 9-1220-221-10/2, TM 9-1220-221-20/1, TM 9-1220-221-20/2, TM 9-1220-221-20/3, TM 9-1220-221-20/4, TM 9-1220-221-34/1, TM 9-1220-221-34/2, TM 9-1220-221-34/3, TM 9-1220-221-34/4, TM 9-1220-221-34/5, TM 9-1220-221-35P.
DRIVE, BALLISTICS: M4 (T23)

**General**

DRIVE, BALLISTICS: M4 (T23) consists of a ballistic unit, a level vial, and linkage which connects the gunner's and commander's MOUNT, PERISCOPE: M98 (T178E1) and M94 (T177E2) with the gun. The ballistic drive is mounted on the turret roof above the gun and is used to introduce superelevation by varying the line-of-sight of the PERISCOPE: M20 (T67) or M20A1 to compensate for the trajectory of the projectile used as indicated on the range scale of the ballistic unit.

The ballistic drive M4 (T23) is used with the TANK, COMBAT, FULL TRACKED, 76-mm gun, M41 (T41E2) and M41A1.

**Differences among models**

Data plate location

Classification: Standard A (OTCM 35202).

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>M4(T23)</td>
<td>1220-764-9132</td>
<td></td>
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</tbody>
</table>

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See TM 9-2350-201-12.

**INSTRUCTIONAL MATERIAL**

**Storage and Shipment Data**

*Within Continental United States*

- Shipped ballistics drives per box.
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

*Outside Continental United States*

- Shipped ballistics drives per box.
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

**References:**

- SNL F-359, sec. 1, TM 9-6026, TM 9-2360-201-12.
DRIVE, BALLISTICS: M6 (T23E2)

GENERAL

DRIVE, BALLISTICS: M6 (T23E2) consists of a ballistic unit with range scales, and the shafts, coupling, arm, and link that connect to the gunner's and commander's periscopes, and couple directly with the range finder. It receives superelevation data from a ballistics computer and transmits the angular value received from the position of the gun, plus superelevation data to the gunner's periscope, thereby compensating for the ballistics of the projectile. The coupling between the ballistics drive and the gunner's periscope is designed to compensate for minor misalignment of the ballistics drive relative to the periscope head while maintaining rotary motion. The ballistics drive M6 (T23E2) is attached to the turret roof by two brackets. A level vial is provided for initial alignment at zero elevation. A lamp assembly allows for use of the 24-volt vehicle power source or power from LIGHT, INSTRUMENT: M30. A range knob rotates the range scales displacing the sights the proper distance.

The ballistics drive M6 (T23E2) is used with the TANK, COMBAT, FULL TRACKED: 120-mm gun, M103 (T43E1).

DIFFERENCES AMONG MODELS

DATA PLATE LOCATION

CLASSIFICATION: Standard B (OTCM 86117).
DRIVE, BALLISTICS: M10 (T24E3), M10A4, and M10B1

### Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M10</td>
<td></td>
<td>1220-678-2184</td>
</tr>
<tr>
<td>M10A4</td>
<td></td>
<td>1220-858-9458</td>
</tr>
<tr>
<td>M10B1</td>
<td></td>
<td>1220-870-6715</td>
</tr>
</tbody>
</table>

#### General

DRIVE, BALLISTICS: M10 (T24E3) is part of the fire control system of TANK, COMBAT, FULL TRACKED: 105-mm gun, M60; the M10A4 is part of the fire control system of TANK, COMBAT, FULL TRACKED: 105-mm gun, M60A1; the M10B1 is part of the fire control system of TANK, COMBAT, FULL TRACKED: 90-mm gun, M8A3.

The ballistic drive is a differential drive which converts super-elevation data from the computer to the correct super-elevation angle in mils and adds this angle to the gun elevation angle.

The ballistic drive is mounted to the roof by two supports, and consists of a super-elevation box, junction box, cross-shaft that connects to the periscope, and linkages that connect to the gun trunnion and range finder.

The ballistic computer output shaft transmits super-elevation data to the super-elevation box of the ballistic drive, causing an angular displacement of the direct linkage to the range finder and coupling to the gunner's periscope, thus depressing the line-of-sight of both the range finder and gunner's periscope.

Without change in super-elevation, the ballistic drive acts as a solid linkage causing equal angular movement of both the gunner's periscope and range finder corresponding to the movement of the gun in elevation or depression.

#### Differences among models

The ballistic drive M10 and M10B1 have a support bracket for the elevation quadrant; the M10A4 does not. The M10 and M10A4 have a level vial on the right side of the connecting arm; the M10B1 has the level vial on the left side. The M10 and M10A4 have a light assembly; the M10A4 does not. The M10A4 has a longer linkage than the M10 and M10B1. Other minor differences appear in the various assemblies.

#### Data plate location

The identification plate (nameplate) is located on the main housing cover of the super-elevation box assembly.

#### Classification:

M10—Standard A (OTCM 37002).
M10A4
M10B1

*For characteristics and data, see item in section 23.*

#### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Weight:</th>
<th>M10 and M10B1</th>
<th>M10A4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>(approx) 133 lb</td>
<td>(approx) 174 lb</td>
</tr>
</tbody>
</table>

#### PERFORMANCE

#### EQUIPMENT

Basic Issue Items:
M10—See TM 9-2850-215-10.
M10B1—See TM 9-2850-224-10.

#### STORAGE AND SHIPMENT DATA

**Within Continental United States**

Shipped 1 ballistic drive per shipping container.

- Length (installed) (approx) 4 ft. 7 in.
- Width (installed) (approx) 3 ft. 6 in.
- Height (installed) (approx) 2 ft. 6 in.
- Weight: M10 and M10B1 (approx) 133 lb
- M10A4 (approx) 174 lb

**Outside Continental United States**

Shipped 1 ballistic drive per shipping container.

- Length 46% in.
- Width 26% in.
- Height 20% in.
- Volume 14.518 cu ft
- Gross weight .271 lb
- Ship tons .032

#### References:

PLOTTING BOARD: M5A2

Major Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5A2, w/e</td>
<td>4-01520-20</td>
<td>1220-678-2971</td>
</tr>
</tbody>
</table>

General

PLOTTING BOARD: M5A2 is used by the flash ranging platoon of observation batteries of the field artillery to plot and determine the location of hostile batteries by plotting the azimuth of the flash or smoke from enemy guns, as reported from two or more observation posts. The center of impact of friendly fire also may be determined.

The plotting board plots at a standard map scale of 1/25,000 meters. The scales are graduated to match the grid.

Differences among models

Data plate location

The identification plate (nameplate) is located on the bracket of the plotting board.

Classification: Standard B (OTCM 57342).

CHARACTERISTICS

Length: (approx) 3 ft, 9 in.
Width: (approx) 3 ft, 4½ in.
Height: (approx) 2 ft, 19½ in.
Weight: 276 lb
Range: Unlimited
Azimuth scale: 0-6,480 mils

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL F-233.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped plotting boards per

Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped plotting boards per

Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-233, TM 9-6109.
PLOTTING BOARD: M10

General
PLOTTING BOARD: M10 consists of a rotatable pivoted disk of transparent plastic material attached to a flat base of white material. The top disk is roughened to take pencil marks which can be erased after the completion of a problem. Three scales and a fine line are printed on the top disk. It is used with caliber .30 machineguns, 105-mm howitzers, and 75-mm rifles, for plotting indirect fire data. Location of the gun and target, as obtained at the observation post, in terms of azimuth and distance, are plotted individually on the rotatable disk. The center of the disk represents the location of the observation post. Distance in yards and azimuth in mils of the target from the gun is read directly on the board. For operating instructions, see TM 9-575.

Characteristics

- Range scale: Grid interval depends on map scale
- Azimuth scale: 0 to 360° in 0.5° increments
- Square of base: 0 to 400 yards
- Diameter of disk: 8 1/4 inches
- Thickness: 3/16 inch
- Weight: 0.75 lb

Data Plate Location
The item name and model number are located in the upper right-hand corner of the plotting board.

Classification: Standard B (OTCM 37601).

Secondary Item

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M10, w/e</td>
<td>4-80250-10</td>
<td>1220-670-2976</td>
</tr>
</tbody>
</table>

Performance

Equipment

Basic Issue Items: See ORD 7 SNL F-314.

Instructional Material

For graphic training aids and devices, see DA Pam 810-6.

Storage and Shipment Data

Within Continental United States
Shipped 120 plotting boards (w/equipment) per shipping container
- Length: 8 ft, 3 1/2 in.
- Width: 1 ft, 11 1/4 in.
- Height: 1 ft, 6 1/4 in.
- Volume: 9 cu ft
- Gross Weight: 200 lb
- Ship Tons: 0.28

Outside Continental United States
Shipped 120 plotting boards (w/equipment) per shipping container
- Length: 3 ft, 9 1/4 in.
- Width: 1 ft, 11 1/4 in.
- Height: 1 ft, 6 1/4 in.
- Volume: 9 cu ft
- Gross Weight: 200 lb
- Ship Tons: 0.28

References: SNL F-314, TM 9-575.
PLOTTING BOARD: M16

General
PLOTTING BOARD: M16 is a portable instrument used with MORTAR, INFANTRY: 81-mm, M29 and MORTAR, INFANTRY: 4.2-inch, M39 to compute the range and azimuth of a target for indirect firing of the mortar. The plotting board utilizes known range and azimuth data from the mortar to the observation post, in combination with reported data received from the post concerning the target’s location with respect to the post, to geometrically compute the range and azimuth from the mortar.

