WAR DEPARTMENT

TECHNICAL MANUAL

6-INCH SEACOAST MATERIEL:
GUNS M1903A2 AND M1905A2;
BARBETTE CARRIAGE M1

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### Section IX

**AMMUNITION**

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**59. GENERAL.**

a. Ammunition for the 6-inch Guns M1903A2 and M1905A2 is of the separate loading type. The loading of each complete round into the cannon requires three separate operations: one, the fuzed projectile; two, the propelling charge; and three, the primer. These components are shipped separately. Armor-piercing projectiles for this gun are shipped fuzed; high-explosive and practice projectiles are shipped unfuzed.

**60. NOMENCLATURE.**

a. Standard nomenclature is used in this section in all references to specific items of issue. Its use for all purposes of record is mandatory.

**61. FIRING TABLES.**

a. For applicable firing tables, see section XV, References.

**62. CLASSIFICATION.**

a. The projectiles authorized for use in these guns are classified as armor-piercing (shell and shot), high-explosive, practice, and dummy. Armor-piercing shell and shot have thick walls (shot having thicker walls than shell) and a relatively small quantity of explosive filler, whereas high-explosive projectiles have relatively thin walls and a
for an example: an the projectile
the weight
of type. This model designation becomes an essential part of the standard nomenclature and is included in the marking on the item. Prior to the First World War, the year in which the design was adopted preceded by an M was used as the model designation, for example: M1906. From the First World War until July 1, 1925, it was the practice to assign mark numbers. The word “Mark,” abbreviated “Mk.,” was followed by a Roman numeral, for example, SHELL, H. E., Mk. III. The first modification of a model was indicated by the addition of MI to the mark number, the second by MII, etc. The present system of model designation consists of the letter M followed by an Arabic numeral. Modifications are indicated by adding the letter A and appropriate Arabic numerals. Thus, M2A1 indicates the first modification of an item for which the original model designation was M2.

63. IDENTIFICATION.

a. General. Ammunition and components are completely identified by means of the painting and marking (including ammunition lot number). Other essential information is marked on the components, for example: on the projectile, the weight zone or weight and kind of filler; on the propelling charge, the weight of igniter, designation of each section, etc. See figures 77-88 and the following paragraphs. The muzzle velocity may be obtained from the firing tables.

b. Mark or Model. To identify a particular design, a model designation is assigned at the time the model is classified as an adopted type. This model designation becomes an essential part of the standard nomenclature and is included in the marking on the item. Prior to the First World War, the year in which the design was adopted preceded by an M was used as the model designation, for example: M1906. From the First World War until July 1, 1925, it was the practice to assign mark numbers. The word “Mark,” abbreviated “Mk.,” was followed by a Roman numeral, for example, SHELL, H. E., Mk. III. The first modification of a model was indicated by the addition of MI to the mark number, the second by MII, etc. The present system of model designation consists of the letter M followed by an Arabic numeral. Modifications are indicated by adding the letter A and appropriate Arabic numerals. Thus, M2A1 indicates the first modification of an item for which the original model designation was M2.

c. Ammunition Lot Number. When ammunition is manufactured, in ammunition lot number, which becomes an essential part of the marking, is assigned in accordance with pertinent specifications. In the case of separate-loading ammunition, a lot number is assigned to each marked on, each of the components—projectile, fuze, propelling charge and primer—as well as on all packing containers. It is required or all purposes of record, including reports on condition, functioning and accidents in which ammunition is involved. To provide for the most uniform functioning, all of the components in any one lot of separate-loading ammunition are manufactured under as nearly identical conditions as practicable. For example, in the case of projectiles, any
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one lot consists of projectiles made by one manufacturer, loaded by one manufacturer, and of one weight. Therefore, to obtain the greatest accuracy when firing separate-loading ammunition, successive rounds, should consist of:

- Projectiles of one lot number (one type and one weight).
- Propelling charges of one lot number.
- Fuses of one lot number.
- Primers of one lot number.

4. Painting and Marking.

1. Painting. Projectiles are painted to prevent rust and to provide, by the color, a ready means of identification as to type. For the projectiles described herein, the color scheme is as follows:

- High explosive or armor-piercing: Yellow, marking in black.
- Practice: Black, marking in white.
- Dummy or drill (inert): Black, marking in white, except red band at center of gravity.

