

**THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS**

D. OF A. (INDIA)

JAPANESE AMMUNITION LEAFLETS

**SECTION E
LEAFLET E20**

**AMMUNITION
FOR
THE 75-mm. TYPE MEIJI 41 REGIMENTAL GUN**

GENERAL

Various natures of gun ammunition for the above equipment have been examined at Kirkee and it is now possible to issue a detailed J. A. L. describing each type.

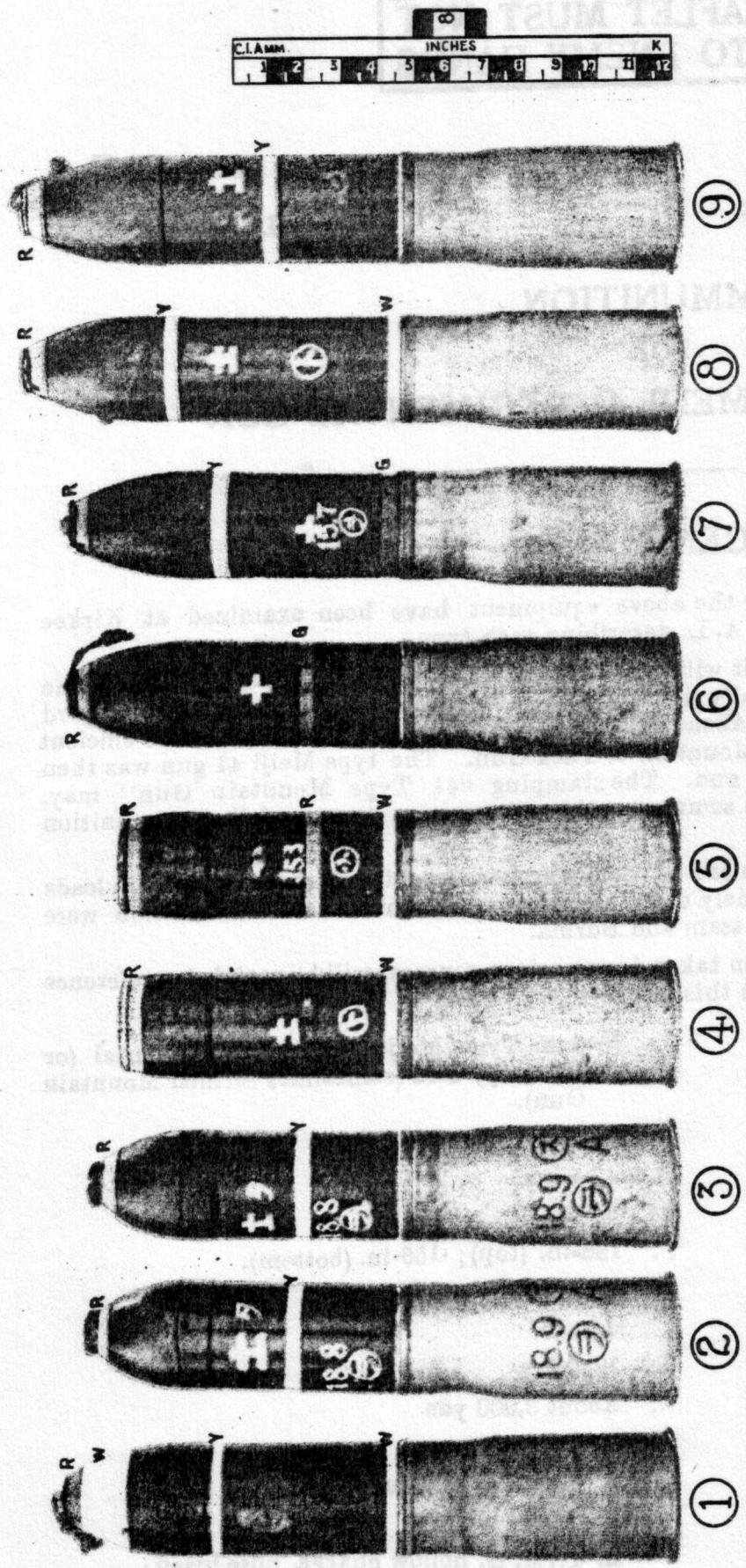
2. Before describing the ammunition it will be useful to make a few remarks on the gun. The Type Meiji 41 Regimental Gun was originally intended as a mountain gun and was the standard pack artillery gun used by the Japanese. About 1935 this weapon was replaced by a more efficient equipment known as the 75-mm. Type '94 Mountain or Pack Gun. The type Meiji 41 gun was then re-distributed as an infantry (or regimental) gun. The stamping "41 Type Mountain Gun" may, therefore, be found on the equipment and in some cases the ammunition boxes and the ammunition may be marked "41 Mountain".

3. The Type Meiji 41 Regimental Gun can be rapidly broken-down for animal transport in loads of approximately 200-lbs. The gun was widely used in Burma and quantities of ammunition were captured frequently during the fighting in Assam and Burma.

4. The following data, which have been taken from various sources, will be useful for reference and may help in identifying shell fired from this gun:—

Nomenclature	... 75-mm. Type Meiji 41 (1908) Regimental (or Infantry) Gun (sometimes termed Mountain Gun).
Calibre	... 75-mm.
Length of bore	... 43.5-ins.
Number of grooves	... 28
Width of grooves	... 188-in. (top); 156-in. (bottom).
Depth of grooves	020-in.
Width of lands	125-in.
Muzzle velocity	... 1250 f. s.
Maximum range	... About 8,000 yds.
Ammunition used	... H. E.; A. P./H. E. base fuze; Shrapnel; A. T./H. E. hollow charge, nose fuze; Incendiary and Smoke.

5. So far as is known no gas shell have been cased for the Type Meiji 41 Regimental Gun but there is no reason why it could not be used, as 75-mm. shell for the Type '94 Mountain Gun, etc. in which gas is known to be used, could be cased for this equipment.



R=RED BAND, W=WHITE BAND
Y=YELLOW BAND, G=GREEN BAND

JAPANESE GUN AMMUNITION
TYPICAL FOR
75 MM. REGIMENTAL GUN TYPE 'MEIJI 41'

C.I.AMM. S/913
KIRKEE, OCT. 1944

G.P.Z. R.P.OONA, 1944.

KEY TO PHOTOGRAPH OPPOSITE

No.	TYPE OF SHELL	COMPLETE ROUND			Length of Case Ins.	PROPELLANT		H. E. FILLING OR BURSTER. (including Exploder)		
		Weight Lbs.	O/A Length Ins.	Weight ozs.		Nature	Weight Lbs.	ozs.	Nature.	
1	H. E. (Enlarged Nose-adapter.)	12	7	16 3/4	7 1/4	9-34	Square Flakes of N. C. + Graphite 97.7% and Diphenylamine 2.3 %	2	13 1/4	T. N. T., Grade I
2	H. E. HOLLOW CHARGE, .. (Steel Cartridge Case, rust proofed by apparent cadmium process.)	10	9	15 3/4	"	7	"	1	2	T. N. T./R. D. X. (50 : 50 approx).
3	H. E. HOLLOW CHARGE. .. (Steel Cartridge Case, rust proofed by brass plating.)	10	9	15 3/4	"	7	"	1	2	- Do - - Do -
4	SHRAPNEL	16	3	15	"	9-25	"	0	3 1/2	G. P.
5	SHRAPNEL	16	1	15	"	9-38	"	0	4	G. P.
6	H. E.	15	8	16 1/2	"	9-34	"	1	1/4	T. N. T., Grade I.
7	H. E.	15	9	16 1/2	"	9-35	"	1	1/4	- Do - - Do -
8	H. E.	15	3	17 3/4	"	9-35	"	1	13 1/4	T. N. T., Grade II
9	H. E.	15	10	17 3/4	"	9-36	"	1	14 1/4	T. N. T., Grade I

Notes.

- Round 1: This is a shrapnel shell body adapted by using an enlarged nose adapter for a H. E. Filling. Note the increased weight of filling and prominent white nose. Possibly, an indication to the user that it is particularly suitable against earth works using a slight delay fuze.
- Rounds 4 and 5: Only slight differences in construction and filling. The reason for the red band in middle of shell is not yet clear.
- Rounds 6 and 7: These have tapered cavities with extremely thick walls and small weight of filling, probably intended to give high fragmentation effect for anti-personnel use. Note green band. The shell has no bourrelet.
- Rounds 8 and 9: These have parallel wall cavities and comparatively thin walls. These shells are identical with those cased for the Type '94 Mountain Gun. The reason for the white band is not yet clear.

DESCRIPTION

6. To facilitate description of the different rounds used in this gun the following Plates have been included in this Leaflet:—

Plate A.—Photograph of all the more common types of rounds used with a brief description of each round.

Plate B.—Detailed data for all the more common types of rounds arranged in a form useful for quick reference.

Plate C.—Details of markings and external dimensions of the A. T./H. E. hollow charge nose fuze round.

Plate D.—Internal details and dimensions of the A.T./H.E. hollow charge nose fuze round.

Plate E.—Photograph of the complete A.T./H.E. hollow charge nose fuze round with details of the assembly sequence.

Plate F.—Photograph of typical packing and of six round P. T. box.

CARTRIDGE CASE

7. Cartridge cases used have been found to be made of brass or steel, but so far steel cases have been found only with A.T./H.E. hollow charge rounds. Such cases have been rustproofed either by brass plating or zinc plating. The latter has the appearance of cadmium plating and for this reason the case was at one time thought to be cadmium plated. The dimensions and general construction of the case will be clear from Plate D while further details are tabulated in Plate B.

PROPELLANT CHARGE

8. All cartridges examined had a propellant charge of graphited N. C. flakes, the weight of the charge varying slightly according to the shell used. The graphited N. C. flakes are contained in a silk bag, the charge being positioned in the case by a glazed board cup and distance piece. Details of this will be clear from Plate D. All rounds, except those fitted with A.T./H.E. hollow charge nose fuze and A.P./H.E. base fuze shell, have the propellant charge fitted with an igniter of about 80-grs. of gunpowder. All these rounds have the small, Type 'B' primer. Rounds fitted with A.T./H.E. hollow charge nose fuze shell and A.P./H.E. base fuze shell were found to be without gunpowder igniters and were fitted with a large, Type 'E' primer; see J. A. L. E2. The reason for these differences is not thought to have anything to do with the shell but rather that this type of case has, for convenience, been restricted for use with these shell, perhaps a more recent type of case. Tabulated details of propellant charges, igniters, etc. are given in Plate B.

PRIMERS

9. Details of the primers used are tabulated in Plate B and a full description of these primers is given in J. A. L. E2.

SHELL

10. **H. E. nose fuze.**—So far as is known there are three different types of H. E. nose fuze shell used in this equipment. Details of these are given in Plates A and B.

(a) **H. E. with enlarged nose adapter.**—This is a shrapnel shell which has been converted by the fitting of a large nose adapter to take a H. E. filling. It will be noticed from the Plates that this shell has a very large H. E. content, nearly 3-lbs., and is specially marked to indicate this by the nose adapter being painted white. The method of filling used in this shell is shown at Plate D of J. A. L. E7. The standard weight of the shell filled and fuze is 10-lbs. 4-ozs.

(b) **H. E., thick wall, high fragmentation type.**—Details of this are given in Plates A and B. It will be noticed that, owing to the thick walls, the shell holds only a comparatively small H. E. filling, about 15-ozs. of T. N. T. The method of filling used is shown at Plate C of J. A. L. E7. All shell in this type have been found with a green band and metallurgical analysis shows that a special nature of cast iron is used, presumably to obtain the maximum fragmentation effect. For this reason the shell have been described as thick wall, high fragmentation type. The standard weight of the shell filled and fuze is 13½-lbs.

AMMUNITION FOR 75 MM TYPE MEIJI 41 REGIMENTAL GUN

Detailed data in comparative form

PLATE B

GENERAL NOMENCLATURE.	H. E., NOSE-FUZED.	A. T., H. E., HOLLOW CHARGE.	SHRAPNEL.		H. E., NOSE-FUZED.			A. P./H. E., BASE-FUZED.
Coloured Band Markings on Shell	One white band, one yellow band. Enlarged nose adapter painted white.	Yellow band	White band	One white band, one red band.	Green band.	One green band, one yellow band.	Yellow band	White band
Type of Shell	Shrapnel shell body adapted for H. E. filling.	A. T., H. E., Hollow Charge, Type 2, Block filling.	Shrapnel. White band.	Shrapnel. Red band and white band.	Thick wall; high fragmentation.	Thin wall; general purpose.	Thin wall; general purpose	A. P./H. E., Base fuze/Tracer
Complete Round:—								
Weight (without fuze or plug)	12 lbs. 7 oz.	10 lbs. 9 oz.	16 lbs. 3 oz.	16 lbs. 1 oz.	15 lbs. 8 oz.	15 lbs. 9 oz.	15 lbs. 10 oz.	17 lbs. 7 oz.
Overall Length { " " }	16-75-In.	15-75-In.	15-In.	15-In.	16-5-In.	16-5-In.	17-78-In.	15-55-In.
Shell:—								
Length (without fuze or plug)	11-06-In.	9-47-In.	9-25-In.	9-21-In.	10-71-In.	10-71-In.	11-93-In.	9-84-In.
Bourrelet/Adapter/Explosive container	Bourrelet/Adapter/Explosive container	Metal liner/Bourrelet/Explosive container	Adapter	Adapter	Adapter/Explosive container	Adapter/Explosive container	Bourrelet/Adapter/Explosive container	Bourrelet
Filled Weight (with explosive container and adapter)	9 lbs. 13½ oz.	7 lbs. 14 oz.	13 lbs. 11 oz.	13 lbs. 9 oz.	13 lbs. 1½ oz.	13 lbs. 1 oz.	13 lbs. 2 oz.	14 lbs. 7 oz.
Empty Weight (without explosive container & adapter)	5 lbs 12 oz.	6 lbs. 10 oz.	5 lb. 12 oz.	5 lbs. 10 oz.	11 lbs. 13 oz.	11 lbs. 10 oz.	10 lbs. 12 oz.	13 lbs. 8½ oz.
Nature and Weight of Bursting Charge	2 lbs. 12 oz. of T. N. T. grade I	1 lb. 2 oz. of R. D. X./T. N. T. (50/50)	3-97 oz. of G. P. (G. 20)	3-49 oz. of G. P. (G. 20)	15 oz. of T. N. T., grade I	15 oz. of T. N. T., grade I	1 lb. 13 oz. of T. N. T., grade I	1-88 oz. of R. D. X./Beees-wax (84-9%; 15-1%)
Nature and Weight of Explosive Filling	1-39 oz. of Picric acid.	95-6 grains of R. D. X./Wax	—	—	1-41 oz. of Picric acid.	1-4 oz. of Picric acid.	1-4 oz. of Picric acid	—
Charge Weight Percentage	28-8%	14-5%	1-8%	1-6%	7-8%	7-8%	14-5%	0-8%
Probable Fuze Used	Type '88 (24 mm. F.H.) 'A', 'B' or 'C'	Type '88 (24 mm. F.H.) 'A'	Fuze, T. & P. Fuze, T. & P. (2 time rings) Weight 1 lb. 7 oz.	Fuze, T. & P. Fuze, T. & P. (2 time rings) Weight 1 lb. 7 oz.	Type '88 (24 mm. F.H.) 'A', 'B' or 'C'	Type '88 (24 mm. F.H.) 'A', 'B' or 'C'	Type '88 (24 mm. F.H.) 'A', 'B' or 'C'	Base fuze with combined tracer element.
Cartridge Case:—								
Overall Length	7 1/4-In.	7 1/4-In.	7 1/4-In.	7 1/4-In.	7 1/4-In.	7 1/4-In.	7 1/4-In.	7-21-In.
Weight (empty)	1 lb. 15 oz.	2 lbs.	1 lb. 13 oz.	1 lb. 13 oz.	1 lb. 11 oz.	1 lb. 13 oz.	1 lb. 12 oz.	2 lbs. 1 oz.
Material	Brass	Steel, rust-proofed by cadmium or brass plating.	Brass	Brass	Brass	Brass	Brass	Brass
Nature and Weight of Propellant	9-34 oz. of graphited N. C. flakes.	7 oz. of graphited N. C. flakes.	9-25 oz. of graphited N. C. flakes.	9-38 oz. of graphited N. C. flakes.	9-34 oz. of graphited N. C. flakes.	9-36 oz. of graphited N. C. flakes.	9-36 oz. of graphited N. C. flakes.	9-18 oz. of graphited N. C. flakes.
Igniter	79-47 grains of G. P. (G. 20)	—	77-15 grains of G. P. (G. 20)	79 grains of G. P. (G. 20)	79-47 Grains of G. P. (G. 20)	81-77 grains of G. P. (G. 20)	78 grains of G. P. (G. 20)	—
Primer (Type; Size (diameter over screwthreads))	Type "B" 0-5-In.	Type "E" 1-07-In.	Type "B" 0-5-In.	Type "B" 0-5-In.	Type "B" 0-5-In.	Type "B" 0-5-In.	Type "B" 0-5-In.	Type "E" 1-07-In.

Notes:—1. For convenience of reference Type '88 percussion fuzes are divided into three sub-types:—

Type '88 (24mm F.H.)	'A'	'B'	'C'	Weight 6 oz.
Instantaneous action only.				6-6 oz.
Slight delay action only.				6-6 oz.
Slight delay and graze action.				6-6 oz.

2. The details above are in some cases the mean of a number of shell examined. In other cases only one or two shell have been examined. The details are, therefore, representative and not exact figures to be repeated in every round examined.

(c) **Thin wall, general purpose.**—Details of this shell are shown in Plates A and B. It will be noticed that the filling is much greater than the previous type, about 1-lb. 10-ozs. T. N. T., and that the shell is about 1.2 ins. longer. The standard weight of the shell filled and fuze is 13-lbs.

11. **A.T./H.E. hollow charge nose fuze:**—Full details of this shell are given in Plates C, D, and E while tabulated details are given in Plate B. It is interesting to note that all hollow charge shell found cased for this gun had steel cases. The standard weight of the shell plugged and fuze is 8-lbs. 4-ozs. As the result of trials carried out in India early this year the maximum penetration against homo plate was assessed as follows:—

At normal	... 84-mm.
At 30° from normal	... 65-mm.
At 60° from normal	... 42-mm.

12. **A.P./H.E. base fuze:**—Details of this round are tabulated in Plate B while the general appearance and method of filling is shown in Plate B of J. A. L. E7. The standard weight of this shell filled and fuze is about 14½ lbs. As the result of trials carried out in India early this year the performance against homo plate at point blank range was assessed at:—

At normal	... 62-mm.
At 30° from normal	... 50-mm.

13. **Shrapnel:**—Details of shrapnel shell are given in Plates A and B. Except for the red band marking on the body both the shell are practically identical in all details. The construction of the shell follows very closely standard British practice, for instance the old 18 pr. shrapnel shell. No burster container cup is, however, used. The gunpowder is poured directly into a cavity formed in the base of the shell and the central tube filled with perforated pellets of gunpowder. The red band is thought to be the old marking for shrapnel shell, see J. A. L. EI (a).

14. **Incendiary shell:**—Very little information is available but from reports it would seem that the usual filling of rubber pellets in a solution of white phosphorus and carbon disulphide is used. The shell is fitted with a special large nose adapter taking the usual small adapter for one exploder container and fuze, the filling being poured straight into the shell, no separate container appears to be used. The exploder acts as the bursting charge. Such shell can be identified by spanner flats or tommy holes near the nose used for fitting the adapter. Care must be taken not to confuse this adapter with the usual fuze adapter used in all H. E. shell. Complete weight, (filled and fuze,) of the shell is reported to be 12.1 lbs. The shell are painted a blue/gray colour but shell painted yellow may be found as this is the old system of marking and may still be found.

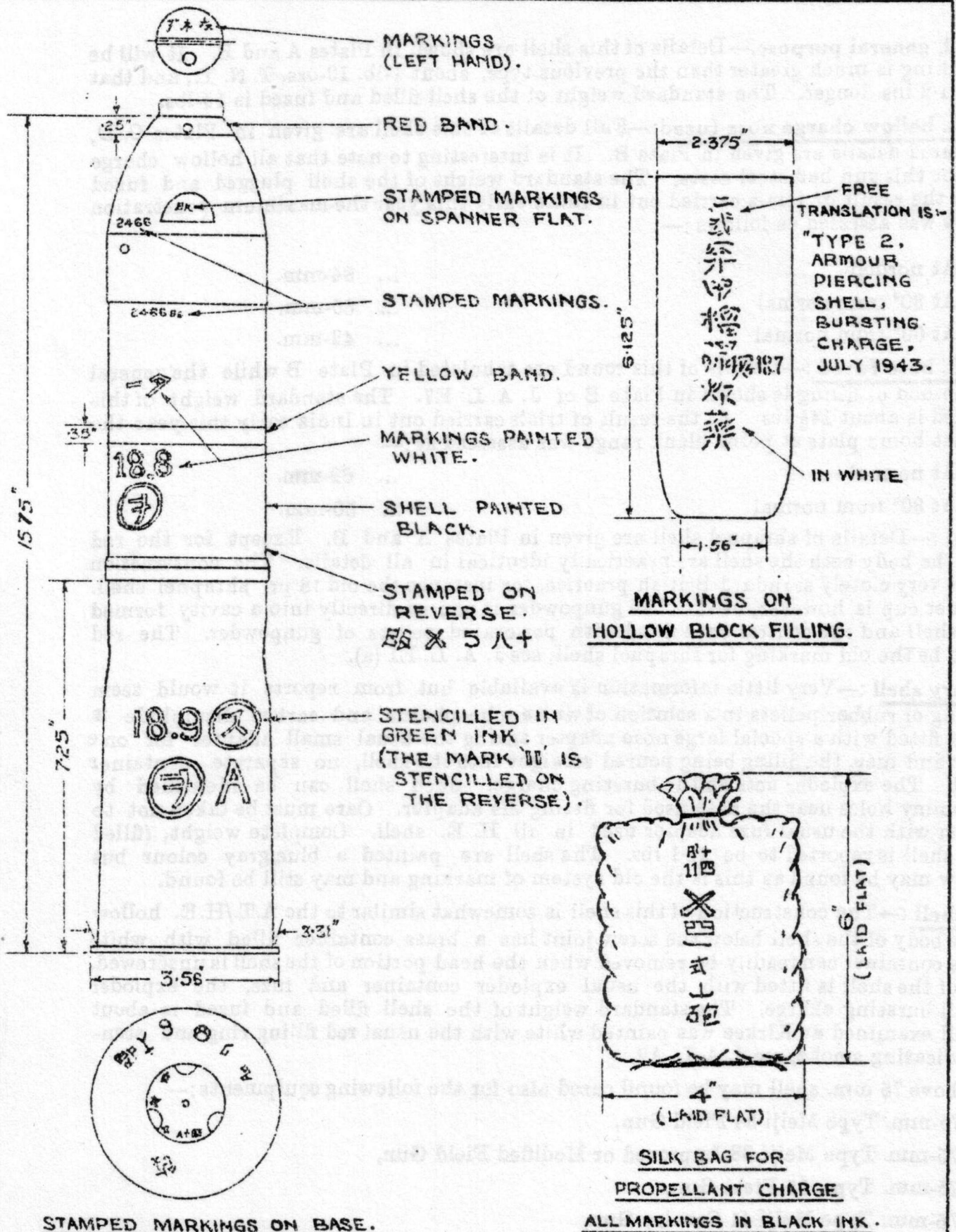
15. **Smoke shell:**—The construction of this shell is somewhat similar to the A.T./H.E. hollow charge shell. The body of the shell below the screw joint has a brass container filled with white phosphorus. This container can readily be removed when the head portion of the shell is unscrewed. The head portion of the shell is fitted with the usual exploder container and fuze, the exploder initiating the small bursting charge. The standard weight of the shell filled and fuze is about 12.6 lbs. The shell examined at Kirkee was painted white with the usual red filling ring and stencilled character indicating smoke, see J. A. L. A2.

16. All the above 75 mm. shell may be found cased also for the following equipments:—

- 75-mm. Type Meiji 38 Field Gun,
- 75-mm. Type Meiji 38 Improved or Modified Field Gun,
- 75-mm. Type '95 Field Gun,
- 75-mm. Type Meiji 41 Cavalry Gun,
- 75-mm. Type '90 Field Gun,
- 75-mm. Type '94 Mountain Gun.

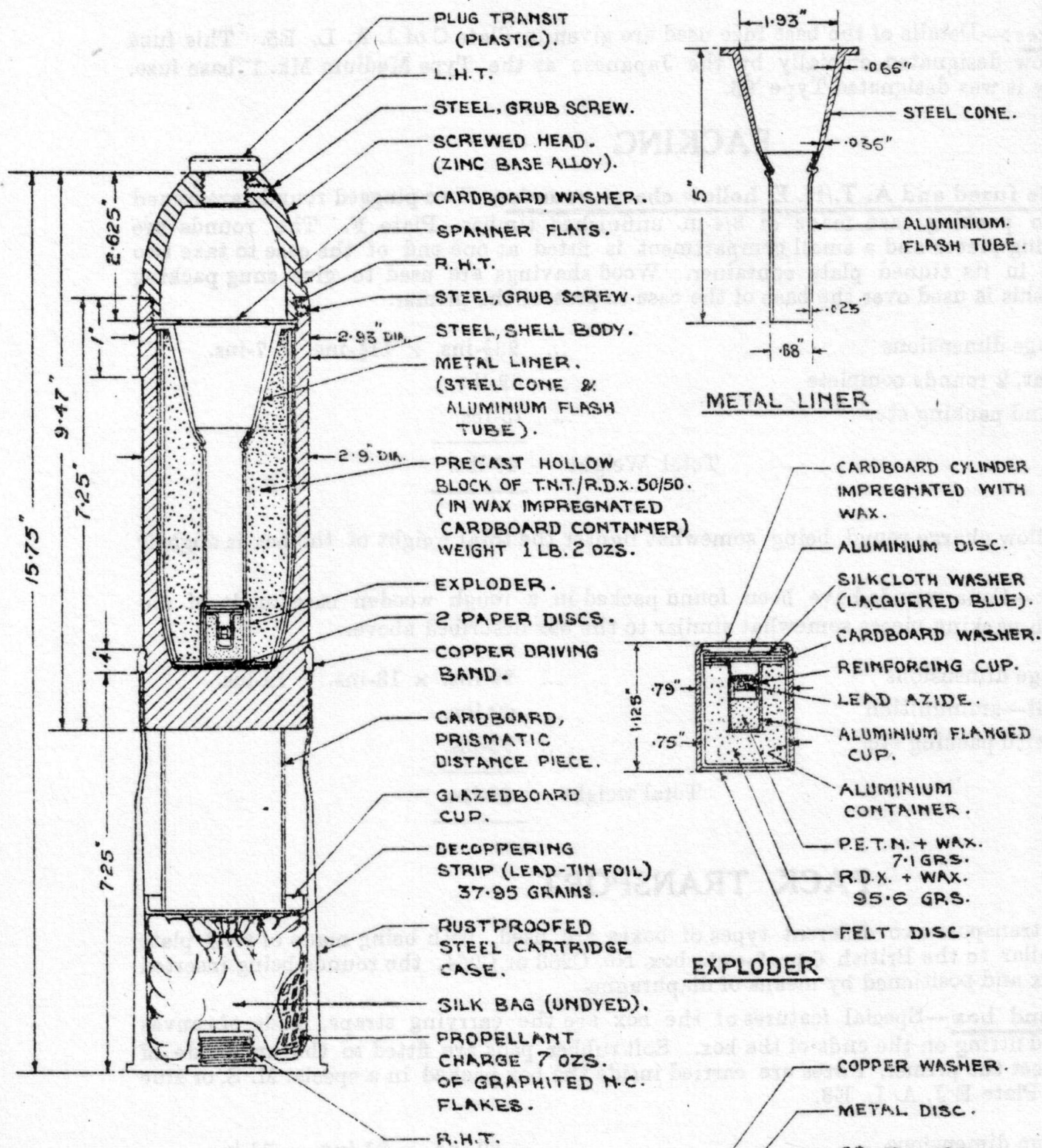
FUZES

17. **Nose Fuzes:**—H.E. nose fuze shell all have 24 mm. fuze holes and take Type '88 Nose Percussion fuzes. Full details of these fuzes are given in J. A. L. E3. The hollow charge shell takes the instantaneous fuze for gun use, although the howitzer fuze could be used. There is reason to believe that the mortar fuze Type 100 is also used in this shell. The fuze used in shrapnel shell is of the orthodox time and percussion type with two time rings. This fuze is very similar in construction and action to the British time and percussion fuze No. 80. The time of burning is 22.5-secs. and it is known as time and percussion fuze Type Taisho 3 (1914) or "Three Year Type".



HOLLOW CHARGE A/T H.E. SHELL (TYPE 2)
CARTRIDGED FOR
75 MM. REGIMENTAL GUN TYPE 'MEIJI '41'
(MARKINGS AND EXTERNAL DIMENSIONS)

C.I.A.M.M. S/922.
 KIRKEE. NOV. '44.



WEIGHT OF COMPLETE ROUND WITHOUT PLUG ~ 10 LB. 9 OZS.

HOLLOW CHARGE A/T H.E. SHELL (TYPE 2)
CARTRIDGED FOR
75 MM. REGIMENTAL GUN TYPE 'MEIJI '41'
(INTERNAL DETAILS AND DIMENSIONS)

BRASS PRIMER

C.I.A.M.M. S/921.
 KIRKEE. NOV. '44.

18. **Base Fuzes**:—Details of the base fuze used are given in Plate C of J. A. L. E5. This fuze is known to be now designated officially by the Japanese as the Type Medium Mk. 1 base fuze, although originally it was designated Type '95.

PACKING

19. **H. E. nose fuzed and A. T./H. E. hollow charge rounds**.—Two plugged rounds are issued packed in a rough packing case made of 3/4-in. unfinished timber—Plate F. The rounds are positioned by packing pieces and a small compartment is fitted at one end of the case to take two fuzes each packed in its tinned plate container. Wood shavings are used to give snug packing and in some cases this is used over the base of the case to protect the primer.

Stowage dimensions	... 23½-ins. × 11¼-ins. × 7-ins.
Weight, 2 rounds complete	... 32-lbs.
Box and packing etc.	... 15-lbs.
Total Weight	<u>47-lbs.</u>

Note:—The hollow charge round being somewhat lighter the total weight of the box is slightly less—about 41-lbs.

20. **A.P./H.E.**:—Four rounds have been found packed in a rough wooden case made of unfinished timber with packing pieces somewhat similar to the box described above.

Stowage dimensions	... 22-ins. × 13-ins. × 12-ins.
Weight—ammunition	... 69-lbs.
Case with packing etc.	... 23-lbs.
Total weight	<u>92-lbs.</u>

PACK TRANSPORT

21. For pack transport two different types of boxes are used, both being made of steel plate and somewhat similar to the British 6-pr. 7-cwt. box No. C263 or C264, the rounds being inserted shell first in the box and positioned by means of diaphragms.

(a) **3-round box**—Special features of the box are the carrying straps, made of canvas and leather and fitting on the ends of the box. Soft rubber pads are fitted to the underside of the end to protect the primer. Fuzes are carried inside the box packed in a special M. S. or zinc container—see Plate E J. A. L. E3.

Stowage dimensions	... 22-ins. × 8½-ins. × 8½-ins.
Weight, 3 rounds complete	... 48-lbs.
Box and packing etc.	... 21-lbs.
	<u>49-lbs.</u>

(b) **6-round box**:—A photograph of this box is shown in Plate F. The method of packing the rounds is the same as above except that the fuzes are packed each in a tinned plate cylinder which are housed in a rectangular recess formed in the lid.

Stowage dimensions	... 25½-ins. × 13 ins. × 9½-ins.
Weight, 6 rounds complete	... 96-lbs.
Box and packing, etc.	... 32-lbs.
	<u>128-lbs.</u>

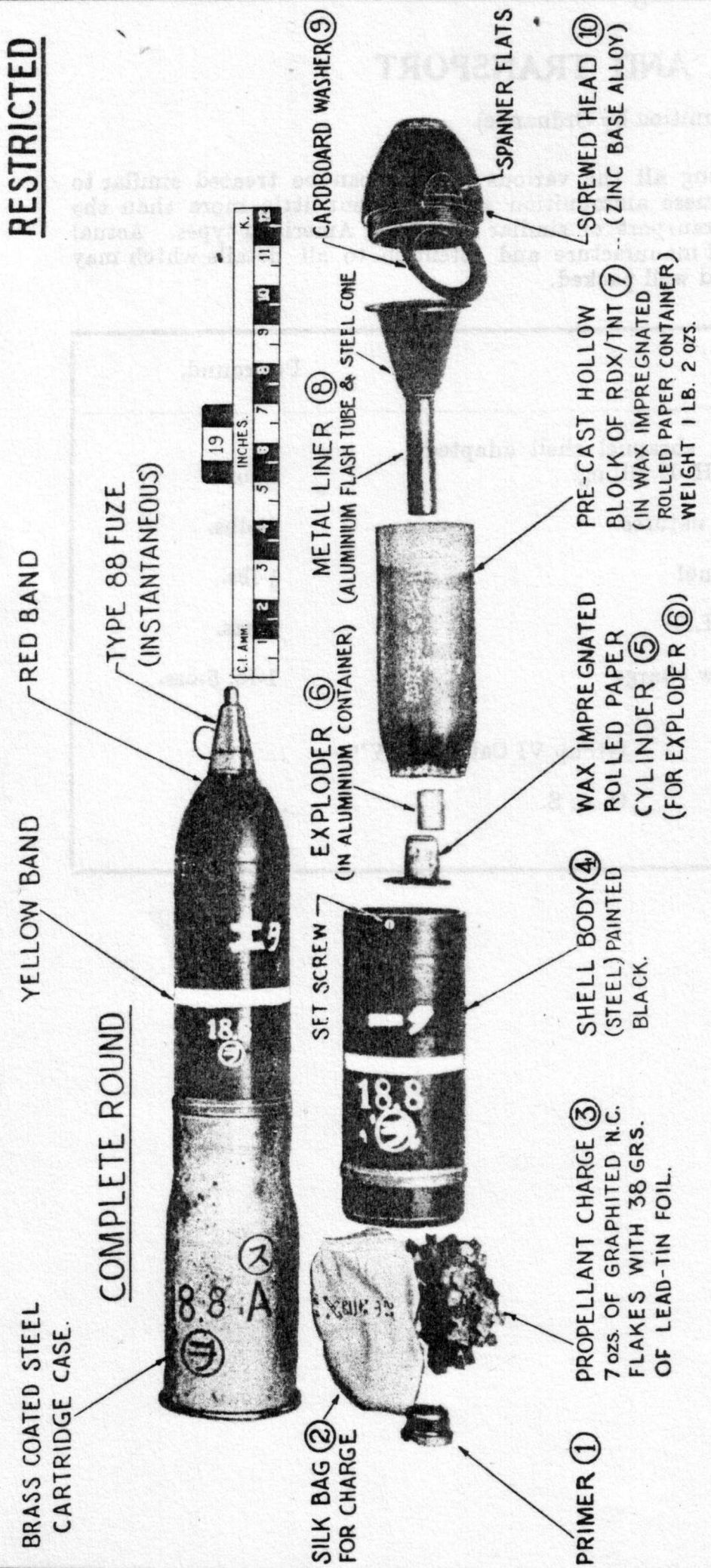
HANDLING AND TRANSPORT

(Of ammunition by Ordnance)

22. For normal transport and handling all the various natures can be treated similar to equivalent British ammunition. The Japanese ammunition should present little more than the usual risks inherent in the handling and transport of similar British or American types. Actual experience so far shows a high standard of manufacture and attention to all details which may reduce risks. Shell are normally plugged and well packed.

		Per round.
EXPLOSION/FIRE RISK	H. E., shrapnel shell adapted for H. E. filling.	3-lbs.
	Other natures ...	2½-lbs.
	Shrapnel ...	½-lbs.
	A.P./H.E. ...	6-ozs.
	Hollow charge ...	1-lb. 5-ozs.
GROUP CLASSIFICATION	Group VI Category "Y"	...
CLASSIFICATION FOR SEA TRANSPORT	O. A. S.	...