Differences among models

Data plate location
The item name and model number are located in the upper right-hand corner of the plotting board.

Classification: Standard A (OTCM 38841).

CHARACTERISTICS

Limits of operation:
- Azimuth: 6,400 mils (unlimited)
- Range: unlimited
- Length: 1 ft, 10 in.
- Width: 1 ft, 9¾ in.
- Thickness: ½ in.
- Weight: 3 lb, 13 oz

PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 16 plotting boards per shipping container
- Length: 3 ft, 1 in.
- Width: 2 ft, 1¾ in.
- Height: 1 ft, 11¾ in.
- Volume: 12.42 cu ft
- Gross weight: 196 lb
- Ship tons: 0.81

Outside Continental United States
Shipped 16 plotting boards per shipping container
- Length: 3 ft, 1 in.
- Width: 2 ft, 1¾ in.
- Height: 1 ft, 11¾ in.
- Volume: 12.42 cu ft
- Gross weight: 196 lb
- Ship tons: 0.81

References: TM 9-1220-204-12, TM 9-1220-204-12P, TM 9-1220-204-55P.
30 August 1963

PLOTTING BOARD, FLASH RANGING, FIRE CONTROL: M18 (M5A2E1)

Model | Line item No. | Federal stock No.
-------|---------------|------------------
M18    | 4-B00000-15   |                  

**General**

PLOTTING BOARD, FLASH RANGING, FIRE CONTROL: M18 is an M6 type plotting board redesigned for use as a sound ranging or flash ranging plotting board with lightweight and easier handling characteristics. It is a component of PLOTTING SET, SOUND RANGING: M58.*

Magnesium is employed for weight reduction. A three-leg support is being utilized. In addition to two-man operation, reversal of the drafting machine allows one man to operate both the vernier scale and micrometer adjustments. The grided disk is made reversible to reduce replacement frequency when becoming too rough to use. A scale for sound ranging is designed for field addition or removal.

**Differences among models**

Data plate location

The identification plate (nameplate) is located on the vernier bracket assembly.

Classification: Standard A (OTCM 37342).

**CHARACTERISTICS**

Diameter (w/o brackets) ........................................... 8 ft, 5 in.
Height ......................................................... 2 ft, 11½ in.
Weight ......................................................... 185 lb

* For characteristics and data, see item in section 18.

**PERFORMANCE**

Azimuth calibration ............................................. 0 to 6,400 mils
Grid scale ..................................................... 40-mm = 1,000-mm

**EQUIPMENT**

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped per</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:**

12-13
PLOTTING BOARD, INDIRECT FIRE, FIRE CONTROL: M17, w/e

General

PLOTTING BOARD, INDIRECT FIRE, FIRE CONTROL: M17 is essentially the M10 plotting board with the yard scales converted to meters and an improved pivot arrangement to provide for the easy removal of the rotatable disk from the base.

Differences among models

Data plate location

The item name and model number are located in the upper right-hand corner of the plotting board.

Classification: Standard A (OTCM 37001).

EQUIPMENT


INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 80 plotting boards, w/e per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 11½ in.</td>
<td>1 ft, 10 in.</td>
<td>2 ft</td>
<td>7.18 cu ft</td>
<td>162 lb</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped 80 plotting boards, w/e per shipping container

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft, 11½ in.</td>
<td>1 ft, 10 in.</td>
<td>2 ft</td>
<td>7.18 cu ft</td>
<td>162 lb</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Characteristics

<table>
<thead>
<tr>
<th>Azimuth</th>
<th>Range</th>
<th>Diameter</th>
<th>Thickness</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 6,400 mils</td>
<td>no limit</td>
<td>.8 in.</td>
<td>.3½ in.</td>
<td>.75 lb</td>
</tr>
</tbody>
</table>

Performance

PLOTTING BOARD, SOUND RANGING, FIRE CONTROL: M1 AND M1A1, AND WIND CORRECTOR, SOUND RANGING: M1

An arm graduated in yards to a scale of 1/20,000 (M1) or 1/26,000 (M1A1) is pivoted about a bracket. By plotting on sound ranging plotting board M1 or M1A1 the differences in time at which the sound of the gun reaches each of several microphone stations, usually situated at equal distances along either a straight line or an arc, the location of the enemy gun is determined. By plotting data relating to the sounds of bursts, this instrument can also be used for adjustments of fire of gun and howitzer batteries. The wind corrector M1 gives the time difference corrections in both value and sign, with plus and minus having the same significance as on the sound ranging plotting board M1.

Differences among models
The plotting board M1A1 is the M1 modified to plot at a scale of 1/26,000 instead of 1/20,000.

Data plate location

Classification
Plotting board M1: Standard C (OTCM 37107)
Plotting board M1A1: Standard B (OTCM 36841)
Wind corrector M1: Standard A (OTCM 37763)

CHARACTERISTICS
Sound ranging plotting board M1 or M1A1:
- Range: M1: 0-20,000 yd, M1A1: 0-25,000 yd
- Time-difference scale: 0.0 to 0.60 sec
- Subbase length (sound): 4. 4½, 5, 5½ sec

Microphone station radius: 25, 50, 75 sec
Angle of swing, range asymptote arm: 120°

Correction charts:
- Temperature
- Asymptote

Sound ranging wind corrector M1:
- Wind correction scale: 0-20-20-0 sec
- Azimuth scale: 0-6400 mils
- Wind direction scale: 0-360°
- Wind arm scale, wind velocity for 4 sound seconds subbase: 0-30
- Wind arm scale, wind velocity for 4.6 sound seconds subbase: 0-30

PERFORMANCE

EQUIPMENT
Basic Issue Items: See ORD 7 SNL F-154, for plotting board
ORD 7 SNL F-163, for wind corrector.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Plotting board M1 or M1A1:

<table>
<thead>
<tr>
<th>Board</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped</td>
<td>1</td>
</tr>
<tr>
<td>Length</td>
<td>7 ft</td>
</tr>
<tr>
<td>Width</td>
<td>4 ft</td>
</tr>
<tr>
<td>Height</td>
<td>4 ft</td>
</tr>
<tr>
<td>Volume</td>
<td>54.6 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td>1.37</td>
</tr>
</tbody>
</table>

Wind corrector M1:

<table>
<thead>
<tr>
<th>Shipped (number per box)</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2 ft</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft</td>
</tr>
<tr>
<td>Height</td>
<td>7 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>2.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>.82 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>.67</td>
</tr>
</tbody>
</table>
### Wind corrector M1:

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
<td>Ship tons</td>
</tr>
</tbody>
</table>

SCALE, GRAPHICAL FIRING: M40A1

General
SCALE, GRAPHICAL FIRING: M40A1 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules or wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A gage point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M40A1 is used with the CANNON, 75 MILLIMETER PACK HOWITZER: M1AI.

Differences among models
Data plate location
The data are printed on the face of the scale.
Classification: Standard C (OTCM 37256).

CHARACTERISTICS
Length: 12 in.
Width: (approx) 2½ in.

PERFORMANCE
EQUIPMENT
Basic Issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped: graphical firing scales per wood box.
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States
Shipped: graphical firing scales per wood box.
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-329; TM 9-624, TM 9-1220-216-12P.
SCALE, GRAPHICAL FIRING: M41A1

General

SCALE, GRAPHICAL FIRING: M41A1 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules on wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A grasp point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale: M41A1 is used with the CANNON, 76 MILLIMETER GUN: M32.

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 36841).

DIFFERENCES AMONG MODELS

The data are printed on the face of the scale.

CHARACTERISTICS

Length ........................................ 12 in.
Width ............................................ (approx) 24 in.

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped graphical firing scales per wood box.

Length ........................................
Width ...........................................
Height .........................................
Volume .........................................
Gross weight ...................................
Ship tons .....................................

Outside Continental United States

Shipped graphical firing scales per wood box.

Length ........................................
Width ...........................................
Height .........................................
Volume .........................................
Gross weight ..................................
Ship tons .....................................

References: SNL F-329, TM 9-524, TM 9-1220-216-12P.
SCALE, GRAPHICAL FIRING: M42

General
SCALE, GRAPHICAL FIRING: M42 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules or wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A gage point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M42 is used with the CANNON, 90 MILLIMETER GUN: M36, M41 and M64.

Differences among models
Data plate location
The data are printed on the face of the scale.
Classification: Standard B (OTCM 36841).

CHARACTERISTICS
Length .......................... 12 in.
Width ...................................(approx) 2¼ in.

PERFORMANCE
EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped .......................... graphical firing scales per wood box.
Length ..........................
Width ..........................
Height ..........................
Volume ..........................
Gross weight ..........................
Ship tons ..........................

Outside Continental United States
Shipped .......................... graphical firing scales per wood box.
Length ..........................
Width ..........................
Height ..........................
Volume ..........................
Gross weight ..........................
Ship tons ..........................

References: SNL F-329, TM 9-624, TM 9-525, TM 9-1220-216-12P.
Deleted by C 1.

Pages 12-21 and 12-22 are rescinded by C 3.
SCALE, GRAPHICAL FIRING: M45A1

General
SCALE, GRAPHICAL FIRING: M45A1 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M45A1 graphical firing scale is graduated according to firing table FT 166-8-2 and is used with CANNON, 165 MILLIMETER GUN: M2.