2. Marking. For purposes of identification, the following are marked on the components of separate loading ammunition:

   a. On the projectile:
   - Caliber and type of cannon in which fired.
   - Kind of filler, for example, "TNT," "EXP.D," etc.
   - Mark or model of projectile.
   - Weight or weight zone.
   - Lot number.

   b. On the propelling charge or section thereof (stenciled):

      1. On the body:
      - Kind of charge, for example, "1 CHG."
      - Powder lot (includes type of powder, the word "Lot," initials of manufacturer, serial number of lot and year of manufacture).
      - Caliber, type, and model of cannon in which fired.

      2. On the igniter:
      - Weight, grade, and kind of igniter powder.
      - Caliber and model of cannon in which fired.
      - Month and year of loading.

      3. On dummy propelling charges:
      - "DUMMY CHARGE" or "DUMMY PROPELLING CHARGE," together with the caliber and model of gun in which it is used.

*It should be noted that the above color scheme is not wholly in agreement with the basic color scheme described in TM 9-1000, practice projectiles being generally painted blue.
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(c) On the fuse (stamped on the body):
- Type and model of fuse.
- Loader's initials.
- Month and year loaded.
- Loader's lot number.

(d) On the primer (stamped on the head):
- Mark or model.
- Loader's lot number.
- Year of loading.

e. Weight Zone Markings. Because it is not practicable to manufacture high-explosive projectiles within the narrow weight limits required for the desired accuracy of fire, projectiles are grouped into weight zones in order that the appropriate ballistic corrections indicated by firing tables may be applied. The weight zone of the projectile is indicated thereon by means of squares, of the same color as the markings, with a prick punch in the center of each square—one, two, three, or more being used, dependent upon the weight of the projectile. For the high explosive shells for 6-inch guns, two squares indicate normal or standard weight. In the case of armor-piercing and practice projectiles, the actual weight to the nearest pound is stenciled thereon, rather than squares to indicate the weight zones.

4. CARE, HANDLING, AND PRESERVATION.

a. Ammunition components are packed to withstand conditions ordinarily encountered in the field. Armor-piercing shell and shot M1911, and dummy projectiles are packed individually in crates—the armor-piercing shot, Mk. XXXIII, being packed individually in boxes. The rotating bands of these projectiles are protected by grommets. High explosive shell are shipped uncrated with grommets and eyebolt lifting plugs. Practice projectiles are shipped uncrated with grommet. Fuzes, propelling charges, and primers are packed in moisture-resistant containers. Since explosives are adversely affected by moisture and high temperature, the following precautions should be observed:

(1) Moisture-resistant seals should not be broken until ammunition is to be used.

(2) Ammunition, particularly fuzes, primers and propelling charges, should be protected from sources of high temperature, includ-
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...ing the direct rays of the sun. More uniform firing is obtained if the rounds are at the same temperature.

b. Do not attempt to disassemble any fuse.

c. Do not remove the eyebolt lifting plug from the unfuzed round until ready to assemble the fuze thereto. The eyebolt lifting plug is provided for convenience in handling and to keep the fuze opening free of foreign matter.

d. Primers must always be stored in a dry place. Prolonged exposure to moisture or dampness may cause malfunctioning.

e. Explosive ammunition must be handled with appropriate care at all times. The explosive elements in primers and fuzes are particularly sensitive to undue shock and high temperature.

f. Each of the separate loading components should be free of foreign matter—sand, mud, grease, etc.—before loading into the gun.

g. Do not remove protective or safety devices from fuzes until just before use.

h. Components of rounds prepared for firing but not fired, will be returned to their original condition and packings, and appropriately marked. Such components will be used first in subsequent firing, in order that stocks of opened packings may be kept at a minimum. Fuzes and primers will be inspected prior to repacking.

65. AUTHORIZED ROUNDS.

a. The ammunition (figs. 77-88) authorized for use in the 6-inch Guns M1903A2 and M1905A2 is listed in Tables I and II. It will be noted that the nomenclature (standard nomenclature) completely identifies the ammunition.