RESTRICTED



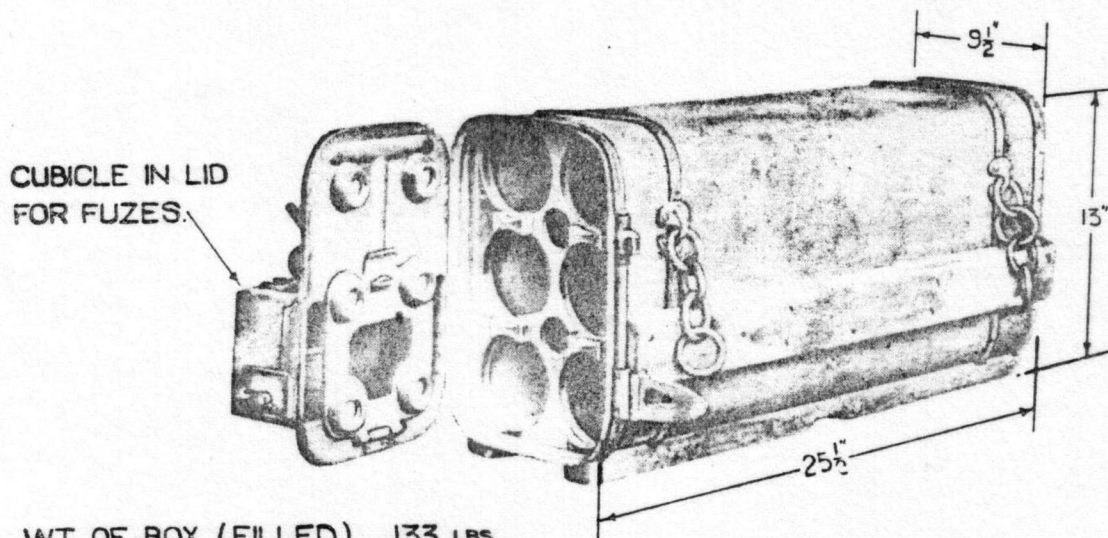
HOLLOW CHARGE A/T H.E. SHELL (TYPE 2)

CARTRIDGED FOR

75 MM. REGIMENTAL GUN TYPE MEIJI 41.

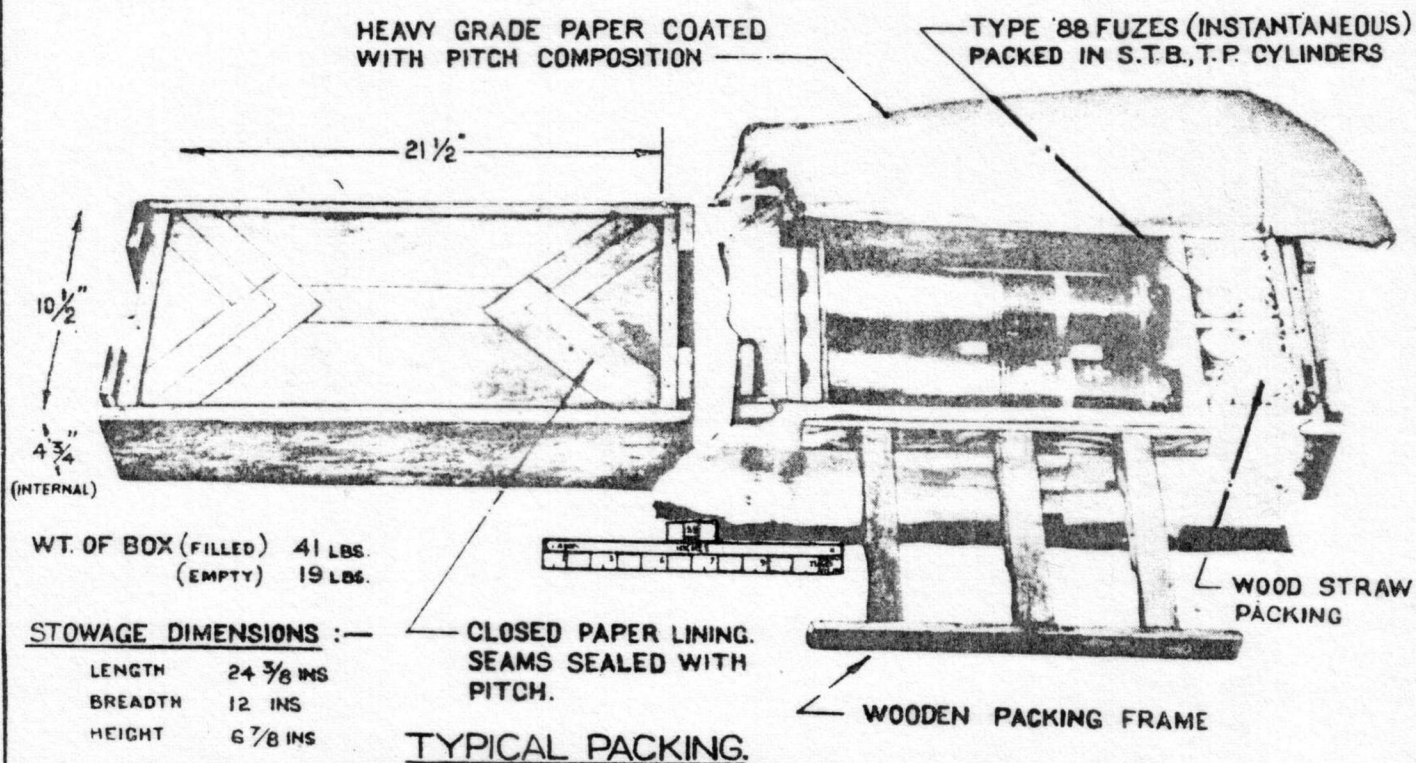
(COMPLETE ROUND AND ASSEMBLY SEQUENCE)

RESTRICTED.



WT. OF BOX (FILLED) 133 LBS.
WT. OF BOX (EMPTY) 32 LBS.

SIX ROUND PACK TRANSPORT BOX.



AMMUNITION

FOR

75 MM. TYPE MEIJI 41 REGIMENTAL GUN

(a) SIX ROUND PACK TRANSPORT BOX.

(b) TYPICAL PACKING.

THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS

D. OF A. (INDIA)

JAPANESE AMMUNITION LEAFLETS

SECTION **E**

LEAFLET **E 21**

**AMMUNITION
FOR
75-MM. TYPE MEIJI 38 SERIES OF FIELD GUNS
AND
TYPE '94 MOUNTAIN GUN**

GENERAL

Ammunition for the Type '94 Mountain Gun has been widely used in the Burma area, and much ammunition has been captured. The weights and dimensions given in the Plate are an average of many rounds examined at Kirkee. Ammunition for the 38 Series of Field Guns was also extensively used in the Burma area and the details given on the Plate are as a result of critical examination at Kirkee.

2. It is important to note that the chambering of all these guns is the same and in appearance the ammunition is identical, but the complete round for the Type '94 Mountain gun is not fully interchangeable with those for the Meiji 38 Series of Field Guns, as the propellant charge in the latter is some 10-ozs. greater. It is for this reason that in the initial stages the Type Meiji 38 gun was called the High Velocity Gun. The projectiles for both the guns are interchangeable.

DESCRIPTION.

3. The Type '88 Nose Percussion Fuzes for ammunition with a 24-mm. fuze hole is used in H.E. rounds for both the guns, details of these fuzes are given in J.A.L. E 3. The base fuze used in the A-P./H.E. rounds is the Type '95 Base Percussion Fuze (also referred to as Medium Mk. 1 Base Fuze) described in J.A.L. E 5. The Type 5 Time and Percussion fuze with 3 time rings is used in all the Shrapnel shells. This fuze will be dealt with in detail in Leaflet E 6.

4. The method of filling for the H. E. Nose Fuzed rounds is described in J. A. L. E 7 and the method of filling of A. P./H. E. shell is given in J. A. L. E 8.

PACKING

5. Ammunition for both the guns is packed in the same way. Rounds are packed plugged, two in a wooden box, with the fuzes in tinned-plate cylinders in an end compartment of the box. For animal transport the rounds are packed in rectangular metal containers of which there are two types; one taking six and the other four rounds,

IDENTIFICATION

6. Ammunition for Type '94 Mountain gun can be identified by the Japanese characters for "94 Mountain" stencilled on the cartridge case and on the box. Ammunition for the Meiji 38 Series of Field Guns can be identified by the following characters stencilled on the case — "38 Field, 41 Cavalry, Modified 38 Field, 95 Field". This will be clear from the key to the photograph. The length of cartridge cases for both the guns is the same, but the difference in the amount of propellant accounts for the difference in the total weight of the rounds.

SUMMARY OF DATA

7. See key to photograph.

HANDLING AND TRANSPORT

(Of captured ammunition by Ordnance)

8. The rounds can be handled in the same way as British 75-mm. ammunition. Following usual Japanese practice the rounds are issued plugged, and hence no special precautions are required in handling and transport.

EXPLOSION/FIRE RISK	<u>H. E. Round.</u>	<u>A. P. Round.</u>
Type '94 Gun	.. 2-lbs. 3-ozs.	8 1/2-ozs.
Type 38 Series of guns	.. 2-lbs. 8 1/2-ozs.	12 3/4-ozs.
GROUP CLASSIFICATION	..	Group VI, Category Y.
CLASSIFICATION FOR SEA TRANSPORT	.. O. A. S.	O. A. S.

RESTRICTED.

NOTE :-

SHELL BODY COLOUR - BLACK.

ALL STENCILLING ON SHELL - WHITE.

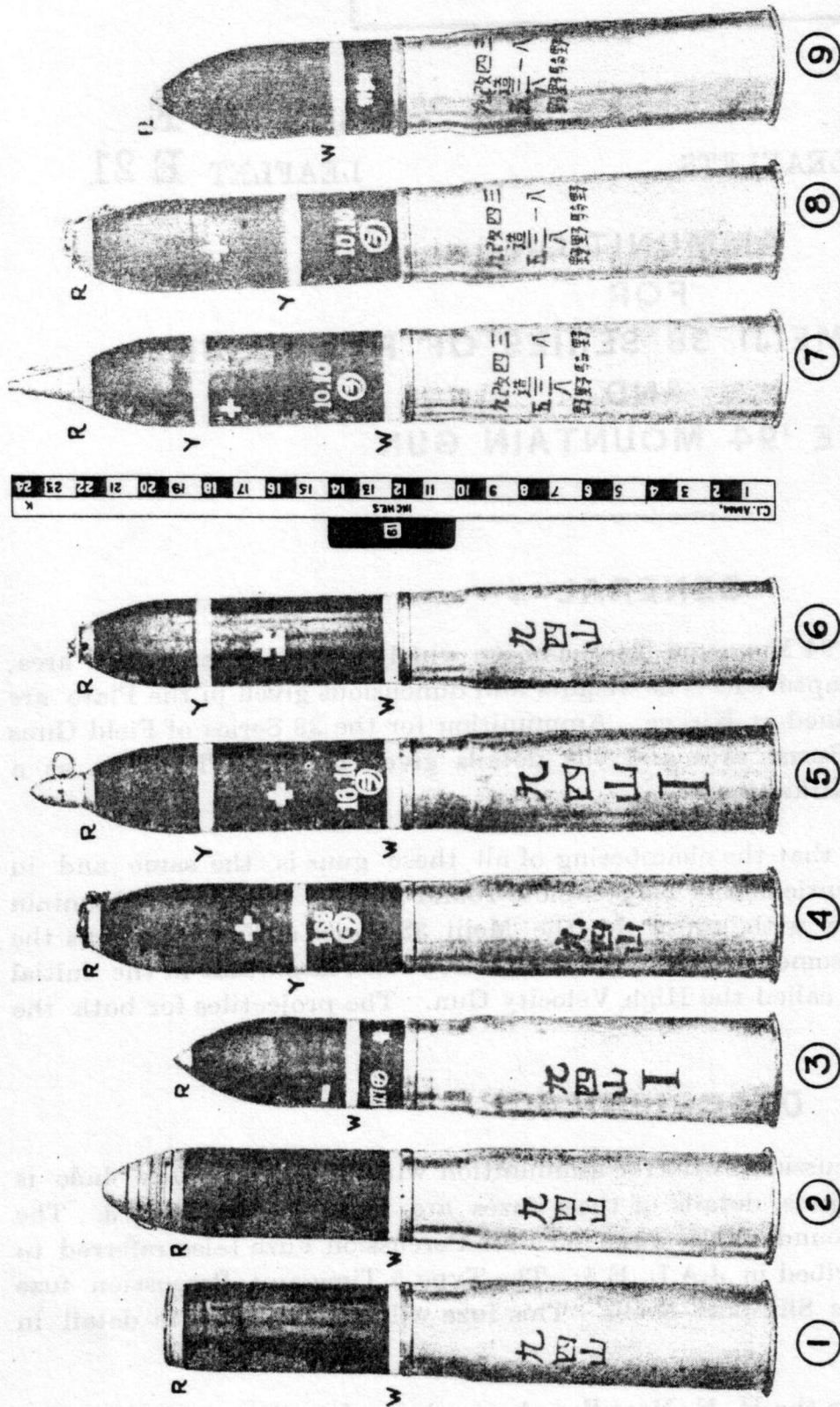
STENCILLING ON CARTRIDGE CASE - PURPLE OR BLACK INK.

KEY TO COLOUR BANDS

W - WHITE.

R - RED.

Y - YELLOW.



— JAPANESE GUN AMMUNITION. —

—FOR—

— 75 MM TYPE '94 MOUNTAIN GUN —

—AND—

— TYPE MEIJI 38 SERIES OF FIELD GUNS. —

NO	TYPE OF SHELL	COMPLETE ROUND			LENGTH INS.		PROPELLANT				H.E.FILLING OR BURSTER (INCLUDING EXPLODER)		
		WEIGHT		O/A. LENGTH INS.	SHELL W/O. PLUG OR FUZE	CASE	WEIGHT		NATURE	WEIGHT		NATURE	
		LBS.	OZS.				LBS.	OZS.		LBS.	OZS.		
1	SHRAPNEL	17	11	19.56	9.18	11.56	—	12.97	GRAPHITED N.C. FLAKES WITH DIPHENYLAMINE IN SILK BAG.		—	3½	FILLING:- G.P. SIZE APPROX. G.20.
2	SHRAPNEL	19	1	21.62	9.18	11.56	—	12.97	GRAPHITED N.C. FLAKES WITH DIPHENYLAMINE IN SILK BAG.		—	3½	FILLING:- G.P. SIZE APPROX. G.20.
3	A.P./H.E.	18	12	19.37	9.37	11.50	—	13.5	GRAPHITED N.C. FLAKES WITH DIPHENYLAMINE IN SILK BAG.		—	1¾	FILLING:- R.D.X./WAX.
4	H.E.	16	11	22.19	11.93	11.56	—	11.16	GRAPHITED N.C. FLAKES WITH DIPHENYLAMINE IN SILK BAG		1	13½	FILLING:- T.N.T.GRADE I (S.P. 80-2°C) EXPLODER :- PICRIC ACID
5	H.E.	16	15	23.94	11.93	11.56	—	10.9	LOOSELY LOADED GRAPHITED N.C. FLAKES WITH DIPHENYLAMINE		1	13½	FILLING:- R.D.X./AMMONIUM-NITRATE/POTASSIUM NITRATE (15.4 % ; 41.5% ; 43.1%) EXPLODER:- R.D.X.(98.1%) WAX(1.9%)
6	H.E.	16	11	22.19	11.93	11.56	—	11.16	GRAPHITED N.C. FLAKES WITH DIPHENYLAMINE IN SILK BAG.		1	13½	FILLING:- T.N.T. GRADE I (S.P. 80-2°C) EXPLODER:-PICRIC ACID.

— TYPES MEIJI 38 FIELD, MEIJI 38 MODIFIED OR IMPROVED FIELD,
41 MEIJI CAVALRY & 95 FIELD GUNS. —

7	H.E.	17	11	24.25	11.93	11.50	1 5.5	STRIPS (9½" X ⅜") OF N.C. WITH DIPHENYLAMINE.	1 13½	FILLING:- T.N.T. GRADE I (S.P. 80-15°C) EXPLODER:- PICRIC ACID (M.P. 122°C)
8	H.E.	17	5.5	22.19	11.93	11.50	1 5.5	STRIPS (9½" X ⅜") OF N.C. WITH DIPHENYLAMINE.	1 14	FILLING:- T.N.T. GRADE I (S.P. 80.15°C) EXPLODER:- PICRIC ACID (M.P. 122°C)
9	A.P./H.E.	18	12	19.34	9.34	11.50	1 5.5	STRIPS (9½" X ⅜") OF N.C. WITH DIPHENYLAMINE.	— 1½	FILLING:- R.D.X./WAX.

— NOTES —

- ROUNDS 1 & 2 PLUGGED AND FUZED SHRAPNEL SHELL; FOLLOWS GENERAL BRITISH PRACTICE. TYPE 5 TIME AND PERCUSSION FUZE THREE TIME RINGS.
- ROUND 3 A.P./H.E. COMBINED TRACER AND BASE FUZE. NORMAL BASE FUZE WITH DETONATOR IN INERTIA PELLET SECURED BY CENTRIFUGAL BOLTS FOR TRANSPORT & SAFETY IN GUN. ON DECELERATION INERTIA PELLET IS RELEASED BUT HELD OFF STRIKER BY CREEP SPRING.
- ROUND 4 PLUGGED ROUND WITH SMALL COMPOSITE CORK & CLOTH PLUG.
- ROUND 5 ROUND SHOWN FUZED: TYPE '88 DELAY OR DELAY & GRAZE (B & C). THE SIGNIFICANCE OF THE WHITE BAND HAS NOT YET BEEN DEFINITELY DETERMINED.
- ROUND 6 ROUND SHOWN PLUGGED. EXCEPT FOR THE COLOUR BANDS, IT IS SIMILAR TO ROUND 4.
- ROUND 7 ROUND SHOWN FUZED WITH TYPE '88 INSTANTANEOUS FUZE "A". NOTE MARKINGS ON THE CARTRIDGE CASE.
- ROUND 8 PLUGGED ROUND WITH SMALL COMPOSITE CORK AND CLOTH PLUG, SIMILAR TO ROUND 4.
- ROUND 9 A.P./H.E. SEE NOTES ON ROUND 3.

THE CHAMBER FOR THE TYPE '94 MOUNTAIN GUN AND THE GROUP OF FOUR GUNS LISTED ABOVE ARE THE SAME. THE TWO ROUNDS ARE NOT HOWEVER, STRICTLY INTERCHANGEABLE AS WILL BE SEEN FROM THE CHART (THE ROUND FOR THE '94 MOUNTAIN GUN HAS MUCH LESS PROPELLANT CHARGE AND BALLISTICS WILL DIFFER)

(2) AMMUNITION FOR THE TYPE '94 MOUNTAIN GUN CAN BE IDENTIFIED BY THE JAPANESE CHARACTERS "94 MOUNTAIN" STENCILLED ON THE PACKAGE OR CARTRIDGE CASE:- SEE PHOTOGRAPH.

(3) AMMUNITION FOR THE TYPE MEIJI 38 GROUP OF FOUR GUNS CAN BE IDENTIFIED BY THE MARGINAL JAPANESE CHARACTERS STENCILLED ON THE PACKAGE OR CARTRIDGE CASE.

N.B.:- DETAILS GIVEN REFER TO ACTUAL ROUNDS IN PHOTOGRAPH.

九改四三	9	MODIFIED (IMPROVED)	4	3
造				
五三一八	5	3	1	8
八		8		
野野騎野	FIELD	FIELD	HORSE	FIELD (CAVALRY)

**THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS**

D. OF A. (INDIA)

JAPANESE AMMUNITION LEAFLETS

SECTION E

LEAFLET E 22

AMMUNITION

FOR

75-mm. TYPE '90 FIELD GUN.

GENERAL

Various natures of ammunition for the Type '90 Field Gun have been examined at Kirkee, and it is now possible to issue this Leaflet describing each type.

2. It is clear that all the usual types of shell exist and the following may be encountered:—

H. E.	Shrapnel.
H. E. (Pointed).	Smoke.
A.T./H.E. Hollow Charge.	Incendiary.
A. P./H. E.	Gas.

3. Before describing the ammunition it may be useful to make a few remarks on the gun. The Type '90 Field Gun has been surrounded by considerable secrecy by the Japanese. It is reported to be a modern weapon for the divisional artillery; in 1936 it was believed to be in progress of issue to units, but it has not been encountered in any great quantity in any theatre. The equipment has either pneumatic tyres for motorized transport or steel rimmed wheels for horse draft. An unusual feature is the muzzlebrake which has not been found on any other Japanese weapon. The muzzle velocity is reported to be 2296 ft./Sec. and the maximum range 16,350 yds.

DESCRIPTION

4. Only H.E., H.E. Streamline and H.E. Hollow Charge rounds have been examined at Kirkee, actually cased for the Type '90 Gun, but most 75-mm. shell are interchangeable and may be found cased for a number of 75-mm. equipments.

CARTRIDGE CASE

5. The cartridge cases are made of brass, and are slightly tapered but have no bottleneck. In the case of the A.P./H.E. round one circumferential crimp secures the projectile but H.E., Smoke and Hollow Charge projectiles are not crimped in. The cartridge cases are usually marked in white ink with the date and place of filling. All are 16 $\frac{3}{4}$ " long and the weight of the empty case is 3-lbs. 15-ozs.

PROPELLANT CHARGE

Details of the propellant charges are given below :—

6. Propellant used with H.E. and Smoke rounds :—The make-up of the complete cartridge is similar to that employed in the 75-mm. Type '88 Gun shown at Plates E and F. I A.L. E. 23 and reference to these will make the following description easier.

7. The olive drab, ungraphited N.C. strips measuring 9 $\frac{1}{4}$ " X $\frac{3}{8}$ " X 0.025" are tied into a bundle by 3 silk threads, with a cloth bag tied around the lower end. The charge is positioned in the cartridge case by means of a glazedboard cup and prismatic distance piece. Following usual Japanese practice a tin foil decoppering strip is stuck on to the glazedboard cup and an igniter bag containing G.P. is positioned over the primer to ensure proper ignition.

The weights of the propellant charge and igniter bag are as follows :—

Propellant Charge	..	1-lb. 7-ozs.
Igniter bag (G.P.)	..	0.52 oz.

8. Propellant used with H.E./Hollow Charge round :—The propellant size, etc. is identical to that used with the rounds above, except that the charge weight is considerably less. The same arrangement is used to position the charge and igniter as that described above.

The weights of the propellant charge and igniter bag are as follows :—

Propellant charge	..	1-lb.
Igniter bag	..	0.57-ozs.

9. Propellant used with A.P./H.E. round :—No A.P./H.E. ammunition for the Type '90 gun has been examined at Kirkee but the following information has been taken from reliable sources. The propellant used with A.P./H.E. round is reported to be in two increments. The average size of the propellant is not given.

The charge weight is higher than that for other rounds and this is of course to be expected as the round is used in an antitank role, and requires greater velocity in order to penetrate armour.

The weight of the propellant charge is as follows:—

Propellant charge	.. 2-lb. $7\frac{3}{4}$ -ozs.
Igniter bag	.. Not known.

10. The make-up of the propellant in the cartridge case for other natures of ammunition is not known, but it is probable that, with slight variation of propellant charge weights they will be very similar to those described above.

PRIMERS

11. It is known that H.E. and Hollow Charge rounds take the Type B primer (J.E. 2) and it is thought, that this is the primer used for all the various types of shell with this cartridge case.

12. From information available here it appears that all the shell listed in Part I except the H.E. pointed, may be cased for the following group of guns.

- 75-mm. Type Meiji 38 Field gun.
- „ Type Meiji 41 Regimental gun.
- „ Type Meiji 41 Cavalry gun.
- „ Type '94 Mountain gun.
- „ Type '95 Field gun.
- „ Type '90 Field gun.

13. This means that these shell, clearly described in J.A.L.E. 20 can also be cased for use in the Type '90 Field gun. Although this generalisation is true in most cases, it is thought the shell listed below are exceptions to the rule and are used only with the guns shown against them.

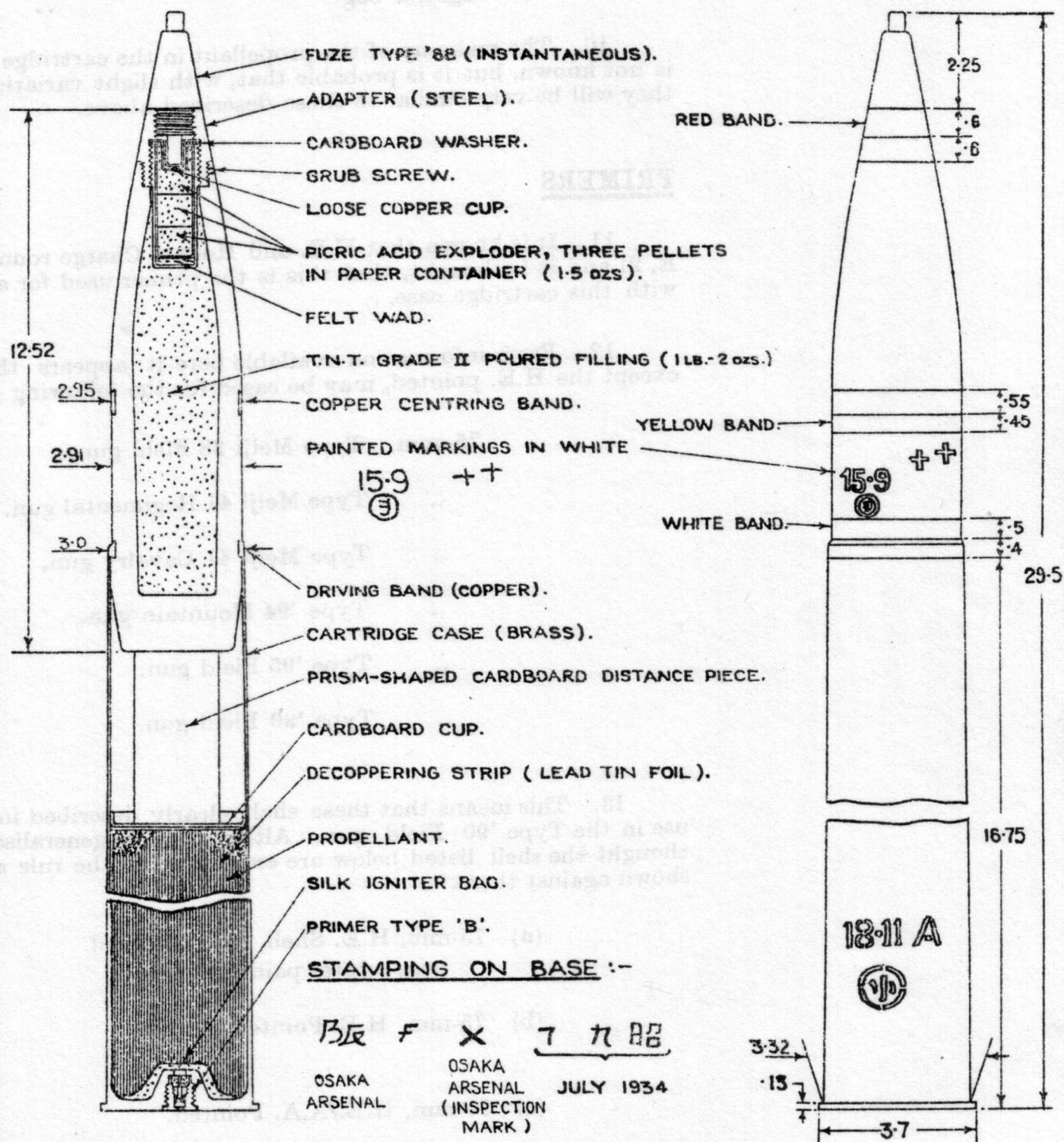
- | | |
|---|---|
| (a) 75-mm. H.E. Shell, with enlarged nose adpter painted white. | Used mainly with the Type 41 Regimental gun. |
| (b) 75-mm. H.E. Pointed. | Type '90 Field gun.
Type '88 Field/A.A. gun. (Special) |
| (c) 75-mm. H.E./A.A. Pointed. | Type '88 Field A.A./gun.
Type '88 Field A A./gun (Special) |

Certain semi steel and cast iron projectiles would not stand up to high chamber pressure and are therefore probably limited to use in the lower velocity weapons.

H.E. Nose fuze-Pointed.

14. Details of this are shown at Plate D of Leaflet E. 7 together with the method of filling and at Plate B of this Leaflet. It will be seen that it is designated "thick wall" and has an extremely thick base. The centring band should also be noted.

RESTRICTED.



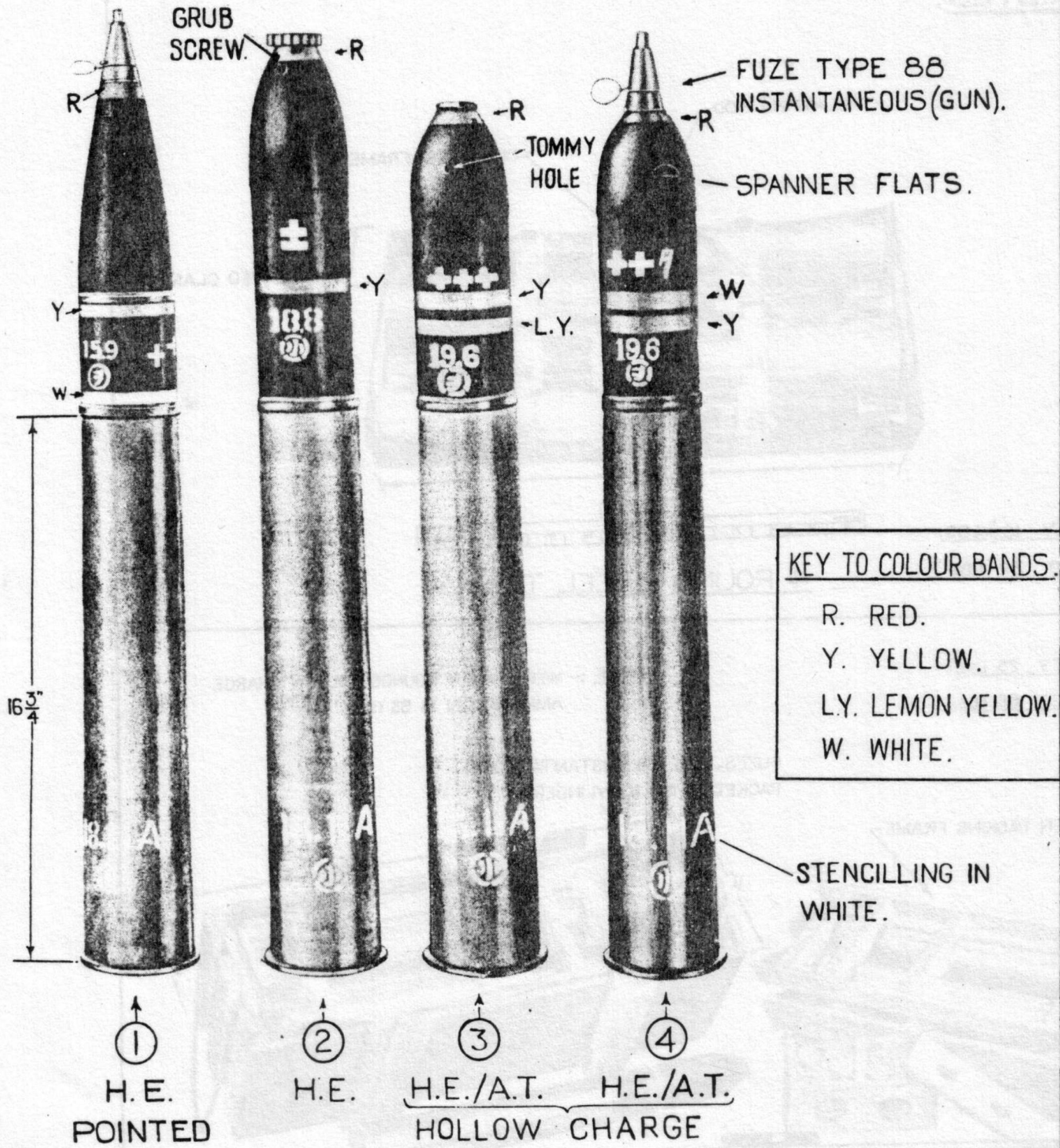
JAPANESE 75 MM H.E. POINTED SHELL
CASED FOR
TYPE '90 FIELD GUN

DIMENSIONS IN INCHES.

C.I.A.M.N.S/1369
KIRKEE JAN 1946

G.P.C.P. POONA. 1946

RESTRICTED.

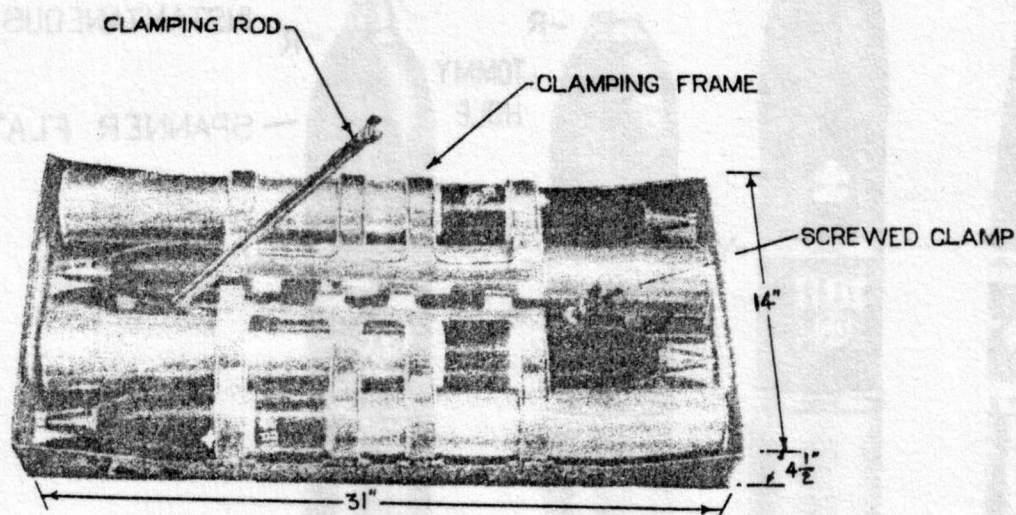


JAPANESE AMMUNITION.

FOR

75 MM. TYPE '90 FIELD GUN.

RESTRICTED.



WEIGHT EMPTY 18 1/2 LBS.

WEIGHT FILLED 92 LBS

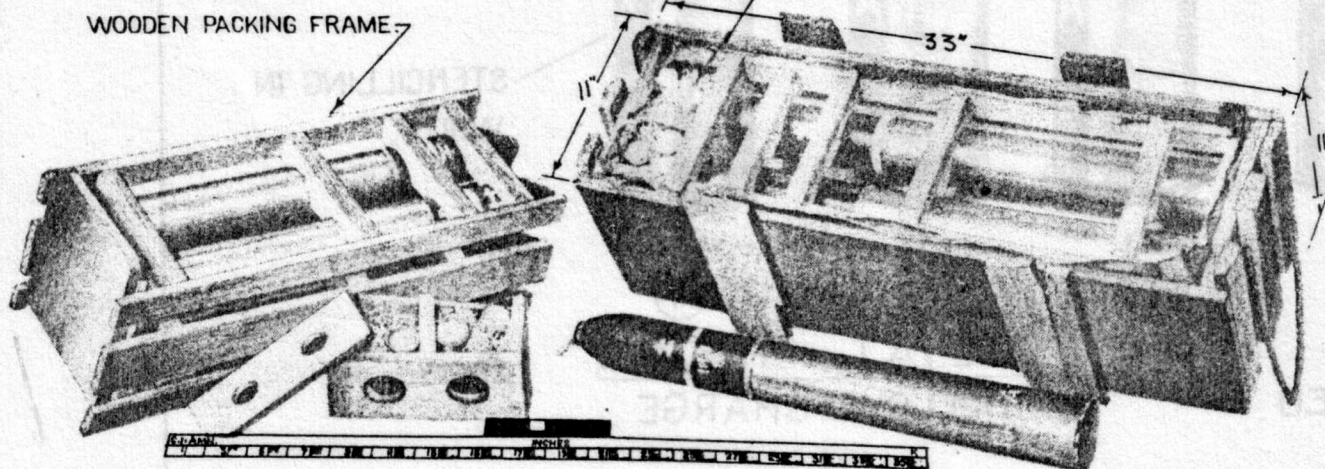
4 ROUND STEEL TRAY

WEIGHT EMPTY 25 LBS.

WEIGHT FILLED 98 LBS.

NOTE :- WEIGHT OF 4 ROUNDS HOLLOW CHARGE
AMMUNITION IS 53 LBS.

FUZES, TYPE '88 (INSTANTANEOUS)
PACKED IN S.T.B. CYLINDERS.



TYPICAL PACKING.

AMMUNITION

FOR

JAPANESE 75 MM. TYPE 90 FIELD GUN

(a) 4 ROUND STEEL TRAY

(b) TYPICAL PACKING

**THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS**

D. OF A. (INDIA)

SECTION E

JAPANESE AMMUNITION LEAFLETS

LEAFLET E. 23.

GUN AMMUNITION FOR TYPE '88 A.A. / FIELD GUN.

GENERAL.

Before dealing in detail with this ammunition it will be useful to make a few remarks, as far as information is available, on this equipment.

2. The gun is sometimes described as Type '88 (1928) 70-mm. Field A.A. Gun. Shell dimensions, however, definitely point to it being 75-mm. calibre. The primary role of this gun is anti-aircraft, but reports say that it is also used as a Field Gun. There is known to be in existence at least one other type of H.E. shell, streamline, which uses one of the four natures of the Type '88 H.E. nose percussion fuze, see J. A. L. E. 3

This is a long pointed shell with a streamline base. Owing to the use of the small 24-mm. fuze hole the shell is actually more pointed than the A.A. shell. It is fitted with a copper centering band but has only one driving band instead of two as in the A.A. shell. It is otherwise similar to the A.A. shell. The method of filling and exploding used is identical with that for Field Artillery Shell fuze Type '88 fuze. See J. A. L. E 7. The filling consists of 1.12 lbs. of T. N. T. and the total weight of the shell fuze is 14.25 lbs.

3. The muzzle velocity of the gun is about 2360 feet per second and with a suitable projectile it should have a very useful role against armour. So far no reports have been received regarding the use of A. P. shell.

4. It will be seen from the photograph at Plate A and the drawing at Plate B that two slightly different rounds for A.A. use exist, as far as is known at present. All components in the two rounds are identical, except that the round with a yellow and white band on the shell has a double base propellant in the form of long dark green tubular cords of N.C. and N.G., but in the other round (yellow band only) the propellant is N.C. in the form of long olive drab strips. The coloured bands, however, are not necessarily connected with the propellant. The white band is thought to identify the shell body (cast iron or semi-steel) while the yellow band indicates a H.E. filling.

5. The following description applies equally to components in both rounds which are identical except for the difference in the propellant.

DESCRIPTION.**CARTRIDGE CASE.**

6. This is made of brass and the general make-up can be seen from Plate B. The case gradually tapers from the rim to the mouth. There is no shoulder and corresponding necking which is usually found in modern high capacity cartridge cases. The mouth of the case fits snugly under the rear driving band and is crimped tightly to the parallel portion of the shell just below the lower driving band. The primer is contained in a pocket, formed in the base of the case, with a small vent leading into the propellant chamber. This vent is only 0.22 inches in diameter.

7. The stencilling on the cartridge case, see Plate A, is in purple ink and the 16.9 refers to the date of filling (September 1941). The character followed by 'A' is believed to be an inspection mark (Okayama Arsenal or Branch Depot) and the 'A' refers to the propellant charge, which is of the (olive drab colour) strip type. The other case has no stencilled markings.

PROPELLANT AND IGNITER.

8. The arrangement of the propellant in the case can be seen from Plate B. The strip of lead tin foil (decoppering) is secured to the cardboard closing cup by adhesive, following normal Japanese practice. At the bottom of the charge is a cup shaped cardboard washer, to which is stitched an undyed silk igniter bag, in such a way that the bag fits centrally over the primer. The size of the gunpowder in the igniter bag is roughly G. 20.

The propellant in these cartridges is as follows:—

(i) Cartridge with date and Japanese character followed by "A":—

3-lb. 2-oz. of olive drab strips of N.C. $13\frac{3}{8}'' \times \frac{1}{8}'' \times 3/16''$.

(ii) Cartridge with no markings on case:—

3-lb. 2-oz. of dark green tubular cords of N.C. and N.G. $13\frac{3}{8}'' \times 3/16'' \times \frac{1}{8}''$ (perforation).

PRIMER.

9. The primer (Type D) is the small .5-in., screw fitting type used in cartridge cases with $13\frac{1}{2}$ -mm. primer hole. It is made of brass throughout, except the percussion cap and hammer which are of copper. The general make up of the primer can be seen from Plate B and full details are given also in J.A.L. E. 2.

SHELL.

10. The general appearance of the shell can be seen from Plate A, while its general construction and layout is shown in Plate B.

