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JAPANESE AMMUNITION

C.I.AMN. TECHNICAL REPORT

No. 49

GRENADE, HAND, H. E., PULL TYPE

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REPORT NO. 49

OCTOBER 1945.

GRENADE, HAND, H.E., PULL TYPE
(Believed to be Type 2-3)

G E N E R A L

Two grenades, hand, H.E., Pull Type were received here in April this year, and the details given below are based on an examination of them at Kirkee.

2. This is an efficient offensive grenade having slightly thicker walls than those of the Type '91 and Type '97 grenades and should give good fragmentation. As only two grenades have been received, no fragmentation trials have been carried out at Kirkee.

3. This method of initiation which requires only a light pull (from 2½-lbs. to 5-lbs.) on the pull string and the presence of the anchoring rings makes this grenade eminently suitable for booby traps.

D E S C R I P T I O N

4. The drawing in the attached Plate shows the general appearance and details of construction of the grenade. For convenience, the grenade may be divided into two main components:-

- (i) The body and H.E. filling.
- (ii) The igniter assembly.

BODY

5. The body (11) is made of cast iron, painted black on the outside and sand blasted on the inside. It has five circumferential grooves to ensure good fragmentation and to give a good grip; it has no longitudinal grooves. Except for the grooves, the body is of uniform diameter throughout and has no flanges either at the top or bottom.

The body is cast as a hollow shell with a short neck at the top, which is threaded internally to take the friction igniter assembly and externally to take the safety cap (1). The cap (1) is made of lead alloy and is threaded internally to screw on to the neck of the grenade. It is serrated externally to provide a good grip and the lower edge is toothed at the surface to engage the cap release lever (15). A rubber washer is inserted between the cap and the body to provide a good seal. The cap is tinned internally.

On one side of the body (11), at top and bottom, are two

6. The cap release lever (13) is a small brass catch pivoted about its centre in a slot in a lug formed in the body diametrically opposite the top anchoring ring. The outer end is flattened at the top to form a thumb piece. A small spiral spring (14) is housed in a recess in the body immediately beneath this thumb piece and bears against its lower surface. In this way the inner end of the lever is held between two of the "teeth" in the cap and therefore prevents it from unscrewing during transit.

The body is loosely filled to a depth of about 1.6-in. with T.N.T. flake. The filling of the two grenades examined here varied slightly. One had thin shining white flakes of T.N.T. whereas those in the other were greenish white in colour.

IGNITER ASSEMBLY

7. This is made up of the following components:-

- (i) The Igniter Body (7).
- (ii) The Friction Fork (6).
- (iii) The Friction Composition Pellets (4).
- (iv) The Safety Fuze (8).
- (v) The Detonator (10).

8. The Igniter Body (7) :- This is made of lead alloy and screws into the neck of the grenade body (11). It has two vertical compartments, one cylindrical and open at the bottom (delay tube), the other rectangular in section and closed at the bottom. The latter is shorter than the cylindrical compartment and accommodates the friction fork (6). The other compartment is the delay tube which houses the safety fuze (8) and to the bottom end of which is fixed the detonator (10). There is a vertical slot in the wall of the delay tube for fixing the detonator.

9. The Friction Fork (6):- This is made of a narrow strip of thin mild-steel plate folded to form two leaves. There is a hole punched at the top end to which is tied a thin cord(2) to facilitate removal of the fork. The leaves are given a thick coating of red phosphorus.

10. The Friction Composition Pellets (4):- The two friction composition pellets are positioned on either side of the friction fork (6) in a recess at the top of the igniter body (7), the larger pellet lying immediately above the safety fuze. The provision of two pellets on either side of the fork ensures certainty of ignition.

11. The Safety Fuze (8):- This is about 1.15-in. long and has a white coating. It gives a delay of 5 to 6 seconds.

12. The Detonator (10):- This consists of an aluminium shell 1.33-in. long and .26-in. diameter with a conical depression at the bottom to produce a hollow charge effect. The safety fuze (8) is inserted into the detonator to a depth of 0.6-ins. The shell is slightly flattened along one side to enable it to be inserted into the slot in the delay tube. After fitting the detonator, the slot is sealed with a thick

The detonator (10) has a bottom filling of 5.4-grs. of C.E. on top of which, inside an inverted aluminium cup, (9) is 2.62 grs. of lead styphnate.

The friction composition pellets are covered by a brass disc (3) which has a hole to allow the friction fork (6) to pass through. This disc is prevented from turning by means of two diametrically opposed slots cut at the circumference which engage two small studs on the igniter body. Above the brass disc (3) is a thick layer of paraffin wax to prevent any ingress of moisture. The hole in the plate through which the friction fork passes is tightly sealed with tin foil to prevent molten wax flowing down through the friction fork and covering the red phosphorus coating.

13. Safety Devices:- Safety Cap . Whilst this is in position, the friction fork cannot be removed.

ACTION

14. The grenade is held in the right hand, the cap release lever is pressed down with the thumb of the right hand and the lead safety cap (1) is unscrewed with the left hand (about $1\frac{1}{2}$ to 2 turns). The pull string for the friction fork (6) is now exposed. The friction fork is pulled out sharply with the left hand and the grenade is at once thrown. While pulling out the fork, the neck of the grenade should be kept away from the hand body.