66. PREPARATION FOR FIRING.

a. Aside from removal of the packing material (including the grommet which protects the rotating band), the armor-piercing projectiles are ready for firing. In the case of high-explosive shells, in addition to removing the grommet, the eyebolt lifting plug must be removed and the appropriate fuze assembled to the shell. Cast-iron practice shells are shipped uncrated and require only the removal of the grommet.
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Figure 77—SHELL, A.P., 108-lb, M1911, 6-inch Guns, M1897MI-08-08MI-08MII and M1900-03-03A1-03A2-05-05A1-05A2

Figure 78—SHOT, A.P., 108-lb, M1911, 6-inch Guns, M1897MI-08-08MI-08MII and M1900-03-03A1-03A2-05-05A1-05A2

Figure 79—SHELL, C.I., 108-lb, M1911, 6-inch Guns, M1897MI-08-08MI-08MII and M1900-03-03A1-03A2-05-05A1-05A2
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Figure 80—SHOT, A.P., 105-lb, MK. XXXIII, w/ FUZE, B.D., M60, 6-inch Guns, M1900-03-03A1-03A2-05A1-05A2

Figure 81—SHELL, H.E., 90-lb, MK. II A, Unfuzed, 6-inch Guns, M1897MI-08-08MI-08MH and M1900-03-03A1-03A2-05-05A1-05A2 (Adapted for Fuze, P.D. M51, w/ Booster, M21, or M31A1, w/ Booster, M21A1)

Figure 82—PROJECTILE, dummy, 108-lb, MK. II A, 6-inch Gun
### AMMUNITION FOR 6-INCH GUNS M1903A2 AND M1905A2

<table>
<thead>
<tr>
<th>Nomenclature of Projectile</th>
<th>Propelling Charge (Type)</th>
<th>Primer (Model)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SERVICE AMMUNITION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHELL, H.E., 60-lb, Mk II, unfused, 6-inch gun, M1897M1-08-08MII and M1900-03-03A1-03A2-05-05A1-05A2 (adapted for FUZE, P.D., M31, with BOOSTER, M22, or M31A1, w/BOOSTER, M31A1)</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td>SHELL, H.E., 60-lb, Mk II A2, unfused, 6-inch gun, M1907M1-08-08MII and M1900-03-03A1-03A2-05-05A1-05A2 (adapted for FUZE, P.D., M31, w/BOOSTER, M22, or M31A1, w/BOOSTER, M31A1)</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td>SHELL, A.P., 108-lb, M1911, 6-inch gun, M1897M1-08-08MII and M1900-03-03A1-03A2-05-05A1-05A2</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td>SHELL, A.P., 108-lb, M1911, 6-inch gun, M1897M1-08-08MII and M1900-03-03A1-03A2-05-05A1-05A2</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td>SHELL, A.P., 108-lb, Mk XXXIII, w/FUZE, B.D., M66, 6-inch gun, M1900-03-03A1-03A2-05-05A1-05A2</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td><strong>PRACTICE AMMUNITION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHELL, C.I., 60-lb, M1911, 6-inch gun, M1897M1-08-08MII and M1900-03-03A1-03A2-05-05A1-05A2</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td><strong>DRILL AMMUNITION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROCKET, dummy, 90-lb, Mk I, 6-inch gun</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td>ROCKET, dummy, 108-lb, Mk II, 6-inch gun</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td>ROCKET, dummy, 108-lb, Mk II A2, 6-inch gun</td>
<td>Single section</td>
<td>M30**</td>
</tr>
<tr>
<td><strong>SUBCALIBER AMMUNITION</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Note:**
- B.D.—Base detonating
- H.E.—High explosive
- P.D.—Point detonating
- C.I.—Cast iron
- PDF—Point detonating fuse

For designation of propelling charges, see paragraph 58. The actual weight of the charge may vary from the nominal weight shown, dependent upon the particular powder used.

- Service primer is designated PRIMER, electric, M30. If electric power fails, PRIMER, friction, M1914, shall be used.

- A fixed service primer is used for drill purposes.

- Dummy charges, see paragraph 58.