Differences among models

Data plate location
The data are printed on the face of the scale.

Classification: Standard A (OTCM 05841).

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M45A1, w/e</td>
<td>4-87280-10</td>
<td>1220-325-4079</td>
</tr>
</tbody>
</table>

CHARACTERISTICS

Length

Width

PERFORMANCE

EQUIPMENT

Basic Issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped graphical firing scales per wood box.

Within and outside Continental United States

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reference: SNL P-329, TM 9-1220-216-12P.

12-23
Deleted by C 1.
SCALE, GRAPHICAL FIRING: M48

General

SCALE, GRAPHICAL FIRING: M48 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules or wooden stock which bears the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "FUZE SETTING," etc., and printed ballistic data, an indicator or sliding portion, a window or frosted portion of the indicator on the under surface of which is engraved a fine hairline. A gage point is a special mark on the rule denoting a specific constant. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M48 is used with the CANNON, 120-MILLIMETER GUN: M58.

Differences among models

The data are printed on the face of the scale.

Classification: Standard B (OTCM 5841)

<table>
<thead>
<tr>
<th>Model</th>
<th>Line Item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M48</td>
<td>4-37225-16</td>
<td>1220-678-3066</td>
</tr>
</tbody>
</table>

REFERENCES:

- SNL F-320
- TM 9-524
- TM 9-525
- TM 9-1220-216-12P

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>12 in.</td>
</tr>
<tr>
<td>Width</td>
<td>(approx) 2% in.</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basis Issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States:

Shipped: graphical firing scales per wood box.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States:

Shipped: graphical firing scales per wood box.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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</tr>
<tr>
<td>Width</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

REFERENCES:

- SNL F-320
- TM 9-524
- TM 9-525
- TM 9-1220-216-12P
SCALE, GRAPHICAL FIRING: M50

Secondary item

<table>
<thead>
<tr>
<th>Scale</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M50, w/c</td>
<td>4-37250-10</td>
<td>1220-678-3069</td>
</tr>
</tbody>
</table>

General

SCALE, GRAPHICAL FIRING: M50 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed, and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M50 graphical firing scale is graduated according to firing table FT 4.2-B-1 and is used with MORTAR, chemical, 4.2-inch, M1A1 and M2.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

Length: __________________________________________
Width: __________________________________________

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped: graphical firing scales per wood box.

Length: __________________________________________
Width: __________________________________________
Height: __________________________________________
Volume: _________________________________________
Gross weight: _________________________________
Ship tons: _________________________________

References: SNL P-329, TM 9-1220-216-12P.

Pages 12-27 and 12-28 are rescinded by C 3.
SCALE, GRAPHICAL FIRING: M60

General

SCALE, GRAPHICAL FIRING: M60 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M60 graphical firing scale is used with MORTAR, INFANTRY: 4.2-inch, M30. It is a replacement for the M57 graphical firing table.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 36970).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within and outside Continental United States

Shipped 1 graphical firing scales per wood box.

Length ____________________________

Width ____________________________

Height ____________________________

Volume ____________________________

Gross weight ____________________________

Ship tons ____________________________

References:
SCALE, GRAPHICAL FIRING: M64

General

SCALE, GRAPHICAL FIRING: M64 is a special type slide rule used in the preparation of firing data and the conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., printed ballistics data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M64 is graduated according to firing table PT 165-Q-3 and is used with CANNON, 155-MILLIMETER HOWITZER: M1A1 and HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, M44.

Differences among models

Data plate location

The data are printed on the face of the scale.

<table>
<thead>
<tr>
<th>Model</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M64, w/e</td>
<td>1220-789-2985</td>
</tr>
</tbody>
</table>

Classification: Standard A (OTCM 37418).

CHARACTERISTICS

Length

Width

PERFORMANCE

EQUIPMENT

Basic Issue Items: See SM 9-5-1200.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

Length

Width

Height

Volume

Gross weight

Ship tons

References: SM 9-5-1200.
SCALE, GRAPHICAL FIRING: M65

Model Line item No. Federal stock No.
M65, w/e ------------------ 4-37245-16 1220-446-7913

General
SCALE, GRAPHICAL FIRING: M65 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The graphical firing scale M65 is used with 8-inch howitzers. It was designed to replace the graphical firing scale M47A1.

Differences among models
Data plate location
The data are printed on the face of the scale.

Classification:

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>INSTRUCTIONAL MATERIAL</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>STORAGE AND SHIPMENT DATA</th>
</tr>
</thead>
</table>

Within and outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>graphical firing scales per wood box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Width</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Height</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Volume</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Gross weight</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Ship tons</td>
<td>-------------------------------------</td>
</tr>
</tbody>
</table>

References:
SCALE, GRAPHICAL FIRING: M70

Model

<table>
<thead>
<tr>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M70, w/s</td>
<td>4-37293-10</td>
</tr>
<tr>
<td></td>
<td>1220-798-8968</td>
</tr>
</tbody>
</table>

General

SCALE, GRAPHICAL FIRING: M70 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M70 graphical firing scale is used with CANNON, 155-MILLI-METER HOWITZER: M1A1 and HOWITZER, MEDIUM, SELF-PROPELLED; 155-mm. M44 when PROJECTILE, 155 MILLI-METER: illuminating, M118 is used.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 87508).

CHARACTERISTICS

<table>
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<th>Value</th>
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<td>Width</td>
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PERFORMANCE

EQUIPMENT

Basic Issue Items: See SM 9-6-1200.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scale per wood box.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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<tbody>
<tr>
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<td>Volume</td>
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<td>Gross weight</td>
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<td>Ship tons</td>
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</table>

References: SM 9-5-1200.
SCALE, GRAPHICAL FIRING: M71

General

SCALE, GRAPHICAL FIRING: M71 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M71 graphical firing scale is graduated according to firing table FT 8-J-8 and is used with CANNON, 8-INCH HOWITZER: M2 or M2A1 on CARRIAGE, 8-INCH HOWITZER: M1 and HOWITZER, HEAVY, SELF-PROPELLED: 8-inch, M55. It is a replacement for the M47A1 graphical firing scales.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 37694).

CHARACTERISTICS

Length

Width

PERFORMANCE

EQUIPMENT

Basic Issue Items: See SM 9-5-1200.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

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<td>Ship tons</td>
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References: SM 9-5-1200.
SCALE, GRAPHICAL FIRING: M73

General
SCALE, GRAPHICAL FIRING: M73 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designated and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M73 graphical firing scale is graduated according to firing table FTR 762-F-1 and is used with LAUNCHER, ROCKET: 762-mm, truck-mounted, M386.

Differences among models

Data plate location
Data are printed on the face of the scale.

Classification: Standard A (OTCM 37575).

References:

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PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped

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</tr>
<tr>
<td>Ship tons</td>
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| References |
|------------|-----------|


SCALE, GRAPHICAL FIRING: M74

General

SCALE, GRAPHICAL FIRING: M74 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rules are plotted with reference to the "RANGE" scale.

The M74 graphical firing scale is graduated according to firing table FTG 762-D-1 and is used with LAUNCHER, ROCKET: 762-mm, M33.

Differences among models

Data plate location

Data are printed on the face of the scale.

Classification: Standard A (OTCM 37646).

<table>
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<table>
<thead>
<tr>
<th>STORAGE AND SHIPMENT DATA</th>
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</thead>
</table>

Shipped graphical firing scales per wood box:

<table>
<thead>
<tr>
<th>Within and outside Continental United States</th>
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</thead>
</table>

Length
Width
Height
Volume
Gross weight
Ship tons

References:
SCALE, GRAPHICAL FIRING: XM75

Model Line item No. Federal stock No.
XM75, w/e 1220-474-5022

General

SCALE, GRAPHICAL FIRING: XM75 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "VERTICAL INTERVAL (TEMP)." etc., printed ballistic data, and a plastic indicator with matte to receive pencil markings for reference.

The XM75 graphical firing scale is used with BATTLE GROUP, LIGHTWEIGHT: 110-mm weapon system, XM28.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Classification pending.

CHARACTERISTICS

Length
Width

PERFORMANCE

EQUIPMENT

Basic Issue Items: See SM 9-6-1200.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

Length
Width
Height
Volume
Gross weight
Ship tons

References: SM 9-6-1200.
SCALE, GRAPHICAL FIRING: XM76

**General**

SCALE, GRAPHICAL FIRING: XM76 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "VERTICAL INTERVAL (TEMP)," etc., printed ballistic data, and a plastic indicator with matte to receive pencil markings for reference.

The XM76 graphical firing scale is used with BATTLE GROUP, HEAVY: 155-mm weapon system, XM29.

**Differences among models**

- Data plate location
  - The data are printed on the face of the scale.

*Classification: Classification pending.*

### Basic Issue Items:

- **INSTRUCTIONAL MATERIAL**
- **STORAGE AND SHIPMENT DATA**
  - Within and outside Continental United States:
    - Shipped: graphical firing scales per wood box.
      - Length
      - Width
      - Height
      - Volume
      - Gross weight
      - Ship tons

**References:** SM 9-5-1200.
SCALE, GRAPHICAL FIRING: XM77

General

SCALE, GRAPHICAL FIRING: XM77 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "VERTICAL INTERVAL (TEMP)," etc., printed ballistic data, and a plastic indicator with matte to receive pencil markings for reference.