The grenade has a delay of 5 -6 seconds.

CHEMICAL ANALYSIS

(Chief Inspector of Military Explosives, Kirkee)

15. H.E.Filling (i) T.N.T., M.P. 80°C) Two
(Thin shining white flakes)) natures
(ii) T.N.T., M.P. 81°C) have
(Greenish white flakes)) been
identified.

Friction Compo-) Potassium chlorate,
sition pellets) Potassium chromate,
) Sulphur,
) Binding material, & sand.

Detonator, bottom filling C.E., M.P. 129°C.

Detonator, top filling (in cup) Lead Styphnate.

Sealing composi-)
tion over the) Paraffin wax.
brass plate)

Sealing composi-) Resinous matter of high melting
tion at the slot) point. Quantity insufficient
in the delay) for identification.
tube)

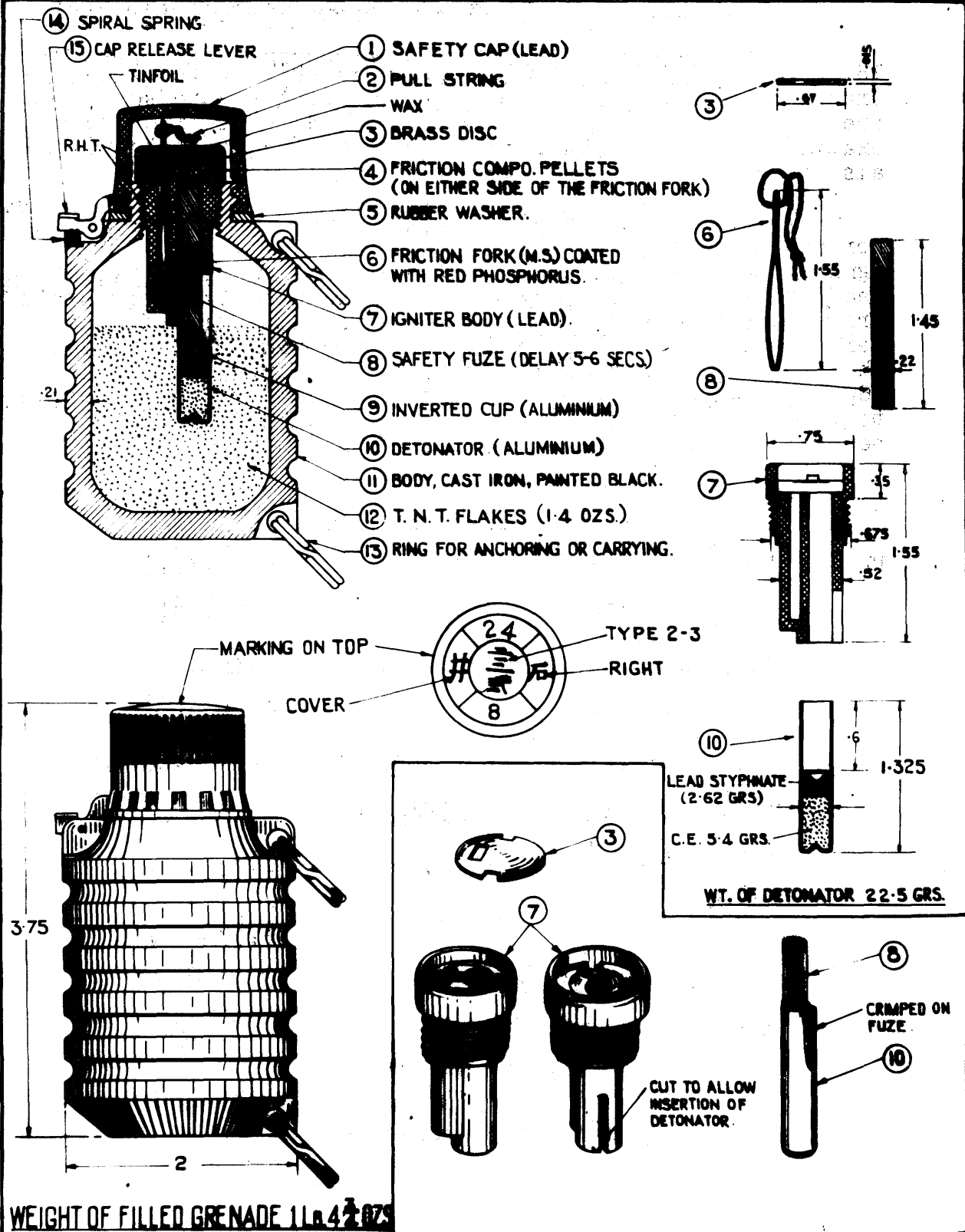
16. The general standard of workmanship of the grenades examined here was good; the cast iron bodies were sound and free from blow-holes. On the other hand one igniter body examined had one quite large hole indicating that there are also castings - probably die-castings.