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67. PROJECTILES.

a. General. The projectiles authorized for use in these guns are listed in paragraph 65. Detailed data pertaining to these projectiles (figs. 77-82) appear in Table II, below. Although of the same general shape—cylindrical body, square base, and ogive head—projectiles for the 6-inch Guns M1903A2 and M1905A2 differ in characteristic details as follows:

(1) Location of fuze: point or base.

(2) Radius of ogive: short for low-velocity, long for high-velocity projectiles.

(3) Armor-piercing cap: used only with armor-piercing projectiles

(4) Windshield or false ogive: used with armor-piercing projectiles to improve their ballistic efficiency.

(5) Base cover: used with armor-piercing and high-explosive projectiles to prevent hot gases from the propelling charge from coming in contact with the bursting charge in the projectile through possible flaws in the base.

b. Ammunition Data. See Table II.

68. PROPELLING CHARGES.

a. General. The propelling charges authorized for use with this weapon are of two types. One, a single section charge—the other, a base and increment charge. The single section charge consists of a laced cloth bag (see fig. 83) containing NH (nonhygroscopic) smokeless powder. An igniter of black powder is assembled to each end of the single section charge. The base and increment charge consist of a base section and one increment section. The cloth bodies of the charge are reinforced with a cloth wrapping wound spirally around the length of each section. An igniter charge of black powder is sewed to one end of the base section. The base section is equipped with four tying straps which are tied over the increment thus securing both sections together. The full charge is used for maximum range firing and the base section alone is used by itself for firing in the low...
<table>
<thead>
<tr>
<th>Type and kind</th>
<th>Model</th>
<th>Nominal weight (pounds)</th>
<th>Fuse</th>
<th>Action</th>
<th>Length (inches)</th>
<th>Width (inches)</th>
<th>Weight (pounds)</th>
<th>Type</th>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHELL, H.E.</td>
<td>Mk. II</td>
<td>90</td>
<td>*</td>
<td>Delay</td>
<td>24.50</td>
<td>1.25</td>
<td>2.00</td>
<td>13.60</td>
<td>TNT</td>
</tr>
<tr>
<td>SHELL, H.E.</td>
<td>Mk. IIIA1</td>
<td>90</td>
<td>**</td>
<td>S.Q or Del.</td>
<td>24.43</td>
<td>1.25</td>
<td>2.00</td>
<td>13.60</td>
<td>TNT</td>
</tr>
<tr>
<td>SHELL, A.P.</td>
<td>M1911</td>
<td>108</td>
<td>B.D., Mk. V</td>
<td>Nondelay</td>
<td>22.71</td>
<td>1.25</td>
<td>2.00</td>
<td>4.53</td>
<td>EXP.D</td>
</tr>
<tr>
<td>SHELL, A.P.</td>
<td>M1911</td>
<td>108</td>
<td>B.D., Mk. V</td>
<td>Nondelay</td>
<td>20.66</td>
<td>1.25</td>
<td>2.00</td>
<td>1.54</td>
<td>EXP.D</td>
</tr>
<tr>
<td>SHELL, C.I.</td>
<td>M1511</td>
<td>108</td>
<td>Delay</td>
<td>27.06</td>
<td>1.00</td>
<td>2.50</td>
<td>2.17</td>
<td>EXP.D</td>
<td>Fuzed, one per crate</td>
</tr>
<tr>
<td>PROJ., dummy</td>
<td>Mk. I</td>
<td>90</td>
<td>Sliding ring</td>
<td>23.00</td>
<td>1.19</td>
<td>One per crate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROJ., dummy</td>
<td>Mk. II</td>
<td>108</td>
<td>Sliding ring</td>
<td>22.75</td>
<td>1.19</td>
<td>One per crate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROJ., dummy</td>
<td>Mk. IIIA1</td>
<td>108</td>
<td>Sliding ring</td>
<td>22.75</td>
<td>1.86</td>
<td>One per crate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S.Q.—Superquick.