The exploder container and the shell body are made of steel. Two key slots are cut in the top of the former for insertion and removal.

The body of the shell is painted black and the usual stencilling showing filling dates etc. is in white paint.

11. The H.E. filling consists of 14-oz. of cast T.N.T. The method of filling generally follows usual Japanese practice. The exploder container has three pellets of picric acid resting on a felt disc. The top pellet is paper wrapped and perforated to take the gaine magazine. The weights of the pellets are as follows:—

Bottom pellet	313.7 grs. of picric acid.
Middle pellet	208.3 " " "
Top pellet	87.9 " " "

GAINE.

12. The gaine screws down into the exploder container until the top surface is in line with the top of the exploder container. The general assembly of the gaine and details of components are given in Plate C, while its appearance and assembly sequence are shown in Plate D.

The gaine is made of brass except for certain components such as the arming spring (3) and the retaining ferrule (4) etc. In appearance it resembles the No. 11 gaine (British), but is much smaller. Its action is, however, quite different.

13. Although all details are given in Plates C and D it may be useful in a study of its mechanism to divide the gaine into the following four main parts:—

- (i) The gaine body which is in two parts, upper (1) and lower (8). These are screwed together by screw threads and form an internal cavity to contain the gaine mechanism. The upper portion of the body (1) is threaded externally to screw into the exploder container while the lower portion of the body (8) is screw threaded internally to take the magazine holder (10).
- (ii) The set back mechanism consisting of set-back ferrule (2), arming spring (3) and retaining ferrule (4).
- (iii) The sliding shutter mechanism consisting of a flanged detonator holder (6) the bottom portion of which acts as a housing for the centrifugal (sliding type) shutter bolt (7).
- (iv) The magazine (11) comprising the magazine holder (10) into which screws the magazine proper. The magazine holder (10) screws up tightly on to the detonator holder (6) seating on a copper septum (9), which prevents any leakage of flash or gas. A coned channel holding stemmed picric acid is in the underside of the holder (10). The channel is closed by a small paper disc.

SAFETY DEVICES.

14. A sliding type shutter or bolt (7) which during handling and transport and passage up to bore, obstructs any flash from the detonator (5) down to the picric acid stemming in the magazine holder (10) and to the magazine proper (11). This sliding bolt (7) is held in the safe position by the retaining ferrule (4), until the fuze is armed.

ACTION.

15. On set-back, the set-back ferrule (2) compresses the arming spring (3) and sliding back over the retaining ferrule (4) locks itself to the latter. During acceleration up the bore the set-back ferrule (2) and the retaining ferrule (4) tend to remain back and keep the centrifugal bolt (7) from moving out under centrifugal force. In any case set-back during acceleration may keep the centrifugal bolt in the safe position, even if the strength of the spring is sufficient to return the set-back ferrule taking with it the retaining ferrule (4). On deceleration outside the bore the set-back ferrule (2) together with the retaining ferrule (4), to which it is locked, moves upwards freeing the centrifugal bolt (7). This then moves outwards, unmasking the flash channel, leaving the gaine armed and ready to function as soon as it receives the flash from the fuze magazine.

PE '89 TIME FUZE. (FOUR TIME RINGS).

16. The assembly sequence of the fuze is given in Plate D, while its appearance and complete assembly is shown in Plate E. It is a time combustion fuze made of brass throughout. Although the Plates give a complete description of the fuze, the following general remarks will be useful, see Plate E.

- (i) The second (7) and fourth (9) time rings are coupled together for purposes of setting the fuze, by a brass setting bridge (10).
- (ii) A fuze cover fits snugly over the nose of the fuze but this is not shown in the Plates. It is made of aluminium and is secured to the body of the fuze by turning over the skirt and further fixed by the metal being punched into two slots in the side of the fuze. A brass wire, under the fuze cover, with a ring attached is intended for quick removal of the cover.
- (iii) Contrary to British practice the gases are vented internally and pass up through the grooves in the body stem and out through a small office in the nose of the fuze, the brass closing disc of which is blown out when sufficient pressure is developed.
- (iv) When the fuze is set at zero, i.e. the scribe line on the fourth ring (9) is in line with the scribe line on the body, the flash passes direct from the detonator down through the gunpowder pellets in each ring, to the magazine of the fuze.
- (v) When the fuze is set at safe, i.e. the setting bridge (10) is in line with the scribe line on the body, the blank portion of the top ring (6) seals the flash channel in the second ring (7). Although the composition in the top ring burns, there is no continuity to the second ring (7).

SAFETY DEVICES.

17. There are no special safety devices except the usual 'safe' position; found in similar British types, i.e. No. 199 time fuzes.

NOTATION.

18. On set-back, the inertia pellet (13) with the time detonator (12) sets back on the needle initiating the detonator, the flash from which passes through a channel to the time ring composition in the top ring (6). The composition then burns according to the fuze setting employed.

PACKING.

19. The rounds are, it is understood, packed four in an unpainted wooden box with wooden packing pieces separating the two bottom rounds from the two top rounds. Fuzes are packed separately in tinned plated cylinders probably carried in the same box. There are no special features connected with the packing.

IDENTIFICATION.

20. The round will be readily identified by the details given in the drawings and photographs. The long cartridge case is distinctive and nothing similar is used in any other equipment.

21. Stencilled markings are on the projectile, fuze cover and may be found on the cartridge case, as mentioned. Stencilling on the wooden box indicates the ammunition packed.

HANDLING AND TRANSPORT.

(Of captured ammunition by Ordnance).

22. The rounds can be handled similar to British rounds which use time combustion fuzes e.g., 3-in. 20-cwt. or 3.7-in. A.A. H.E. with gaines. Risks during handling and transport will be about the same. Fuzed rounds should, where practicable be unfuzed before transport.

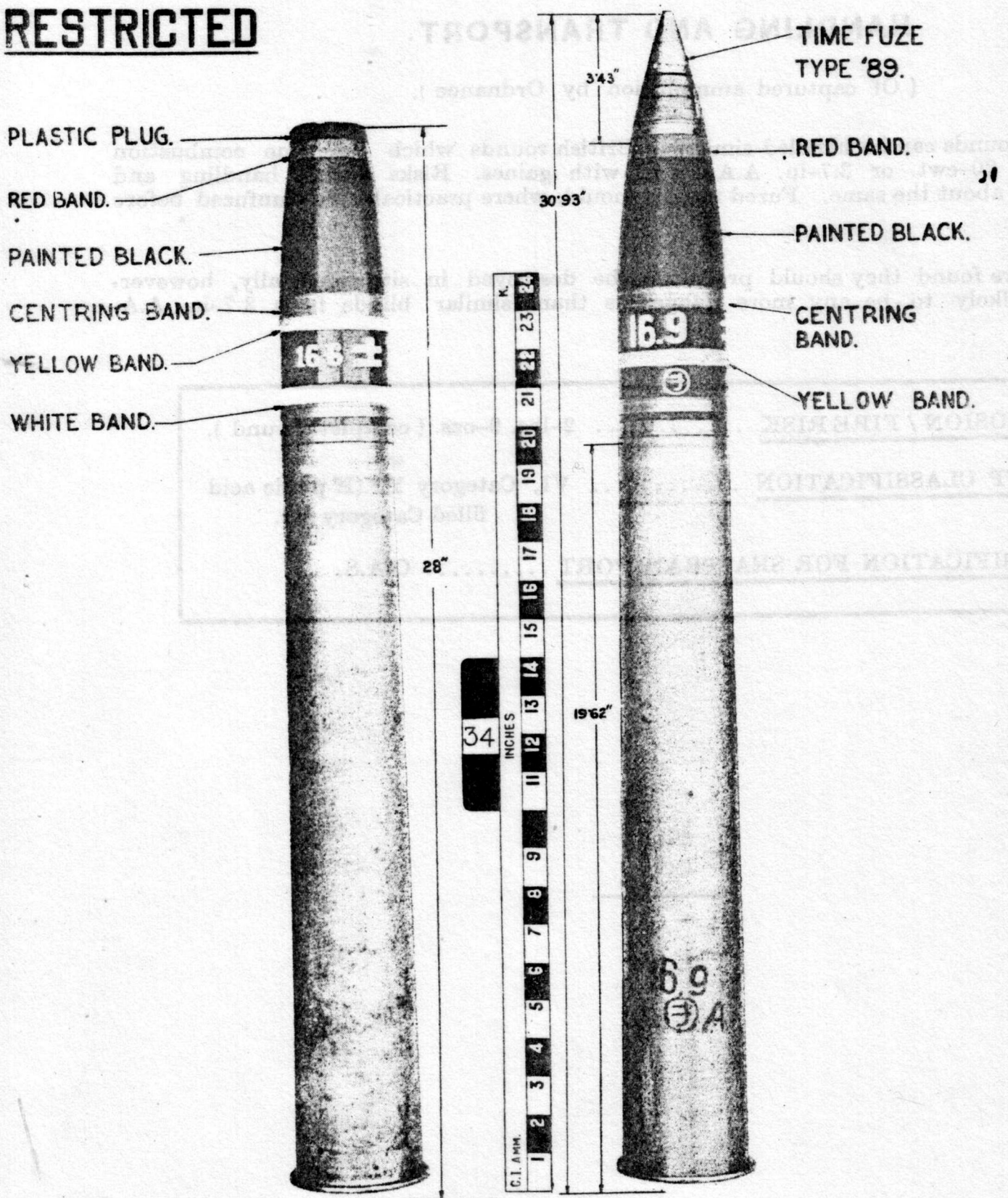
If blinds are found they should preferably be destroyed in situ. Actually, however, they are not likely to be any more dangerous than similar blinds from 3.7-in. A.A. fuze No. 199.

EXPLOSION / FIRE RISK 2-lbs. 9-ozs. (complete round).

GROUP CLASSIFICATION VI, Category Y. (If picric acid
filled Category Z).

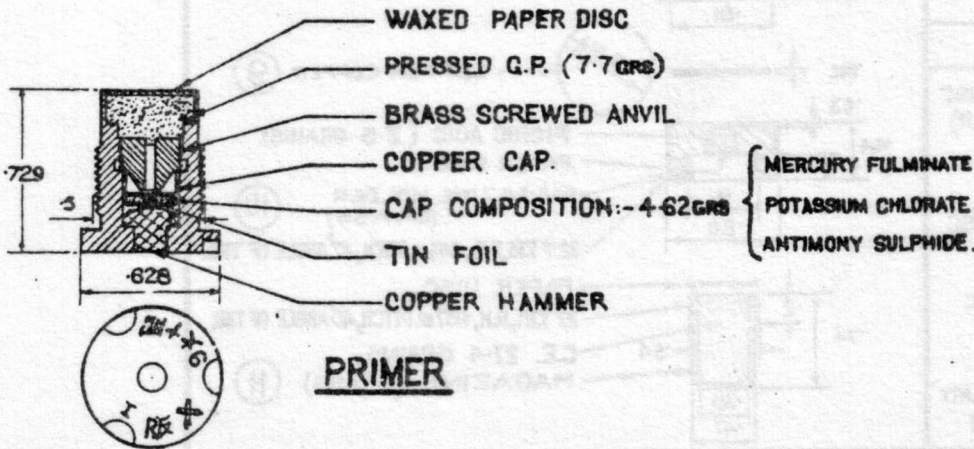
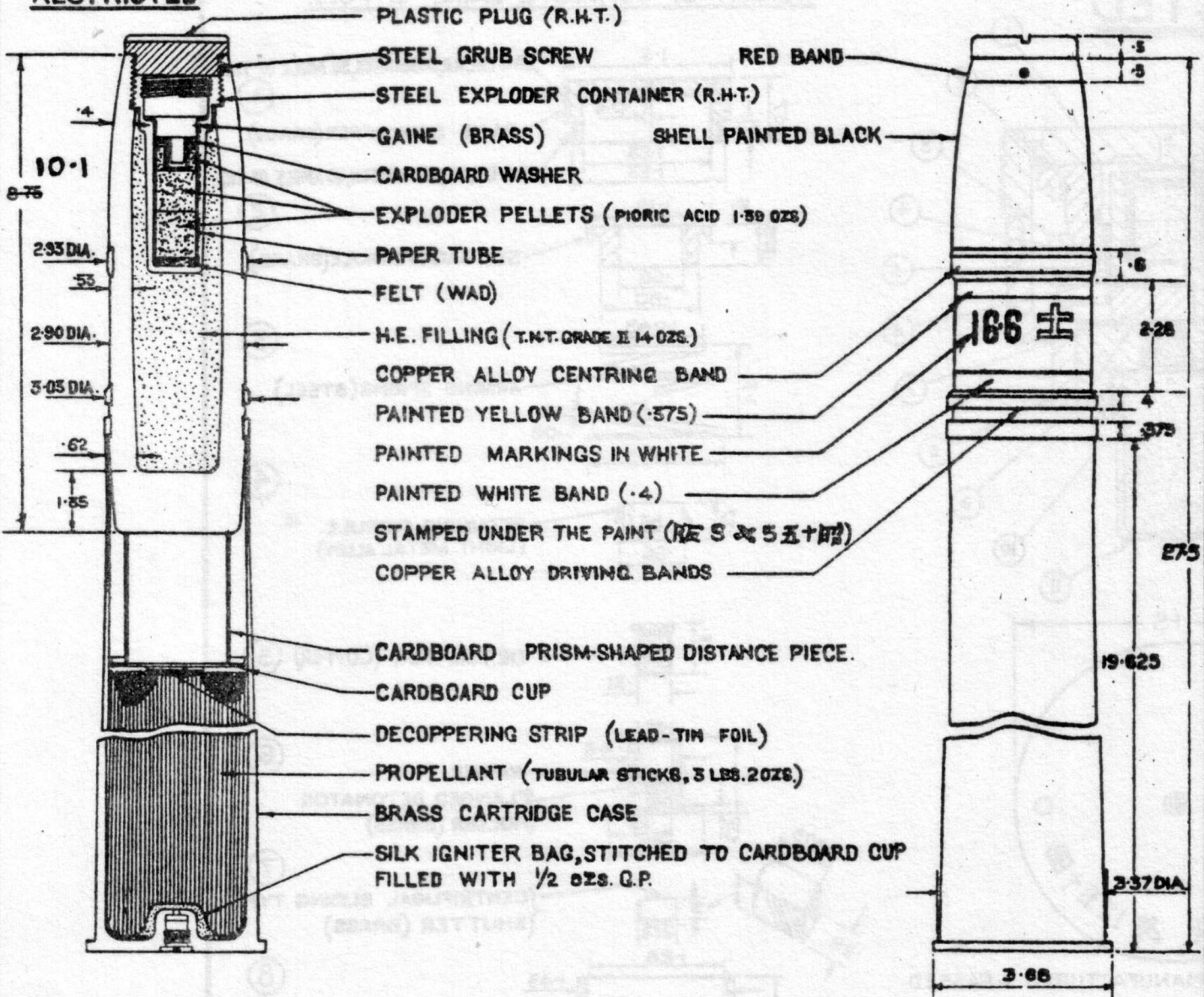
CLASSIFICATION FOR SEA TRANSPORT O.A.S.

RESTRICTED



JAPANESE GUN AMMUNITION.
H.E.A.A. SHELL TYPE '90
FITTED WITH FUZE, TIME, '89 TYPE
FOR
75MM. A.A./FIELD GUN TYPE '88
(EXTERNAL APPEARANCE AND MARKINGS)

RESTRICTED



PRIMER



STAMPING ON BASE

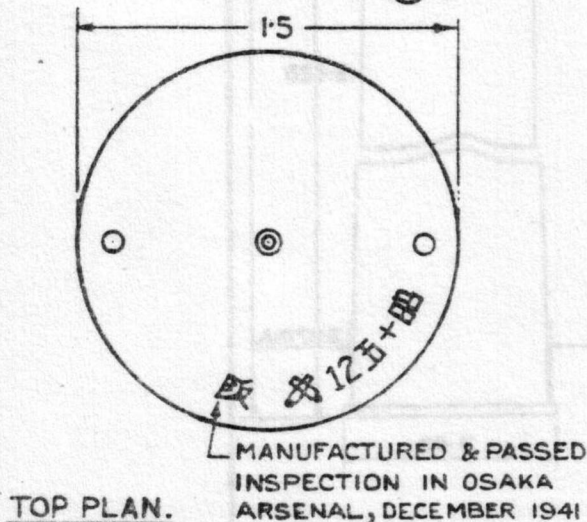
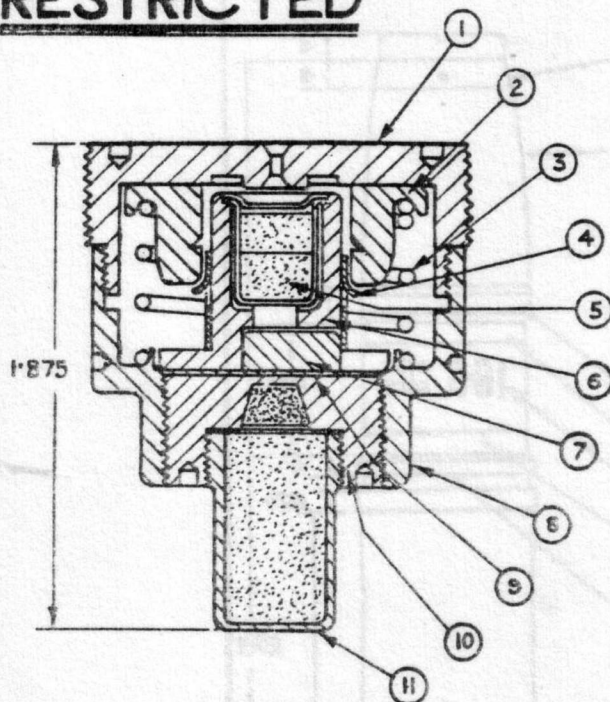
DIMENSIONS IN INCHES

H.E. AA. SHELL, TYPE '90
FOR
JAPANESE 75 mm. AA./FIELD GUN TYPE '88
YELLOW & WHITE BANDS MARKING
(INTERNAL DETAILS & DIMENSIONS)

C.I.A.M.M. 8/987
 KIRKEE JAN 1946

RESTRICTED

WEIGHT OF COMPLETE GAIN- 6.4 ozs.

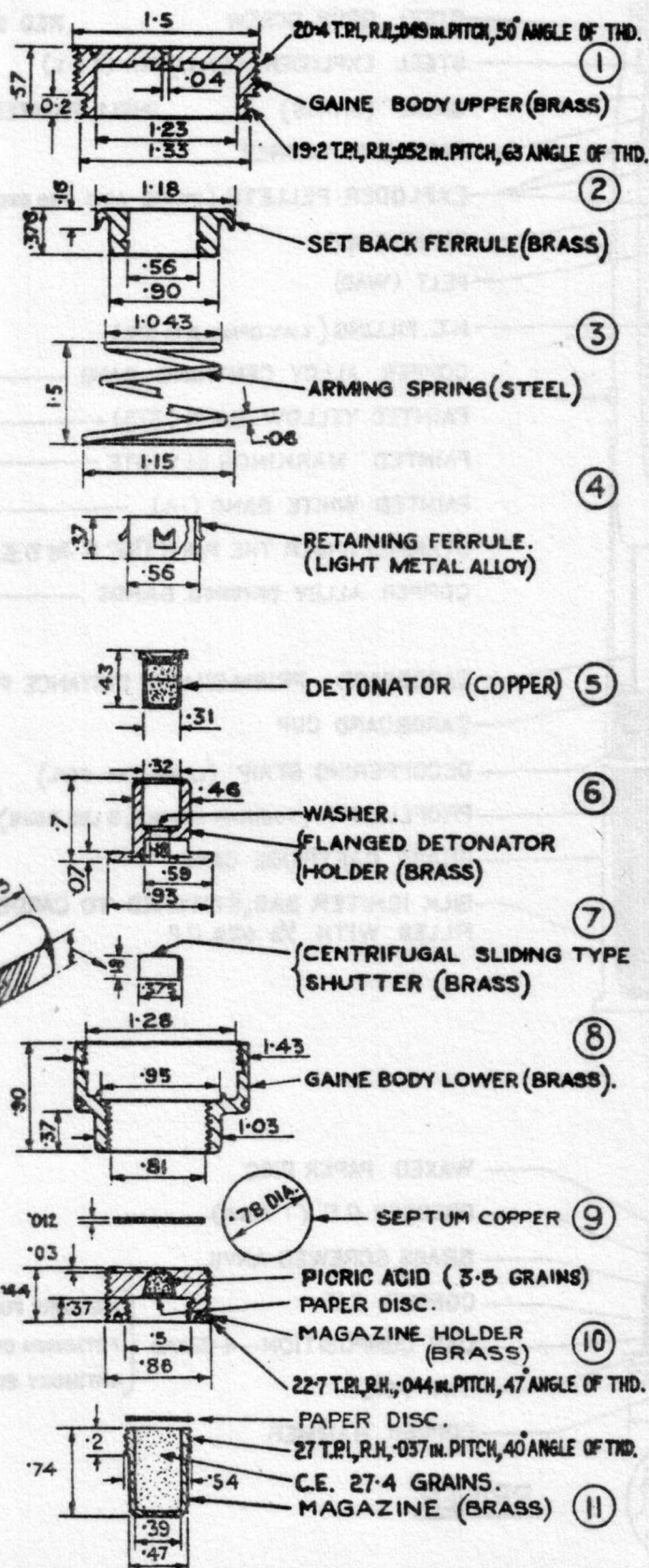
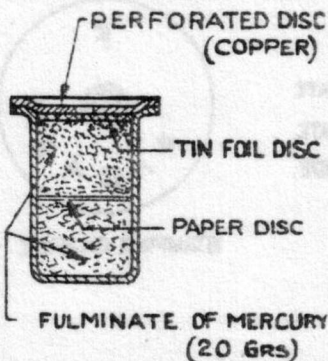
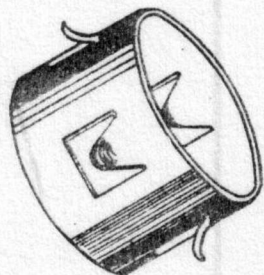


TOP PLAN.

ENLARGED DETAILS

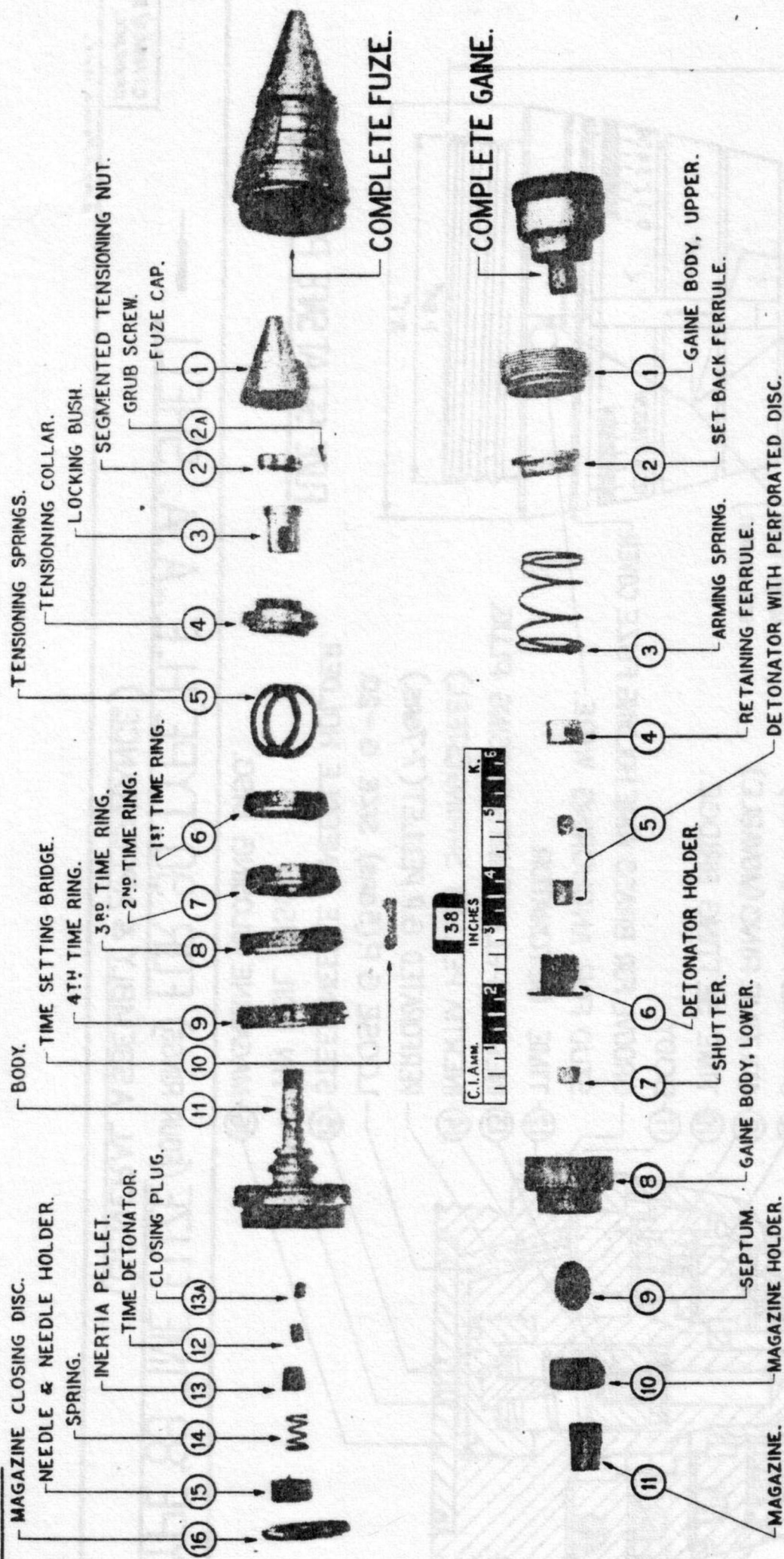
ITEM 4

ITEM 5



— GAIN FOR TYPE '90 H.E., A.A. SHELL —
 — USED UNDER TYPE '89 TIME FUZE (FOUR RINGS) —
 — GENERAL ASSEMBLY & COMPONENT DETAILS —

RESTRICTED.



JAPANESE TYPE '89 TIME FUZE (FOUR RINGS) AND GAINES

FOR

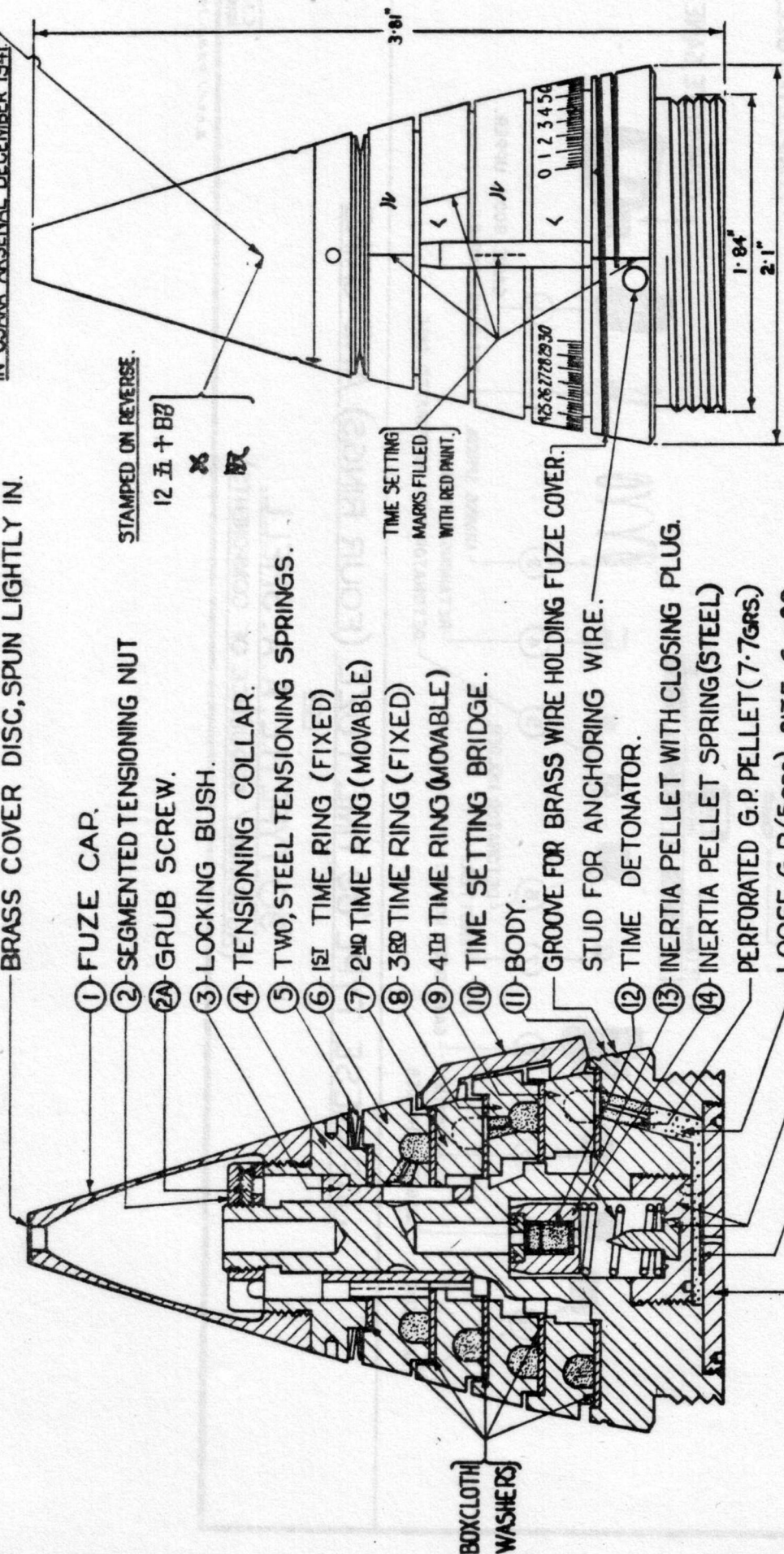
'90 TYPE H.E. A.A. SHELL.
(ASSEMBLY SEQUENCE OF COMPONENTS.)

RESTRICTED.

COMPLETE WEIGHT OF FUZE:--1LB. 7.5025.

MANUFACTURED & PASSED INSPECTION
IN OSAKA ARSENAL DECEMBER 1941-7

BRASS COVER DISC, SPUN LIGHTLY IN.



FUZE SET AT SAFE POSITION.

— TYPE '88 TIME FUZE (FOUR RINGS) FOR '90 TYPE H.E. A.A. SHELL. —
(GENERAL ASSEMBLY & APPEARANCE)

PLATE F
C.I.A.M.M. 3/ 562.
KIRKEE, DEC. '44.
G.M.2.R. POONA. 1945.

THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS

D. OF A. (INDIA)
JAPANESE AMMUNITION LEAFLETS

SECTION E.
LEAFLET E 23 (a)

AMMUNITION
FOR
75-mm. TYPE '88 A.A./FIELD GUN.

- (a) METHOD OF PACKING.
- (b) A.P./H.E. SHELL.
- (c) AIR-BURST PRACTICE SHELL.
- (d) AMENDMENTS.

METHOD OF PACKING.

Since issuing J.A.L. E23 of May 1945, packing details for ammunition used in the 75-mm. Type '88 A.A./Field Gun have become available. Two rounds plugged with two fuzes in tinned plate containers, are packed in a roughly made packing case of soft white wood. All details of the method of packing, stencilling on the box etc. are given in Plate A.

2. Internal Dimensions.

Length	..	..	34 3/4-ins.
Breadth	..	..	10 5/8-ins.
Height	..	..	4 3/4-ins.

Stowage Dimensions.

Length	..	..	36 1/2-ins.
Breadth	..	..	12-ins.
Height	..	..	6 1/4-ins.
Weight of box filled	..	..	69-lbs. 11-ozs.
Weight of box empty	..	..	30-lbs.

A.P./H.E. SHELL.

3. In para. 3 of J.A.L. E23 it was stated that since the muzzle velocity of the Type '88 Gun was 2360-f.s. it should have a very effective role against armour. Although no A.P./H.E. rounds have so far been received at Kirkee, a report has been received of the use of A.P./H.E. rounds in this gun in the Rangoon area. This report, which was issued by the Director of Military Intelligence, General Headquarters (India), is repeated below:—

“The cartridge is identical with that for the H.E./A.A. round. In the specimen examined the propellant was of the N.C. strip type 13 3/8-ins. x 5/8-in. x 1/16-in and weighed 3-lbs. 2-ozs.

“From an external examination, both shell and fuze are identical with that used with the Type '94 Mountain Gun.

"It is of interest to note that while the H.E./A.A. shell has two driving bands, this A.P./H.E. shell has a single driving band 1-cm. in width, which appears inadequate for a gun of some 2360-f.s.m.v. On the other hand the A.P./H.E. shell for the Type '90 Field Gun with a slightly lower muzzle velocity has two driving bands each approximately 1-cm. in width. It is believed that this round has been made up at a Japanese Ordnance Depot in Burma to meet operational needs. This belief is further supported by the following facts:—

- (a) The junction of shell and cartridge case lacked the finish of the H.E./A.A. round. The crimping tended towards unevenness. Some shell were slightly loose but not sufficiently so as to be detached by hand. Some were not properly seated, there being a gap of approximately 1/16-in. between the driving band and cartridge case mouth.
- (b) In the case of Q.F. fixed cartridge the date of filling refers to the date of filling with propellant and attachment of the shell. The filling dates on the cartridge in question were either January 1941 or March 1943 whereas the filling date of the shell was October 1943.
- (c) The boxes in which the rounds were packed appeared to be designed for the H.E./A.A. round plugged. They were fitted with loose packing pieces at either end to secure the A.P./H.E. rounds. Markings on the side read "88 7 Anti-aircraft 90 Pointed," meaning Type '88 7-cm. Anti-aircraft Gun Type '90 pointed shell, the Type '90 shell being, of course, the H.E. shell."

4. Note by C.I. Amn. In the absence of a properly designed A.P. round for this gun, or in the event of such rounds being in short supply, it is to be expected that A.P. rounds would be made up locally. A.P./H.E. shell can readily be obtained from other 75-mm. equipments, e.g. Type '94 Mountain Gun, Type Meiji 38 Series of Field Guns, etc. Break-down presents little difficulty and reconing is not essential although desirable for rapid fire.

AIR-BURST PRACTICE SHELL.

GENERAL.

5. A new type of round for the 75-mm. Type '88 A.A./Field Gun which was captured recently in Burma was received here in July for critical examination. This shell has 16 holes in the body near the nose (see Plate B) and as it appears to be intended to give an air-burst for practice or ranging purposes it has been given the nomenclature "Air-Burst Practice Shell" in this Leaflet.

6. This is the first instance of this type of shell for any equipment being found in Burma and so far as is known, none has been found in other theatres.

DESCRIPTION.

7. The round is practically identical with the normal H.E./A.A. round except for the following:—

- (a) Method of filling of the shell,
- (b) Slight difference in the method of positioning the propellant charge in the cartridge case.

The latter is thought to be a small manufacturing deviation and has nothing to do with the functioning of the round. Details of the filling are given in Plate C. It will be seen that the normal H.E. shell is used and filled for about half of its length with an inert filling on top of which is a tinned plate container containing about 4-ozs. of gunpowder. A small perforation in the lid of the container is covered by a piece of tinfoil. Holding the container in position in the shell is a perforated steel disc on top of which is fitted the normal Time fuze, Type 39 (4 time rings).

8. The rounds recovered were plugged with plastic plugs and one shell was not fitted with a centring band. In one instance the case was stencilled in purple ink with Japanese characters indicating "88 Type 7-cm. Anti-aircraft Special".

ACTION.

9. The fuze is set and the round fired in the usual way. At the end of the set time the flash from the fuze magazine ignites the gunpowder in the burster container to cause a flash and a puff of smoke. This is facilitated by the 16 holes in the nose of the shell.

IDENTIFICATION.

10. The shell is easily identified by the 16 holes in the body near the nose. It has only a red filling ring on the nose, and the absence of other colour bands which are found on the H.E. shell, is noteworthy. Rounds may be found with or without centring bands.

SUMMARY OF DATA.

Complete Round.

Length fuze	..	..	..	..	30.93-ins.
Weight fuze	..	..	..	..	21-lbs. 5-ozs.

11. Shell only.

Length (to mouth of shell)	..	..	..	..	10.1-ins.
Diameter over body	..	..	..	..	2.9-ins.
Diameter over centring band	..	..	..	..	2.93-ins.
Diameter over driving band	..	..	..	..	3.03-ins.
Weight of inert filling	..	..	..	..	15-ozs.
Weight of shell fuze	..	..	..	..	14-lbs.
Weight of filled tinned plate burster container	..	..	..	..	5.24-ozs.
Weight of filling in tinned plate burster container	..	..	..	..	3.87-ozs.
Length of tinned plate burster container	..	..	..	..	3.25-ins.
Maximum diameter of burster container	..	..	..	..	1.68-ins.

HANDLING AND TRANSPORT.

(Of captured ammunition by Ordnance).

12. See instructions given in J.A.L. E. 23. The shell can be handled in the same way as British Practice Shell. Fuzed rounds should where practicable be unfuzed before transport.

EXPLOSION/FIRE RISK	.. 1-lb. 13-ozs. per Round.
GROUP CLASSIFICATION	.. V, Category Z.
CLASSIFICATION FOR SEA TRANSPORT	.. O.A.S.

AMENDMENTS.

13. Reference J.A.L. E23. The following correction should be made:—

Page 2, para. 8 (i) under Propellant and Igniter.

For Size 13 3/8" x 5/8" x 3/16".

Read Size 13 3/8" x 5/8" x 3/64".

RESTRICTED.

STENCILLED MARKINGS ON BOX:-

光 高 〇 九 高 七 式 八 八
KA KO REI KYU KO SHICHI SHIKI HACHI HACHI
POINTED ANTI- 0 9 ANTI- 7 TYPE 8 8
(SHELL) AIRCRAFT AIRCRAFT (CM.)

KA 15
KA NI
PIECES 2

WOODEN PACKING
FRAMES

HEAVY GRADE PAPER
COATED WITH PITCH
COMPOSITION.