The XM77 graphical firing scale is used with BATTLE GROUP, HEAVY: 155-mm weapon system, XM29.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Classification pending.

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Characteristics

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<td>Volume</td>
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<td>Gross weight</td>
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<td>Ship tons</td>
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</tr>
</tbody>
</table>

Performance equipment

Basic issue items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped graphical firing scales per wood box.

References: SM 9-5-1200.
SCALE, GRAPHICAL FIRING: M78

General
 SCALE, GRAPHICAL FIRING: M78 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M78 graphical firing scale is graduated according to firing table FTR 762-A-2 and is used with LAUNCHER, ROCKET: 762-mm, truck-mounted, M289.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 37698).

<table>
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</table>

CHARACTERISTICS

PERFORMANCE EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

Length ......................................................
Width ......................................................
Height ......................................................
Volume ......................................................
Gross weight ..............................................
Ship tons ....................................................

References:
SCALE, GRAPHICAL FIRING: M79

General

SCALE, GRAPHICAL FIRING: M79 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M79 graphical firing scale is graduated according to FTR 762-C-1 and is used with LAUNCHER, ROCKET: 762-mm, M33.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 87699).

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CHARACTERISTICS

Length

Width

PERFORMANCE

EQUIPMENT

Basic Issue Items:

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

<table>
<thead>
<tr>
<th>Shipped</th>
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<th>Volume</th>
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<th>Ship tons</th>
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References: None.
SCALE, GRAPHICAL FIRING: M80

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<td>M80, w/e</td>
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</table>

**General**

SCALE, GRAPHICAL FIRING: M80 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as “RANGE,” “ELEVATION,” “DRIFT,” etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the “RANGE” scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the “RANGE” scale.

The M80 graphical firing scale is graduated according to firing table FTR 762-B-2 and is used with LAUNCHER, ROCKET: 762-mm, truck-mounted, M289.

**Differences among models**

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 37761).

**Characteristics**

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**Performance**

**Equipment**

Basic Issue Items:

**Instructional Material**

**Storage and Shipment Data**

Within and outside Continental United States

Shipped graphical firing scales per wood box.

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<td>Ship tons</td>
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References:

12-41
SCALE, GRAPHICAL FIRING: M81

General

SCALE, GRAPHICAL FIRING: M81 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "ELEVATION," "DRIFT," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections. The basic scale is the "RANGE" scale which includes the most advantageous range limits for the particular charge and weapon for which the graphical firing scale is designed and all other scales on the rule are plotted with reference to the "RANGE" scale.

The M81 graphical firing scale is graduated according to firing table FTR 762-E-1 and is used with LAUNCHER, ROCKET: 762-mm, truck-mounted, M386.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 37761).

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<table>
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<tr>
<th>Model</th>
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CHARACTERISTICS

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PERFORMANCE

EQUIPMENT

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Length</td>
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<td>Gross weight</td>
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<tr>
<td>Ship tons</td>
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</table>

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References:
SCALE, GRAPHICAL FIRING: SITE, M52

**General**

SCALE, GRAPHICAL FIRING: Site M52 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "SITE AND VERTICAL INTERVAL," etc., and printed ballistic data, and a plastic indicator with a matte to receive pencil markins of range corrections.

The graphical firing scale M52 is graduated according to firing table FT 75-1-4 and is used with 75-mm howitzers.

**Differences among models**

**Data plate location**

The data are printed on the face of the scale.

**Classification:** Limited Standard (OTCM 37119).

**Characteristics**

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**Performance**

**Equipment**

Basic Issue Items: See TM 9-1220-217-12P.

**Instructional Material**

**Storage and Shipment Data**

Shipped graphical firing scales per wood box.

**References:** SHL F-351, TM 9-1220-217-12P.
Deleted by C l.
## Scale, Graphical Firing: Site, M56

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<td>4-37285-20</td>
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### General

Scale, Graphical Firing: Site M56 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "Range," "Target Above Gun," "Target Below Gun," "Site and Vertical Interval," and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections.

The graphical firing scale M56 is graduated according to FT 8-J-1 and is used with 8-inch howitzers.

### Differences among Models

- **Data Plate Location:**
  - The data are printed on the face of the scale.

### Classification:

- Standard B (OTCM 37504).

### Characteristics

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### Performance Equipment

- Basic issue items: See TM 9-1220-217-12P.

### Instructional Material

### Storage and Shipment Data

#### Within and outside Continental United States

- **Shipped:**
  - Graphical firing scales per wood box.
  - Length: ____________________________
  - Width: ____________________________
  - Height: ____________________________
  - Volume: ____________________________
  - Gross weight: ______________________
  - Ship tons: _________________________

### References

- SNL F-361, TM 9-1220-217-12P.

---

12-45
SCALE, GRAPHICAL FIRING: SITE, M58

**General**

SCALE, GRAPHICAL FIRING: SITE M58 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "SITE AND VERTICAL INTERVAL," and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections.

The graphical firing scale M58 is used with CANNON, 155-MILLIMETER GUN: M2 or M2A1 and CARRIAGE, 155-MILLIMETER GUN: M1.

**Differences among models**

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 35220).

---

**CHARACTERISTICS**

- **Length**
- **Width**

---

**PERFORMANCE EQUIPMENT**

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

*Within and outside Continental United States*

Shipped graphical firing scales per wood box.

- **Length**
- **Width**
- **Height**
- **Volume**
- **Gross weight**
- **Ship tons**

---

**References:**
SCALE, GRAPHICAL FIRING: SITE, M67

General

SCALE, GRAPHICAL FIRING: SITE M67 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "SITE AND VERTICAL INTERVAL," and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections.

The graphical firing scale M67 is graduated according to firing table FT 155-Q-3 and is used with CANNON, 155-MILLIMETER HOWITZER: M1A1 and HOWITZER, MEDIUM, SELF-PROPELLED: 155-mm, M44.

Differences among models

Data plate location

The data are printed on the face of the scale.

Classification: Standard A (OTCM 37413).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Length</th>
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</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See SM 9-5-1200.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Shipped graphical firing scales per wood box.

Length Width Height Volume Gross weight Ship tons

References: SM 9-6-1200.
SCALE, GRAPHICAL FIRING: SITE, M72

General

SCALE, GRAPHICAL FIRING: SITE M72 is a special type slide rule used in the preparation of firing data and conduct of artillery fire. It consists of rules which bear the scales or line graduations for a single function, such as "RANGE," "TARGET ABOVE GUN," "TARGET BELOW GUN," "SITE AND VERTICAL INTERVAL," and printed ballistic data, and a plastic indicator with a matte to receive pencil markings of range corrections.

The graphical firing scale M72 is graduated according to firing table FT 8-J-2 and is used with 8-inch howitzers.

Differences among models

Data plate location

Classification: Standard A (OTCM 37504).

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M72, w/e</td>
<td>4-37285-10</td>
<td>1220-398-6786</td>
</tr>
</tbody>
</table>

CHARACTERISTICS

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See SM 9-5-1200.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within and outside Continental United States

Shipped graphical firing scales per wood box.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

References: SM 9-5-1200.
General

SIGHT, COMPUTING: M13A1 converts estimates of target course and target speed into leads for the gun. At the same time, it increases automatically the vertical angle by the amount of super-elevation. Estimates of the course and speed of the target are continuously made by members of the gun crew using the reflex sights M24C located at both ends of the computing sight. These estimates are set into a computing mechanism where they are resolved mechanically. The resulting action moves the reflex sights, through which the target is tracked, so that the line-of-sight with respect to the axis of the gun bore is positioned to include the necessary vertical and lateral leads. Thus, the gun tubes are displaced a sufficient amount to fire towards the target's anticipated position.

Each reflex sight reticle is illuminated for night operation by a LIGHT, INSTRUMENT: M44. Speed ring sights are provided for use in the event of failure of the computing sights.

The computing sight M13A1 is used for direct fire against aircraft with CANNON, 40 MILLIMETER DUAL AUTOMATIC GUN: M2 or M2A1 on the MOUNT, GUN: 40-mm, twin M4 or M4E1, and GUN, ANTIAIRCRAFT ARTILLERY, SELF-PROPELLED: twin 40-mm, M19A1.

Differences among models

Data plate location

The identification plate is located on the main support bracket.

Classification: Limited standard (OTCM 37255).

CHARACTERISTICS

Target maximum limit:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azimuth</td>
<td>6,400 mils</td>
</tr>
<tr>
<td>Speed</td>
<td>500 m/s</td>
</tr>
</tbody>
</table>

Superelevation:

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-mil</td>
<td>9 mils</td>
</tr>
<tr>
<td>1,600-mils</td>
<td>0 mils</td>
</tr>
<tr>
<td>Direction-of-flight arrow</td>
<td>360°</td>
</tr>
</tbody>
</table>

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 1 SNL F-316.

INSTRUCTIONAL MATERIAL

For graphic training aids and devices, see DA Pam 310-5.

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped 1 computing sight per box (w/e).

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6 ft. 3 in.</td>
</tr>
<tr>
<td>Width</td>
<td>2 ft</td>
</tr>
<tr>
<td>Height</td>
<td>1 ft. 4 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>16.7 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>300 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Outside Continental United States

Shipped per

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
<td></td>
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<tr>
<td>Height</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Gross weight</td>
<td></td>
</tr>
<tr>
<td>Ship tons</td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-316, TM 9-1609.