* Either FUZE, P.D., M41, or Mk. IV—star may be used.
** Either FUZE, P.D., M51, w/BOOSTER, M21, or M11A1, w/BOOSTER, M21A1 may be used.
ranges. Propelling charges are packed in airtight cartridge storage cases and, to prevent accidental ignition of the charge, an igniter protector cap is placed over each igniter pad.

h. Preparation for Firing. Once the charge is removed from its container it is only necessary to remove the igniter protector caps and the attached linen data tag and the charge is ready for firing.

CAUTION: When loading the base and increment charge, the igniter—indicated by the words "IGNITING POWDER"—should be to the rear (breech end). If the igniter end is loaded first, the charge will not burn properly. This might result in a serious accident.

c. CHARGE, Propelling, Single Section, NH Powder, 6-inch Guns, M1900-03-03A1-03A2-05-05A1-05A2, 90-lb and 105-lb Projectile. The weight of this charge (fig. 83) is approximately 32 pounds. The bob is 6 7/8 inches in diameter and 42 7/8 inches in length (maximum). The total igniter charge consists of 10 ounces of black powder; 3 ounces are contained in each of the igniter pads, which are sewed—one to each end of the charge, and the other 4 ounces are in a core igniter. The cloth of the igniter pad is dyed red to indicate that it contains black powder. The following marking is stenciled on the charge:

```
Each Side
3-OZ IGNITER
WITH 4-OZ CORE
A-1 BLK. FDR. LOT XXX
6 IN. O. M1900, M1903 & M1905
XX-XX (MONTH & YEAR OF LOADING)

Side
WT. 1 CHG. XX LB (Diffs with the powd ends lot and (projectile weight).

1 CHG. 6 IN. O. M1900, M1903 & M1905
XX-XX LOT XX XXX XX
(Type of powder, initials of manufacturer, serial number of lot and year of manufac-
ture).
```

d. CHARGE, Propelling, Single Section, NH Powder, 6-inch Guns, M1900-03-03A1-03A2-05-05A1-05A2, 105-lb Projectile. For description of this charge see the foregoing subparagraph. The weight is approximately 37 pounds. This charge is authorized for use with SHOT, A.P., 105-lb, Mk. XXXIII, w/FUZE, B.D., M60.

e. CHARGE, Propelling, Base and Increment, 6-inch Guns, M1903-03-03A1-03A2-05-05A1-05A2, 90-lb Projectile. This charge
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Authorized for use with SHELL, HE., 90-lb, Mk. II or Mk. 11A1. The weight of complete charge is 30 pounds; 18 pounds are contained in the base section, and the other 12 pounds in the increment section. The igniter charge which is sewed to one end of the base section, consists of 7 ounces of black powder. The full charge is 5.75 inches in diameter and 40 inches in length—the base section is 24 inches long, and the increment section is 16 inches long. The following marking is stenciled on the charge:

<table>
<thead>
<tr>
<th>On the base section</th>
<th>On the increment section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ear End:</td>
<td>IGNITING POWDER</td>
</tr>
<tr>
<td>Front End:</td>
<td>6 IN. GUN BASE</td>
</tr>
<tr>
<td></td>
<td>6 IN. GUN INCREMENT</td>
</tr>
</tbody>
</table>

f. CHARGE, Propelling, Dummy, Single Section, 32-lb, 1917, 6-Inch Guns, M1900-03-03A1-03A2-05-05A1-05A2. This dummy charge is used for drill purposes with all dummy projectiles stated in paragraph 67. The charge consists of a quantity of small hardwood and lead cylinders (simulated smokeless powder grains) and a lead-weighted hardwood cylinder contained in a laced bag of fire cotton duck. A handle of the same material is attached to the end of the charge to facilitate its removal from the chamber of the gun by means of an extractor as described in paragraph 83. The dummy charge for these guns weighs 32 pounds. It is 5¼ inches in diameter and 41 inches in length. It is similar in size and weight to the profiling charge illustrated in figure 83.

d. FUZES.

a. Classification. A fuze is a mechanical device used with a projectile to explode it at the time or under the circumstances desired. Fuzes are classified in general according to location in the shell as命中-detonating or base-detonating. Fuzes authorized for use with projectiles for the 6-Inch Guns M1903A2 and M1905A2 are classified as to type of action after impact—as superquick, non-delay, and delay.