FELT PADDING

TINNED PLATE CYLINDER
CONTAINING TYPE '89
TIME FUZE
(FOUR TIME RINGS)

WOOD SHAVINGS

THREE CARDBOARD
PACKING PIECES

ONE WOODEN
PACKING PIECE
12"

ROPE HANDLE

36 1/2"

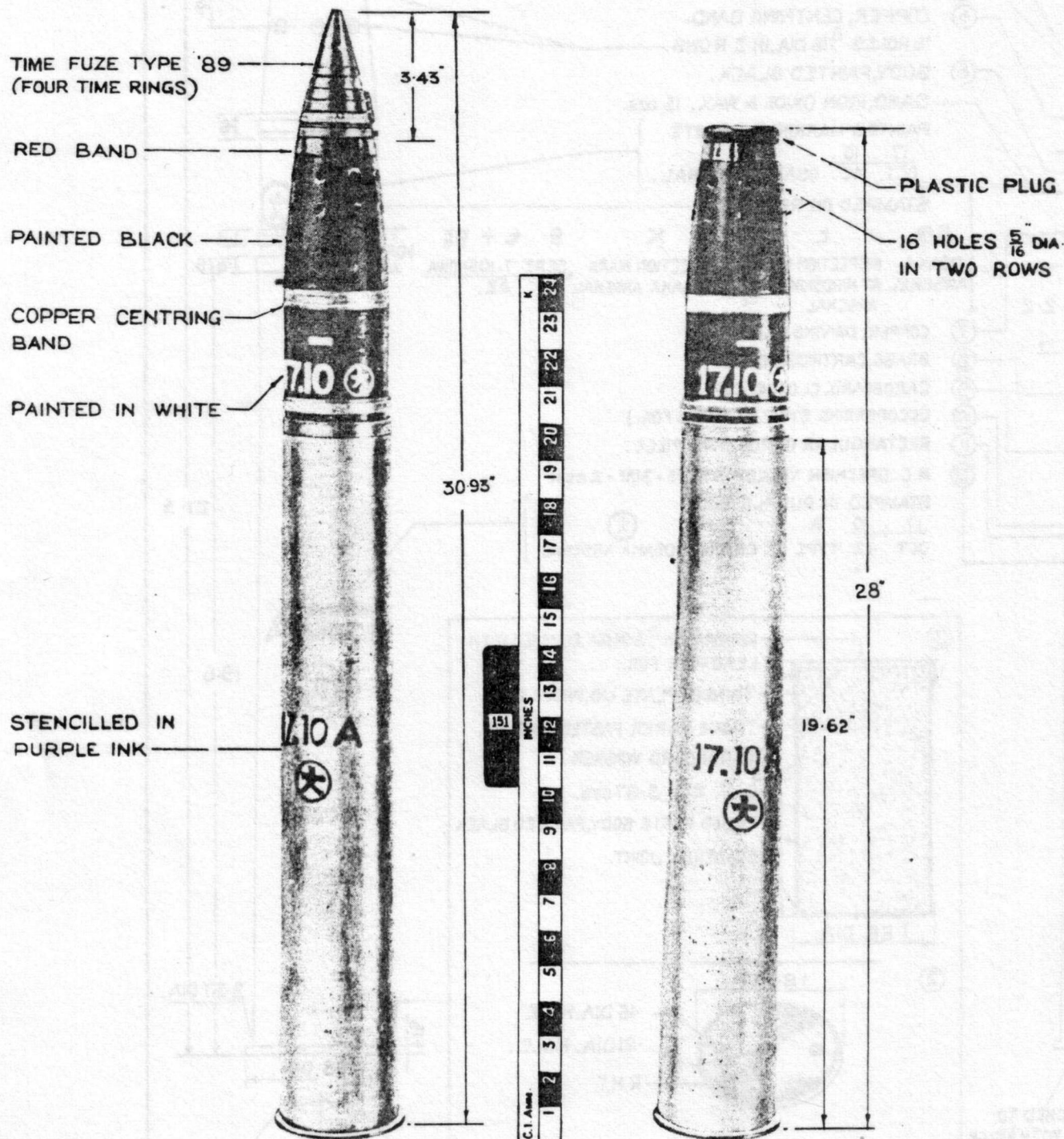
WEIGHT OF FILLED
BOX :- 70 LBS. (APPROX.)



CARTRIDGE, Q.F., 75 MM., WITH H.E. A.A. SHELL OR AIRBURST PRACTICE SHELL

for
75 MM. TYPE '88 FIELD/ A.A. GUN.
METHOD OF PACKING FOR TRANSPORT.

RESTRICTED.



JAPANESE GUN AMMUNITION

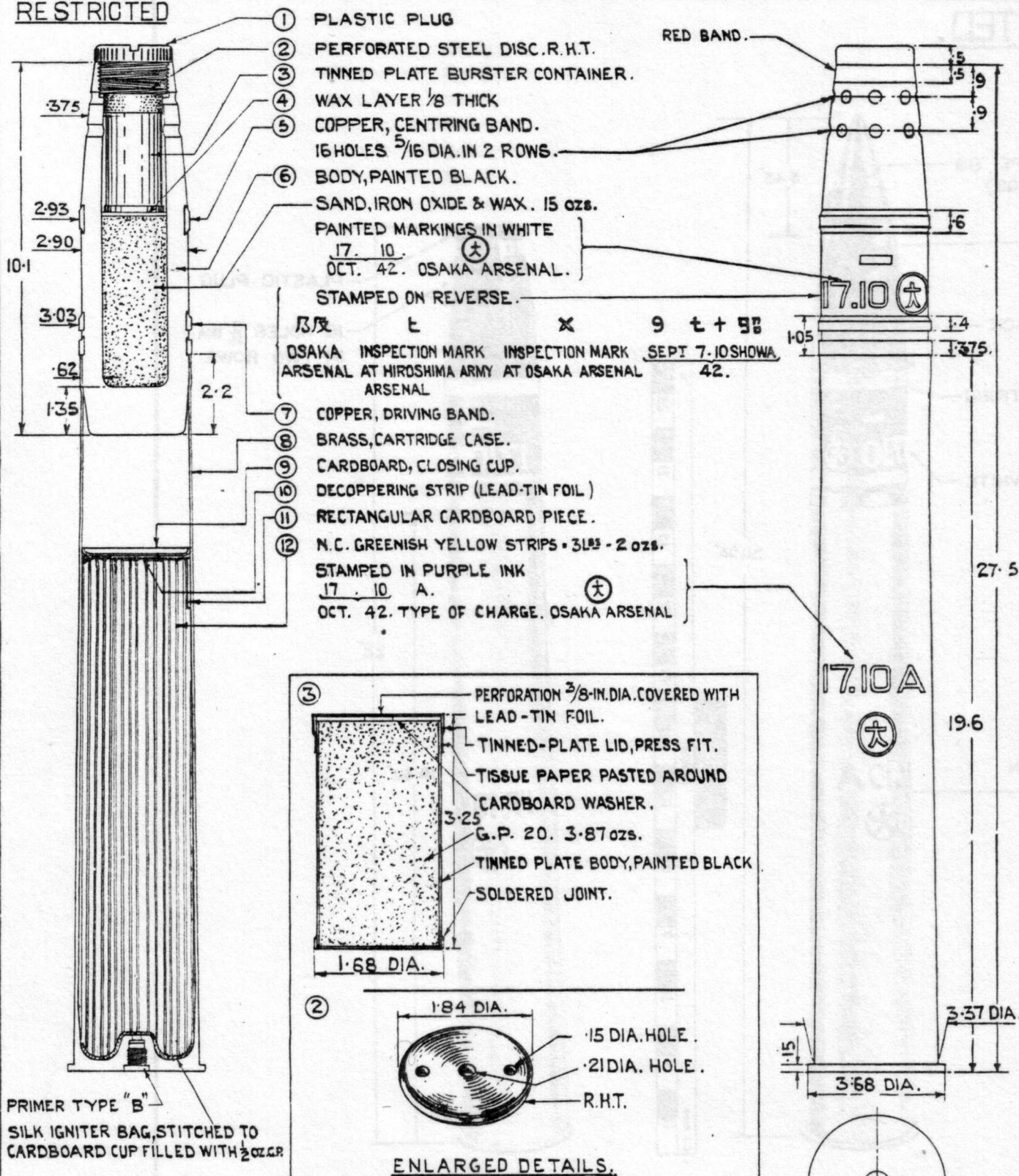
AIR BURST PRACTICE SHELL
FITTED WITH FUZE, TIME TYPE '89
for

75MM. TYPE '88 FIELD / A.A. GUN.

EXTERNAL APPEARANCE & MARKINGS

C.I. AMN. S/1167
KIRKEE. JULY 45

RESTRICTED



CARTRIDGE Q. F. 75 MM WITH AIR-BURST PRACTICE SHELL
FOR
75 MM. TYPE '88 FIELD/A.A. GUN.

DIMENSIONS IN INCHES

C.I.A.M.N.S/ 1165
KIRKEE JULY: 45.

Restricted

THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS

D. OF A. (INDIA)

JAPANESE AMMUNITION LEAFLETS

SECTION E
LEAFLET E 24

AMMUNITION FOR 88-MM. TYPE '99 A. A. GUN

GENERAL

It is only recently that full information on this equipment has been received. General Headquarters, India, Military Intelligence Directorate, Periodical Technical Summary No. 37 of April 1945, refers to this gun as follows:—

“The gun is mobile for Army use and is being manufactured for the Navy. It is believed to be in action on the Japanese homeland. One P.W. stated that a belt feed loading mechanism had been developed to raise the rate of fire of the equipment to 25 r. p. m.

“Final confirmation of the existence of this equipment was the capture, on Saipan, of 88-mm, Type '100 long pointed H.E. shell with Type '100 mechanical time and percussion fuzes. Parts of these fuzes have been found in the wings and fuselage of Allied aircraft on two occasions after raids over Japan.”

2. Recently, however, these guns with H.E. ammunition have been captured in Burma, and it is now possible to give details in this Leaflet. According to characters stamped on the piece the gun is designated by the Japanese as Type '99 (1939), 8-cm. A.A. gun. Barrel and shell dimensions, however, definitely point to it being 88-mm. calibre.

3. Two types of round are known to be in use with this gun and although only one type (the H.E., A.A. round) has been examined at Kirkee, a brief description of the other (drill round) is included in this Leaflet.

H. E. SHELL TYPE '100

4. This is the standard ammunition for the weapon and is an orthodox round; it is generally similar in appearance to the H.E. round for the 75-mm, Type '88 Field/A.A. gun, but all shell examined here took the Type '100 (mechanical) T. and P. fuze. This shell is fully described in this Leaflet.

DRILL ROUND

5. One complete round was recovered in the Rangoon Area of Burma during May 1945. It is assumed to be used by the gun detachments for practice in the operations of loading, firing and ejecting with Type '99, 88-mm. gun.

The cartridge case is identical to that used for the H.E. round; the one difference is that in place of a cap in the base of the primer there is a lead plug for the firing pin to strike on firing.

A smooth, tapered wooden projectile is crimped into the case in place of the regular projectile for this round. It has a length of 13 1/2-ins. from the case to the tip of the projectile. A 3 1/2-in. protective copper cover fitted around the nose is held in place by three nails.

DESCRIPTION

CARTRIDGE CASE

6. Details of this are clearly shown in the drawing at Plate B and the general appearance in the photograph at Plate A. The case is of brass, 22 1/2-ins. in length. It is slightly necked at the mouth end and is attached to the shell by indenting into two cannelures in the shell: the mouth is also coned into the groove below the lower driving band. The primer hole in the base is similar to that in the brass case for 75-mm. Type '88 Field/A.A. gun (see J.A.L. E.23) having a diameter of 27-mm. (1.07-ins.).

7. The stencilling on the cartridge case, see Plate A, is in purple ink and the 19.1 refers to date of filling (January 1944). The 'A' is not understood but it may have some connection with the lot number; it has not been possible to identify the other marking following the 'A'. The stamped markings on the base indicate the year and place of manufacture (July 1941 at Osaka).

PROPELLANT AND IGNITER

8. The arrangement of the charge in the cartridge case can be seen in the drawing at Plate B. The charge is made up in two portions each consisting of tubes of graphited double base propellant, having a total weight of 5-lbs. 4 1/2-ozs; the sticks are tied together with silk threads. The lower portion contains sticks 18 3/8-ins. long and weighs 4-lbs.; the upper portion is made up from sticks 4 1/2-ins. long and weighs 1-lb. 4 1/2-ozs. The bottom of the lower portion is enclosed in a cloth bag to which is stitched the igniter. A lead tinfoil decoppering strip is inserted at the top of the charge.

The gunpowder in the igniter bag weighs 10 drams and is roughly G. 20.

PRIMER

9. The primer used is the Type E which has already been described in J.A.L. E2.

SHELL

10. The general appearance will be clear from the photograph in Plate A and the drawing in Plate B. The shell body is of forged steel construction and is streamlined, the streamline angle being about 10°. It follows the same general construction as the 75-mm. H.E., A.A. shell Type '90 (see J.A.L. E. 23) but with some differences. In this case, the shell is not fitted with a centering band but it has two cannelures below the lower driving band for attachment of the cartridge case. The cavity has parallel walls but tapers slightly towards the head; the fuze hole is screw-threaded internally (52-mm. fuze hole diameter) to take the exploder and fuze, below which is a ledge on which rests the screwed exploder container.

The weight of the shell body is 15-lbs. 12 1/2-ozs., the total weight filled and fuzed being 20-lbs. 2-ozs.

11. The steel exploder container is of standard Japanese construction; two key holes are cut in the lip for insertion and removal.

FILLING

12. The shell examined here were found filled with 1-lb. 15 1/2-ozs. of cast T.N.T. Grade I or Trinitrophenetol. The latter bore Japanese characters, stencilled in white, above the upper driving band, meaning Trinitrophenetol.

The filling in the exploder container consists of three pellets of R.D.X./ Wax, enclosed in a paper tube, the top pellet being perforated to take the gaine magazine. The use of picric acid, found in some exploder containers, is of interest.

GAINE

13. The gaine is the same as used in the H.E., A.A. shell Type '90 for 75-mm, Type '88 Field/A.A. gun (see Japanese Ammunition Leaflet, E. 23). In some gaines the magazine holder (11) was found with a C.E. stemming. The dead weight required to cause the set-back ferrule to ride over the retaining ferrule is about 95-lbs.

FUZE

14. As mentioned above, shell are fitted with Mechanical, Time and Percussion Fuzes, Type '100. This fuze will be fully described in Leaflet E 6.

PACKING

15. Two plugged rounds, with two fuzes each in tinned plate cylinders, are packed in a roughly made packing case made of soft white wood. The case is unpainted and bears stencilled markings on the sides as shown in Plate C. The stencilled markings read "'99 Type 8-cm. A. A. (gun), 100 Type A. A. Pointed (Shell) two rounds with fuzes". Full details of the method of packing are shown clearly in the photograph at Plate C.

IDENTIFICATION

16. The round is readily identified by its size and appearance as shown in the Plates. The absence of the centering band on the shell and the long cartridge case are the main distinctive features.

MARKINGS

18. As previously mentioned, stencilled markings are on the projectile, fuze cover and cartridge case. Stencilling on the sides of the wooden packing case indicates the number and the nature of ammunition packed.

SUMMARY OF DATA

19. Complete Round

Length plugged	.. 31 5/8-ins.
Length fuze	.. 35 5/8-ins.
Weight plugged	.. 33-lbs.

Cartridge Case

Length	.. 22 1/2-ins.
Diameter over rim	.. 4.42-ins.
Diameter under rim	.. 4.82-ins.

Propellant and Igniter

Lower portion	.. 4-lbs. of dark green double base propellant (tubular) size 13 3/8" x 3/16" x 1/16" internal diameter.
Upper portion	.. 1-lb. 4 1/2-ozs. of dark green double base propellant (tubular) size, 4 1/2" x 3/16" x 1/16" internal diameter.
Decoppering strip	.. 398-grs. of lead tin foil, size, 32.5" x 2.875" x .003".
Igniter	.. 10-drams of gunpowder roughly size G. 20.

Primer

Type	.. "E".
Length	.. 0.78-ins.
Diameter over rim	.. 1.28-ins.
Weight filled	.. 2.4-ozs.
Magazine filling	.. 62-grs. of pressed G. P. (G. 20)
Cap composition	.. A composition of :— Mercury Fulminate. Antimony Sulphide, and Potassium Chlorate.

Shell (without plug)

Type	..	H. E. A. A. Type '100, streamlined.	
Length	..	1.875-ins.	
Diameter over bourrelet	..	3.443-ins.	
Diameter over body	..	3.425-ins.	
Diameter over upper driving band	..	3.55-ins.	
Diameter over lower driving band	..	Min. 3.549-ins.; Max. 3.594-ins.	
Weight of shell body	..	15-lbs 12 1/2-ozs.	
Weight of shell filled and fuzed	..	20-lbs. 2-ozs.	
Explosive pellets :—			
Bottom pellet	..	297.8-grs.	R. D. X./Wax or Picric Acid
Middle pellet	..	200-grs.	
Top pellet	..	86.4-grs.	

Gaine

Length overall	.. 1.87-ins.
Weight filled	.. 6.4-ozs.
Force required to push ferrule over stirrup spring	.. 88-lbs. to 99-lbs.

Fuze

Type	.. Mechanical, Time and Percussion, Type '100.
Length	.. 4 7/8-ins.
Weight filled	.. 1-lb 2.3-ozs.
Magazine filling	.. G. P.

Packing

Material	.. Soft white wood.
Contents	.. 2 complete rounds (plugged). .. 2 fuzes, each in tinned plate cylinder.

Internal dimensions :—

Length	.. 38 5/8-ins.
Breadth	.. 11 1/2-ins.
Height	.. 6-ins.

Stowage dimensions :—

Length	.. 42-ins.
Breadth	.. 14 1/2-ins.
Height	.. 8 3/4-ins.
Weight of box empty	.. 31 1/2-lbs.
Weight of box filled	.. 99 1/2-lbs.
Marking	.. Box unpainted.

Stencilling reads :—

" 99 Type 8 cm. A.A. (gun).
100 (Type) A.A. pointed (shell)
two pieces (rounds) with fuzes."

HANDLING AND TRANSPORT

(Of captured ammunition by Ordnance)

20. These rounds can be handled in the same way as corresponding British ammunition, e. g., Q. F., 3.7-in. A. A., H. E., fuze 207 with No. 11 Gaine. Fuzed round should, where practicable, be unfuzed before transport. Blind rounds are unlikely since, should the fuze fail to operate after the set time, it will function on impact. If any blind rounds are found, however, they should be destroyed in situ.

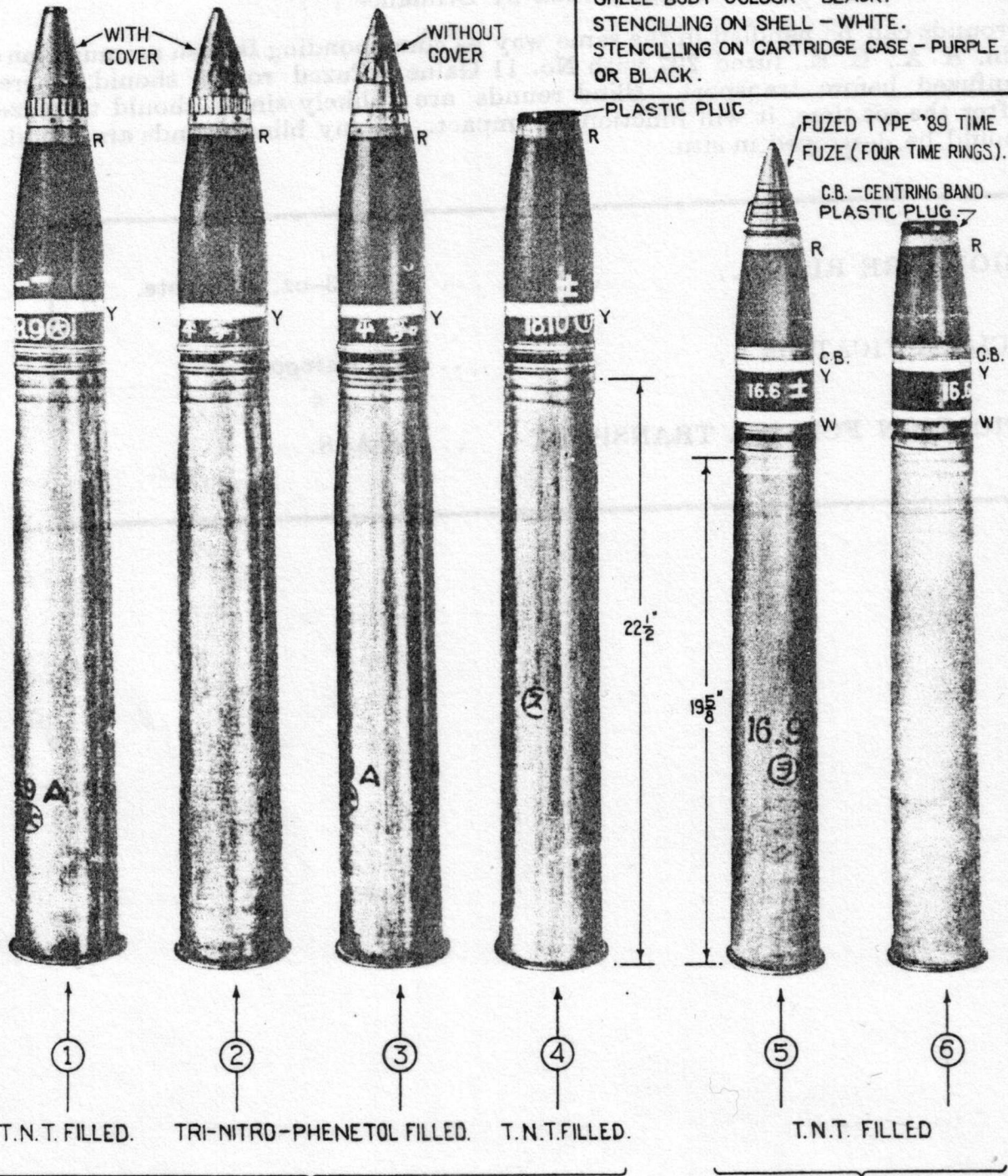
EXPLOSION/FIRE RISK	3-lb. 3-oz. complete.
GROUP CLASSIFICATION	VI, Category Z.
CLASSIFICATION FOR SEA TRANSPORT ..	O. A. S.

RESTRICTED.

KEY TO COLOUR BANDS

R - RED. W - WHITE
Y - YELLOW
SHELL BODY COLOUR - BLACK.
STENCILLING ON SHELL - WHITE.
STENCILLING ON CARTRIDGE CASE - PURPLE
OR BLACK.

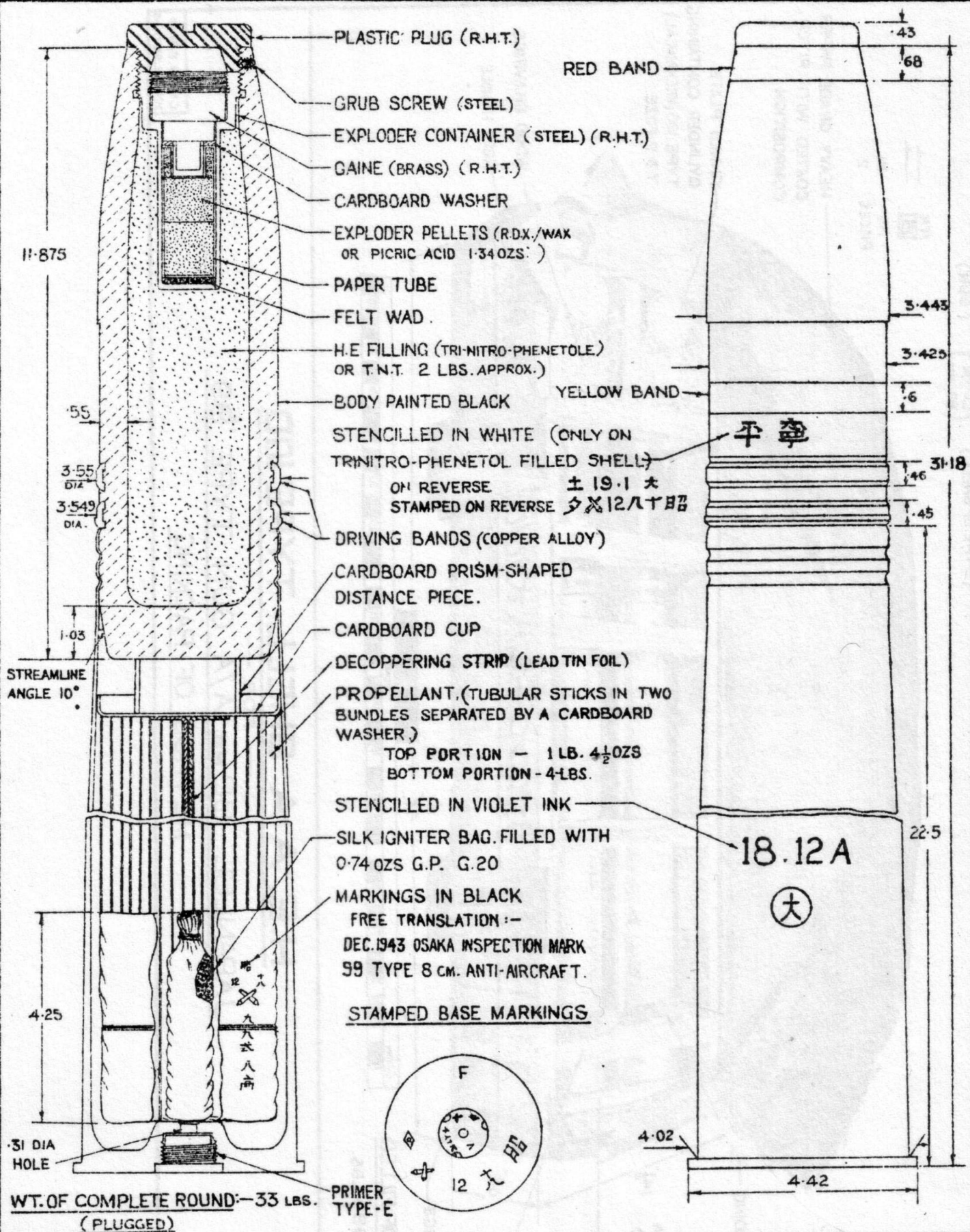
FUZED T.&P. TYPE 100 (MECHANICAL)



H.E./A.A. FOR 88 MM.
TYPE '99 A.A. GUN.

H.E./A.A. FOR 75 MM.
TYPE '88 FIELD/A.A. GUN.

JAPANESE GUN AMMUNITION
FOR
88 MM. TYPE '99 A.A. GUN & 75 MM. TYPE '88 FIELD/A.A. GUN.
COMPARATIVE PHOTOGRAPH



H.E. A.A. SHELL, TYPE 100

FOR

JAPANESE, 88 MM. A.A. GUN TYPE '99.

(INTERNAL DETAILS & DIMENSIONS)

DIMENSIONS IN INCHES

C.I. AMN. S/1248
KIRKKEE, SEPT. '45

RESTRICTED.

STENCILLED MARKINGS
ON THE SIDES:—

九 八 式 高 八 〇 〇 高 〇 〇 九 信
SEN KO REI ICHI KO HACHI SHIKI KU KU
POINTED A/A 100 A/A 8 TYPE 9 9 (GUN)
(TYPE OF SHELL) (CM. OR 88 MM.)

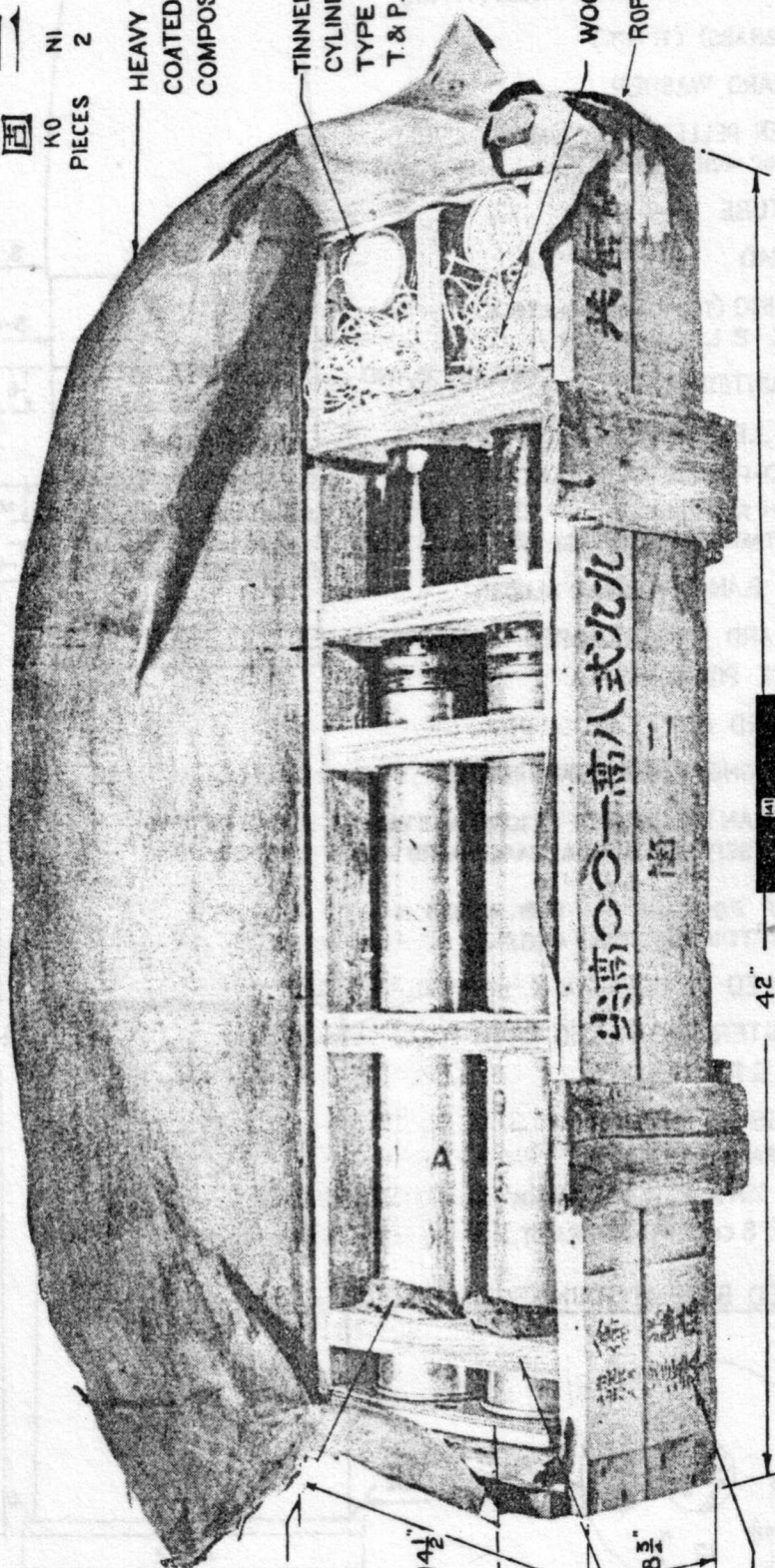
共 管 信
KYU KAN SHIN
WITH FUZE

二 二
K K
固 固
KO KO
PIECES 2

HEAVY GRADE PAPER
COATED WITH PITCH
COMPOSITION

TINNED PLATE
CYLINDER CONTAINING
TYPE 100 (MECHANICAL)
T. & P. FUZE.

WOOD SHAVINGS
ROPE HANDLE



FELT PADDING

WOODEN &
CARDBOARD
PACKING
PIECES

WOODEN
PACKING
FRAME

WT. MARKINGS

WEIGHT OF FILLED

BOX :- 99½ LBS.

H.E. A A SHELL TYPE 100

— FOR —
JAPANESE 88 MM. A/A GUN TYPE '99

METHOD OF PACKING

**THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS**

D. OF A. (INDIA)

JAPANESE AMMUNITION LEAFLETS

SECTION E

LEAFLET E 25

105-mm., ARTILLERY AMMUNITION

GENERAL

In sheet 2 of Leaflet E 1 (b) is given a tabular chart showing 105-mm. equipments and the ammunition. Although our stock of knowledge on Japanese Artillery equipments has increased considerably in recent months, information on 105-mm. equipments is still meagre. It is however known that, in addition to the 5 weapons given in the chart in Leaflet E 1 (b), there are others now known to be of 105-mm. calibre. The following is a complete list of 105-mm. equipments :—

Type Meiji 38 gun.

Type Taisho 14 A.A. gun.

Type Taisho 14 gun.

Type Taisho 7 gun.

Type '92 meduim gun,

Type '99 Mountain gun.

Type '91 howitzer.

There is very little information on the Type '99 gun and the source from which this information is taken is unconfirmed. However it is hoped to clarify the position in a supplementary Leaflet, if and when more information becomes available.

2. The various weapons, the projectiles used in them, the fillings in the shell, the type of fuze used and other details are given in the chart at the end of this Leaflet. Owing to lack of information here this has been compiled from American Sources.

3. Plates A and C have been included in this Leaflet to show the methods of filling of two typical H.E. shell; these are the Type '91 flat base shell for Type '91 howitzer and the Type '91 pointed shell for the Type '92 Gun. These rounds have been examined at Kirkee and cartridge cases and propellant bags have also been included in Plates B and C. It should be appreciated that projectiles are largely interchangeable but certain projectiles intended for the Type Meiji 38 gun are not suitable for use in the more modern guns and howitzers. This is probably because cast iron or a weaker nature of steel was used in their manufacture. The shell are described here under the equipments as they were received here with the cartridge appropriate to that gun.

4. No sketches of A.P./H.E., shrapnel, incendiary or smoke shell are available and none of these have been examined at Kirkee. It is thought that they follow the conventional design and do not show any wide variation. Readers should refer to J.A.L.'s E 8, E 9 and E 10 where typical methods of filling of A.P/H.E., sharpnel and smoke and incendiary shell are given.

In this Leaflet it is proposed to discuss the two types of ammunition shown in Plates A to C.

AMMUNITION FOR TYPE '91 HOWITZER

DESCRIPTION

Cartridge Case.

5. A sketch of the cartridge case and the arrangement of the propellant bags is shown in Plate B. The case is of brass, $9\frac{1}{2}$ inches long and has a very slight taper towards the mouth. This is Q.F. separate loading ammunition, hence the case is neither necked nor crimped. The primer is contained in a pocket, formed in the base of the case, with a small vent leading into the propellant chamber. The primer used is the Type B described in J.A.L. E 2.

Propellant and Igniter.

6. The propellant consists of graphited flakes of N.C. with diphenylamine as stabiliser and is contained in four undyed silk bags. The charge weights are as follows:—

<u>Bags.</u>	<u>Propellant.</u>	
	<u>Ozs.</u>	<u>Drs.</u>
No. 1 A (Bottom)	.. 14 —	14½
No. 2 D	.. 15 —	8
No. 3 C	.. 5 —	9½
No. 4 B (Top)	.. 3 —	10

Note :—The arrangement of the propellant bags is the same as in the case of 70-mm. ammunition for the Type '92 Battalion Gun. See J.A.L. E 19.

The bags are held in position in the cartridge case by a lacquered cardboard cup. Sewn to the base of the bottom bag (No. 1) is a gunpowder igniter containing 46 grains of G.P. size G. 20. A piece of decoppering material weighing about 120 grains is attached to the top of the No. 1 bag by a silk thread.

All the markings on the propellant bags are reproduced in the sketch at Plate B.

Shell.

7. The shell is made of steel and follows the usual design of 75-mm. shell. The copper driving band is attached about $1\frac{1}{2}$ inches from the base of the shell, it is a plain band having two cannelures. The base of the shell is not streamlined.

The steel exploder container is externally threaded at the top to screw into the nose of the shell. It screws down on to a shoulder in the nose and above it screws the nose adapter which is internally threaded to take the fuze. Between the nose adapter and the exploder container is a drawn copper cup which fits into a recess in the top of the exploder and houses the gaine of the fuze.

8. **Filling.** One shell examined here, marked with only one yellow band, was filled ammonium nitrate and R.D.X. in the proportions of 84% and 16% respectively. The exploder filling consisted of three pressed pellets of R.D.X./Wax, the top pellet being graphited.

Another shell examined here, having one yellow and one white band, was filled $5\frac{1}{2}$ lbs. of T.N.T. The exploder filling in this case consisted of three pressed pellets of picric acid.

FUZE

9. This shell takes the slight delay and graze action fuze Type '88 described in J.A.L. E 3.

PACKING

10. Ten cartridge cases are packed in an unpainted wooden box constructed of 5/8" timber. The total weight of the filled box is 143 lbs. and the stowage dimensions are:—

Height	..	..	..	13 1/8 ins.
Width	..	..	..	11 3/4 ins.
Length	..	..	..	31 ins.

Details of packing of the shell are not known, as the projectiles were received here loose, in which way they are probably issued.

IDENTIFICATION

11. The round can be readily identified by its size, colour bands, markings etc., given in Plates A and B. Note the length of the cartridge case which is 9½ inches.

SUMMARY OF DATA

Length of cartridge case	..	9.5 ins.
Weight of case and charge	..	8 lbs. 12 ozs.
Weight of charge only	..	2 lbs. 8 ozs.
Weight of complete shell plugged	..	35 lbs.
Weight of filling	..	5 lbs. 8 ozs.
Weight of shell filled and fuzed	..	35 lbs. 6 ozs.
Length of shell	..	16.81 ins.
Length of shell fuzed	..	18.5 ins.
Weight of exploder filling	..	1.52 ozs.

AMMUNITION FOR TYPE '92 MEDIUM GUN

DESCRIPTION

Cartridge Case.

12. A sketch of the cartridge case with the markings and arrangement of the propellant is shown in Plate C. It is about 29 ins. long and has a slight taper towards the mouth. This is Q.F. separate loading ammunition, hence the case is neither necked nor crimped. The primer used is the Type 'B' primer described in J.A.L. E 2.

Propellant and Igniter.

13. The propellant is the same as that used in the 75 mm. Ammunition for Type '88 A.A./Field Gun—See J A.L. E 23. It consists of olive drab strips of N.C. with diphenylamine as a stabilizer.

The charge consists of two bundles held together by silk threads and loaded one above the other. The charges are partly covered by silk bags, as shown in plate C. An igniter bag is attached to both the charges and each has a piece of decoppering material on the top. The bottom increment weighs 5 lbs 10 ozs. and the top 3 lbs 7 ozs. Between the two charges is a perforated cardboard cup, and the case is closed by an inverted cup which fits over the charge and retains them in position; a second inverted closing cup fits over the mouth of the case to protect the propellant from moisture.

Shell

14. In construction the shell follows the same general design as the 75 mm. H.E. pointed shell — See J.A.L. E 22. There is some difference in the driving band; in this case it is of the double cannellure type tapering towards the front and base. Note the presence of the copper centring band, which is common to both the rounds.