12-49
SIGHT, COMPUTING: M38 (T154)

The identification plate of SIGHT, REFLEX: M24C, is located on the sight body mount.

Classification: Standard A (OTCM 37255).

**CHARACTERISTICS**

- **Length**, ring sight support stowed: 5 ft, 1½ in.
- **Width**: 1 ft, 10½ in.
- **Height**: 2 ft, 1 in.
- **Weight**: 355 lb
- **Speed settings**: 0 to 700 mph (20 mph increments)
- **Angle**:
  - Target course azimuth: 360°
  - Maximum dive: 85°
  - Maximum climb: 85°
  - Elevation limits (power): -3 to ±85°
- **Maximum lead deflection**:
  - Vertical: (approx) 400 mils
  - Lateral: (approx) 400 mils
- **Super-elevation**:
  - At 0-mil gun elevation: 9 mils
  - At 1,000-mils gun elevation: 0 mils
- **Gun mount operating voltage**: 24-volts dc
- **Average projectile velocity**: 819 yds per sec
Basic triangulation of computer:
- Long leg: 5.850 in.
- Short leg: 2.440 in.

PERFORMANCE
EQUIPMENT
Basic Issue Items: See TM 9-7218.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA
Within Continental United States
Shipped: computing sight per box.

Outside Continental United States
Shipped: computing sight per box.

References: SNL F-363, TM 9-0061, TM 9-1220-201-35P.
TABLE, GRAPHICAL FIRING FAN: M1

General

TABLE, GRAPHICAL FIRING FAN: M1 is of the protractor type and is fabricated of plastic. It is used with CANNON, 105 MILLIMETER HOWITZER: M2A1. It is a replacement for SCALE, GRAPHICAL FIRING: M39A1.

Differences among models

Data plate location

Classification: Standard A (OTCM 36841).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic issue items: See TM 9-1220-216-12P.

### INSTRUCTIONAL MATERIAL

### STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped graphical firing fan tables per

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

Shipped graphical firing fan tables per

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Reference: TM 9-1220-216-12P.

12-52
TABLE, GRAPHICAL FIRING FAN: M2

General

TABLE, GRAPHICAL FIRING FAN: M2 is of the protractor type and is fabricated of plastic. It is used with CANNON, 155-MMILLIMETER HOWITZER: M1 and M1A1.

Differences among models

Data plate location

Classification: Standard A (OTCM 8841).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic issue Items: See TM 9-1220-216-12P.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped graphical firing fan tables per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped graphical firing fan tables per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Gross weight</td>
</tr>
<tr>
<td>Ship tons</td>
</tr>
</tbody>
</table>

Reference: TM 9-1220-216-12P.
SECTION 13

FIRE CONTROL SYSTEMS, COMPLETE
(CLASS 1230)
(Includes antiaircraft fire control and field artillery fire control systems.)

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C, M33A1C, M33B1C, and T33C, w/e</td>
</tr>
<tr>
<td>FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38)</td>
</tr>
<tr>
<td>FIRE CONTROL SYSTEM, FIELD ARTILLERY: M35 or M35C</td>
</tr>
</tbody>
</table>

(Includes system components listed below)

FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M33C, M33A1C, M33B1C, or T33C, consists of the ANTENNA, ACQUISITION ASSEMBLY; ORD No. 806598 or 7621368, the CABINET, RADAR ASSEMBLY; ORD No. 7622362, 7622222, or 7622027, the ANTENNA TRACKING ASSEMBLY; ORD No. 7604171 or 7621595, the COMPUTER, ASSEMBLY; ORD No. 7604074 or 7621789, the CONSOLE, TACTICAL, CONTROL ASSEMBLY; ORD No. 7604182 or 7621619, and the CONSOLE, TRACKING ASSEMBLY; ORD No. 7622329 or 7622028.

The acquisition antenna continuously searches the defense area and presents target position information through the radar cabinet to the tactical control console and tracking console, where the information is displayed as acquisition video signals on a 12-inch cathode ray tube and a 6-inch cathode ray tube on each console.

Any target may be selected and transferred to the track antenna assembly. Associated with the radar cabinet assembly and tracking console assembly, to track the target and provide accurate present position information to the computer assembly, which automatically determines the firing data used to direct guns, set projectile fuses and supply coordinate data to the tactical control console assembly, which plots present and predicted target positions on plotting boards. The incoming radar impulse reflected from the target is displayed on tracking video on three 6-inch cathode ray tubes located on the tracking console. A system of cables transmits power, signal, and communication data between components of the antiaircraft fire control system. The antiaircraft fire control system M33 or T33 series is a mobile, integrated, electromechanical fire control system. It is capable of locating and displaying on a cathode-ray tube high-speed targets within the defense area, on the basis of radar or optical observation, and supplying firing data to direct accurately the fire of antiaircraft guns. To accomplish its mission, the system requires from outside sources only primary power, early warning information, and meteorological data. A periscope maintains synchronism with the ANTENNA, TRACKING ASSEMBLY, to provide visual observation of the target area, and...
can be used for spotting purposes, and for optical tracking. The CABI-NET, RADAR ASSEMBLY, the COMPUTER ASSEMBLY, the CONSOLE, TACTICAL CONTROL ASSEMBLY, and the CONSOLE, TRACKING ASSEMBLY are located in the TRAILER, FIRE CONTROL MOUNT: M242. When the system is ready for travel, all the component parts are housed on trailers.

The antiaircraft fire control systems M33C, M33A1C, M33BIC, and T33C are designed to compute the necessary firing data for controlling the 90-mm antiaircraft guns.

Components:

<table>
<thead>
<tr>
<th>Component Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTENNA, ACQUISITION ASSEMBLY: ORD No. 7621808 AND ORD No. 8005806</td>
<td>13-4</td>
</tr>
<tr>
<td>ANTENNA, TRACKING ASSEMBLY: ORD No. 7622222</td>
<td>13-5</td>
</tr>
<tr>
<td>CABINET, RADAR ASSEMBLY: ORD No. 7622227 AND ORD No. 7622222</td>
<td>13-6</td>
</tr>
<tr>
<td>COMPUTER ASSEMBLY: ORD No. 7604074 AND ORD No. 7621909</td>
<td>13-7</td>
</tr>
<tr>
<td>CONSOLE, TACTICAL CONTROL ASSEMBLY: ORD No. 7604182 AND ORD No. 7621619</td>
<td>13-8</td>
</tr>
<tr>
<td>CONSOLE, TRACKING ASSEMBLY: ORD No. 7622928 AND ORD No. 7622929</td>
<td>13-9</td>
</tr>
</tbody>
</table>

Differences among models

The various models of the antiaircraft fire control system M33 and T33 series are basically similar. The models differ in the type of trailers, trucks, truck chassis, and vans used. Fire control systems M33C and M33A1C employ a rectangular, horizontally elongated ANTENNA, ACQUISITION ASSEMBLY: ORD No. 8005306. M33BIC and T33C employ a round-reflector ANTENNA. ACQUISITION ASSEMBLY: ORD No. 7621808.

Classification: Standard B (OTCM 37129), except T33C.

PERFORMANCE

Acquisition radar:
- Range ............................................ 120,000 yd
- Search altitude .................................. 75,000 ft
- Rotation ........................................ 10, 20, or 30 rpm

Tracking radar:
- Limits of operation:
  - Azimuth .................................... no limit
  - Elevation .................................... -180 to +1,600 mils
  - Range ....................................... 0 to 100,000 yd
  - Target speed .................................... 0 to 1,500 fps

EQUIPMENT

Basic issue items: See ORD 7 SNL F-342.

STORAGE AND SHIPMENT DATA

Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
</thead>
</table>

ANTENNA, ACQUISITION ASSEMBLY: ORD NO. 7621808 AND ORD NO. 8005306

General
ANTENNA, ACQUISITION ASSEMBLY: ORD No. 7621808 or ORD No. 8005306, consists of an antenna and antenna drive, orientation test set, radio frequency coupler, acquisition modulator, and antenna mounting legs. The acquisition antenna is a reflector-type antenna with a fiberglass protective dome. The antenna receives radio frequency energy, forms it into a beam, and radiates it into space. In the M33 system, the beam is raised or lowered by use of the cosecant bar; in the T33 system, the beam is raised or lowered by vertical movement of the acquisition scanner. The antenna also picks up the returned echo signals, reflected from the target, and feeds them to the CABINET, RADAR ASSEMBLY. The acquisition antenna assembly and the CABINET, RADAR ASSEMBLY are components of the acquisition radar, which presents range and azimuth position information of the target to the tracking radar (see ANTENNA, TRACKING ASSEMBLY). The acquisition antenna controls, which consist of the azimuth-acquisition control and the range-acquisition control, are components of the CONSOLE, TACTICAL CONTROL ASSEMBLY and console tracking assembly. The acquisition antenna radiates radio pulses in either a pencil-shaped beam or a cosecant-squared beam, and continuously searches the defense area. It normally rotates continuously through 360° of azimuth at speeds of 10, 20, or 30 rpm. The radio frequency rotary coupler transfers power and signal voltages between the fixed components of the antenna mounting and the rotating portion of the acquisition antenna. The acquisition antenna assembly is not located on the fire-control system trailer when the FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33 or T33 series is emplaced, but is separately emplaced on the ground.