b. Arming. Artillery impact fuzes are so designed that they are in an "unarmed" condition before firing; they become armed by forces incident to firing.

c. Boresafe. Dependent upon the method of arming, some fuzes are considered "boresafe." A boresafe fuze is one in which the explo-
Figure 83—CHARGE, Propelling, Single Section, NH Powder, 6-inch Guns, M1900-03-03A1-03A2-03-05A1-05A2, 90-lb and 108-lb Projectiles
sive train is so interrupted that, prior to firing and while the projectile is still in the bore of the gun, premature action of the bursting charge is prevented should any of the more sensitive elements malfunction.

d. FUZE, B.D., Mk. V. This base-detonating fuze is used with high-explosive projectiles in which non-delay action is required. It is classified as boresafe. As issued, it is assembled to the projectile and covered by the base cover, hence it is not visible.

e. FUZE, B.D., M60. This fuze is of the base-detonating delay type. Due to arrangement of the explosive elements, it is classified as a boresafe fuze. This fuze is authorized for SHOT, A.P., 105-lb., Mk. XXXIII, w/FUZE, B.D., M60. This projectile is shipped with fuze and base cover assembled, hence the fuze is not visible.

f. FUZE, P.D., M47. This point-detonating fuze (fig. 84), is of the delay type. It is used with high explosive projectiles. It is not classified as boresafe but may be fired under the same conditions as boresafe fuzes. It may be identified by the stamping on the body and the black paint on the head.

g. FUZE, P.D., M51A1, w/BOOSTER, M21A1. This fuze is shown in figure 85. The booster, instead of being a component of the loaded projectile, is permanently attached to the fuze at the time of manufacture. The fuze contains two actions, superquick and delay, and is classified as boresafe. Both actions are initiated on impact, the functioning of the shell depending upon the setting of the fuze. When the fuze is set "DELAY," the superquick action is so interrupted that the fuze functions with delay action. It should be noted, however,
that, if the superquick action malfunctions when the fuze is set "S.Q.,” the projectile will function with delay action. On the side of the fuze near the base is a slotted "setting sleeve” and two registration lines; the one parallel to the axis is marked “S.Q.,” the other “DELAY.” As shipped, the fuze is set “S.Q.” To set the fuze for delay action it is only necessary to turn the setting sleeve so that its slot is aligned with “DELAY.” (A delay pellet—0.05 second—incorporated in the delay action train provides for the delay action). The setting may be made or changed with a screwdriver or similar instrument at any time before loading, even in the dark. If superquick action is desired the slot should be parallel to the fuze axis; if delay action is desired the slot should be at right angles to the fuze axis. A cotter pin with pull ring is assembled to the booster to prevent accidental movement of the detonator during shipment. This cotter pin is to be withdrawn just prior to assembling the fuze with booster to the projectile.

h. FUZE, P.D., M51, w/BOOSTER, M21. With the exception of an internal modification, this fuze is the same in all respects to FUZE, P.D., M51A1, w/BOOSTER, M21A1.
70. PRIMERS.

a. General. The primer is the component used to fire the propelling charge. It consists, essentially, of a small quantity of sensitive explosive and a large quantity of black powder within a brass container. The primer is designed for insertion into the breechblock and, dependent upon the type, is fired by an electric current or by friction. The symbol of the loader and the lot number of the primer are stamped on the head.

b. PRIMER, Electric, M30. This primer (fig. 86) is used with all guns in emplacements fitted with electrical equipment. It is fired by the heat generated by an electric current passing through a resistance wire embedded in the sensitive explosive. The black powder charge intensifies and transmits the flame to the igniter, which is sewed to propelling charge. This primer may be distinguished from the friction primer, described below, by the presence of black insulation on the wire and the presence of a groove around the head of the case. A live primer is supplied for dummy rounds; it is to be fired by the service and retained for use with the dummy (drill) ammunition.

c. PRIMER, Friction, M1914. This primer (fig. 87) is similar in appearance to the electric primer, described in subparagraph b, above, with the exceptions stated. It is used for all 6-inch guns where electric power is not available either from lack of facilities or from temporary power failure. It is ignited by the heat generated when a serrated plug is pulled through a friction mixture.