15. **Filling.** Two shells having different fillings have been examined in Kirkee. The shell having one white and one yellow band had a picric acid exploder and the main filling was T.N.T. The shell with one yellow band only had an R.D.X./Wax exploder and the main filling was ammonium nitrate/R.D.X. The colour markings referred to above do not necessarily indicate the nature of filling of the shell, but are used in this Leaflet only to distinguish one shell from the other. See J.A.L. E 1 (a).

FUZE

16. This shell takes the slight delay and graze action fuze Type '88 described in J.A.L. E 3.

PACKING

17. Details of packing are not known as neither cartridges nor shell were received in original boxes, but see paragraph 10 above.

IDENTIFICATION

18. The projectile can be distinguished by the long pointed nose, the presence of a centring band and the streamlined base. The cartridge case is 29 inches long and has an inverted cardboard cup on the mouth to protect the propellant from moisture.

SUMMARY OF DATA

Length of the cartridge case.	..	29 ins.
Weight of case and charge	..	21 lbs.
Weight of charge only	..	9 lbs. 1 oz.
Weight of complete shell plugged	..	35 lbs.
Weight filled and fuzed	..	35 lbs. 6 ozs.
Weight of filling	..	5½ lbs.
Length of shell fuzed	..	21-46 ins.
Weight of exploder filling.	..	1½ ozs.

HANDLING AND TRANSPORT

(Of captured ammunition by Ordnance)

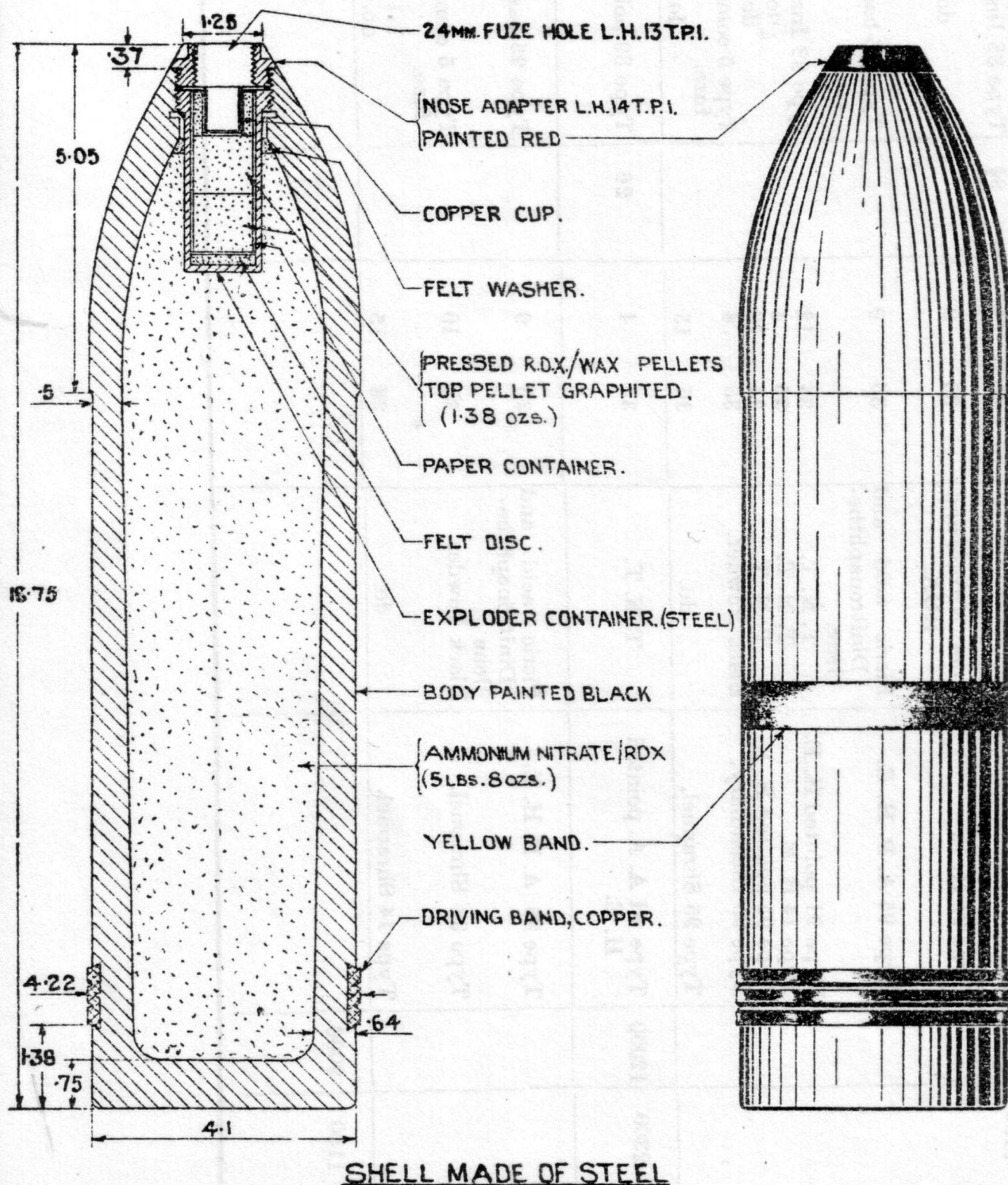
19. This applies to both the rounds. They can be handled in the same way as American 105 mm. ammunition. Following usual Japanese practice the rounds are issued plugged and hence no special precautions are required in handling and transport.

	Type 91 shell.	Type 91 How: cartdgc.	Type 91 pointed shell.	Type 92 gun cartdgc
EXPLOSION / FIRE RISK	5½ lbs.	2½ lbs.	5½ lbs.	9 lbs.
GROUP CLASSIFICATION	V, Z	VI, Y	V, Z	VI, Y
CLASSIFICATION FOR SEA TRANSPORT.	O.A.S.	O.A.S.	O.A.S.	O.A.S.

Type of gun.	Length of barrel. Inches	M. V. f. p. s.	Range Yds.	Types of shell.	Nature of filling.	Weight of shell. lbs. ozs.	Length of case. Inches	Fuze.
Type Meiji 38 gun.	130	1770	10900	Type 91 H. E.	T. N. T.	35 4		Type 88 Inst. & Delay
				Type 14 H. E.	T. N. T.	35 4		do.
				Type 91 pointed H. E.	T. N. T.	34 12		do.
				Type 95 pointed H. E.	T. N. T.	34 12		do.
				Type 95 A. P. H. E.	Picric acid & Dinitronaphthelene	35 0		Type 95 base fuze.
				Type "A" A. P. H. E.	do.	39 12		Type 88 base fuze (for guns)
				Type 38 Shrapnel.	Black Powder	39 10		Type 5 combination fuze.
				Type 14 Shrapnel.	do.	36 15		do.
				Type 14 Smoke.	do.	35 10		do.
				Type 95 Incendiary.	—	35 4		do.

Type of gun.	Length of barrel. Inches	M. V. f. p. s.	Range Yds.	Type of shell.	Nature of filling.	Weight of shell. lbs. ozs.	Length of case. Inches	Fuze.
Type Taisho 14 gun.	140	2040	14500	Type 91 H. E.	T. N. T.	35 4		Type 88 Inst. & Delay.
				Type 14 H. E.	T. N. T.	35 4		do.
				Type 91 pointed H. E.	T. N. T.	34 12		do.
				Type 95 pointed H. E.	T. N. T.	34 12		do.
				Type 95 A. P. H. E.	Picric acid and Dinitronaphthe- lene, Black Powder.	35 0		Type 95 base fuze.
Type 92 gun.	186	2500	20100	Type 14 Shrapnel.		36 15	29	Type 5 combination fuze.
				Type 14 Smoke.	do.	35 10		do.
				Type 95 Incendiary.	—	35 4		do.
				Type 14 pointed H. E.	T. N. T.	35 4		Type 88 Inst. & Delay
				Type 91 H. E.	T. N. T.	35 4		Type 88 Inst. & Delay
				Type 95 A. P. H. E.	Picric acid and Dinitronaphthe- lene.	35 0		Type 95 base fuze.
				Type 91 pointed H. E.	T. N. T.	34 12		Type 88 Inst. & Delay
				Type 95 pointed H. E.	T. N. T.	34 12		do.
				Type 14 Shrapnel	Black Powder.	36 15		Type 5 combination fuze.
				Type 95 Incendiary. Type 91 pointed H. E.	Amm. Nitrate and RDX.	35 4 35 0		do Type 88 Inst. & Delay

Type of gun.	Length of barrel. Inches	M. V. f. p. s.	Range Yds.	Type of shell.	Nature of filling.	Weight of shell. lbs. ozs.	Length of case. Inches	Fuze.
Type 91 howitzer.	82	1790	11500	Type 91 H. E. Type 91 H. E. Type 95 A. P. H. E. Type 91 pointed H. E. Type 14 H. E. Type 95 pointed H. E. Type 95 Incendiary, Type 95 Shrapnel.	T. N. T. Amm. Nitrate and RDX. Picric acid and Dinitronaphthe- lene. T. N. T. T. N. T. T. N. T. Black Powder. do.	35 4 35 0 35 0 34 12 35 4 34 12 35 4 36 15	9½ 26	Type 88 Inst. & Delay do. Type 95 base fuze. Type 88 Inst. & Delay do. do. Type 5 combination fuze. do. Type 89 pointed A.A.
Type Taisho 14 A. A. gun.		2300	12000	Type 91 A. A. pointed H. E.	T. N. T.	35 4		Type 95 base fuze.
Type Taisho 7 gun.				Type 95 A. P. H. E. Type 38 Shrapnel. Type 14 Shrapnel.	Picric acid and Dinitronaphthe- lene Black Powder. do.	35 0 39 10 36 15		Type 5 combination fuze. do.
Type 99 Mountain gun. (information about the existence of this gun is uncon- firmed.)		1150	9000					

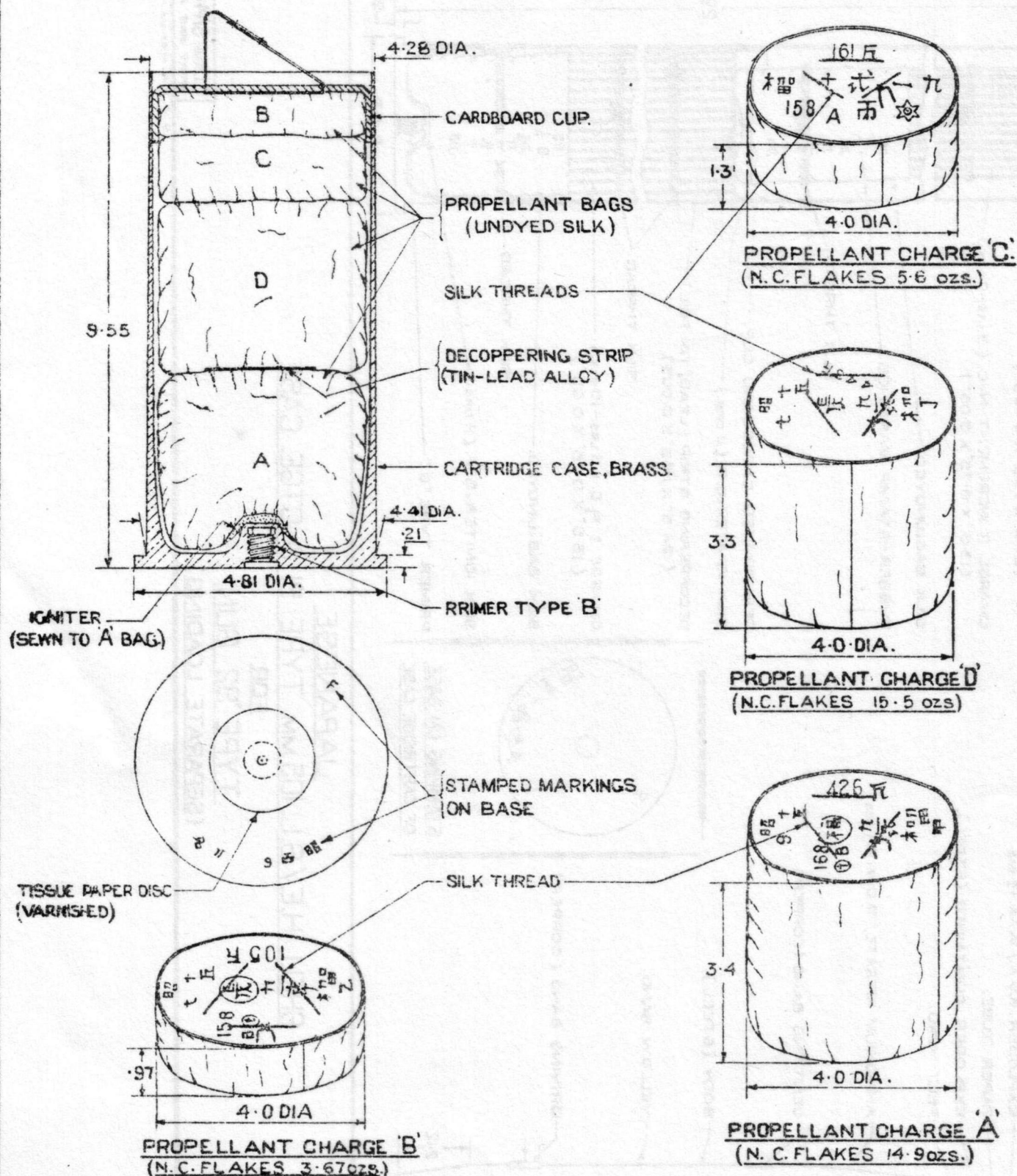


JAPANESE SHELL, H.E., 105 MM.
FOR
TYPE 91 HOWITZER.

DIMENSIONS IN INCHES.

C.I.A.M.N. S/1475
 KIRKEE, MAY '46.

G.P.E.P. FORM 46



JAPANESE ARTILLERY AMMUNITION

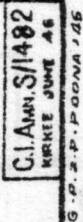
CARTRIDGE FOR 105mm. TYPE '91 HOWITZER

DIMENSIONS IN INCHES

C. I. AMM. S. 1477

MINOR AMM. 35

G. P. E. P. P. O. N. A. 35



DIMENSIONS IN INCHES

JAPANESE
SHELL H.E./S.L. 105 MM. TYPE 91 & CTGE. CASE
FOR
TYPE '92 GUN
(SEPARATE LOADING)

Restricted

**THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS**

D. OF A. (INDIA)

JAPANESE AMMUNITION LEAFLETS

SECTION E

LEAFLET E 26

AMMUNITION

FOR

8-cm. (3-in) 10th YEAR TYPE DUAL PURPOSE NAVAL GUN

GENERAL

A number of rounds of Japanese 8-cm. (3") fixed ammunition have been received at Kirkee for examination and the following is the detailed report.

2. Although this is a Naval equipment, it is known that the Japanese have taken Guns from ships and transferred to land positions for coastal and anti-aircraft defence and it is considered that a number of rounds for these guns may be found in land dumps or in smaller quantities around captured guns.

Of those found, the 8-cm. (3") 10th year Type D. P. Gun has been the most frequently encountered weapon and it is thought that a few remarks about this gun may be useful for identification purposes.

3. The equipment has a conventional Naval Pedestal mount and the recoil mechanism is set on top of the barrel. It is characterised by a sliding breech block which moves at 45° to the vertical, opening downwards.

DATA:—

Calibre	76.2-mm. (3")
Length of barrel	120"
No. of grooves	24
Traverse	360°
Muzzle Velocity	2220 ft./sec.
Horizontal Range	11,800 yds.
Effective Ceiling	18,900 ft.
Max Ceiling	22,200 ft.
Rate of fire	18 R.P.M.

4. It is known that a semi-fixed round also exists but it is unlikely that this can be used in the 8-cm. (3") 10th Year Type D.P. Gun, as although the semi-fixed round is generally similar to the fixed type, the cartridge case for the former is 1" shorter and uses a percussion primer, which is unusual in that it protrudes approximately 12-mm. beyond the base of the cartridge case. Such a primer necessitates the use of a recessed breech block, as in the British Q.F. 12-pdr. 12-cwt. which uses a metal igniter adapter. Although the complete rounds are therefore not interchangeable, it is probable that the projectiles are.

DESCRIPTION

5. To facilitate the description of the ammunition the following plates have been included in this Leaflet.

- Plate A — Photograph of 4 H. E. rounds, showing fuzes used and general appearance.
- Plate B — Drawing showing internal and external dimensions of the round.
- Plate C — Drawing of the 5 year type impact fuze.
- Plate D — Photograph of typical packing.

CARTRIDGE CASE

6. The cartridge case is made of brass and has a slight bottleneck. The length of the case is 15-ins. and the empty weight is 6-lbs. 4-ozs. For transport a bakelite and wood dummy is screwed into the primer hole. It is protected internally with a coating of heavy black lacquer. Further dimensions and the general construction of the case will be found at Plate B.

PROPELLANT CHARGE

7. Details of the propellant charge will be found at Plate B. The brownish yellow NC/NG sticks measuring $12\frac{1}{2}$ " x .078" (dia.) are contained in a silk bag which is tied at the mouth with a woollen cord. The propellant is somewhat similar to British W.M. cordite and chemical analysis shows it to contain 67.5% of N.C., 25.6% of N.G., and 6.9% of stabilizer. The propellant is positioned in the cartridge case by means of a circular distance piece and paper packing. A recess is formed in the bottom of the bag in order to accommodate the primer. Markings on the bag are the Japanese 'Anchor', indicating a Naval store, and a cloth label stitched on, giving manufacturing details, charge weight and dates, together with the gun with which the propellant should be used, written as "8-cm. High Angle Gun".

The charge examined at Kirkee had a total weight of 2-lb. 2-oz.

PRIMERS

8. As shown in the drawing at Plate B, the cartridge case is plugged with a plastic and wooden dummy primer. It is therefore not known what type of primer is used but it is thought to be a primer with a long magazine and of the percussion type, which would be very similar in shape to the dummy primer.

SHELL

9. Details of this are shown at Plates A & B. The projectile is of the usual Naval design, being similar to 8-cm. semi-fixed and 12-cm. Naval ammunition. A soft copper driving band of the Vavasseur type, with two plain cannelures, is fitted to the shell. The

H. E. filling consists of 14½-oz. of cast trinitroanisol in a paper container, wrapped in a felt bag. Internally the shell is lacquered in a similar manner to the cartridge case and this is consistent with the care that the Japanese take to protect their ammunition. The paper container is rubber stamped with the Naval acceptance stamp i. e. an anchor. A cavity is left in the top of the filling in order to accommodate the fuze gaine, the latter acting as the only means of detonating the projectile, as there are no exploder pellets incorporated as in Land Service ammunition.

10. The threaded base is screwed down on to a copper washer, which acts as a gas check to prevent ingress of propellant gases to the main filling and thereby prematuring the shell in the bore of the gun; a copper ring is pressed into a groove in the base of the shell for the same reason.

11. Other reports have stated that the base plug could possibly be removed and the shell fitted with a base fuze; no base fuze with such a large fuzehole is, however known to exist and it is thought that the base plug is used in order to facilitate block filling; the nose is obviously too small to allow the block to pass through.

12. The shell examined at Kirkee were found to be painted reddish brown, the customary Naval colour for a common type of shell. A green band approximately 2" wide, denoting high explosive filled, was painted round the nose. The shoulder of the shell is marked in white with Japanese characters which mean "Modified 1" and the driving band is stamped with the Naval "Anchor", manufacturer and date. Other shell markings appear at Plate B.

The standard weight of the shell filled and fuzed is 12 lbs 7 ozs.

FUZES

13. The ammunition is transported with a bakelite nose plug and wooden gaine and is threaded to receive the Type '89 Time Fuze (4 rings); with this fuze the round is used in an A/A role. The addition of an adapter allows the use of the 5th Year Type Impact Fuze and with the latter fitted, the round becomes a normal H. E. round for use against ships or shore targets.

The two types of fuze are shown fitted into shell at Plate A of this Leaflet, but as the Type '89 fuze has been fully described in J.A.L. E23. only 5 Year Type will be described here.

5 Year Type Impact Fuze. A detailed drawing of this appears at Plate C, showing the general arrangement and method of construction.

It is reported to be used also in the 120-mm. and 140-mm. shell and in some obsolete 75-mm. Naval shell and is essentially a nose impact fuze. In the case of the 8-cm. H.E. shell the fuze gaine acts as the exploder, there being no additional exploder pellets.

14. From reports received, it is apparent that the fuze requires a direct and severe impact to actuate it and this probably accounts for the very high percentage of blinds that have been reported when this fuze has been used. The conclusion is that the fuze was primarily designed for use against ships and not against shore targets.

For purposes of description the fuze may be divided into 3 main parts:—

15. The heavy brass nose cap (1) screws on the body (5) and is secured by a grub screw; the walls are purposely thinned to allow it to be crushed in or sheared off on impact.

16. The top of the fuze body (5) is cupped and is threaded to take the striker guide (9), which is screwed down on to a copper safety disc (4); this disc supports the primary striker (2) which is a sliding fit in the striker guide.

Into the main cavity of the fuze body screws the outer sleeve (6) in which the inner sleeve (7) is free to move longitudinally; the secondary striker guide (10) slides into the inner sleeve (7) and is fixed to it by two shear pins. The upper detonator holder (8) screws into the top of the secondary striker guide. The secondary striker (9), made of soft aluminium, is slightly coned and fits into the secondary striker guide (10) which is also coned; it is there by being prevented from moving down on to the lower detonator during ordinary conditions of handling and transport.

17. The gaine (13), which screws into the lower part of the fuze body, is threaded to take the lower detonator holder (12), closed by the plug (11). This holder and plug form a seating for the secondary striker guide etc.

18. Safety Devices:—

- (i) Safety Pin. This is inserted through the fuze body and prevents the secondary striker guide etc. from moving forward on to the primary striker or viceversa if the fuze is accidentally dropped. It is withdrawn before loading.
- (ii) Safety Disc (4). This keeps the primary striker off the upper detonator until impact occurs.
- (iii) Shear Pins. These lock the secondary striker guide to the inner sleeve and keep the former in the rear position until after firing.

ACTION

19. The fuze examined here was received without the primary striker and shear pins, it was not possible to determine the length of the striker needle or the strength of the pins. However, it is considered that the fuze works in the following way:—

On firing, the inner sleeve (7) sets back over the secondary striker guide and shears the shear pins; there is probably some flow of metal into the small annular space between the two moving surfaces and this grips the two parts together in the rear position.

In flight, the secondary striker guide, (10) together with the inner sleeve (7), creep forward. It is unlikely that the needle of the primary striker is sufficiently long to initiate the upper detonator when in the forward position, as this might lead to prematures outside the muzzle.

On impact, the secondary striker guide etc. sets hard forward, sealing off the safety hole. At the same time, the nose cap (1) is either crushed in or sheared off (depending on the angle of descent) thereby driving in the primary striker, which deforms the safety disc (4) and initiates the upper detonator. The gases from this force the coned secondary striker (9) through the coned striker guide (10) and on to the lower detonator, which in turn initiates the gaine filling; the secondary striker, being made of a soft material (aluminium), is readily deformable and, in addition, has a circumferential groove into which the metal flows.

If the shell lands at very low angles of descent, it is unlikely that the nose cap will be crushed or sheared off and this would account for the number of blinds reported.

PACKING

AMMUNITION

20. Five plugged rounds are issued packed in a wooden box and this is clearly shown at Plate D.

Stowage dimensions and weight of the box are:—

Length	34½ ins.
Width	16¾ ins.
Height	7¾ ins.
Weight, 5 rounds	100 lbs.
Weight, box & packing	17 lbs.
Total	117 lbs.

FUZES

21. The fuzes are packed in hermetically sealed, galvanized steel tins with shaped wooden packing pieces to prevent movement. They are issued separately but the method of bulk packing is not known. A circular label stuck on to the cylinder lid has the following written in Japanese characters:—

“5th Year Type Fuze Modified 1” and various manufacturing details and dates together with instructions for removal from the cylinder.

SUMMARY OF DATA

Complete Round

Length Fuzed	26.25 ins.
Weight Fuzed	20 lbs. 1.8 ozs.

Shell only

Length to mouth of shell	9.25 ins.
Diameter over body	2.98 ins.
Diameter over driving band	3.08 ins.
Weight of H.E. Filling	14½ ozs.
Diam. Fuze Hole	1.5 inch
Weight Filled & Fuzed (Type '89)	12 lbs. 14 ozs.
“ “ “ “ (5th Year Type)	12 lbs. 7 ozs.

Cartridge Case only

Length to mouth	16.1 ins.
Diameter of base	4.25 ins.

Propellant Charge only

Length of propellant sticks	12.56 ins.
Diameter of propellant sticks	0.078 ins.
Weight of propellant	2 lbs. 2 ozs.

Fuze Details

Overall length	5.16 ins.
Weight complete	1.0 lb.
Diameter over threads	1.5 ins.
Weight of gaine filling	0.61 ozs.

HANDLING AND TRANSPORT

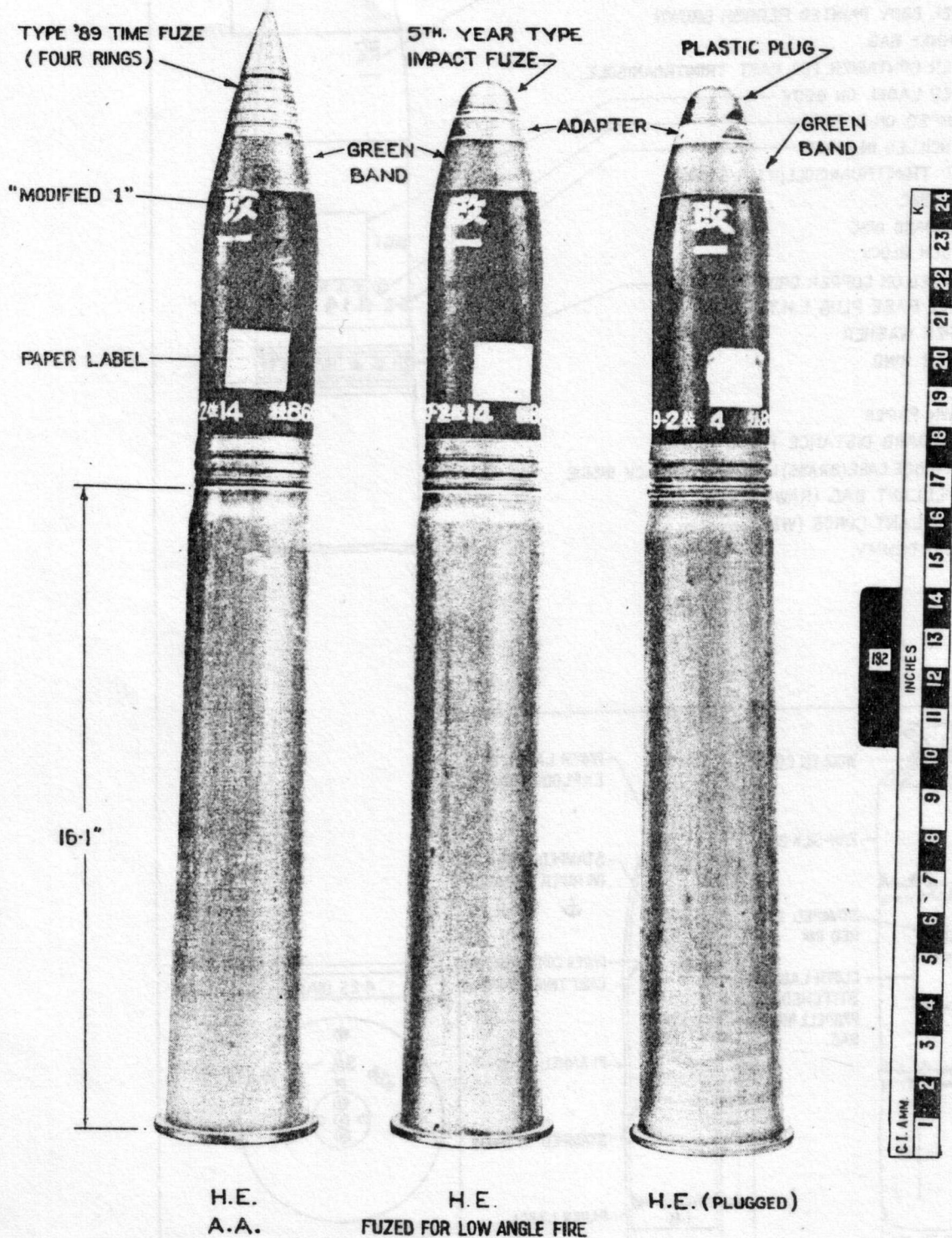
(Of captured ammunition by Ordnance)

22. Reference should be made to the instructions given for handling and transport in J.A.L. E 20 as these also apply to this ammunition.

EXPLOSION/FIRE RISK	..	2 lbs.
GROUP CLASSIFICATION	..	VI, Category ' Y '.
CLASSIFICATION FOR SEA TRANSPORT	..	O. A. S.

RESTRICTED.

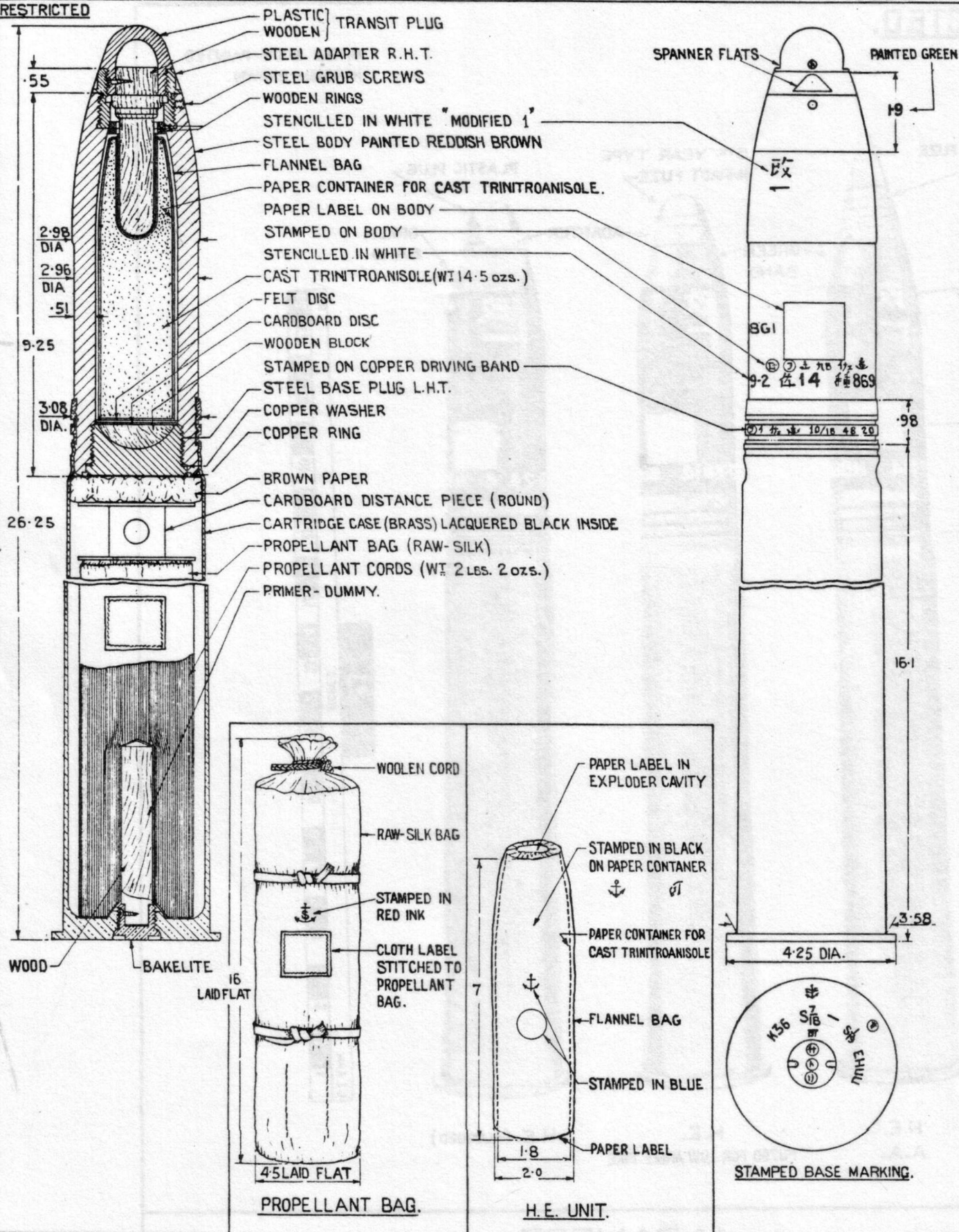
SHELL BODY PAINTED
REDDISH-BROWN.



JAPANESE
CARTRIDGE Q.F. 8cm. (3-IN.) H.E.
FOR
10TH. YEAR TYPE 8cm. DUAL PURPOSE GUN.

C.I.A.M.N. S/1389
KIRKEE. JAN. 1946

RESTRICTED



JAPANESE
CARTRIDGE Q.F 8cm (3) H.E. FOR 10TH YEAR TYPE

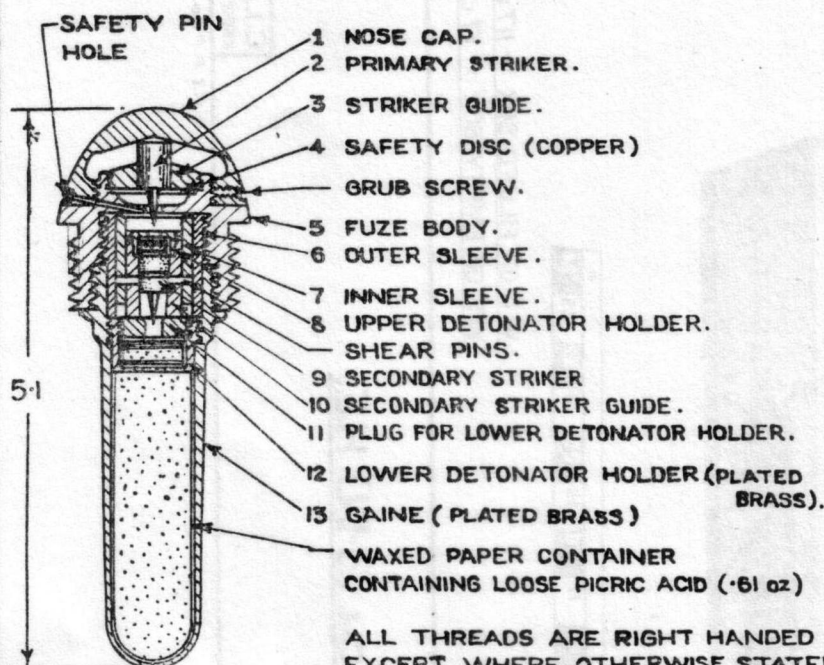
8cm. DUAL PURPOSE GUN.

DIMENSIONS IN INCHES

C.I. AMN. S/365.
KIRKEE. DEC. 45

S.P.Z. P. POONA. 1946.

RESTRICTED.



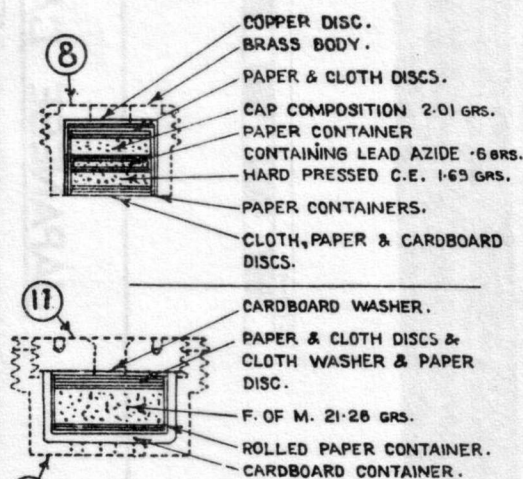
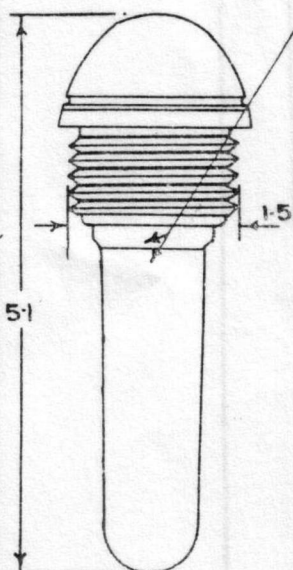
ALL THREADS ARE RIGHT HANDED EXCEPT WHERE OTHERWISE STATED.

FUZE MADE OF BRASS EXCEPT WHERE OTHERWISE STATED.