Differences among models
Model ORD No. 7621808 is a round-reflector antenna, used with FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33BIC and T33C. The model ORD No. 8005306 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33BIC and T33C. Model ORD No. 8005306 is a rectangular, horizontally elongated antenna, used with FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33AIC.

Data plate location
Classification: Standard B.

CHARACTERISTICS
Peak power ........................................ 1 megawatt
Frequency band ...................................... 3,100 to 3,600 mc
Length ............................................. 16 ft
Width ............................................... 5 ft
Height .............................................. 15 ft
Weight ............................................. 2,340 lb

PERFORMANCE
Rotation ........................................... 10, 20, or 30 rpm
Search altitude .................................... 76,900 ft
Range ............................................. 120,000 yd

EQUIPMENT
Basic Issue Items: See ORD 7 ENL F-342.

INSTRUCTIONAL MATERIAL
STORAGE AND SHIPMENT DATA
Within Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Shipped</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Volume</th>
<th>Gross weight</th>
<th>Ship tons</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**ANTENNA, TRACKING ASSEMBLY: ORD NO. 7604171 AND ORD NO. 7621595**

The two models are basically similar, differing in minor details.

**DATA PLATE LOCATION**

Classification: Standard B.

---

### Model Line Item No. Federal stock No.

<table>
<thead>
<tr>
<th>ORD No. 7604171</th>
<th>1230-769-4171</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORD No. 7621595</td>
<td>1230-752-1595</td>
</tr>
</tbody>
</table>

**General**

ANTENNA, TRACKING ASSEMBLY: ORD No. 7604171 or ORD No. 7621595 consists of the elevation and azimuth tracking drives and data converters, upper section and lower section periscopes, collector ring, tracking radio frequency coupler, tracking scanner, and tracking waveguide lens. The tracking antenna ORD No. 7604171 or ORD No. 7621595 is mounted on the fire-control system trailer roof. The collector ring transfers power and signal voltages between the fixed components of the fire-control system trailer and the rotating portion of the tracking antenna. The tracking antenna is a reflector-type antenna, which radiates a sharply focused pencil beam in a conical path. It receives returned echo pulses reflected from any target upon which it may be directed. The tracking antenna assembly and the CABINET, RADAR ASSEMBLY are components of the tracking radar, which tracks a target and furnishes accurate target range, azimuth and elevation position information to the COMPUTER ASSEMBLY. A periscope maintains synchronism with the tracking antenna to provide visual observation of the target area, and can be used for spotting purposes, and for optical tracking.

The tracking antenna assembly ORD No. 7604171 is a component of FIRE CONTROL SYSTEM, ANTI AIRCRAFT: M38C and M38A1C. ORD No. 7621595 is a component of FIRE CONTROL SYSTEM, ANTI AIRCRAFT: M38BIC and T33C.

**DIFFERENCES AMONG MODELS**

The two models are basically similar, differing in minor details.

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Limits of operation: Azimuth</th>
<th>no limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevation</td>
<td>-180 to +1,600 mils</td>
</tr>
<tr>
<td>Peak power (RF)</td>
<td>250 kw</td>
</tr>
<tr>
<td>Frequency band</td>
<td>8,500 to 9,600 mc</td>
</tr>
<tr>
<td>Width, waveguide lens diameter</td>
<td>6 ft. 9 in.</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

Range: 100,000 yd

**EQUIPMENT**

Basic issue items: See ORD 7 SNL F-342.

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

**Shipped**

Length
Width
Height
Volume
Gross weight
Ship tons

**Outside Continental United States**

**Shipped**

Length
Width
Height
Volume
Gross weight
Ship tons

CABINET, RADAR ASSEMBLY: ORD NO. 7622027, ORD NO. 7622222, AND ORD NO. 7622362

SHOWN: CABINET, RADAR ASSEMBLY. ORD NO. 7622362 ORD A1646

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
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<tbody>
<tr>
<td>ORD No. 7622027</td>
<td></td>
<td>1230-762-2027</td>
</tr>
<tr>
<td>ORD No. 7622222</td>
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<td>1230-762-2222</td>
</tr>
<tr>
<td>ORD No. 7622362</td>
<td></td>
<td>1230-762-2362</td>
</tr>
</tbody>
</table>

General
CABINET, RADAR ASSEMBLY: ORD No. 7622027, 7622222, or 7622362, houses many of the assemblies of the acquisition and tracking radars, and transmits accurate slant range information to the computer assembly. The radar cabinet consists of the radar power control panel; low voltage power supplies; voltage regulators; delay timers; acquisition and track radar high voltage power supplies; tracking trigger, carrier, timing wave, and tracking range generators; tracking and range modulators; elevation and azimuth angle detectors, and high power servos; relay and test amplifiers; pulse demodulators; pulse and moving target synchronizers; video and mark mixer, and the switching and mixing unit.

The radar cabinet assembly ORD No. 7622222 is a component of FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: T33C. Model ORD No. 7622222 is a component of FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M33BIC. Model ORD No. 7622362 is a component of FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M33C and M33AIC.

Differences among models
The various models are basically similar, differing in minor details.

Data plate location
Classification: Standard B.

CHARACTERISTICS

Frequency:
- Acquisition radar: 3,100 to 3,500 Mc
- Tracking radar: 8,500 to 9,600 Mc

Peak (RF) power:
- Acquisition radar: 1,000 kw
- Tracking radar: 250 kw

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL F-342.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 radar cabinet per box.
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

Outside Continental United States
Shipped 1 radar cabinet per box.
- Length
- Width
- Height
- Volume
- Gross weight
- Ship tons

COMPUTER ASSEMBLY: ORD NO. 7604074 AND ORD NO. 7621789

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ORD No. 7604074</td>
<td></td>
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</tr>
<tr>
<td>ORD No. 7621789</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General**

COMPUTER ASSEMBLY: ORD Nos. 7604074 and 7621789 consists of the computer power control panel; correction panel; low voltage power supplies; voltage regulators; computer modulators; low power servo and DC amplifiers; relay panels; fuse, elevation, azimuth, and time of flight servos. The computer assembly receives accurate present position information from the radar cabinet assembly and tracking antenna assembly and automatically determines the firing data, which is used to direct guns and set projectile fuses and to supply coordinate data to tactical control console assembly, which plots present and predicted target positions on plotting boards. The computer assembly calculates where to aim a gun, considering the motion of the target along either a straight line or a curved path, at a constant or changing speed, likewise considering the forces that affect the speed of the projectile due to gravity and atmospheric conditions.

The computer assembly ORD No. 7604074 is a component of FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M33C and M33AIC. The model ORD No. 7621789 is a component of FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M33BIC and T33C.

**Differences among models**

The various models are basically similar, differing in minor details.

**Data plate location**

Classification: Standard B.

**Characteristics**

<table>
<thead>
<tr>
<th>Limit of operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azimuth</td>
<td>no limit</td>
</tr>
<tr>
<td>Elevation</td>
<td>-200 to +1,600 mils</td>
</tr>
</tbody>
</table>

**Performance**

**Equipment**

Basic Issue Items: See ORD 7 SNL F-342.

**Instructional Material**

**Storage and Shipment Data**

Within Continental United States:

- **Shipped**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

Outside Continental United States:

- **Shipped**
  - Length
  - Width
  - Height
  - Volume
  - Gross weight
  - Ship tons

CONSOLE, TACTICAL CONTROL ASSEMBLY: ORD NO. 7604182 AND ORD NO. 7621619

General

CONSOLE, TACTICAL CONTROL ASSEMBLY: ORD Nos. 7604182 and 7621619, consists of the horizontal-range, present and predicted altitude plotting boards; plan position, precision and target rate indicators; acquisition antenna control and monitor control panels. Present and predicted target position coordinate plotting data is supplied to the tactical control console assembly by the computer assembly. The horizontal-range plotting board plots present and predicted target positions in the horizontal plane. The altitude plotting board consists of two sections: one plots present altitude and present horizontal range; the other plots predicted altitude and predicted horizontal range. The target-rate indicator displays target velocity and acceleration information on panel meters. The controls of the acquisition antenna assembly which are part of the tactical control console assembly consist of the azimuth-acquisition control, range-acquisition control, elevation and azimuth acquisition scan controls.

The tactical control console assembly ORD No. 7604182 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33A1C. The model ORD No. 7621619 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33B1C and T33C.

Characteristics

Data plate location

Classification: Standard B.

CHARACTERISTICS

Plotting boards:

Height:
- Horizontal range: 28.8 in.
- Present altitude: 7.38 in.
- Predicted altitude: 14.76 in.

Limits of operation:
- Horizontal range: 40,000 yd
- Present altitude: -500 to +20,000 yd
- Predicted altitude: 500 to 14,260 yd altitude, 0 to 36 sec time of flight.

Performance

Equipment

Basic Issue Item: See ORD 7 SNL F-342.

Instructional Material

Storage and Shipment Data

Within Continental United States

Shipped 1 tactical control console per box.

Length

Width

Height

Volume

Gross weight

Ship tons

Outside Continental United States

Shipped 1 tactical control console per box.