71. PACKING.

a. Complete packing data covering dimensions, volume and weight of the various components of the ammunition described herein are published in SNL P 1, P 2, P 7, P 8, and R 3. Although weights of individual projectiles and crates vary somewhat, dependent upon the
type and model, and propelling charges vary likewise, dependent upon the particular powder charge, the following data are considered representative for estimating weight and volume requirements:

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight (pounds)</th>
<th>Volume (cubic feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-inch gun projectile as shipped:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-explosive, uncrated*</td>
<td>90</td>
<td>0.77</td>
</tr>
<tr>
<td>Over-all dimensions (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.43 x 7.37 (diam.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armor-piercing Shot, Mk. XXXIII, packed 1 per box</td>
<td>124</td>
<td>1.52</td>
</tr>
<tr>
<td>Over-all dimensions (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31½ x 9⅜ x 9¾</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armor-piercing Shell, M1911, packed 1 per crate</td>
<td>115</td>
<td>1.77</td>
</tr>
<tr>
<td>Over-all dimensions (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28½ x 10¾ x 10¾</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practice, uncrated*</td>
<td>108</td>
<td>0.73</td>
</tr>
<tr>
<td>Over-all dimensions (inches):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.21 x 7.37 (diam.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Propelling charge:
- Packed 1 charge per cartridge storage case, 2 cases per crate: 108 4.87
- Over-all dimensions of crate (inches): 43½ x 17¾ x 9¾
- Dummy propelling charges are packed and shipped in wooden boxes as required.

*NOTE: The outside diameter given in over-all dimensions of uncrated projectiles includes the grommet.
6-INCH SEA COAST MATERIEL:
GUNS M1903A2 AND M1903A2; BARBETTE CARRIAGE M1

Figure 88—SHELL, Fixed, Subcaliber, 1.457 inch

Fuzes:

FUZE, P.D. M47, packed in metal-lined box,
50 fuzes per box.

Overall dimensions (inches):
18 3/16 x 9 3/16 x 8 7/32

FUZE, P.D. MS1A1, w/BOOSTER, M21A1,
packed in individual fiber containers,
25 containers (25 fuzes) per wooden box.

Overall dimensions (inches):
17 7/16 x 15 5/8 x 9 1/32

Primers:

Packed 20 per metal container, 25 containers
(500 primers) per box.

Overall dimensions (inches):
17 3/16 x 16 x 6 3/16

72. SUBCALIBER AMMUNITION.

a. General. SHELL, fixed, subcaliber, 1.457 inch (fig. 88), is
authorized for use in the GUN, subcaliber, 1.457 (1 pdr.), when this
gun is used for subcaliber practice in 6-inch seacoast guns. This
ammunition is issued in the form of fixed complete rounds. "Fixed" amm-
munition refers to complete rounds in which the propelling charge is
fixed, that is, not adjustable, and which are loaded into the gun as a
unit. The projectile, which is made of steel, is inert and weighs 1.06
AMMUNITION

pounds as fired. The cartridge case is of the extracting rim type and contains an igniting primer. To distinguish this round from those containing percussion primers, a diametrical red stripe is painted across the base. When firing, a regular service primer (PRIMER, electric, M30, or PRIMER, friction, M1914) is required to fire the igniting primer of the subcaliber round. The complete round may be identified by the markings thereon.

b. Packing. Data for packing are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight (pounds)</th>
<th>Volume (cubic feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete round without packing material</td>
<td>1.60</td>
<td>—</td>
</tr>
<tr>
<td>Packed 50 rounds per metal lined box</td>
<td>112.0</td>
<td>2.21</td>
</tr>
</tbody>
</table>

Over-all dimensions of box (inches):
23 7/8 x 12 1/4 x 13 3/8

73. FIELD REPORT OF ACCIDENTS.

a. When an accident involving the use of ammunition occurs during training practice, the procedure prescribed in section VII, AR-750-10 will be observed by ordnance officer under whose supervision the ammunition is maintained or issued. Where practicable, reports covering malfunctions of ammunition in combat will be made to Chief of Ordnance, giving type of malfunction, type of ammunition, the lot number of the complete rounds or separate loading components, and condition under which fired.