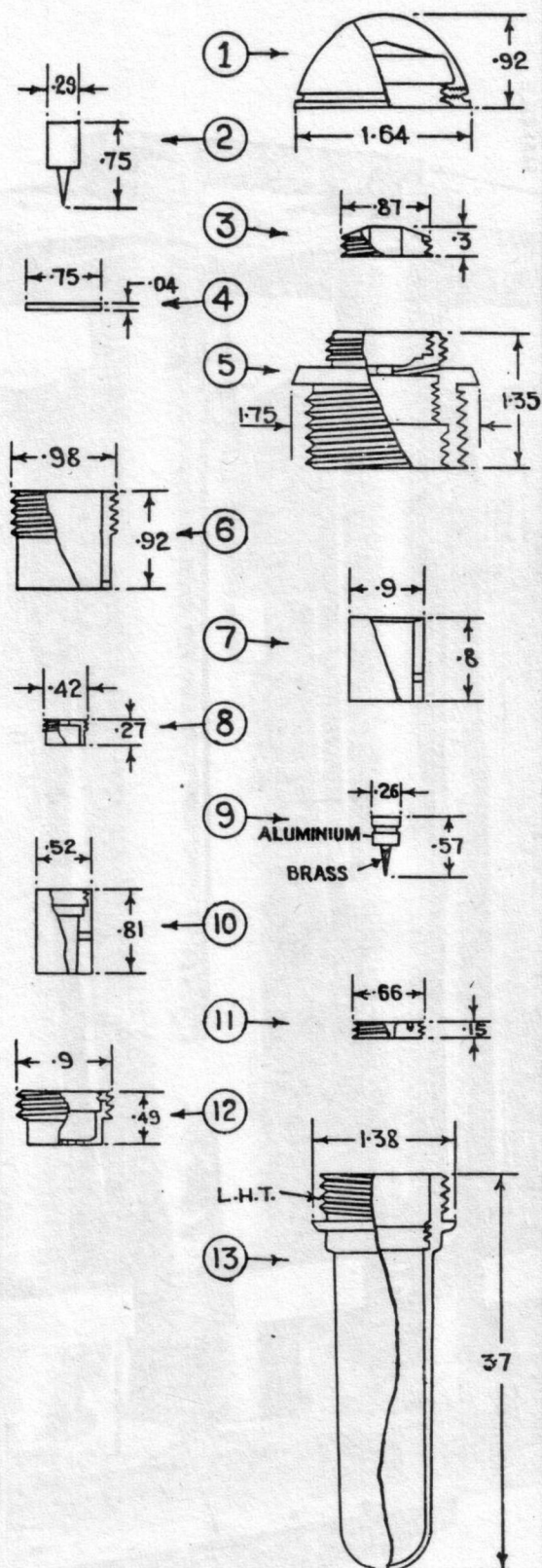
STAMPING ON GAINE

五年式 〇 G Y

BB 15-9 吳



ENLARGED DETAILS



JAPANESE

5TH YEAR TYPE IMPACT FUZE

DIMENSIONS IN INCHES

C.I. AMN. S/1390
KIRKEE JAN 46

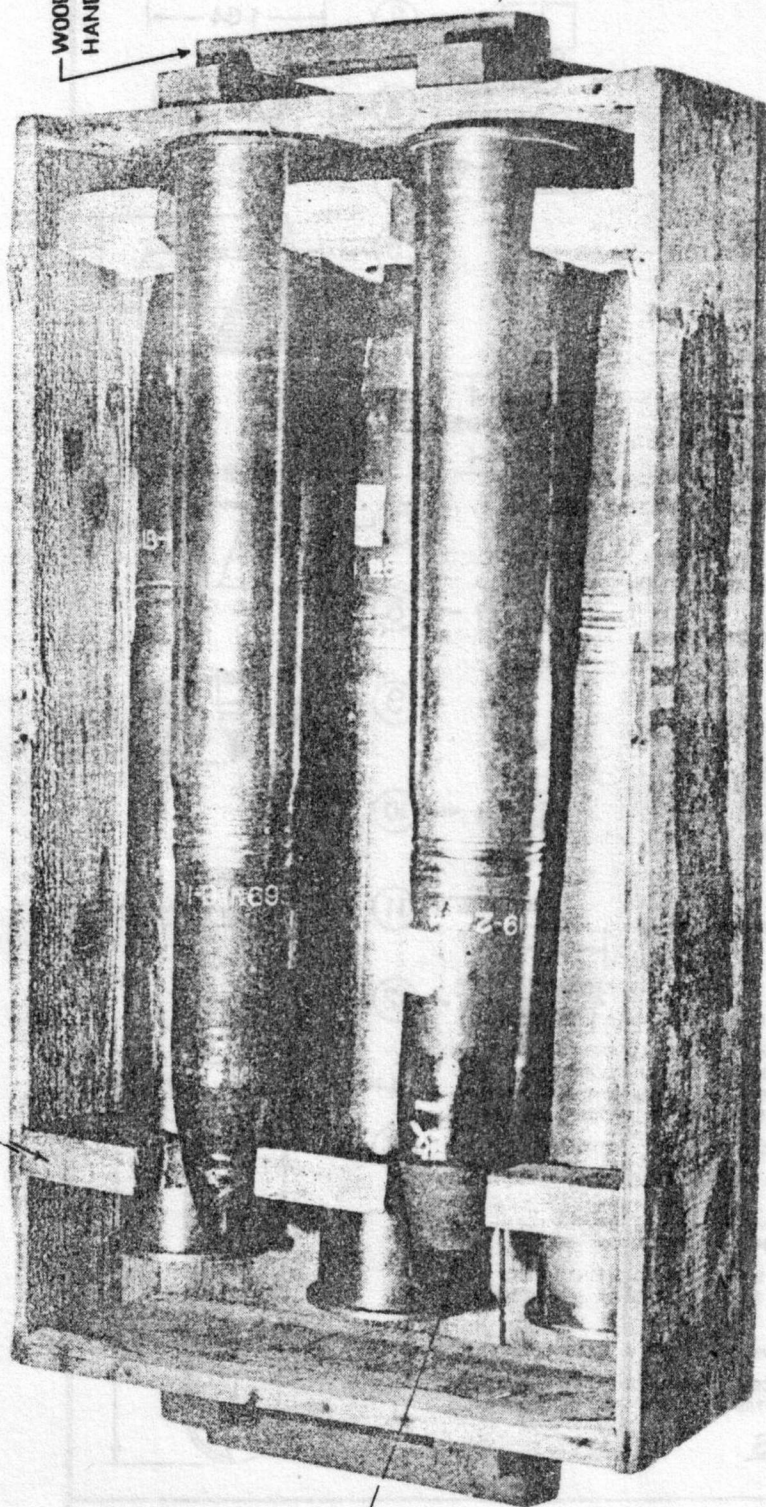
G.P.Z.P. POONA. 1946.

RESTRICTED.

WOODEN PACKING PIECE.

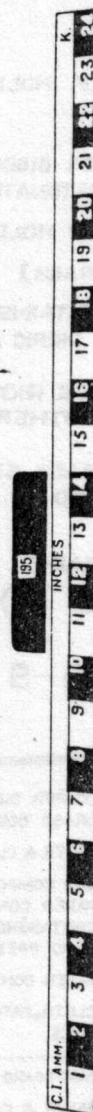
WOODEN LIFTING
HANDLE.

FIVE ROUNDS
PLUGGED.



STORAGE DIMENSIONS

LENGTH - $34\frac{1}{4}$ "
BREADTH - $16\frac{3}{4}$ "
HEIGHT - $7\frac{7}{8}$ "



WT. OF FILLED BOX :- 117 LBS.
WT. OF EMPTY BOX :- 17 LBS.

JAPANESE CARTRIDGE Q.F. 8CM. (3-IN.) H.E.
METHOD OF PACKING

C.I. AMN. S/1893
KIRKEE. JAN. 1946

G. R. Z. P. POONA. 1946.

PLATE D.

Restricted

THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS

D. OF A. (INDIA)

JAPANESE AMMUNITION LEAFLETS

SECTION **E**
LEAFLET **E 27**

120-mm ARTILLERY AMMUNITION

GENERAL

No ammunition in the 120-mm. series has yet been received at Kirkee and this Leaflet is based on G.S.I. (t) and M.E.I.U. Reports only. As far as is known, apart from one equipment, the Type Meiji 38 (1905) Howitzer, the remainder of the 120-mm. equipments are of Naval origin. These Naval weapons are used on land for port defence and are therefore included in this Leaflet. (Reference should also be made to J.A.L. E. 1 (b) sheet 3). The following equipments are known to exist:—

- (i) Type Meiji 38 (1905 Howitzer).
- (ii) Type Taisho 3 (1914) C.A. Gun.
- (iii) A.A./Anti Sub Gun.
- (iv) 12-cm. 40 Calibre.
- (v) 10th year Type A.A. Gun.
- (vi) 11th year Type C.A. Gun.

Such information as is available on the ammunition for these equipments is given below.

The following Plates are included with this Leaflet:—

Plate A - Photograph of various types of 120-mm. Ammunition.

Plate B - { Drawing of A.P./H E. Shell for Meiji 38 (1905) How.
,, showing construction of Incendiary/Shrapnel Round for
Type 10 A.A. Gun.

Plate C - Drawing of Projectiles for Q.F. Sep. Type Taisho 3 (1914) C.A. 12-cm. Gun.

Plate D - ,, ,, Illuminating Projectile for Q.F. Sep. Type Taisho 3 (1914) C.A. 12-cm. Gun.

Plate E - ,, ,, Fuze, Percussion, Base, Small, Type '88.

AMMUNITION FOR TYPE MEIJI 38 (1905) HOWITZER

DESCRIPTION

2. **Cartridge Case** :—The brass case is parallel sided and rimmed, it is $3\frac{1}{4}$ " in length and $5\frac{1}{8}$ " in diameter. It is threaded at the base to receive a small screw-in primer (probably Type B; see J.A.L. E 2).

The propellant, which is contained in two silk bags, is protected against moisture by a waxed cardboard cup covering the open end of the case and sealed by a glued strip of brown paper. The propellant is Nitrocellulose (98.5%) stabilised with Diphenylamine (1.5%) in the form of $5/16$ " square flakes, $1/16$ " thick. An auxiliary igniter is sewn on the bottom of each of the two bags.

3. H.E. Shell :—No details other than those already given at Sheet 3 of J.A.L. E 1 (b) are available at Kirkee.

Shell, Shrapnel, Type A.

4. At the Plate included with J.A.L. E 9 this round may be clearly seen. The projectile is made of steel, with a solid base and has a single un-cannelured driving band. The body of the projectile is machined in two sections and welded together 2 1/8" above the leading edge of the driving band. The forward end of the projectile is threaded to receive a nose adapter, the bottom of which is perforated to provide access to the flash transmission tube. This tube, which is made of brass and filled with G.P., extends from the base of the adapter to the G.P. Bursting charge (6.5-ozs. G.P.). This is confined in the base of the projectile by a steel disc. Five hundred and thirty nine lead balls are embedded in rosin in the body of the shell.

FUZE

5. The 5th year Type T & P Fuze has been found listed in Japanese documents for use with this round.

ACTION

6. When the fuze functions, the G.P. in the flash transmission tube is ignited and burns down to and ignites the bursting charge. The hot gases force the steel disc forward, thus ejecting the lead balls out of the nose of the projectile, shearing away the threads of the nose adapter and projecting the balls as a cone of shrapnel along the line of flight.

Shell. A.P./H.E.

7. At Plates A and B of this Leaflet the construction and markings of this round may be clearly seen. The projectile is made of steel and bears the standard Japanese Army markings. The base plate screws (L.H.T.) into the projectile and is internally threaded to take the base fuze adapter into the front of which screws a Type '88 Small Base Fuze (See Plate D). The filling consists of two precast blocks of picric acid whose total weight is 2-lbs. 14 3/4-ozs. Each block is wrapped in waxed paper and both are enclosed in a flannel bag. The rear block is recessed to take the fuze, a small wooden block is inserted in the front of the cavity to cushion the main filling against the shock of impact.

Type '88 Small Base Fuze (Howitzer) (Plate E).

8. The fuze is made of brass and is 5 1/2" in length and has a maximum diameter of 1 3/8". The fuze can be divided into two parts for purposes of description. A gaine which holds a pre-pressed picric pellet wrapped in lead foil and the body containing the fuze mechanism and delay train. The base of the body is screw-threaded to fit into the fuze adapter in which it is secured by a set screw. The brass inertia pellet has a steel striker screwed into the forward end. A creep spring separates the striker from the detonator which is housed in a brass container. A G.P. delay pellet is housed in a brass container above the detonator, a copper-shelled detonator is found forward of the delay pellet.

Safety Devices.

- (a) Centrifugal bolts.
- (b) Creep Spring.
- (c) A soft lead disc between the rear of the inertia pellet and the base of the fuze. This is probably inserted to prevent the inertia pellet setting forward at the muzzle when the acceleration of the shell momentarily increases.

PACKING

9. No details are available of the method of packing of this ammunition.

IDENTIFICATION

10. The projectile markings used in this equipment conform to standard Japanese Army practices.

SUMMARY OF DATA

11. Case and Propellant.

Overall length of case .. 3 1/4"
Diameter of rim .. 5 1/8"

Shell, Shrapnel Type "A".

Overall length of projectile .. 12 3/8"
Diameter at bourrelet .. 4 11/16"
Diameter at driving band .. 4 25/32"
Weight of bursting charge .. 6.5 ozs.

Shell, A.P./H.E.

Overall length of projectile .. 14 15/16"
Diameter at bourrelet .. 4 11/16"
Diameter at driving band .. 4 27/32"
Weight of main filling .. 2 lbs. 14 3/4 ozs.

HANDLING AND TRANSPORT

(Of captured ammunition by Ordnance)

12. This ammunition may be treated as regards handling and storage in the same way as Q.F. separate ammunition.

	Shrapnel	A.P./H.E.
EXPLOSION/FIRE RISK ..	6 lbs. 6 1/2 ozs.	8 lbs. 15 ozs.
GROUP CLASSIFICATION ..	VI Category Y	VI Category Z
CLASSIFICATION FOR SEA TRANSPORT ..	O.A.S.	O.A.S.

AMMUNITION FOR Q.F. SEPARATE TYPE TAISHO 3 (1914) C.A. GUN

DESCRIPTION

13. Cartridge Case. The case is made of drawn brass. It has a slight taper and large rim. The base of the case is screw-threaded to take a Type "D" primer (J.A.L. E 2). The interior of the case is lacquered black. The mouth of the case is provided with four lugs to secure the aluminium cover plate. The propellant charge consists of a bundle of smokeless cordite contained in a silk bag. A recess is provided in the bottom of the bag to accommodate the magazine of the primer.

H. E. Shell Type N/K (Flat based with nose adapter) (Plate C).

14. The projectile is made of steel and the nose is screw-threaded to receive a nose adapter which is made of brass and secured with a set screw. The main H.E. filling consists of two blocks of pre-cast picric acid wrapped in waxed paper. The upper block is shaped to fit into the ogival cavity and is recessed to take the fuze gaine. The lower block is so formed as to fit into the base plug. The two blocks are placed in a flannel bag, a wooden ring is glued to the

top of the filling and wooden disc and cardboard washer are placed below it. With the adapter in position the projectile uses a 5th year Type Impact Fuze, when the adapter is removed it takes a Mechanical Time Fuze. The use of this shell presumably enables the gun to be used in a dual C.A./A.A. role.

H.E. Shell Type N/K (Flat based without nose adapter).

15. This projectile is essentially the same as that described in paragraph 14 above except that the nose is screw threaded to take a Mechanical, Time Fuze. It has the same overall length as the projectile with nose adapter. As can be seen by reference to Plate 'B', the method of filling employed in both shell is similar.

Practice Projectile (Mk. 3 Believed).

16. This projectile has a solid blunt nose and a small cavity which is partially filled with sand and is closed by a base plug.

The projectile is painted black, it has a yellow nose and a white band above the driving band. The yellow nose indicates practice. A practice projectile fitted with a dummy nose fuze also exists, it is painted black overall and bears no yellow band.

Illuminating Shell (Plate D).

17. This projectile is made in three sections :—

- (a) The main projectile body.
- (b) The nose piece (1).
- (c) Star Assembly.

18. Nose Piece. The rear end of the nose piece (1) is cut away externally to form flange which fits into the forward end of the main body and is secured in position by four screws. The star assembly is retained in position by two larger screws diametrically opposed.

Four studs (14) in the base of the projectile just above the ejection charge (16) prevent the assembly from rotating in flight. The inside of the base is recessed to hold a ring of G.P. in a silk bag which serves as an ejection charge (16).

19. Star Assembly. The star assembly consists of ten small star containers (11) arranged in two layers and supported by a metal framework. These containers are made of very tough waxed cardboard tubes containing an illuminating mixture; the ends of each tube are crimped over the filling.

The metal framework which supports and provides a means of ignition for the star containers consists of the following parts :—

- (a) Base Plate (15) into which is screwed a steel spindle (7), this spindle has four G.P. filled longitudinal grooves extending its entire length.
- (b) Three spindle sleeves, an upper sleeve (3), a central sleeve (8) and a lower sleeve (12), which is integral with the base plate (15). Below (3) secured by three retaining screws is a disc (5) which contains in its lower surface five parts flush with the bottom of the disc which intercept the G.P. train (6) on the spindle (7). Each of the other two discs (10) and (13) are constructed in the same way. The central sleeve (8) is formed into a plate at its back end, which contains grooves filled G.P. in the upper and lower surface. The base plate (15) also contains G.P. trains as shewn in the drawing. The assembly, as can be seen from Plate E, is thus divided into two sections; each of these sections contains five star containers (11) which are held in place by steel wedges (9), five to each section. A wooden block (4) positions the upper part of the spindle sleeve (3) with the exposed G.P. train of the spindle (7) directly under a small G.P. magazine (2).

ACTION

21. When the fuze operates, it ignites the G.P. magazine (2) in the nose of the projectile which in turn ignites the train in the spindle. This ignites the powder trains in the three discs and in the ejection charge (16). The assembly is blown from the shell body shearing the studs and forcing off the nose. At the same time the stars are ignited by the flash transmission ports in the discs, and are scattered in all directions giving the desired signal. This projectile has an overall length unfuzed of 13 13/16" and a weight of 44 lbs.

PACKING

22. No details are known concerning the packing of this ammunition.

IDENTIFICATION

23. The projectile is coloured blue overall with a 3/4" yellow band painted below the bourrelet. It has an overall length unfuzed of 13 13/16" and a weight of 44 lbs.

MARKINGS

24. The markings on these shell conform to the standard Japanese Naval markings. The illuminating shell is painted blue overall and has a 3/4" yellow band approximately midway up the body.

AMMUNITION FOR NAVAL 12-cm. D. P. GUN A/A & A/S (Plate A).

DESCRIPTION

25. This ammunition is used in a gun which was originally designed for Japanese merchant ships under 5000 tons. A description of the H.E. round is included with this leaflet since mention has been made of this equipment in J.A.L. E 1 (b) at sheet 3 of that Leaflet. It is Q.F. Fixed ammunition.

26. **Cartridge Case.** The drawn brass rimmed case is slightly tapered, slightly bottle necked and is lacquered black on the interior. It is secured to the projectile by one circumferential crimp and covers the lower part of the driving band up to the lip of the cannellure. The case takes a Type "D" primer (J.A.L. E 2). The propellant consists of small cylindrical, straw coloured translucent sticks packed in a silk bag. The charge weighs 1 lb, 2 ozs. together with the bag. The case is 11.2" long and the diameter of the base is 5.8".

27. **Shell H. E.** No drawings of this shell are available but the following is a brief description. The projectile is made of machined steel. The nose is internally threaded to take the fuze which is retained in position by a set screw, and the base is internally threaded to take the base plate and a soft copper gas check ring. The main filling is a precast block of 5-lbs. 8-ozs. of T.N.A. (Trinitroanisol) which is inserted through the base. The fuze used with this round is the Type '91 Mechanical Time Fuze Mod. 3 (See sheet 3 J.A.L. E 1 (b)).

PACKING

28. No details are known of the method of packing this ammunition.

IDENTIFICATION

29. This round may be recognized by the fact that the case extends over the lower part of the driving band reaching up to the cannellure. The shell is painted maroon above the driving band and has a 1" green band on the nose. Below the driving band, it is unpainted.

HANDLING AND TRANSPORT

(Of captured ammunition by Ordnance)

30. Regulations governing the handling, transport and storage of this ammunition will be the same as those applicable to equivalent ammunition in the British Service.

EXPLOSION/FIRE RISK	..	..	..	..	6-lbs. 1-oz.
GROUP CLASSIFICATION	..	..	..	..	Group 6 Category Z.
CLASSIFICATION FOR SEA TRANSPORT	..	..	..	..	O.A.S.

AMMUNITION FOR 12-cm. 45 CALIBRE 10TH YEAR TYPE A/A GUN

DESCRIPTION

31. This ammunition is of the Q.F. fixed variety and the equipment itself is a dual-purpose twin-mounted gun used for port defence.

32. Cartridge Case. The case is a heavy brass, rimmed, necked case lacquered internally. It is screw-threaded at the base to receive the primer of the percussion type, possibly Type D, which fits flush into the base of the case. The case is 27.9" long. The propellant charge consists of stick double based propellant contained in a rough cloth bag, the bottom of which is recessed to take the primer. In the case of the incendiary shrapnel round, the propellant is not contained in a bag, but is secured by two cloth straps. A cardboard distance piece fits above the propellant.

33. H.E. Round (Fuzed Type '91 Mechanical Time or Type '88 Instantaneous). The body of the projectile is of usual design, the driving band being constructed of a high grade copper. A groove is provided around the base of the projectile to receive the cartridge case crimp. The nose of the projectile is threaded to take a gaine and a nose fuze. The explosive filling of 3-lbs. 12-ozs. of trinitroanisol is cast into the projectile cavity, and recessed at the top to receive the fuze gaine.

34. Incendiary/Shrapnel Round. In external appearance the body of this projectile is similar to that of the H.E. round. As a point of interest this is the only known round of this type to be used by any country. The nose of the projectile is screw threaded to receive a gaine and a nose fuze; the base is closed by a heavy base plug. A soft copper gas-check fills the space between the base plug and the projectile wall. The interior of the projectile is lacquered. In the forward part of the projectile cavity a pre-cast block of picric acid (Shimose) wrapped in waxed paper is fitted; this weighs 1-lb. 3-ozs. Beneath this charge is a wooden disc and felt pad. These are on top of a steel cannister which fits in the lower part of the cavity. In this container are 48 steel pellets with a 5-mm. hole centrally drilled through each. W.P. is cast around the pellets and in the holes in the pellets.

ACTION

35. On initiation by the fuze the explosive charge breaks open the projectile body and the steel cannister and ejects the pellets, which continue their flight in a dispersed cone.

IDENTIFICATION

36. The H.E. round is painted maroon overall and a green band 1½" wide is painted on the grove of the shell.

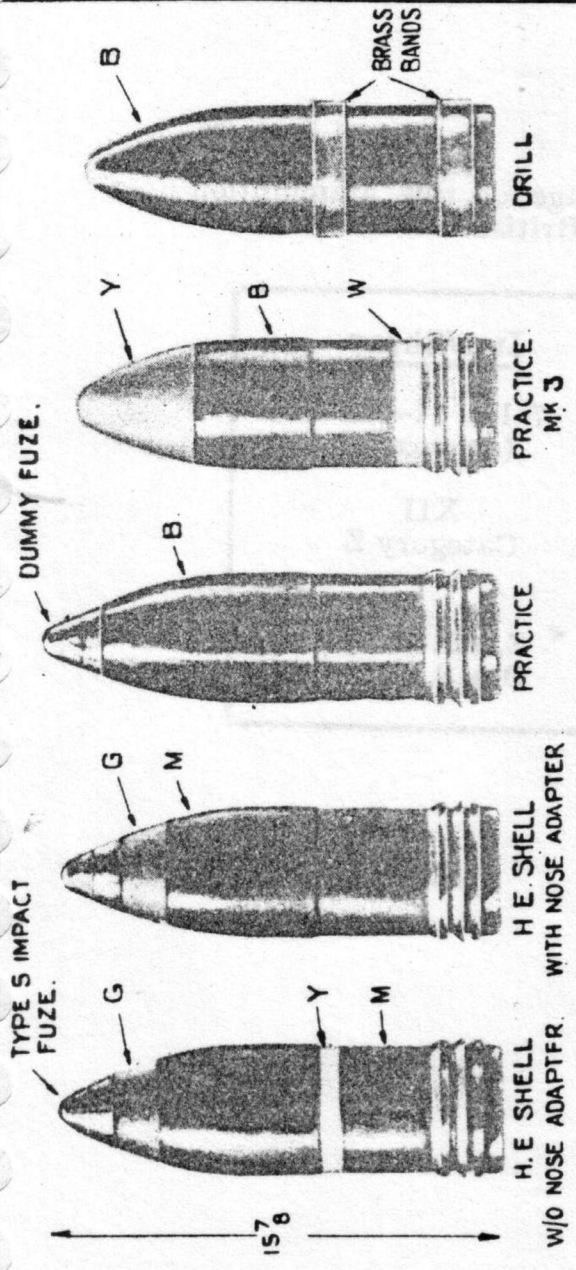
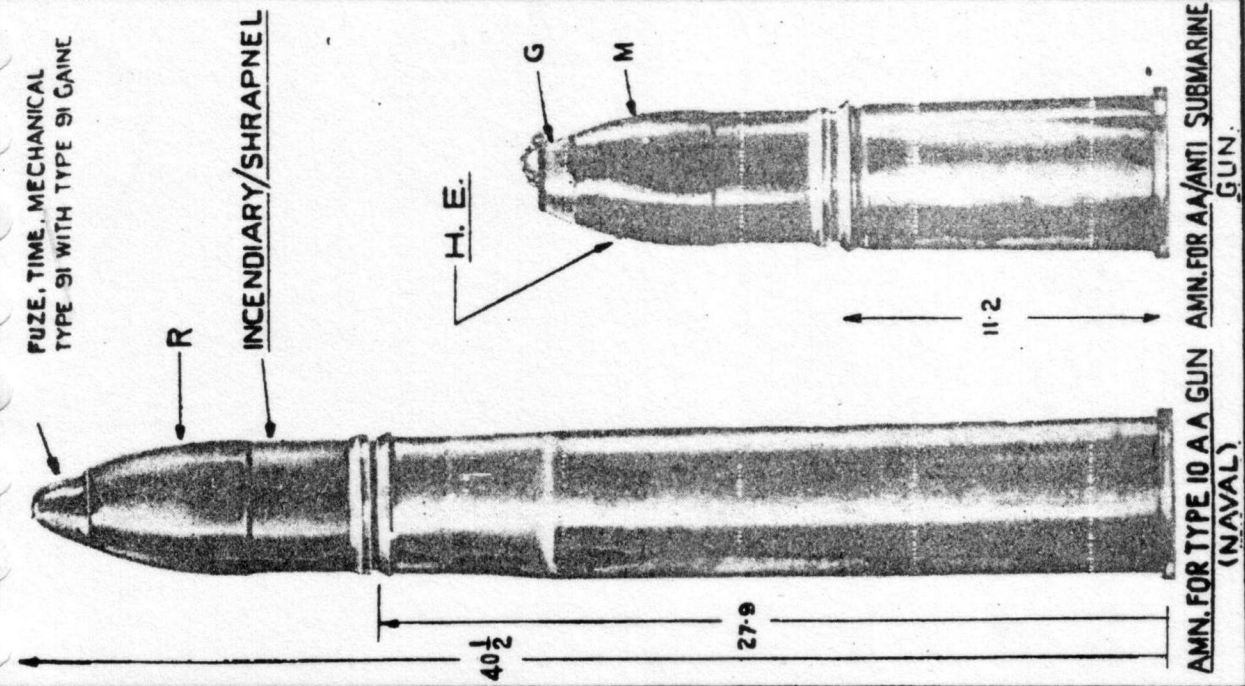
The incendiary shrapnel round is red overall and over stencilled with black and white Japanese characters.

HANDLING AND TRANSPORT

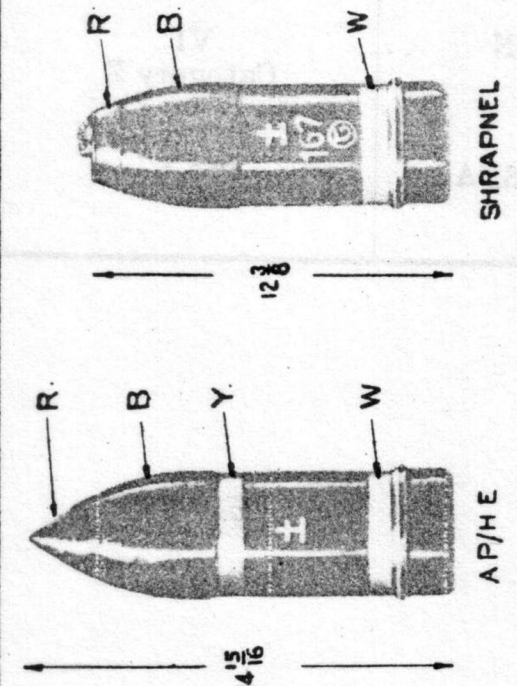
(Of captured ammunition by Ordnance)

37. Regulations governing the handling, transport and storage of this ammunition will be the same as those applicable to equivalent ammunition in the British Service.

		<u>H. E. Round</u>	<u>Inc./Shrap.</u>
EXPLOSION / FIRE RISK ..		9-lbs. 14-ozs. (approx.)	7-lbs. 11-ozs (approx.)
GROUP CLASSIFICATION ..		VI Category Z	XII Category Z
CLASSIFICATION FOR SEA TRANSPORT		O.A.S.	S.A.S. (R) or O.A.S. (D)



AMN. FOR Q.F. SEPARATE TYPE TAISHO 3 (1914) C.D. GUN.



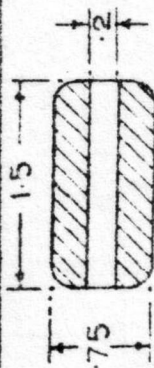
AMN. FOR TYPE MEIJI 38 (1905) HOW.

COLOUR CODE

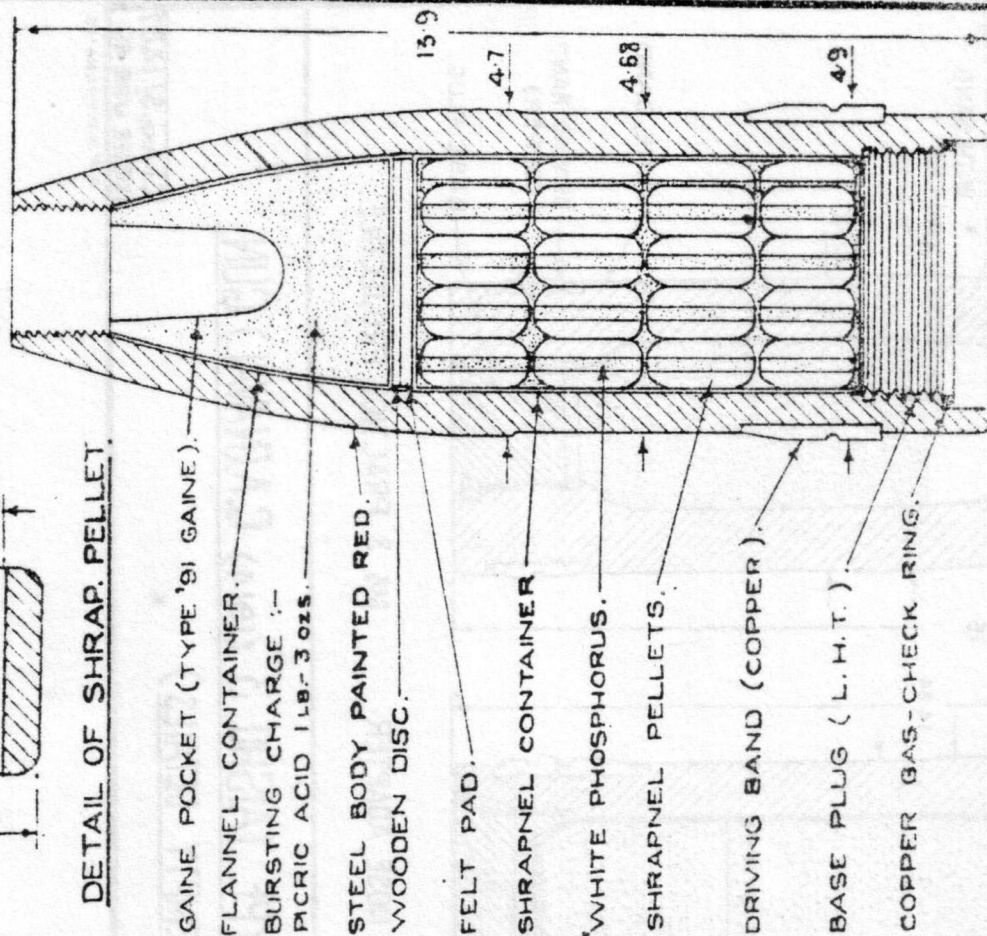
B	-	BLACK
G	-	GREEN
M	-	MAROON
R	-	RED
W	-	WHITE
Y	-	YELLOW

COMPARATIVE PHOTOGRAPH SHOWING TYPES
OF JAPANESE 120 MM. AMMUNITION

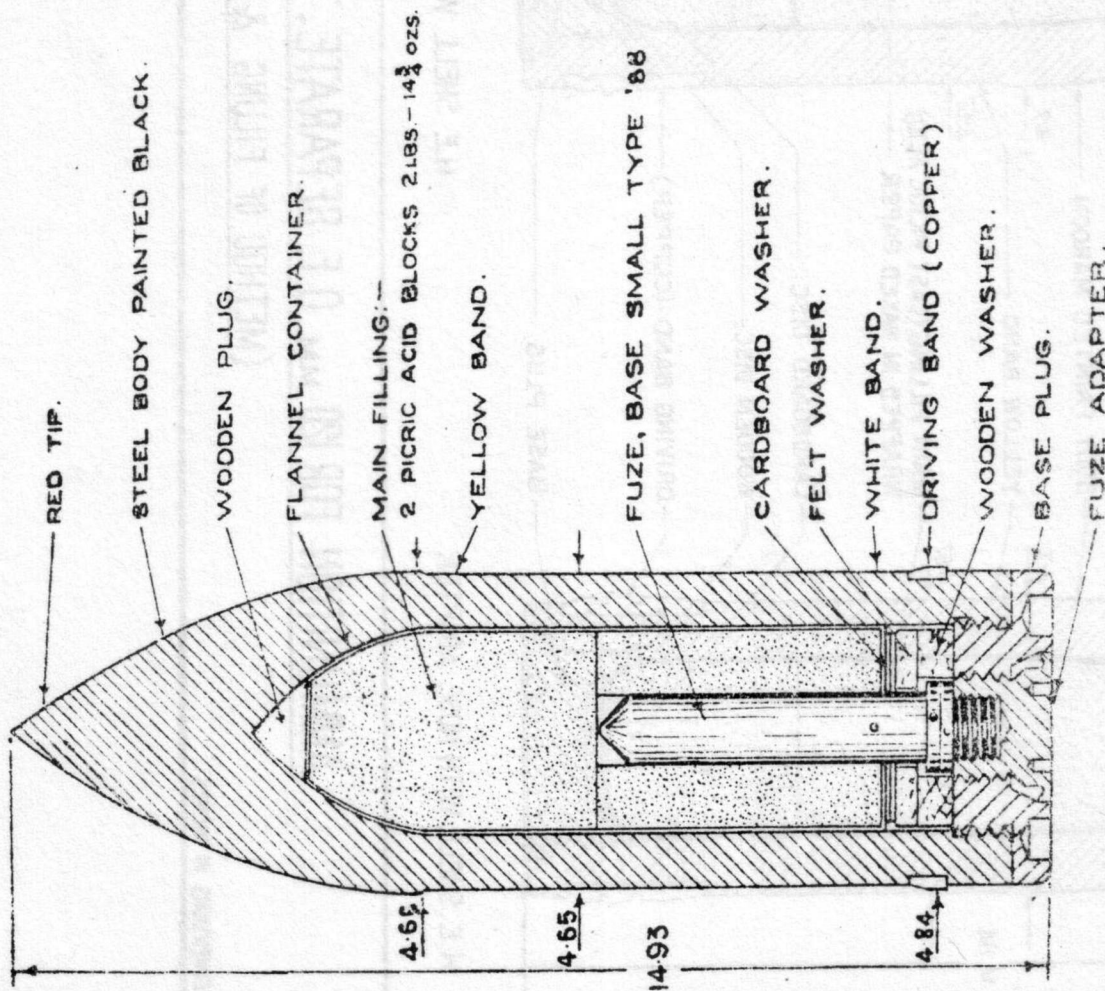
C.I. AMN S/1481
KIRKEE, JUNE 1946



DETAIL OF SHRAPNEL PELLET.



- GAINÉ POCKET (TYPE '91 GAINÉ).
- FLANNEL CONTAINER.
- BURSTING CHARGE :-
PICRIC ACID 1 LB. 3 OZS.
- STEEL BODY PAINTED RED.
- WOODEN DISC.
- FELT PAD.
- SHRAPNEL CONTAINER
- 'WHITE PHOSPHORUS.
- SHRAPNEL PELLETS.
- DRIVING BAND (COPPER).
- BASE PLUG (L.H.T.)
- COPPER GAS-CHECK RING.

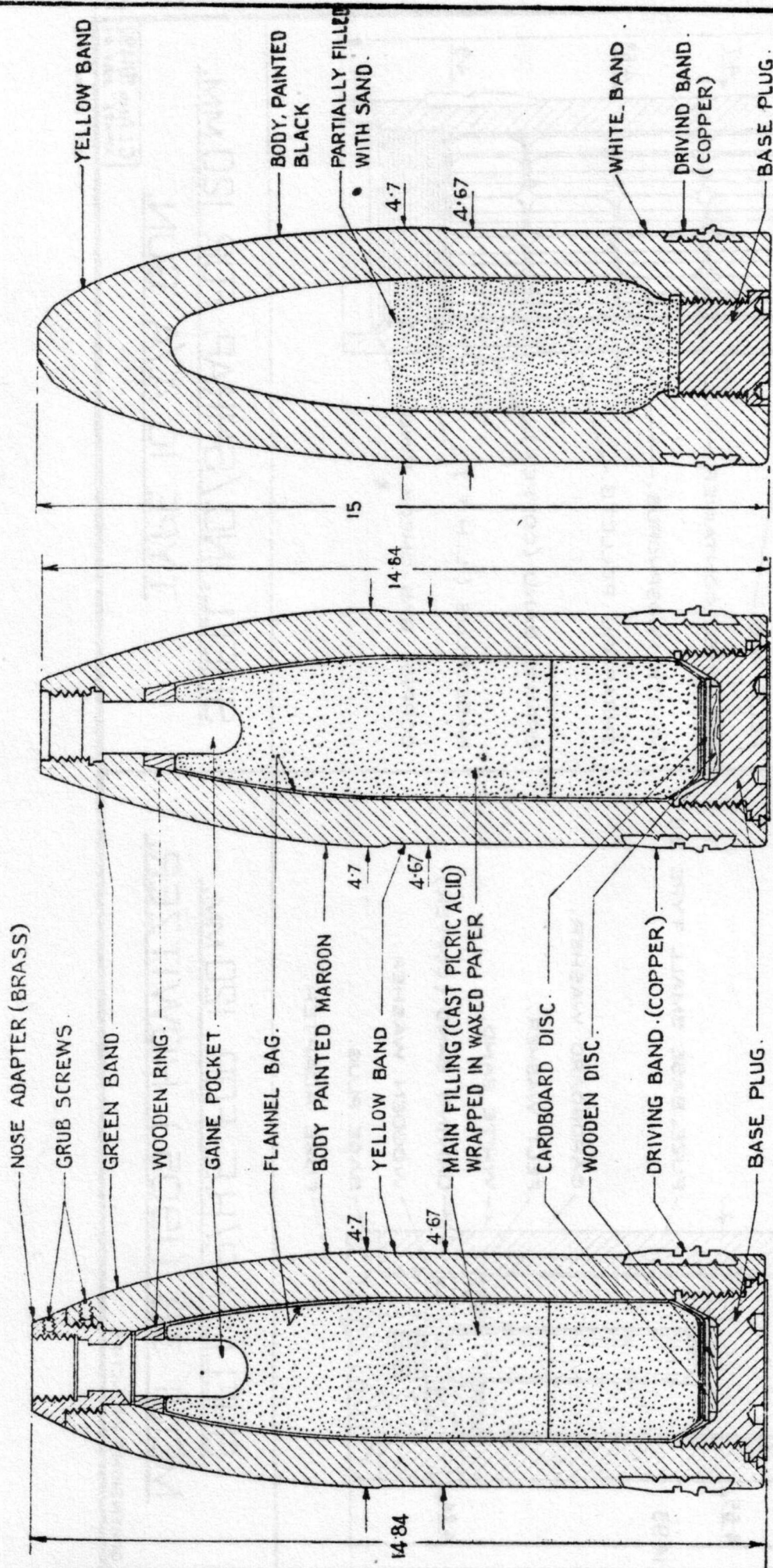


- RED TIP.
- STEEL BODY PAINTED BLACK.
- WOODEN PLUG.
- FLANNEL CONTAINER.
- MAIN FILLING :-
2 PICRIC ACID BLOCKS 2 LBS. - 14 ³/₄ OZS.
- YELLOW BAND.
- FUZE, BASE SMALL TYPE '88
- CARDBOARD WASHER.
- FELT WASHER.
- WHITE BAND.
- DRIVING BAND (COPPER)
- WOODEN WASHER.
- BASE PLUG.
- FUZE ADAPTER.