Length

Width

Height

Volume

Gross weight

Ship tons

CONSOLE, TRACKING ASSEMBLY: ORD NO. 7622028 AND ORD NO. 7622329

![Console Tracking Assembly Image](image)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>ORD No. 7622028</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORD No. 7622329</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General**

CONSOLE TRACKING ASSEMBLY: ORD No. 7622028 or 7622329 consists of the precision, trio-fire, tracking elevation, azimuth, range and plan-position indicators, tracking and acquisition receiver controls; indicator high voltage power supply; and the tracking-console control drawer. The tracking console assembly provides indicators and controls for observing and tracking targets designated by the officer stationed at the tactical control console.

The tracking console assembly ORD No. 7622028 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33B1C and T33C.
The tracking console assembly ORD No. 7622329 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M33C and M33A1C.

**Differences among models**
The two models are basically similar, differing in minor details.

**Data plate location**
Classification: Standard B.

**CHARACTERISTICS**
Cathode-ray tube display precision indicator:
- **Diameter**: \( \text{\textbf{5 in.}} \)
- **Observation area**:
  - **Angle, in azimuth**: \( \text{\textbf{534 miles}} \)
  - **Range**: \( \text{\textbf{5,000 yd}} \)

**PERFORMANCE**

**EQUIPMENT**
Basic Issue Items: See ORD 7 SNL F-342.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**
- **Shipped**
  - **Length**
  - **Width**
  - **Height**
  - **Volume**
  - **Gross weight**
  - **Ship tons**

**Outside Continental United States**
- **Shipped**
  - **Length**
  - **Width**
  - **Height**
  - **Volume**
  - **Gross weight**
  - **Ship tons**

FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38)
(Includes system components listed below)

Components of Director: M15
Resolvers, Wind Unit Assembly ORD No. 7630042
Wiring Set: M26 Not Shown

CONTROL, POWER: M16 (T21E1)
COMPUTER, BALISTICS: M10 (T27E2)
PERISCOPE: M22 (T33)
RESOLVER, WIND, UNIT ASSEMBLY, ORD No. 7630042
TRACKER, RADAR: M4 (T9)
SELECTOR, TARGET: M5 (T1E2)
TELESCOPES: M96 (T33) (azimuth) and M96C (elevation)
SIGHTING SYSTEM, AUXILIARY: M37 (T34E1)
CABLE SYSTEM, FIRE CONTROL: M36 (T31E1)
WIRING SET: M26 (T3E5)

Model Line item No. Federal stock No.
M38 (T38), w/e ........................................ 1230-744-9436

General
FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) is used
on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm
serves as a compact, highly mobile weapon
designed primarily for use against low flying, high-speed aircraft and
designated as the “Sweeper.” Components of the DIRECTOR:
M15 (T41E2), the TRACKER, RADAR: M4 (T9), and COMPUTER,
BALISTICS: M10 (T27E2) supply automatic wind flying data to
the CONTROL, POWER: M16 (T21E1) of the gun and to PERI­
SCOPE: M22 (T33) or the computer which is continuously aligned
with the azimuth of the radar scanner, except in search. The
RESOLVER, WIND UNIT ASSEMBLY ORD No. 7630042 introduces
wind component corrections to the electronic computing circuits
of the power control. The gun may be positioned on a target
manually by means of handwheels, sighting being done by auxiliary
TELESCOPES: M96 (azimuth) and TELESCOPE: M96C (ele­
vation) of the SYSTEM, SIGHTING, AUXILIARY: M37 (T34E1).
The SELECTOR, TARGET: M5 (T1E2) is an auxiliary sighting
device which is used to spot “scree” targets that are more hazard­
ous than the one the on-mount personnel have engaged, and to
sound a wailing horn on the mount, automatically aligning the
radar beam with the spotted target. The WIRING SET: M26
(T3E5) includes electrical connections to the gun mount and the
fire control system. The CABLE SYSTEM, FIRE CONTROL: M36
(T31E1) includes the power supply cable, and the electrical con­
nections between the target selector and the on-mount major
items of the fire control system.

Components
Page
CONTROL, POWER: M16 (T21E1) .................. 13-12
DIRECTOR: M15 (T41E2) ............................... 13-13
COMPUTER, BALISTICS: M10 (T27E2) .......... 13-14
PERISCOPE: M22 (T33) ............................... 13-14
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TRACKER, RADAR: M4 (T9) ......................... 13-18
SELECTOR, TARGET: M5 (T1E2) .................. 13-19
CABLE SYSTEM, FIRE CONTROL: M36 (T31E1) .......... 13-22
SIGHTING SYSTEM, AUXILIARY: M37 (T34E1) .......... 13-24
TELESCOPES: M96 (T33) (azimuth) and M96C (elevation) .................. 13-25
WIRING SET: M26 (T3E5) ............................... 13-27
Classification: Standard B (OTCM 37255).

PERFORMANCE

Limits of operation:

- **Elevation**:
  - Powered: -90 to 1,490 mls
  - Manual: -106 to 1,511 mls

- **Azimuth**: no limit

- **Searching range**: 24,000 yd

- **Target speed**: 0 to 1,800 fps

EQUIPMENT

Basic Issue Items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Height</strong></td>
<td>6 ft, 8 1/2 in.</td>
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<tr>
<td><strong>Volume</strong></td>
<td>371 cu ft</td>
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<tr>
<td><strong>Gross weight</strong></td>
<td>2,700 lb</td>
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<tr>
<td><strong>Ship tons</strong></td>
<td>8.51</td>
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</table>

<table>
<thead>
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<th>Value</th>
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</thead>
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<td><strong>Width</strong></td>
<td>6 ft, 9 1/2 in.</td>
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</table>

Outside Continental United States

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Height</strong></td>
<td>6 ft, 5 1/2 in.</td>
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<tr>
<td><strong>Volume</strong></td>
<td>362 cu ft</td>
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<tr>
<td><strong>Gross weight</strong></td>
<td>2,700 lb</td>
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<td><strong>Ship tons</strong></td>
<td>8.21</td>
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Shipped

<table>
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<tr>
<td><strong>Height</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Volume</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Gross weight</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Ship tons</strong></td>
<td></td>
</tr>
</tbody>
</table>

References: SNL F-359, TM 9-3025, TM 9-6681.
CONTROL, POWER: M16 (T21E1)

General

CONTROL, POWER: M16 (T21E1) includes the gun traversing and elevating equipment of the FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M38 and contains two independently operating power systems, an azimuth power system and an elevation power system. Each power system consists of a hydraulic pump assembly, a case assembly housing the amplifier chassis, a gearing assembly, hydraulic lines and fittings. The hydraulic pumps drive the hydraulic motors geared to the elevation rack of the gun cradle and the azimuth ring gear. The gun dial assemblies, mounted on the gearing assemblies, contain dials for indicating gun azimuth and elevation. The COMPUTER, BALLISTICS: M10 calculates the gun position required to score hits on a target and supplies separate azimuth and elevation information to the power control M16, which positions the gun accordingly for firing by traversing the top carriage and simultaneously elevating or depressing the gun.

The power control M16 is a component of FIRE CONTROL SYSTEM, ANTI-AIRCRAFT: M38 (T38) used on GUN, ANTI-AIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.

Differences among models

Data plate location

The identification plates of the azimuth power control and of the elevation power control are located on the corresponding case assemblies.

Classification: Standard B (OTCM 37254).

CHARACTERISTICS

Type: Electro-hydraulic-mechanical

Elevation limits:

Manually:
- Upper: 1,510 mils
- Lower: -106 mils

Powered:
- Upper: 1,490 mils
- Lower: -90 mils

Variable, lower: -720 to -90 mils

Azimuth coverage: Continuous 6,400 mils

Slew speed, maximum:
- Azimuth: 1,050 mils/sec

Acceleration, average:
- Azimuth: 1,600 mils/sec
- Elevation: 2,000 mils/sec

Hydraulic pressure, maximum:
- Azimuth: 8,000 psi
- Elevation: 8,000 psi

Hydraulic transmission, each:
- Replenishing pressure: 110 psi
- Fluid capacity: 5½ gal

Mechanical transmission, each:
- Oil capacity: 1 qt

Power requirements: 115-v, 60-c, 3-phase ac

Power control case assembly:
- Length: 49 in.
- Width: 14 in.
- Height: 39 in.

Hydraulic pump assembly:
- Length: 34 in.
- Width: 13 in.
- Height: 14 in.

Weight, dry:
- Azimuth power system: 1,000 lb
- Elevation power system: 1,060 lb

PERFORMANCE

Equipment

Basic Issue Items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
- Length
- Width
- Height
- Gross weight
- Volume
- Ship tons

Outside Continental United States

Shipped
- Length
- Width
- Height
- Gross weight
- Volume
- Ship tons

DIRECTOR: M15 (T41E2)

DIRECTOR: M15 (T41E2) is composed of the COMPUTER, BALLISTICS: M10 (T27E2), PERISCOPE: M22 (T33), RESOLVER, WIND UNIT ASSEMBLY (ORD No. 7630042), and TRACKER, RADAR: M4 (T9). During tracking operation the TRACKER, RADAR: M4 (T9) continuously furnishes target present position information to the COMPUTER, BALLISTICS: M10 (T27E2). From these data, the computer calculates the gun position required to score on the target. The computer also includes a PERISCOPE: M22 (T33) for manually controlled optical tracking of an acquired target. Wind corrections are introduced to the computer circuits by the RESOLVER, WIND UNIT ASSEMBLY ORD No. 7630042 to compensate for the effect of ballistic wind on the projectile during its time of flight.