SHELL, A.P./H.E. FOR 120 MM.
MEIJI 38 (1905) HOWITZER.

SHELL, INC./SHRAP. FOR 120 MM.

TYPE 10 A/A GUN.



H.E. SHELL WITH NOSE ADAPTER.

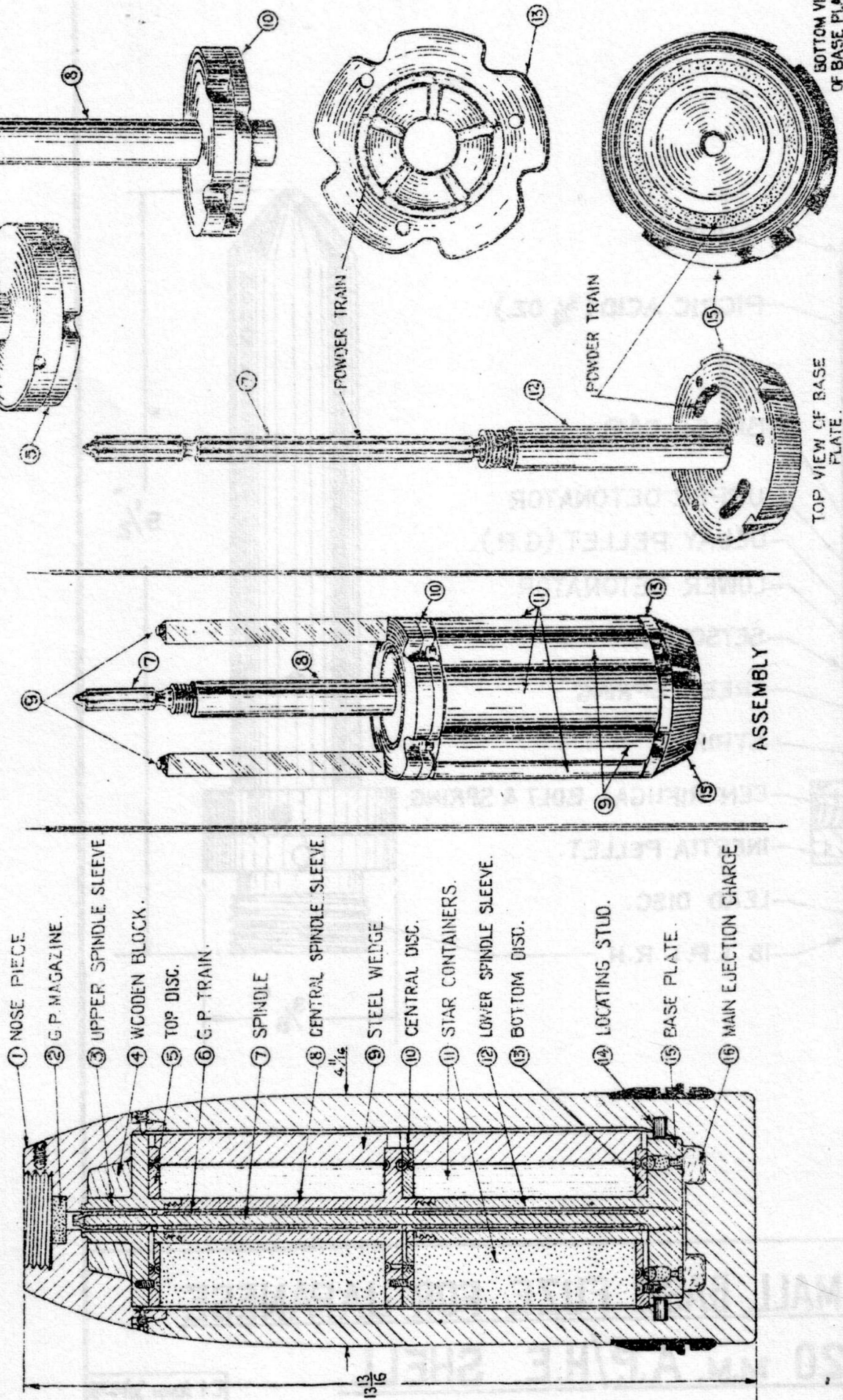
H.E. SHELL W/O NOSE ADAPTER

MK 3 PRACTICE PROJECTILE.

AMMUNITION FOR 120 MM. Q.F. SEPARATE, TYPE TAISHO 3 (1914) C.A.(NAVAL) GUN.

(METHOD OF FILLING & EMPTY DETAILS)

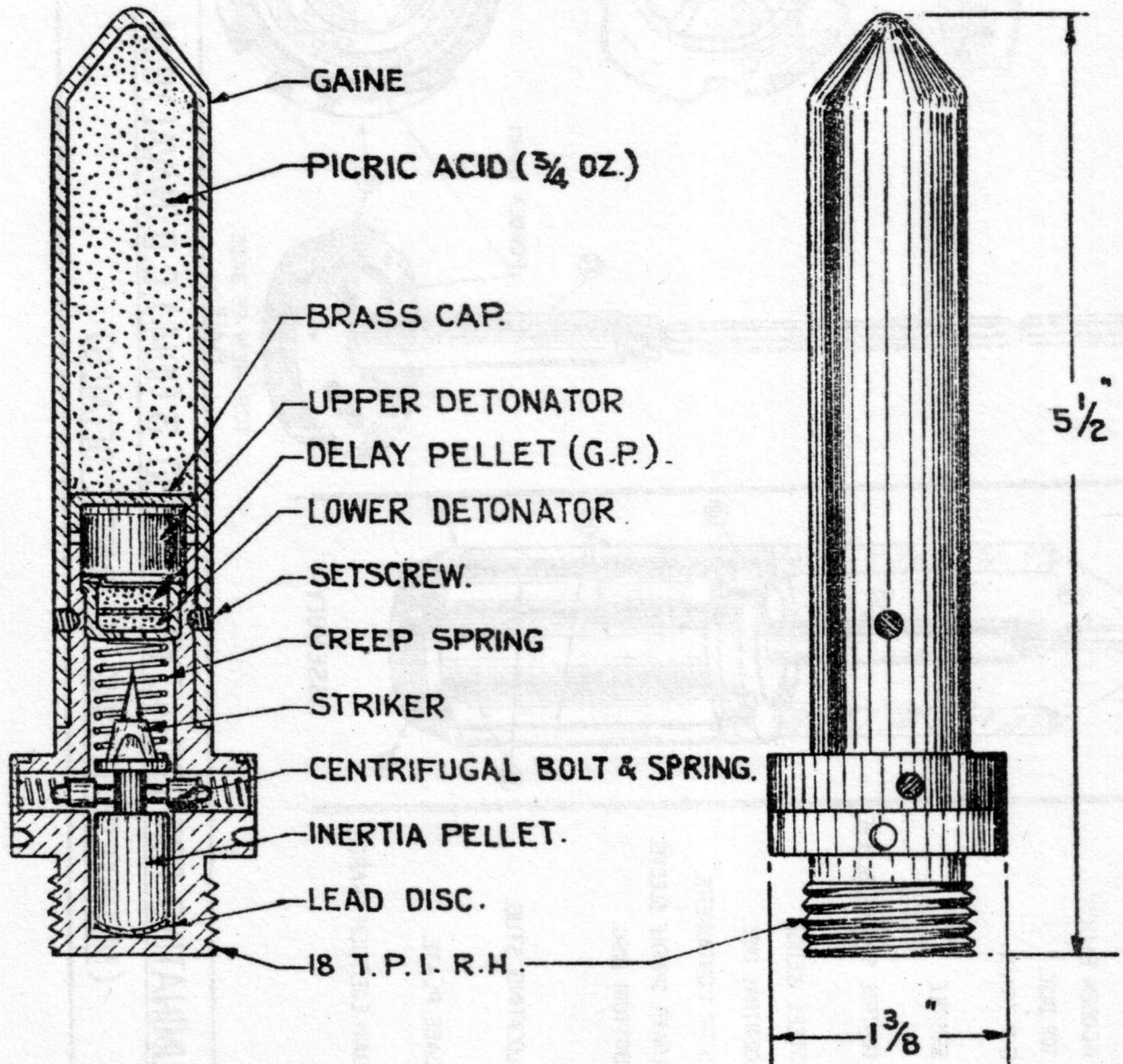
DIMENSIONS IN INCHES.



SHELL, ILLUMINATING FOR 120 MM. TYPE TAISHO 3 (1914) C.D. (NAVAL) GUN.

(METHOD OF FILLING & EMPTY DETAILS)

RESTRICTED.



TYPE 88 SMALL BASE FUZE FOR JAPANESE
120 M.M. A.P./H.E. SHELL.

**THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS**

**D. OF A. (INDIA)
JAPANESE AMMUNITION LEAFLETS**

**SECTION E
LEAFLET E 28**

150-mm. ARTILLERY AMMUNITION

GENERAL

At Kirkee, H.E./Streamline and Smoke Rounds of 150-mm. artillery ammunition have been examined but samples of the A.P./H.E., Illuminating and Incendiary rounds have not yet been received. From available information it has been possible to deal fairly comprehensively with the A.P./H.E. Type '96 projectile. Little information is available regarding the other two rounds.

It is believed here that all the ammunition for 150-mm. equipments is of the Q.F. Separate type, except in one case, the Type '89 (1929) Gun, which is now known to be a B.L. equipment.

2. The following 150-mm. weapons may be met with in the Japanese Service:—

Howitzers	Guns
Type Taisho 4 (1915)	Type Meiji 45 (1912)
„ Meiji 38 (1905)	„ Taisho 7 (1918)
„ Type '96 (1936)	„ '89 (1929) B.L.
	„ '90 (1930)

In addition, according to certain American reports, a 150-mm. Coast Defence Gun exists, but little is yet known about this equipment.

This Leaflet will deal with 150-mm. ammunition under the headings of Howitzers and Guns. For purposes of description and to aid identification the following Plates have been included with this Leaflet.

(i) Plate A—(1) Shell A.P./H.E., Type '96.

Photo L to R (2) Shell H.E. Type '92

(3) Shell H.E. (Probably for Type Meiji 38 (1905) Howitzer).

(4) Shell H.E./S.L., (Probably Type '92).

(5) Smoke Shell filled W.P.

(6) Cartridge Case for Type '96 (1936) Howitzer.

- (ii) Plate B—Drawing of H.E. Shell (Probably Type '92).
 H.E./S.L. (Probably Type '92).
 A.P./H.E. (Type '96).
- (iii) Plate C—Drawing of Type '95 Large Mk. 2 Base Fuze.

150-mm. HOWITZER AMMUNITION

3. It will be seen by reference to J.A.L. E 1 (b) that the cartridge cases for 150-mm. Howitzers vary considerably in length and propellant content and are therefore not interchangeable, but it is believed that the projectiles are. No definite information is available but it is thought that a hollow charge shell is used in the Type '96 Howitzer.

CARTRIDGE CASES

Cartridge Case for Type Meiji 38 (1905) Howitzer.

4. The cartridge case for this equipment is a straight sided brass case containing two silk bags, one large and one small holding the propellant of graphited smokeless powder. The length of the case is 4.1" (M.E I.U. Report 4/43); (J.A.L. E 1 (b) Sheet 4).

Cartridge Case (Type '96 (1936) Howitzer).

5. Details of this cartridge case may be seen at Plate "A" Fig. 6. It is a heavy, rimmed brass case which is lacquered internally and externally.

The propellant is contained in five silk bags. Printed on each bag are the manufacturing details. Each of the bags, which vary in the weight of propellant charge contained, are lettered from the top A,B,C,D and E and are numbered from the bag nearest the primer 1, 2, 3, 4 and 5.

An igniter is sewn to the bottom of 5.A. bag, which also contains tin foil for decoppering purposes. An auxiliary igniter is found on the bottom of 3.C. bag. The propellant bags are held in place in the cartridge case by a cardboard distance piece; a cardboard closing cup fits over the mouth and is secured by adhesive tape.

No propellant details, other than those given on Sheet 4 of the summary to J. A. L. E 1 (b), are known.

PRIMER

6. The primer used in the cartridge case for the Type '96 Howitzer is the Type 'B', full details of which appear in J.A.L. E 2. The primers used with the other equipments are not known.

PROJECTILES

Shell H.E. Flat Based (Probably) Type '92.

7. At Plate A Fig. 3 and Plate B the details of this projectile may clearly be seen. The projectile is made of steel, is flat-based and is fitted with a nose adapter. The exploder container is lacquered both externally and internally and holds 3 picric pellets, the top pellet being recessed to take the fuze gaine and a copper cup. It is filled with cast T.N.T. The projectile is closed in storage or transit with a push-in plug made of cork covered with cloth and held together by metal discs top and bottom. It is fuzed Type '88 Instantaneous which is fully described in J.A.L. E 3.

Shell Type '96 A.P./H.E.

8. This projectile is manufactured from very soft steel for an A.P. round and is uncapped. (Plate A Fig. 1. Plate B). It is not boat-tailed and the base plate is of the same diameter as the projectile body. In this base plate is the 48-mm. fuze hole, which is closed in transit by a

metal plug. The driving band is copper with two annular grooves. The explosive filling is made up of two blocks of high-grade cast T.N.T. having a weight, including the paper and flannel container, of five pounds.

The shell is marked in accordance with the normal Japanese Army practice. The propellant charge for this round is the same as that described in para. 4 of this Leaflet, when it is used with the Type '96 (1936) Howitzer. (See also J.A.L. E 1 (b) sheet 4.)

Type '95 Medium Base Fuze.

9. No detailed information or drawings of the Type '95 Medium Base Fuze are available at Kirkee. The drawing included at Plate "C" of this Leaflet shows the Type '95 Large Mk. 2 Base Fuze (modified) which is known to be very similar to the Type '95 Medium Base Fuze, but which differs inter alia in the method of construction of the striker sleeve.

The only drawing of the Large Mk. 2 which was available did not clearly show the lay out of some of the components in the forward portion of the fuze mechanism (i. e. Lower detonator, delay train and shutter) and the method of operation was not quite clear.

ACTION

10. This is believed to be as follows:—

- (i) On set back. The shutter detent sets down into the shutter allowing it to move across to the armed position.
- (ii) In the bore. The centrifugal bolts retaining the inertia pellet and striker move out ; the shutter opens.
- (iii) In flight. The inertia pellet and striker tend to move forward on to the lower detonator but are prevented from doing so by the creep spring.
- (iv) On impact. The striker moves forward into the lower detonator, the flash passes into the stemming between the lower detonator and the delay, which burns for a predetermined time and sets off the upper detonator which in turn initiates the gaine.

The delay used in this fuze is from .05 to 2 seconds.

11. Smoke Shell (Charged W.P.)

This shell is made of steel and constructed in three main parts:—(Plate A Fig. 5.)

- (a) An Exploder Container and Adapter.
- (b) Head and Picric Bursting Charge.
- (c) Body, containing W.P. in a brass container.

The smoke charge consists of 10.4-lbs. of W.P. which is filled in a molten state into the brass container. The Picric acid burster charge contained in the projectile weighs 2.3 lbs. The shell is painted black the shoulders of the adapter being red. A white band is to be found immediately above the driving band and a yellow band below the bourrelet. (Reference should be made to J.A.L. E.10 Typical Methods of Filling of Smoke Shell and to J.A.L.E 1 for the markings that may be met).

12. Shell H.E. S/L (Probably Type '92).

(Plate A. Fig.4 and Plate B). The shell is constructed of steel and is boat tailed. An exploder container screws into the nose adapter which in turn screws into the projectile. The shell body is painted black overall and has a white band just above the cannellured driving band and a yellow band below the copper centring band. The adapter is painted red. The filling of the shell is cast T.N.T. and the exploder pellets of picric acid. The projectile has a total weight of 68-lbs. and a length of 22.9".

Shell Type '92 H.E. (Flat based probably only used in Type Meiji 38 (1905) Howitzer)

13. This projectile is made of steel and has a flat base. The body is painted black overall and bears a yellow band below the bourrelet and a white band above the driving band. The fuze adapter is painted red. The driving band has two cannelures. The exploder is a pellet of R.D.X. and the main filling is of R.D.X. and Ammonium Nitrate, the Japanese nomenclature for this mixture is Angayaku. American M.E.I.U. Report 4/43 states that these rounds are used with the Type Meiji 38 (1905) Howitzer. The total weight of the projectile is given as 78-lbs 5-oz. and it has an overall length of 22.5 ins.

150-mm. GUN AMMUNITION

CARTRIDGE CASES

14. No details of these cases are available but reference to Sheet 4 of J.A.L., E 1 (b) shows that all cartridge cases for Gun ammunition are of standard length (48.0") and may be assumed to be interchangeable.

PROJECTILES

15. It is thought that the Type '93 S/L Projectile may be used in all Japanese 150-mm. Guns. The method of filling for both Gun and Howitzer ammunition appears to be standardized. There may be a difference, however, in the relative thickness of the shell wall, which restricts the use of some to the low velocity howitzers.

Shell Type '93 H.E./S.L.

16. The weight of this shell according to a Japanese document is 88-lbs. and it is stated that the fuze used is a Type '90 Instantaneous short delay.

The shell is made of steel and painted in the usual army manner. It is boat tailed and has a copper centring band and double driving band. A point of recognition is the absence of canneluring in the driving bands. An adapter screws R.H. into the nose of the shell to take the fuze. The projectile has an overall length of 24.3-ins.

PACKING

17. As far as is known shell are packed in a plain wooden box, containing packing pieces. The approximate dimensions of the box are 27" x 8" x 6" and it is possible that the box will be found without any markings. Each box contains 1 projectile.

Stowage Dimensions 27" x 8" x 6" or 29" x 11" x 10½"

Weight of box, empty 18-lbs. or 22-lbs.

HANDLING AND TRANSPORT

(Of captured ammunition by Ordnance)

18. For transport and handling all the various types of 150-mm. can be treated similarly to equivalent ammunition in the British Service. The Japanese ammunition presents no more than the normal risks existing in similar ammunition in the British or American Service. These shell will normally be plugged.

EXPLOSION/FIRE RISK

.. Type '96 5-lbs. per shell
Type '92 S/L 11-lbs. per shell
Type '92 (Flat Based) 16-lbs 8-ozs.
W.P. Burster Charge 2-lbs. 5-ozs.

GROUP CLASSIFICATION

.. Group 6 Category Z.
W.P. Shell Group 12 Category Z.

CLASSIFICATION FOR SEA TRANSPORT O.A.S.

W.P. Ammunition S.A.S. (R).

Serial No.	Type of Equipment	Length of Barrel	No. of Grooves	Muzzle Velocity f. p. s.	Maximum Range (Yds.)	TYPES OF AMMUNITION.								Fuzes.	
						H.F.	HE/SL	AP/HE	SMOKE	ILLMG.	CHEM.	SHRAP.	INCEND.		INC./TR.
1	Type Taisho 4 (1915) Howitzer.	5'	36	1,350	9,500	X	X	X	X	X	X	X	X	—	Type '88 Instantaneous-A. Type '95 Medium Base Fuze. Type '88 D.A.I. Type 5 Time and Percn. Fuze.
2	Type Taisho 7 (1918) Gun.	—	—	Believed 2,500	Believed 17,900	X	X	X	—	X	—	X	—	—	Type '88 Instantaneous-A. Type '90 Instantaneous/SD. Type '95 Medium Base Type 5 Time and Percn. Fuze.
3	Type '89 (1929) Gun.	—	40 (R.H. Rifling)	2,250	27,000	X	X	X	X	—	—	X	—	X	Types as above.
4	Type '96 (1936) Howitzer.	9' 4"	36 (R.H. Rifling)	—	11,336 S/L Shell gives range of 12,970 Yds.	—	X	X	X	—	—	X	—	X	Types as above.
5	Type '90 (1930) Gun.	—	—	—	—	X	X	X	—	X	—	X	—	—	Type '88 D.A.I. Type '95 Medium Base Fuze. Type 5 Time and Percn. Fuze. Type '90 Instantaneous/SD.
6	Type Meiji 38 (1905) Howitzer (Believed S/P. How.)	—	—	—	—	X	X	X	X	—	—	X	—	—	Type '88 D.A.I. Type '95 Medium Base Type 5 Time and Percn. Fuze.
7	Type Meiji 45 (1912) Gun.	—	—	2,500	15,800	X	X	X	X	—	—	X	—	—	Type '88 D.A.I. Type '90 Instantaneous/SD. Type '95 Medium Base Type 5 T. & P. Fuze.

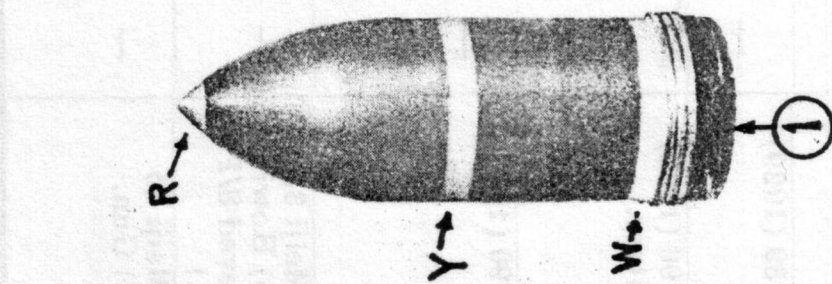
X = These shell are known to exist.

SHELL BODY - BLACK.

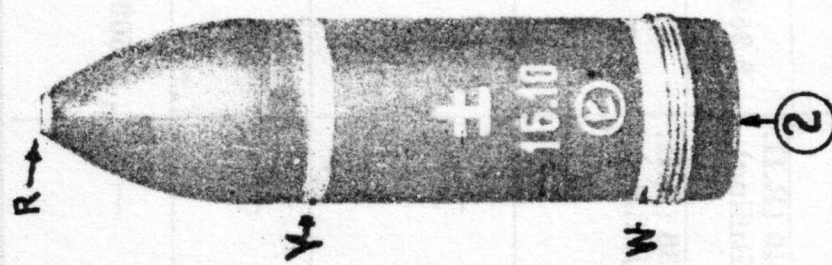
C.B - CENTRING BAND

KEY TO COLOUR BANDS.

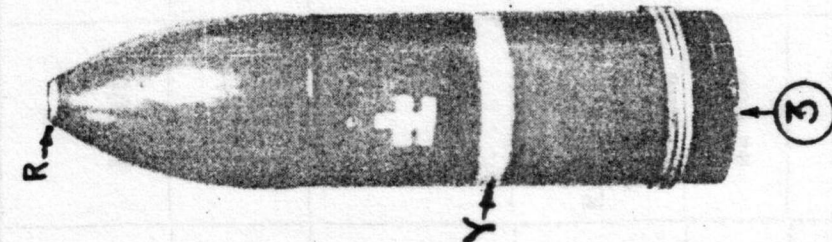
- R - RED
- Y - YELLOW
- W - WHITE.



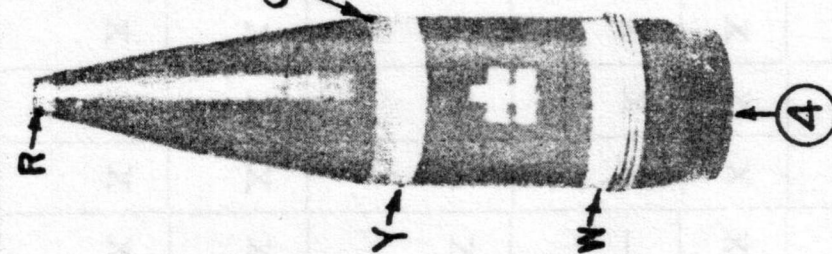
A.P./H.E.
TYPE 96



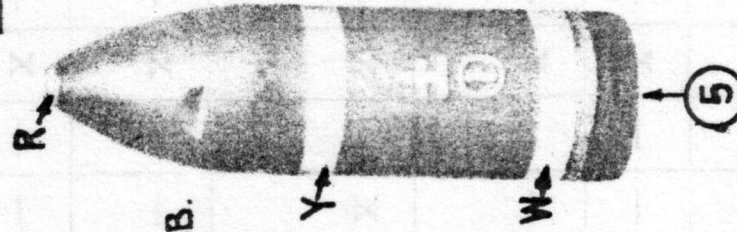
H.E.
TYPE 92



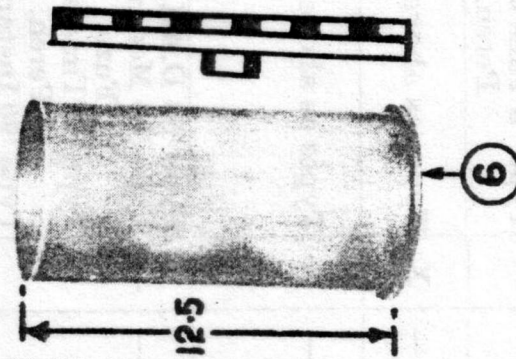
H.E.
TYPE N.K.



H.E.S.L.



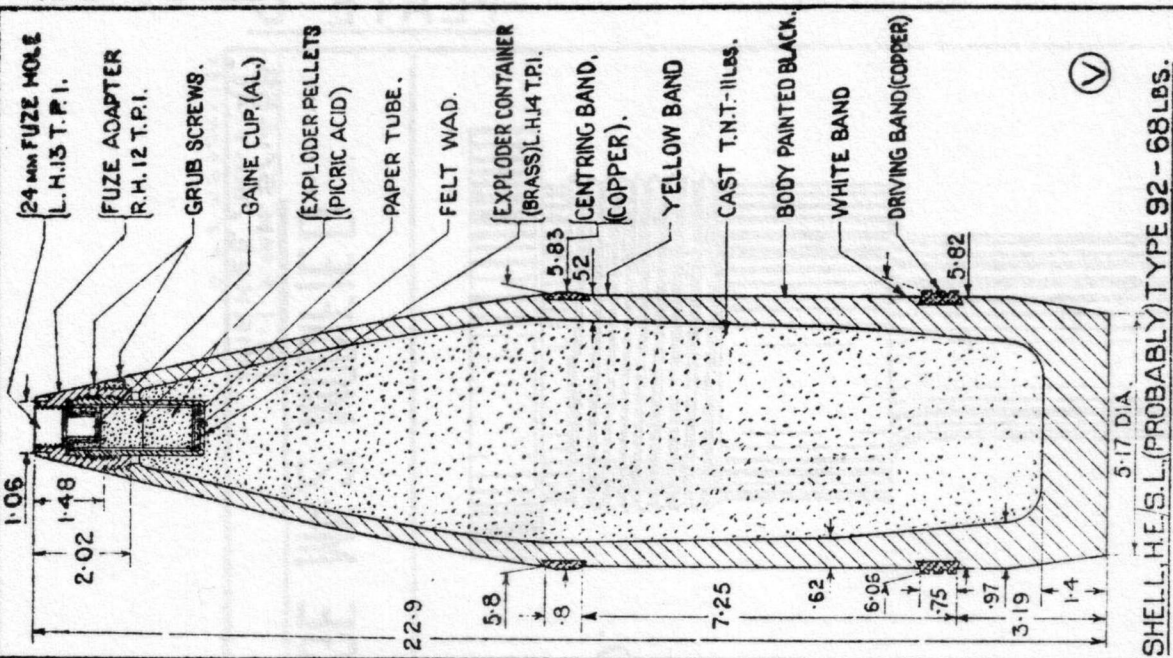
SMOKE
(W.P.)



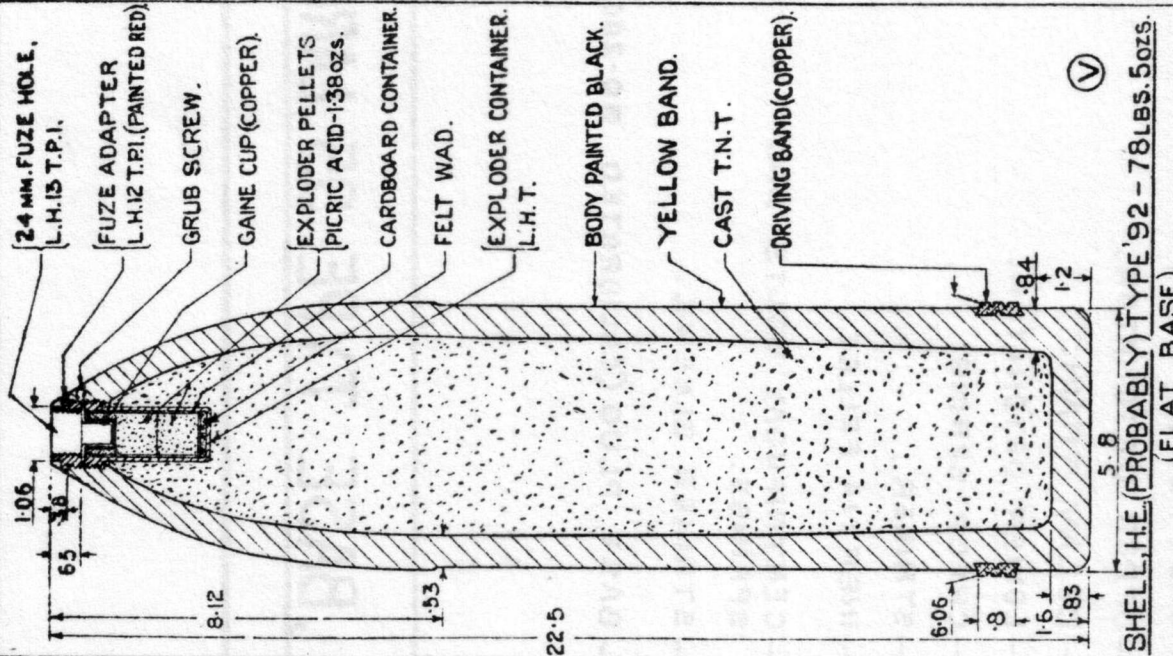
CTGE. CASE FOR TYPE
96 (1938) HOW.

TYPICAL JAPANESE 150 MM. AMMUNITION.

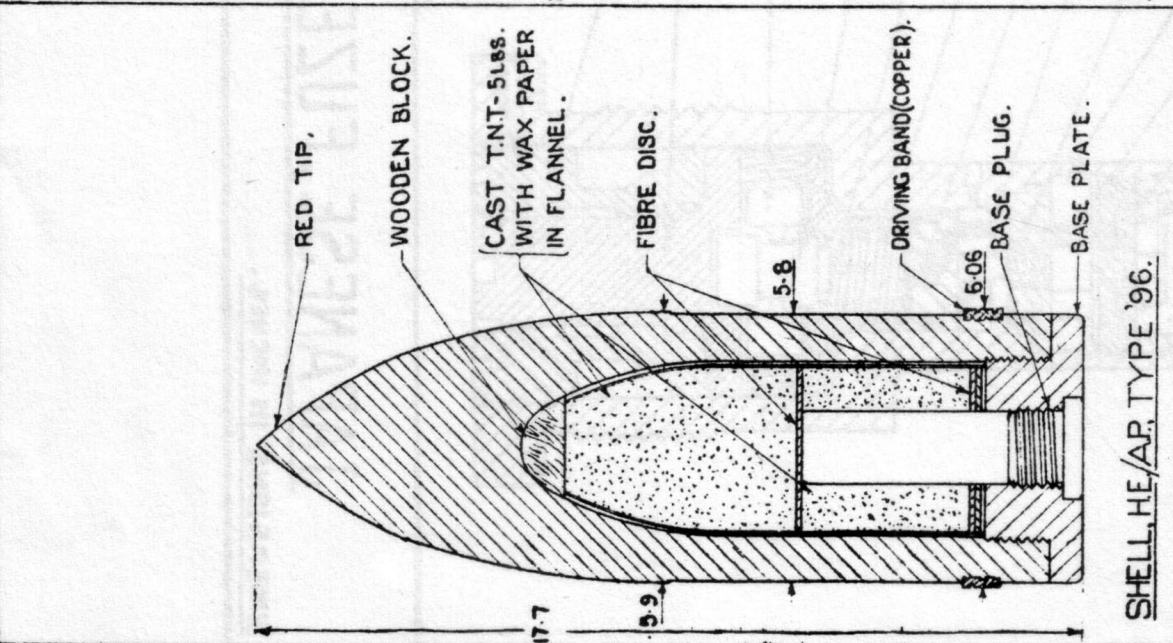
C-1-AMN. 5/1469
KIRKEE, MAY, 1946.



SHELL, HE, S.L. (PROBABLY) TYPE 92 - 68 LBS.

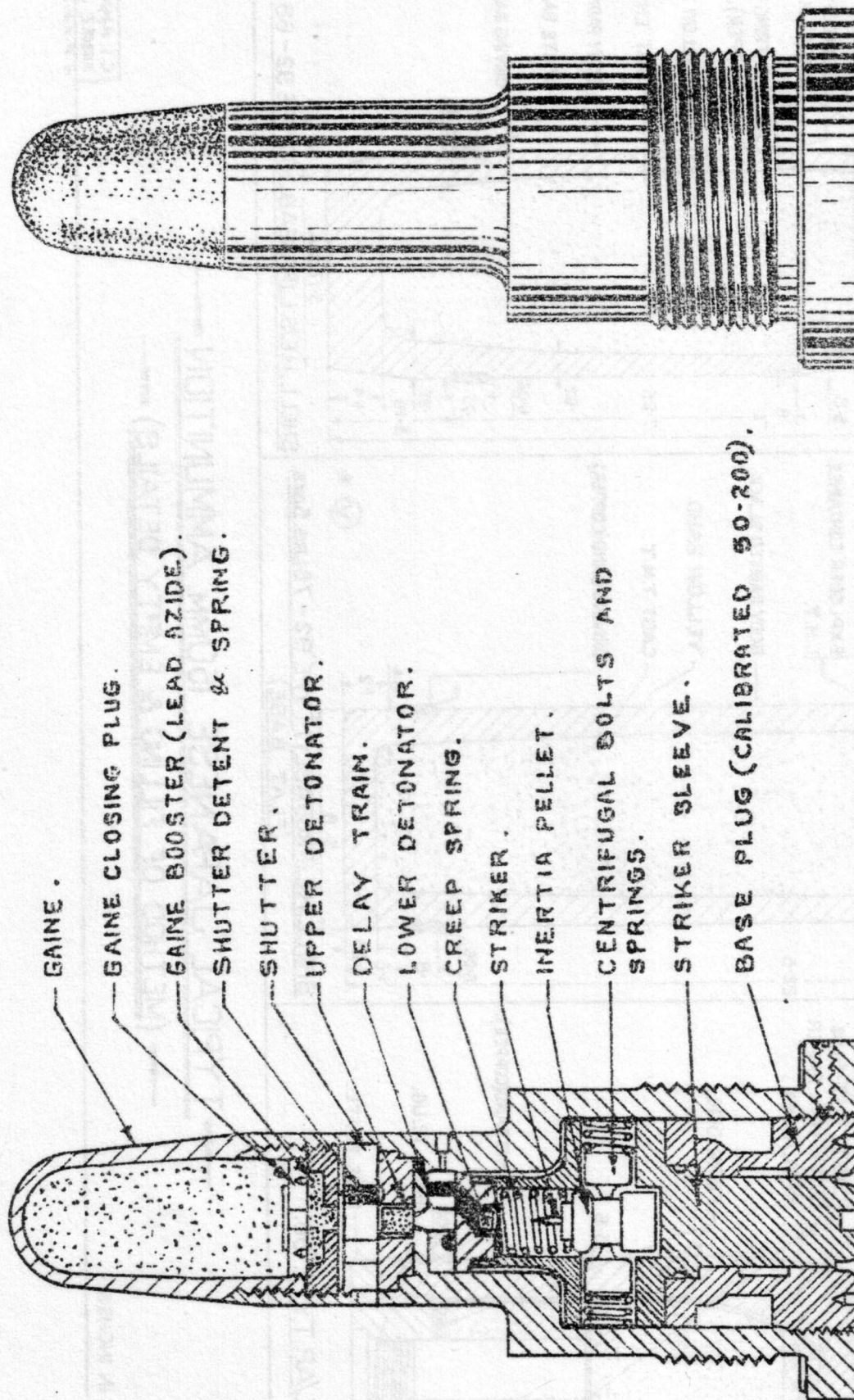


SHELL, HE (PROBABLY) TYPE 92 - 78 LBS. 50 OZS.
(FLAT BASE).



SHELL, HE/AP, TYPE 96.

TYPICAL JAPANESE 150MM. AMMUNITION (METHOD OF FILLING & EMPTY DETAILS)



JAPANESE, FUZE, BASE TYPE 95 LARGE No. 2 MODIFIED.

DIMENSIONS IN INCHES.

C.I. AMN. S/1458
KIRKEE, MAY 46
G.P. I.P. 990NA 145

THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS

D. OF A. (INDIA)

JAPANESE AMMUNITION LEAFLETS

SECTION E
LEAFLET E 29

AMMUNITION FOR B.L. TYPE TAISHO 3 (1914)
140-mm. C.A. (NAVAL) GUN

GENERAL

No ammunition of the 140-mm. series has yet been received at Kirkee and this Leaflet is therefore based on G.S.I. (t) and M.E.I.U. reports and drawings.

The table at Sheet 3 of J.A.L. E. 1(b) shows only one gun in this calibre, the Taisho 3 (1914) 140-mm. 50 Calibre Naval Gun which is a B.L. equipment and no other type is known here. A brief description of this gun may be of interest; it is of orthodox naval design, pedestal mounted and is used both on shipboard and as a Coast Artillery weapon. The gun has been found with a shield or mounted in a hand operated casemate. The recoil system is of the hydro-pneumatic type and the breech block is of the interrupted thread-truncated cone design.