The director M15 is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38) used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.

Differences among models

Data plate location

Classification: Standard B (OTCM 37258).

CHARACTERISTICS

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL D-4.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

Outside Continental United States

Shipped
Length
Width
Height
Volume
Gross weight
Ship tons

References: SNL F-360, TM 9-3026, TM 9-6081.
COMPUTER, BALLISTICS: M10 (T27E2)

Differences among models

Data plate location

The identification plate is located on the rear face of the console.

Classification: Standard B (OTCM 37285).

<table>
<thead>
<tr>
<th>Model</th>
<th>Line item No.</th>
<th>Federal stock No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M10 (T27E2)</td>
<td></td>
<td>1285-335-1083</td>
</tr>
</tbody>
</table>

General

COMPUTER, BALLISTICS: M10 (T27E2) components are contained in a large console mounted in the forward right corner of the gun carriage of the gun mount and to the right of the gun barrel. Mounted on the rear face of the console are the PERISCOPE: M22, the handlebar unit, rate sensitivity switch, and the dial panel unit containing dials, control knobs, the gun control switch, and control transmitters. The console contains two electronic racks and five electro-mechanical assemblies which include the converter units, prediction unit, inverter unit, and the ballistic unit. PERISCOPE: M22 is connected mechanically through shafts to a converter unit, computer servo motors position the optical elements of the periscope, thereby affording a means of optical tracking. The periscope line-of-sight is normally aligned with the radar, when traveling, the periscope swings outward and down. The ballistics computer M10 is mechanically and electrically, through WIRING SET: M26, connected to the TRACKER RADAR: M4 and to CONTROL, POWER: M16. The CABLE FIRE CONTROL SYSTEM, M36 connects the computer to the SELECTOR, Target: M4. The ballistics computer M10 is used to calculate gun-positioning data from target present-position data. Presentation information is supplied as electrical data either by TRACKER, RADAR: M4 or by the handlebar unit and PERISCOPE: M22. From this information, the ballistics computer M10 continuously calculates the gun position required to score hits on a target and supplies this information to CONTROL, POWER: M16, which positions the gun accordingly. The RESOLVER, WIND UNIT ASSEMBLY ORD No. 7856042, mounted on the CONTROL, POWER: M16, introduces wind corrections to the computer circuits to compensate for the effect of ballistic wind on the projectile during its time of flight.

The ballistics computer M10 is a part of the DIRECTOR: M15, which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M39 (T36), used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.


13-14
PERISCOPE: M22 (T33)

General

PERISCOPE: M22 (T33) is an optical instrument that has an offset line-of-sight to enable an operator to view the target without exposing himself. It consists of a main housing which mounts the periscope tube with a rotating head, an eyepiece, a line-of-sight indicator, and a filter control. The housing, tube, and head contain prisms and lenses. Light enters the rotating head through a glass window, is reflected down by a right angle reflecting head prism, passes through a Dove prism which is rotated by a gear mechanism, to maintain an erect image and is deflected into the eyepiece by a Penta prism in the main housing. Periscope M22 (T33) is bolted to the rear of the console unit of COMPUTER, BALLISTICS: M10 (T27E2), and is connected mechanically, through shafts to the converter unit. Computer servo motors position the optical elements of the periscope, thereby affording a means of optical tracking. The periscope line-of-sight is normally continuously aligned with the antenna of the tracking radar scanner except in search. The operator of the COMPUTER, BALLISTICS: M10 (T27E2) can assume control of the gun through the handlebar unit beneath the periscope sight, firing buttons on the handlebar unit are provided for firing the gun during radar automatic and periscope tracking. The reticle is placed in the optical system of the periscope M22, and the combined image of reticle markings and target are transmitted by the optical system as a single image. The reticle speed rings are used to track rapidly moving targets, as an emergency mode of operation. Proper lead is introduced to the gun by centering the target on one of the speed rings instead of the reticle. These speed rings are graduated to introduce lead angles consistent with target speeds of 200 or 300 yd/sec. Reticle lamps provide illumination of the reticles. During traveling, the periscope is folded downward for protection.

Periscope M22 (T33) is a part of DIRECTOR: M15 (T4E2), which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38), used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.

Differences among models

Data plate location

The identification plate is located on the periscope assembly base.

13-15
Classification: Standard B (OTCM 37255).

CHARACTERISTICS

Coverage:
- Azimuth: continuous 6,400 mils
- Elevation: -200 to 1,550 mils
- Magnification: 2 X
- Field of view: 30°
- Weight: 128 lb

PERFORMANCE

EQUIPMENT

Basic Issue Items: See ORD 7 SNL D-48.

INSTRUCTIONAL MATERIAL

STORAGE AND SHIPMENT DATA

Within Continental United States
Shipped 1 periscope per box.

Length

Outside Continental United States
Shipped 1 periscope per box.

Length

Width

Height

Volume

Gross weight

Ship tons

RESOLVER, WIND, UNIT ASSEMBLY, ORD NO. 7630042

<table>
<thead>
<tr>
<th>Secondary Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>ORD No. 7630042</td>
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</tbody>
</table>

**General**

RESOLVER, WIND, UNIT ASSEMBLY, ORD No. 7630042 contains terminal blocks and potentiometers, and introduces wind component corrections to the electronic computing circuits of COMPUTER: M16 (T7TE2). Two dials and knobs provide for manually setting the values of ballistic wind into the wind resolver. The MAIN START-STOP buttons for CONTROL, POWER: M16 are also located on the resolver case. WIRING SET: M26 provides connections from the wind resolver to CONTROL, POWER: M16. The wind resolver is mounted on the elevation main case of CONTROL, POWER: M16.

The wind resolver is a part of the DIRECTOR: M16, which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38'), used on GUN, ANTIAIRCRAFT ARTILLERY, TOWED: 75-mm weapons system, M51.

**Data plate location**

The identification plate is located on the cover.

**Classification:** Standard B.

**CHARACTERISTICS**

- Azimuth coverage: continuous 6,400 mls
- Wind velocity: 0 to 120 mph
- Power requirements: 60-w, 60-c, 1-phase, ac
- Length: 12 in.
- Width: 3 in.
- Height: 20 lb

**PERFORMANCE**

**EQUIPMENT**

Basic Issue Items: See ORD 7 SNL D-48.

**INSTRUCTIONAL MATERIAL**

**STORAGE AND SHIPMENT DATA**

**Within Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Shipped 12 wind resolver assemblies per shipping container</td>
<td>2 ft, 8 in.</td>
</tr>
<tr>
<td>Length</td>
<td>2 ft, 1/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 9/16 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>9.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>122 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.34</td>
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</table>

**Outside Continental United States**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipped 12 wind resolver assemblies per shipping container</td>
<td>2 ft, 8 in.</td>
</tr>
<tr>
<td>Length</td>
<td>2 ft, 1/4 in.</td>
</tr>
<tr>
<td>Width</td>
<td>1 ft, 9/16 in.</td>
</tr>
<tr>
<td>Volume</td>
<td>9.5 cu ft</td>
</tr>
<tr>
<td>Gross weight</td>
<td>182 lb</td>
</tr>
<tr>
<td>Ship tons</td>
<td>0.24</td>
</tr>
</tbody>
</table>

**References:** SNL F-350, TM 9-3026-1, TM 9-3026-3, TM 9-6081 series.
General

TRACKER, RADAR: M4 (T9) consists of electronic components contained in a large console mounted to the left of the gun barrel, and of a parabolic reflector-type antenna of a scanner unit mounted on top of the console. The console unit mounts 20 subassemblies including amplifiers, synchronizer, oscillator, radar modulator, range indicator, magnetron and linkage, regulated power supply, and motor generator. The scanner unit includes a parabolic reflector, antenna and antenna nutator assembly, carried in trunnions providing for the elevation motion of these three items. The trunnions are free to rotate in azimuth. A shaft transmits gun azimuth data to the radar. The WIRING SET: M26 interconnects the radar tracker M4 and the COMPUTER, BALLISTICS: M10. Target range is obtained by measuring the time interval between the transmission of a pulse of radio frequency energy and the reception of reflections of this energy from the target. The radar tracker M4 detects airborne targets and tracks automatically any selected target. It supplies automatically target present-position data, azimuth, elevation, and slant range to COMPUTER, BALLISTICS: M10. The radar tracker can likewise be set to search the sky for targets, it can be set for manual range tracking, or in the periscope search and SELECTOR, TARGET: M5 modes of operation, the parabolic reflector-type antenna of the scanner unit, follows the PERISCOPE: M22 of the COMPUTER, BALLISTICS: M10 but does not originate data.

The radar tracker M4 is a part of the DIRECTOR: M15, which is a component of FIRE CONTROL SYSTEM, ANTIAIRCRAFT: M38 (T38), used on GUN, ANTIAIRCRAFT, ARTILLERY, Towed: 75-mm weapons system, M51.

Differences among models

Data plate location

Classification: Standard B (OTCM 37255).

CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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<tbody>
<tr>
<td>Wavelength, nominal</td>
<td>3 cm</td>
</tr>
<tr>
<td>Frequency</td>
<td>8,500 to 9,600 megacycles</td>
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<tr>
<td>Peak power output</td>
<td>40 kw</td>
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<tr>
<td>Power requirements</td>
<td>115-v, 60-c, 3-phase, ac</td>
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