The following types of projectile are known to exist for this equipment:—

- (a) Shell H.E. Common pointed, base fuze, and common pointed capped, base fuze.
- (b) Shell H.E. High Capacity. Nose fuze (2 types).
- (c) Illuminating Shell.

The following plates are included with this Leaflet:—

- (a) Shell H.E. Common pointed.
" " " " Capped.
- (b) Shell High Capacity H.E. w/o adapter.
" " " " with adapter.
- (c) Shell Star, B.E. (with parachutes).
- (d) Container, Cartridge 14-cm. Gun; Tube Vent Peren. and Gaine type '91 (1931)
for use with Fuze, Time Mechanical type '91 (1931).

DESCRIPTION

2. Propellant:—The propellant consists of cords, approximately 28" long and .14" diameter. 957 of these sticks are tied in a bundle and enclosed in a silk bag. A G.P. igniter is secured to the lower end of the propellant bag by five silk straps. The analysis of the propellant is as follows:—

N.C.	..	..	..	65.6%
Sodium Chlorate	..	..	..	1.5%
N.G.	..	..	..	29.2%
Centralite	..	..	..	3.7%
				<u>100.0%</u>

On a white cloth label sewn to the bag are red Japanese characters giving the manufacturing and propellant details.

3. The cartridges are packed in metal containers, of which there are two types:— (Plate D).

- (a) Cast steel.
- (b) Thin sheet steel with aluminium base and lid.

Both types are fitted with a quick release cover which hermetically seals the container. The carrying handles consist of copper loops. The following information in raised letters is found on (a) and on a separately attached light metal plate on (b).

“14-cm. Gun charge
Contents 1 charge.”

A number, probably indicating the Type No. of the container, is stamped on the base of each. The one of cast steel bears the No. 1184, the other type the No. 416. (The container shown at Plate D is therefore of cast steel.)

Tube Vent Percussion:—(See Plate D). Details of this component are scanty. It has the appearance of a slightly tapering S.A.A. cartridge case, in many respects similar to the Tube, Vent Percussion used in the British land Service. It is closed with a shellaced cardboard plug. A tube is also thought to exist of the combination Percussion and Electric type.

4. **SHELL H.E. COMMON POINTED (CAPPED)**

The method of filling of this shell and empty details may be clearly seen at Plate A. This projectile is made of steel and is designed for R.H. rifled guns as the base plug is screwed in with a left hand thread. It has two centring bands, and a double driving band, the rear band having a high lip.

The main filling consists of 4.8-lbs. of cast picric acid in a waxed cardboard container, the filling is recessed in the base to take the fuze gaine. The whole filling is enclosed in a flannel container and it rests on a felt pad, two paper pads and a wooden spacer. On the base of the main filling details of manufacture, Lot No. etc. of the charge, will be found.

The weight of the complete shell is 84-lbs. approximately.

5. **SHELL H.E. COMMON POINTED**. (See Plate A).

This round is similar in appearance to that described in para 4 above, but it differs from the capped type in the following respects:—

- (a) The base plug is threaded externally with a different number of threads per inch.
- (b) It is made of softer steel.
- (c) The main filling is formed into two blocks and weighs more than that used in the capped round.
- (d) The pad below the main filling is made of pressed woodmeal and wax.

An enemy document lists this round as being for use with a special reduced charge. The main filling consists of 6-lbs. of cast picric acid wrapped in waxed paper and enclosed in a flannel cover. Information painted on a paper label on the base of the filling gives the Japanese nomenclature of the round as “No. 1 Common Projectile”. The shell has a total weight of 78-lbs. and an overall length of 21.7”. For markings this projectile conforms to standard Japanese Naval practice.

6. SHELL H.E. HIGH CAPACITY (FLAT BASED) Type 0 (Zero) See Plate B.

As in the case of 120-mm. ammunition for the Type '3 (1914) 120-mm. C.A. gun, it appears that there are two types of this projectile, one which is used without an adapter taking a Mechanical Time Fuze and the other with an adapter taking a 5th year Combustion Time or a D.A. fuze, suggesting a dual AA/CA role. The dimensions and weights given at Plate 'B' are approximate in view of disagreement of figures given in reports. The projectile is made of steel and in common with the other rounds in this series, has a double driving band. The base plug is solid and screws in with a L.H. thread. For transport the shell is fitted with a plug with a wooden shank, which projects into the gaine cavity. The main filling is made up of one block of picric acid, 6.6-lbs in weight, which is wrapped in waxed paper and contained in a flannel bag. The base of the main filling rests on five discs of paper and a pad composed of wood pulp and wax.

7. SHELL STAR, B.E. (WITH PARACHUTES) See Plate C.

The projectile body of steel conforms to the usual external standards, but a large adapter is screwed into the forward end. The base plug is not screwthreaded but is retained in position by a grub screw cum shear pin. The driving bands are identical with those on the H.E. projectiles. It is fitted with the Fuze, Time Mechanical Type '91 (See J. A. L. E-6 Sheet 3).

For purposes of description the round may be divided into the following parts:—

- (a) Nose Adapter, containing in its upper end the fuze and in its lower end, the primary ejection charge, delay train and the primary ejection charge container.
- (b) Canister which contains the secondary ejection charge, the star, parachutes, split container and air brake which consists of a pair of semi-circular steel arms attached to the base of the canister.
- (c) Shell body.

8. ACTION. This projectile has a length of 22.7" fuze and weighs 88-lbs. Analysis of the star composition shows it to be made up of a mixture of Potassium Nitrate, Barium Nitrate and Wax. The shell is operated by a Mechanical Time Fuze; when the fuze functions, the flash ignites the G.P. pellet which transmits the flash via the delay train to the primary ejection charge. At this point, the flash is divided, one part going upwards to ignite the primary ejection charge, the other continuing downwards to the delay to the secondary ejection charge.

On the ignition of the primary ejection charge, the base plug retaining pins are sheared and the canister (b) is ejected. The spin imparted to the canister is checked by the arms of the air brake which also tend to check its speed and turn it over. At about this time the delay has burnt to the secondary ejection charge which expels the star element, parachutes and split container in an upward direction (the air brake is maintaining the canister in an inverted position). The flash from the secondary ejection charge also ignites a short delay in the star container cover. This burns sufficiently long to allow the parachutes to open, the star is then suspended and floats down.

PACKING

9. No details of the method of packing these shell are available at Kirkee and it is probable that they are issued loose.

IDENTIFICATION

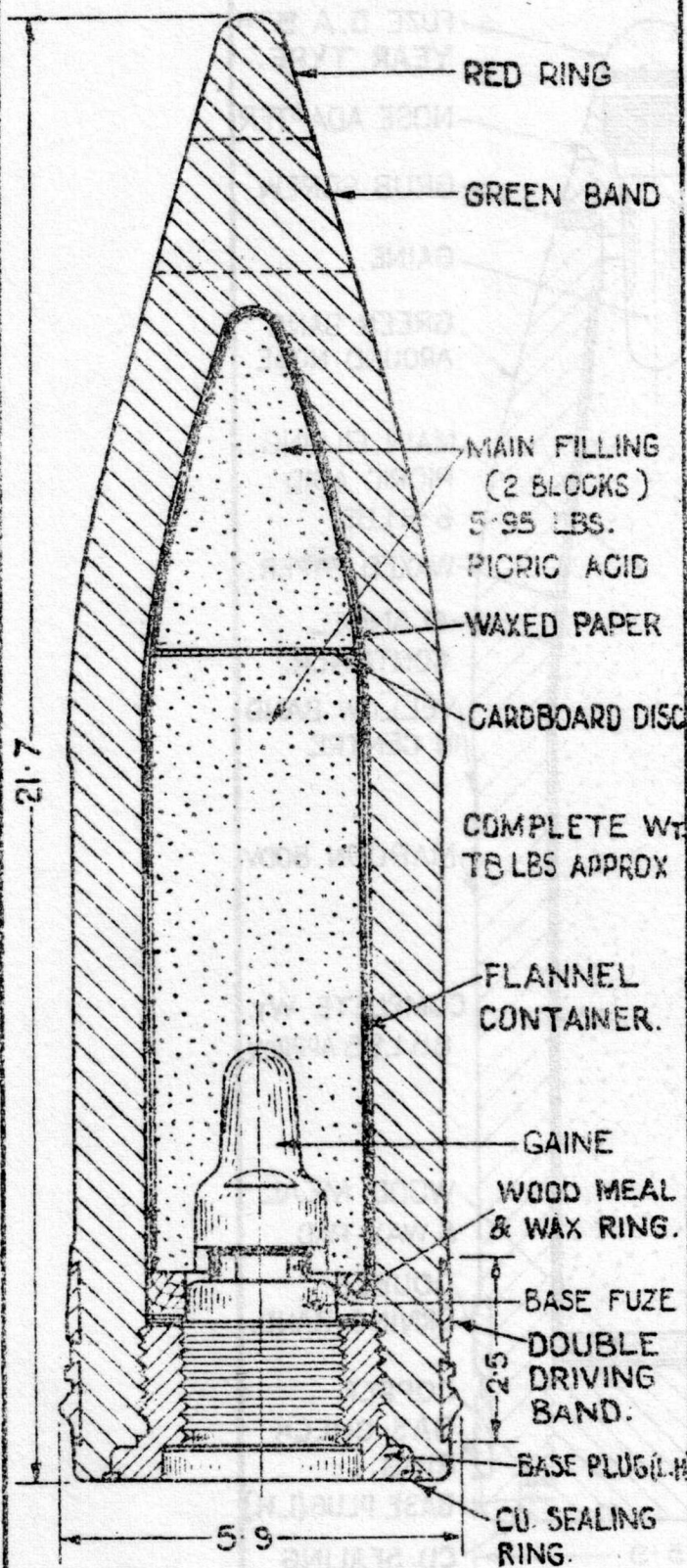
10. The rounds described in this Leaflet all conform to the standard Japanese Naval practice of markings; maroon with a green band round the nose and a red tip. An American report gives the marking of the Star Shell as being red overall with white characters stencilled on the body. Note the high lip on the rear driving bands.

HANDLING AND TRANSPORT

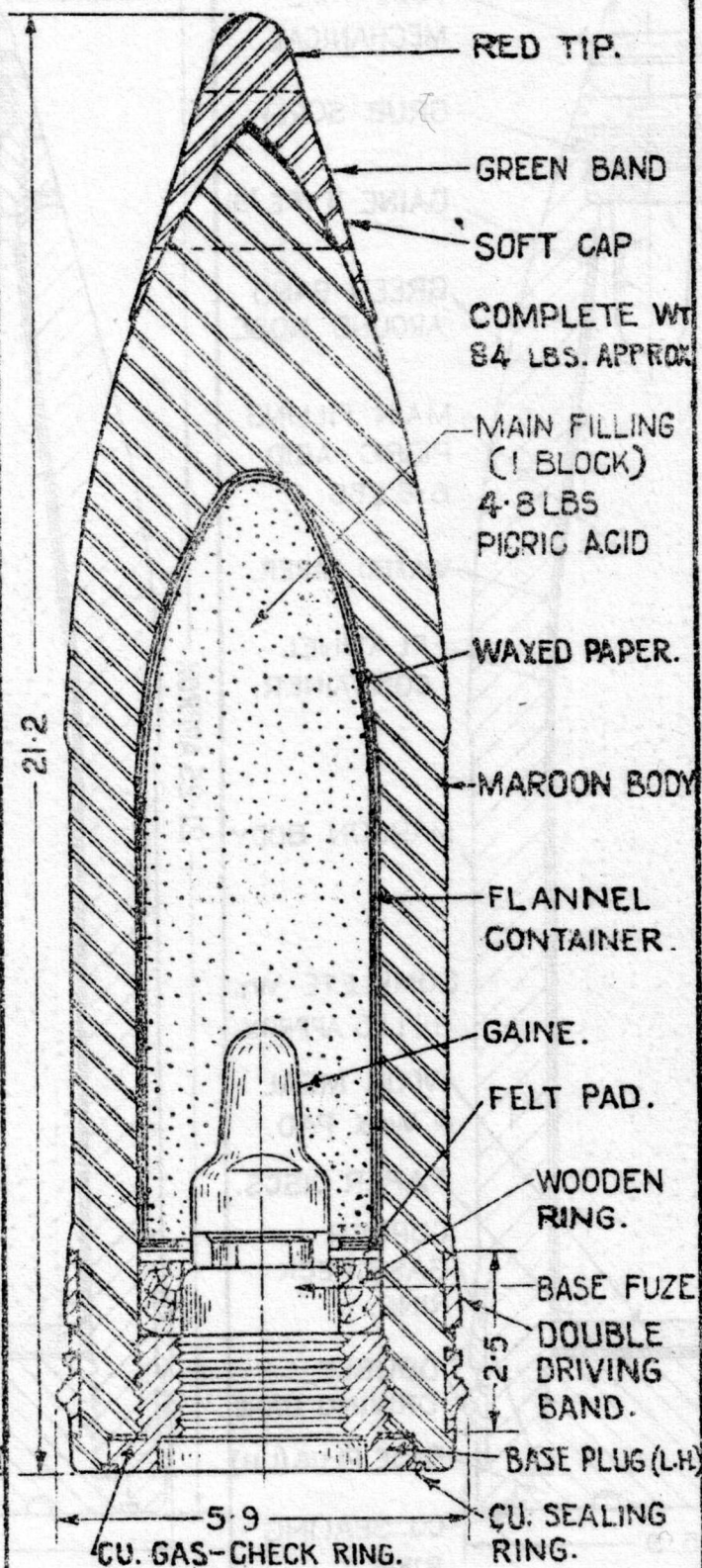
(Of captured ammunition by Ordnance)

11. This ammunition may be treated in the same way as equivalent stores in the British Service.

	C.P.	C.P.C.	H.E. High Capacity	Star
EXPLOSION/FIRE RISK ..	15-lbs. (approx)	19-lbs. 5-ozs.	20-lbs.	..
GROUP CLASSIFICATION ..	V Cat. Z.	V Cat. Z.	V Cat. Z.	V Cat. Z.
CLASSIFICATION FOR SEA TRANSPORT ..	O.A.S.	O.A.S.	O.A.S.	A.S.P.



SHELL 140 M.M. C.P.



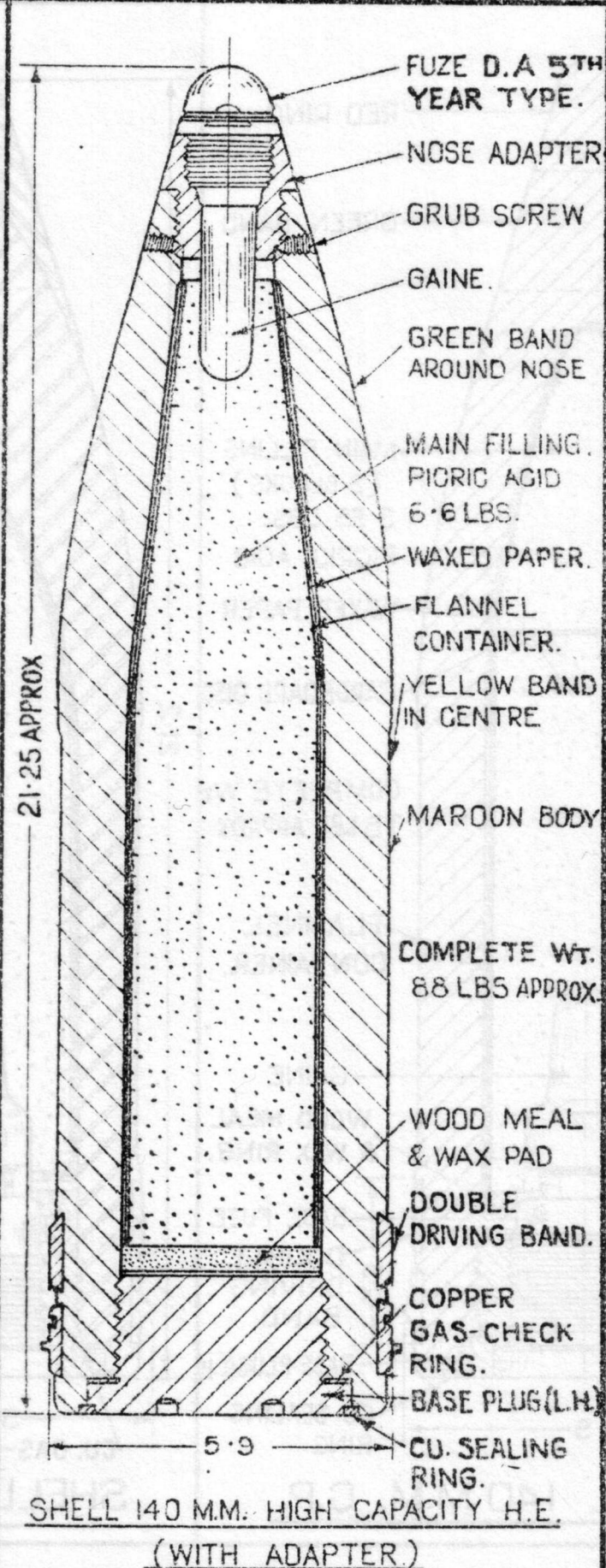
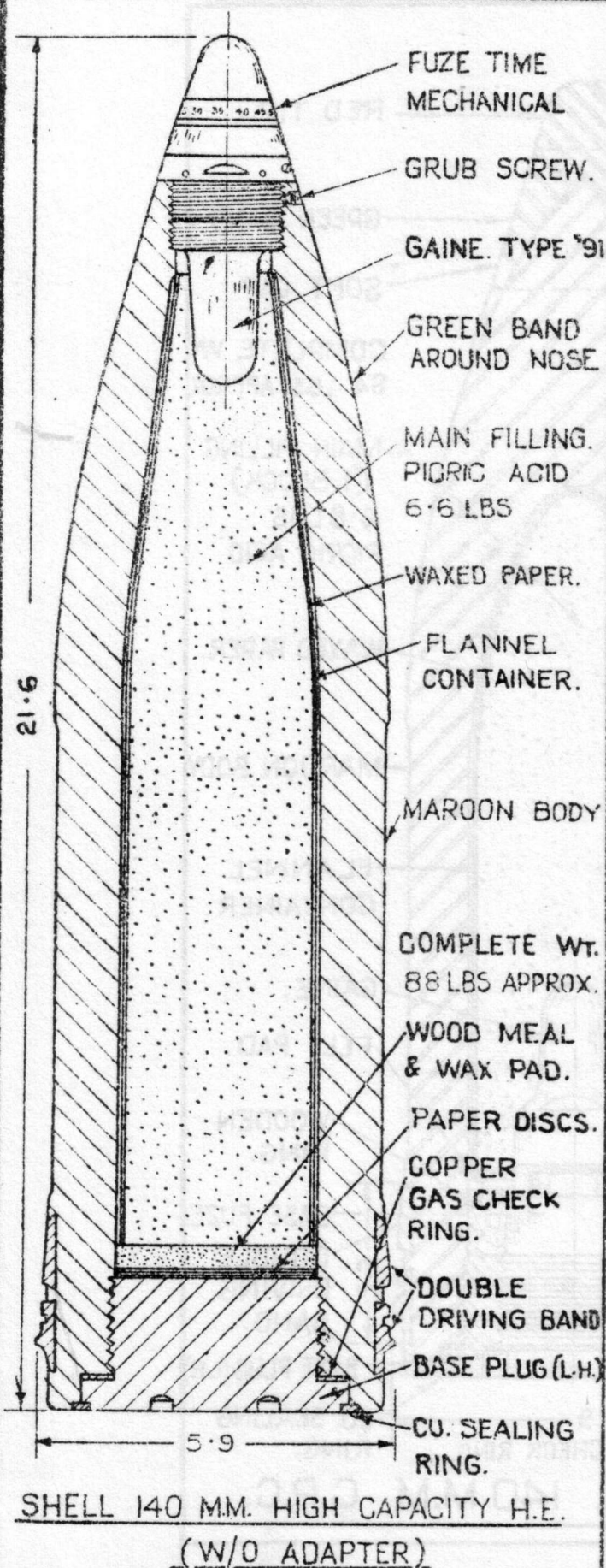
SHELL 140 M.M. C.P.C.

AMMUNITION FOR B.L. TYPE

TAISHO 3(1914) C.A. (NAVAL) GUN

DIMENSION IN INCHES

G.I.A.M.N.S/ 1508
KIRKEE JULY 1946

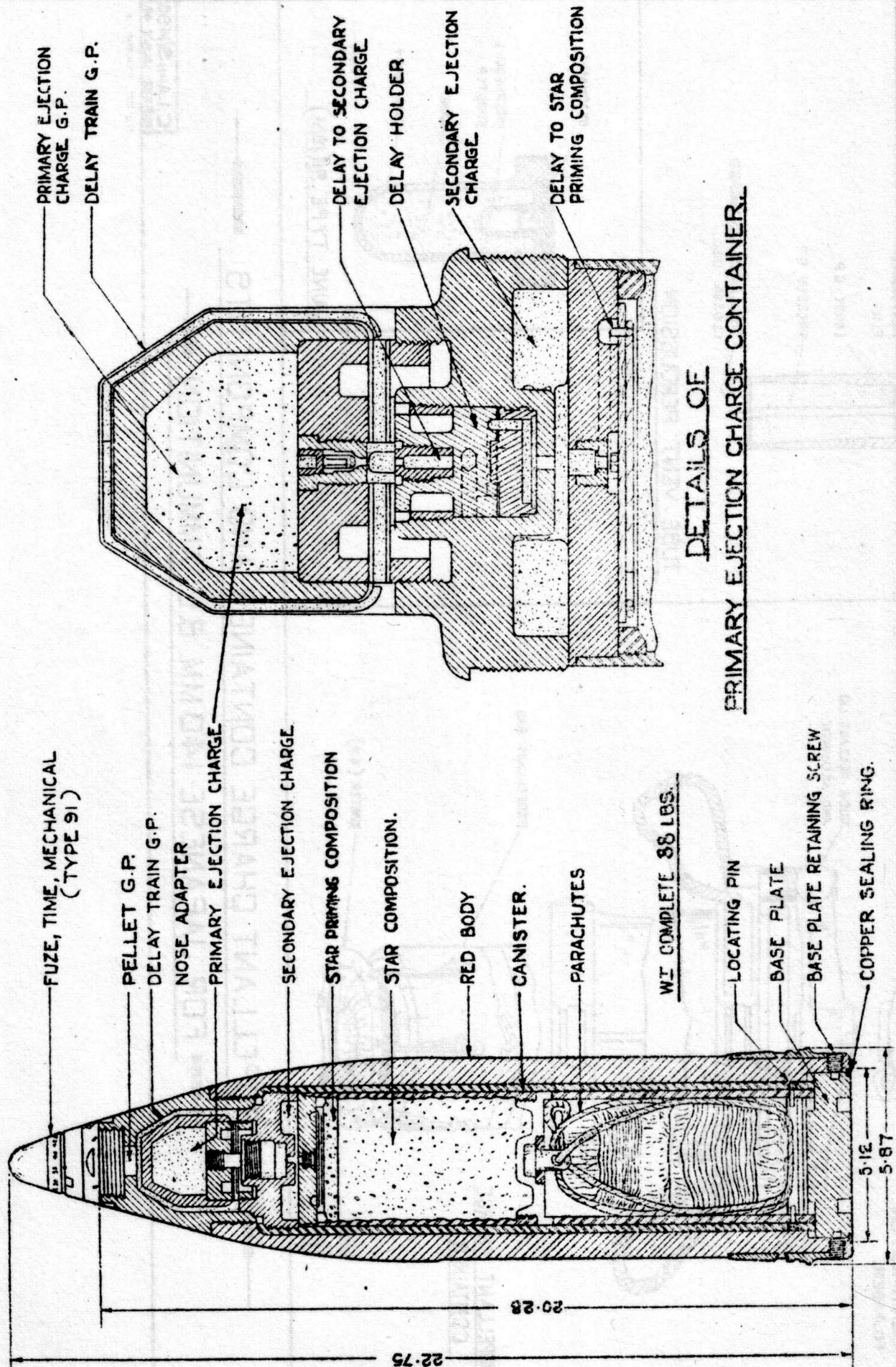


AMMUNITION FOR B.L. TYPE

TAISHO 3 (1914) C.D. (NAVAL) GUN.

DIMENSIONS IN INCHES.

C.I. AMN. S/1507
KIRKEE JULY 1946



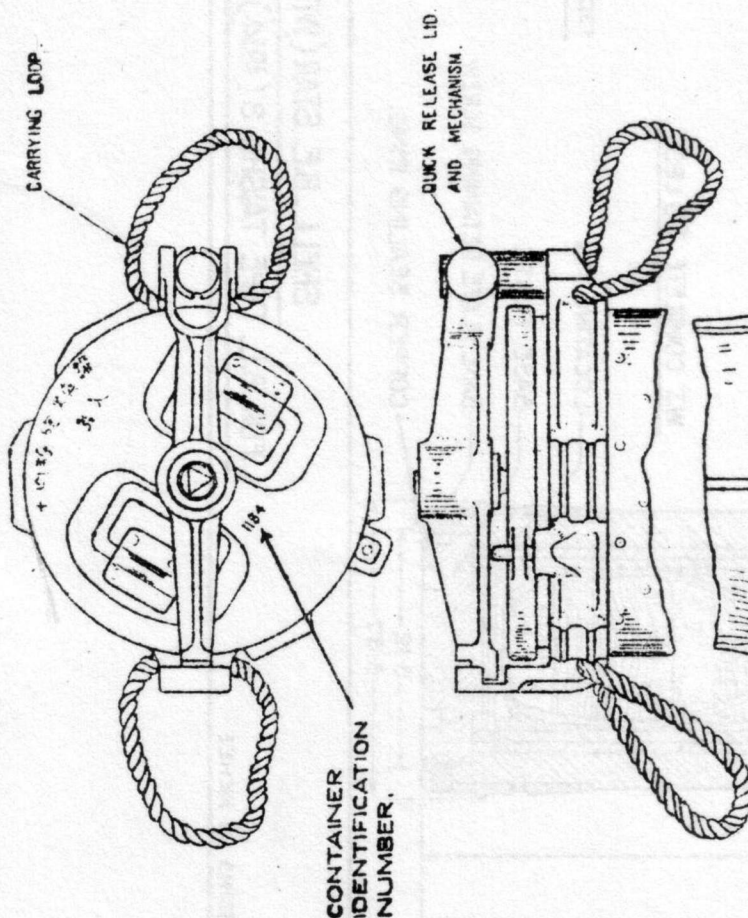
SHELL, B.E. STAR (WITH PARACHUTES)

FOR B.L. TYPE TAISHO 3 (1914) 140 M.M. G.A. (NAVAL) GUN.

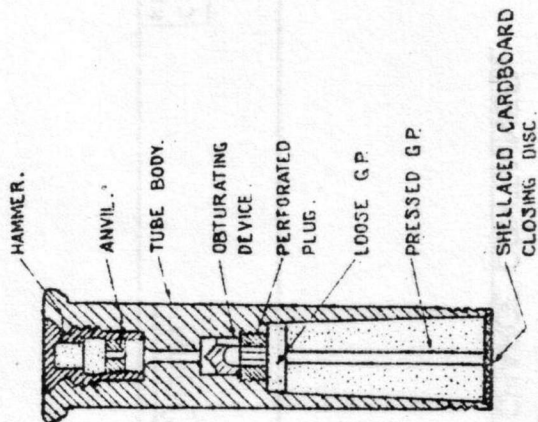
DIMENSIONS IN INCHES

C.I. AMN. 9/1494
KIRKEE JULY 46

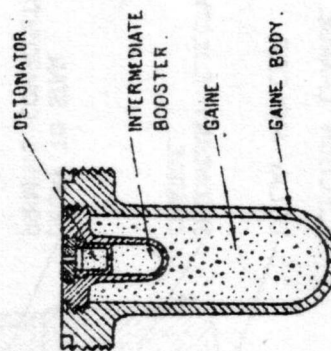
G.P.Z.M. FORM 148



PROPELLANT CHARGE CONTAINER.



TUBE VENT PERCUSSION



GAINE TYPE 91 (1931)

PROPELLANT CHARGE CONTAINER AND COMPONENTS

FOR JAPANESE 140 MM. B.L. AMMUNITION.

THIS LEAFLET MUST NOT
FALL INTO ENEMY HANDS

D. OF A. (INDIA)

SECTION E

JAPANESE AMMUNITION LEAFLETS

LEAFLET E 30

30-cm. ARTILLERY AMMUNITION

GENERAL

The 30-cm. Type Taisho 7 Howitzer is reported to be the largest piece of Japanese artillery so far captured. Some idea of the huge size of this equipment can be formed from the dimensions of a gun position captured in Luzon, which was 33 feet in diameter and 8 feet deep. A housing structure on rails, approximately 40 feet square and 6 feet high, camouflaged the position.

2. Before describing the ammunition it may be useful to make a few remarks on the 30-cm. Type Taisho 7 Howitzer, on which much information is available. The barrel is a built-up type rifled with a uniform right-hand twist calculated to be one turn in 9.4 calibres. The breech mechanism is an ordinary interrupted screw with eight segments of 20 threads. The buffer and recuperator system is mounted on the carriage above the barrel. The gun is fired by a percussion hammer mechanism operated by a lanyard.

3. The following data on the Type 7 Howitzer will be useful for reference and may help in identifying shell fired from this weapon :—

Overall length (Barrel and Breech)	..	..	16-ft. 6-ins.
Diameter of breech block	..	..	2-ft. 11-ins.
Number of lands and grooves	..	..	72.
Diameter of barrel	..	..	12.2-ins.
Maximum elevation	..	..	70° (scale reading)
Maximum depression	..	..	3° " "
Traverse	..	..	360° " "
Maximum range	..	..	15,000 yds. (estimated)
Muzzle Velocity	..	..	1640 f. s.

In addition, some reports suggest that two designs of 30-cm. Type 18 Howitzer also exist, but this has not been verified.

4. The A.P./H E. ammunition described in this Leaflet is for the Type 7 Howitzer. It is possible that the projectiles may be used in the other weapons, but all reports on ammunition of 30-cm. calibre specifically state that they are for this equipment.

5. An American report suggests that the Japanese may have a 41-cm. Howitzer (Siege) but, to date, this has not been confirmed. The Type 45 (1912) 240 mm. Howitzer is also reported to be used by Japanese heavy artillery units, but information on this equipment is insufficient and it is therefore not possible to compile a separate Leaflet. It is believed that following normal Japanese practice, this is a Q.F. separate equipment and fires a 400-lb. shell to a maximum range of about 11,000 yards.

DESCRIPTION

CARTRIDGE CASE

6. This is a rimmed heavy brass case 19½-ins long. It is more or less cylindrical with practically no taper towards the mouth; the diameter at the mouth is approximately 12½-ins. It is closed by a paper disc. As this is Q.F. separate loading ammunition, the case is neither necked nor crimped. A sketch of this case is given at the end of the Leaflet. The primer used is the Type 'B' described in J.A.L. E. 2.

PROPELLANT

7. The propellant charge is in three increments and consists of 6½-in. tubes of smokeless powder. Two increments are contained in bags marked "No. 20 propelling charge, large, 3.44 Kg." and "No. 20 propelling charge, small, 2.78 Kg." The third increment consists of a quantity of loose tubes packed around the bag charges. There is a gunpowder igniter at the base of the propellant.

SHELL

8. Captured Japanese documents list the following two A.P./H.E. projectiles for the 30-cm. Type Taisho 7 Howitzer.

Shell Type	Filled weight	Filling	Fuze used
95	651-lbs.	T.N.T. 45½-lbs.	Type 95 Mk. 2.
95 'B'	656½-lbs.	T.N.T. 49½-lbs.	"

It is possible that these may be the ones described below but there is nothing definite to support this statement. No details of dimensions are available.

9. Two sizes of A.P./H.E. shell have been recovered; one with an overall length of 42 inches, the other with an overall length of 48 4/5-ins. All other dimensions are approximately the same. The shell follow the usual Japanese pattern except for the light and slightly lipped driving band. The ogive is approximately 2 calibres. The base is closed by a heavy base plug.

10. Filling. The American M.E.I.U. report on which this Leaflet is based states that it was not possible to examine the explosive filling because facilities were not available for removing the base plug. It is possible that the filling may be either picric acid or T.N.T. as these fillings are commonly found in Japanese high calibre shell.

FUZE

11. Both projectiles take the Fuze, Base, Type, 95, Large, Mk. 2 (modified) described in para. 9 and 10 of J.A.L. E. 28; also see Plate C of that Leaflet.

IDENTIFICATION

12. The cartridge case is 19½-ins. long. Marked on the side of the case is the date and place of filling, lot number etc. and on the base of the case is stamped the date and place of manufacture etc.

13. The projectiles are painted black overall with a 2-in. yellow band at the centre of gravity and the nose is tipped red. The M.E.I.U. report states that beneath the present coat of black paint the original markings could be seen on the rounds examined; these were a white band above and adjacent to the driving band and a yellow band above the shoulder.

14. Weight markings are employed on both these projectiles, the full significance of which is discussed in para. 17 of J.A.L. E. 1.

SUMMARY OF DATA

15. Length of cartridge case	..	..	..	..	19½-ins.
Weight of cartridge case	..	..	..	..	92½-lbs.
Diameter at mouth of case	..	..	..	..	12½-ins.
Overall length of projectiles:—					
No. 1 (long type)	..	..	..	..	48.8-ins.
No. 2 (short type)	..	..	..	..	42.06-ins.
Diameter at shoulder (approx.)	..	..	..	..	12.2-ins.
Width of driving band	..	..	..	..	2.06-ins.
Diameter over driving band	..	..	..	..	Not known

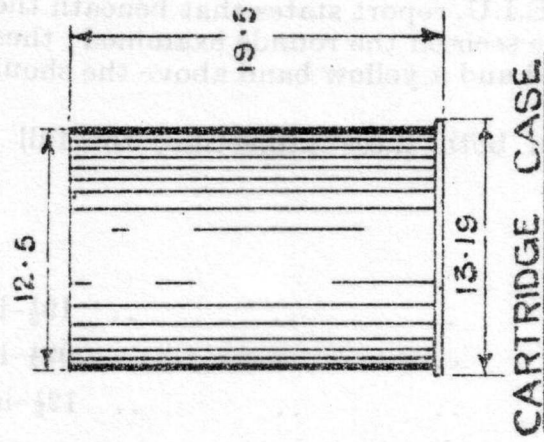
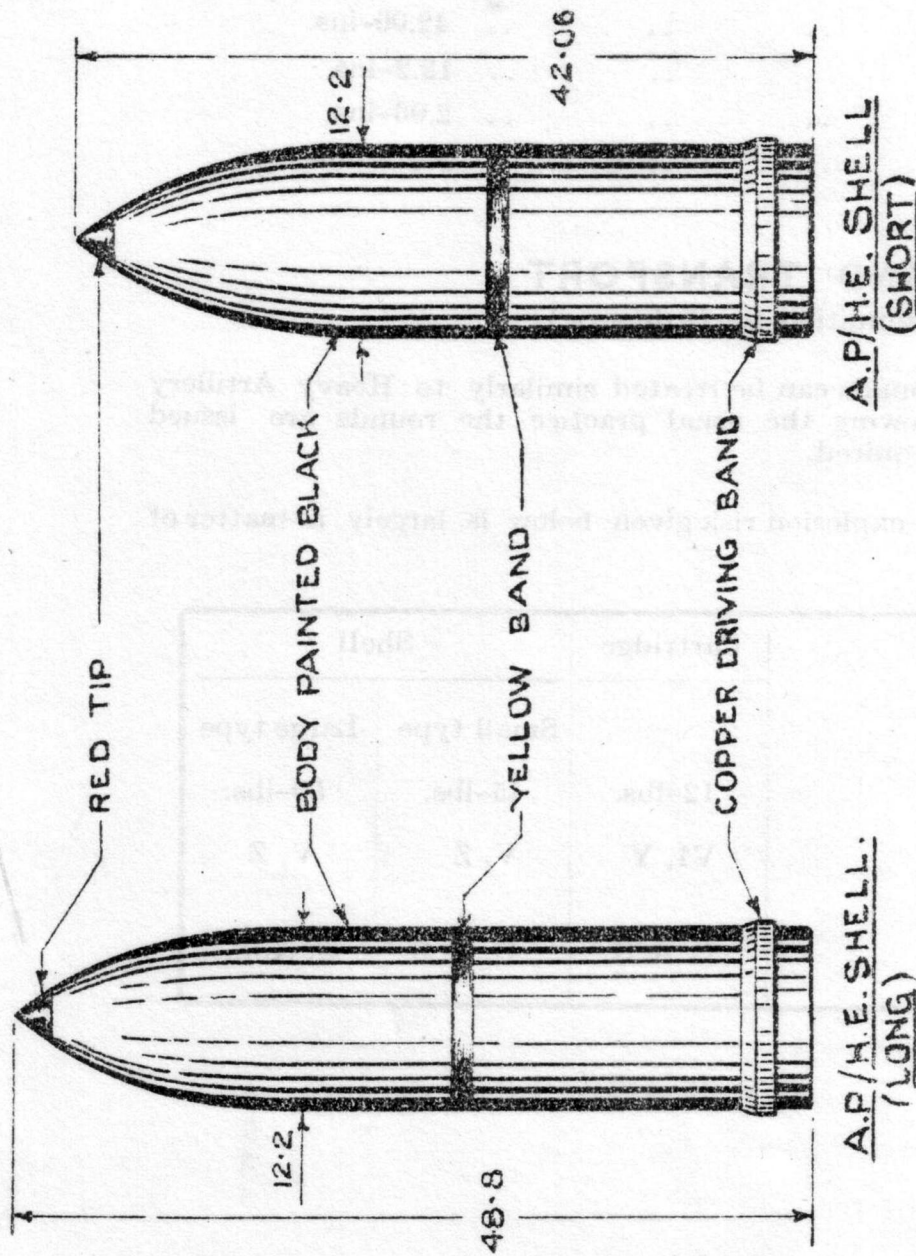
HANDLING AND TRANSPORT

(Of captured ammunition by Ordnance)

16. For handling and transport the rounds can be treated similarly to Heavy Artillery ammunition in the British Service. Following the usual practice the rounds are issued plugged; hence no special precautions are required.

Due to insufficient data available, the explosion risk given below is largely a matter of conjecture.

	Cartridge	Shell	
		Small type	Large type
EXPLOSION / FIRE RISK	12-lbs.	45-lbs.	50-lbs.
GROUP CLASSIFICATION	V1, Y	V, Z	V, Z
CLASSIFICATION FOR SEA TRANSPORT.	O. A. S.	O. A. S.	O. A. S.



JAPANESE 30 CM. A.P./H.E. AMMUNITION
FOR
TYPE TAISHO 7 HOWITZER

DIMENSIONS IN INCHES.