The friction method of initiation is by no means modern nor can it be regarded as efficient as the percussion type igniter; grenades incorporating this method can, however, be readily adapted for booby traps. Although no fragmentation trials could be carried out here, considerations of body weight, weight of filling and wall thickness indicate that the fragmentation should be comparable with that of the 36M grenade. Moreover, the fact that the body is not completely filled suggests that the quantity of filling used has been chosen so as to give optimum fragmentation.

SUMMARY OF DATA

17.	Length overall.	3.75-ins.
	Length of body without cap.	3.1-ins.
	Maximum diameter over body.	2-ins.
	Weight filled.	1-lb. 4 $\frac{3}{4}$ -ozs.
	Weight of body without cap.	15.6-ozs.
	Nature & weight of H.E. filling.	T.N.T. 1.4-ozs.
	Weight of closing cap.	1.75-ozs.
	Weight of igniter assembly complete.	1.95-ozs.
	Length of safety fuze.	1.45-ins.
	Weight of safety fuze.	12.04-grs.
	Weight of detonator filled.	22.5-grs.
	Weight of friction composition pellets.	3-grs.

REPRODUCED

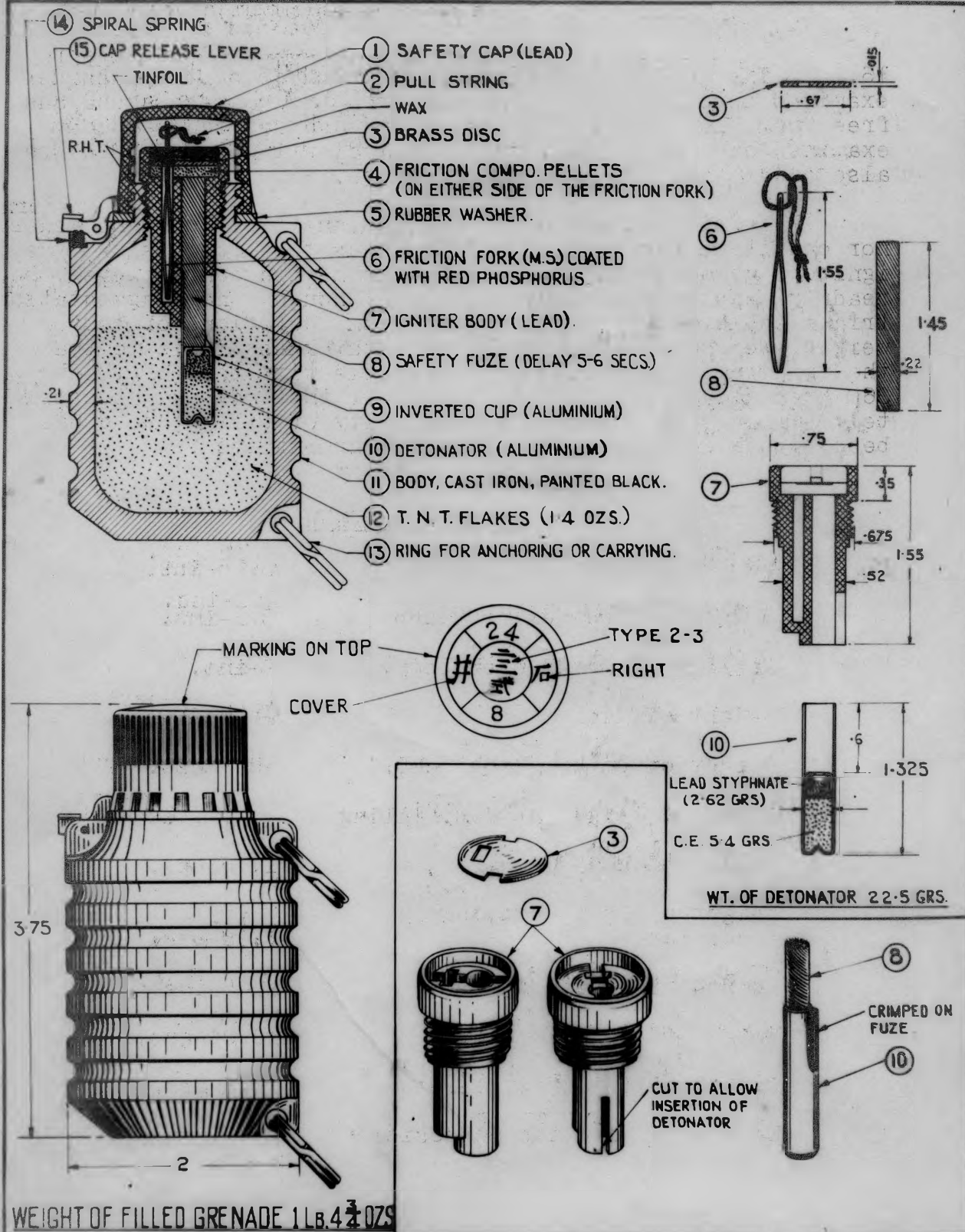


JAPANESE GRENADE, HAND, H.E., PULL TYPE.

(BELIEVED TO BE TYPE 2-3)

DIMENSIONS IN INCHES.

C.I. Arm. 3/12/32
JAPANESE ARMY

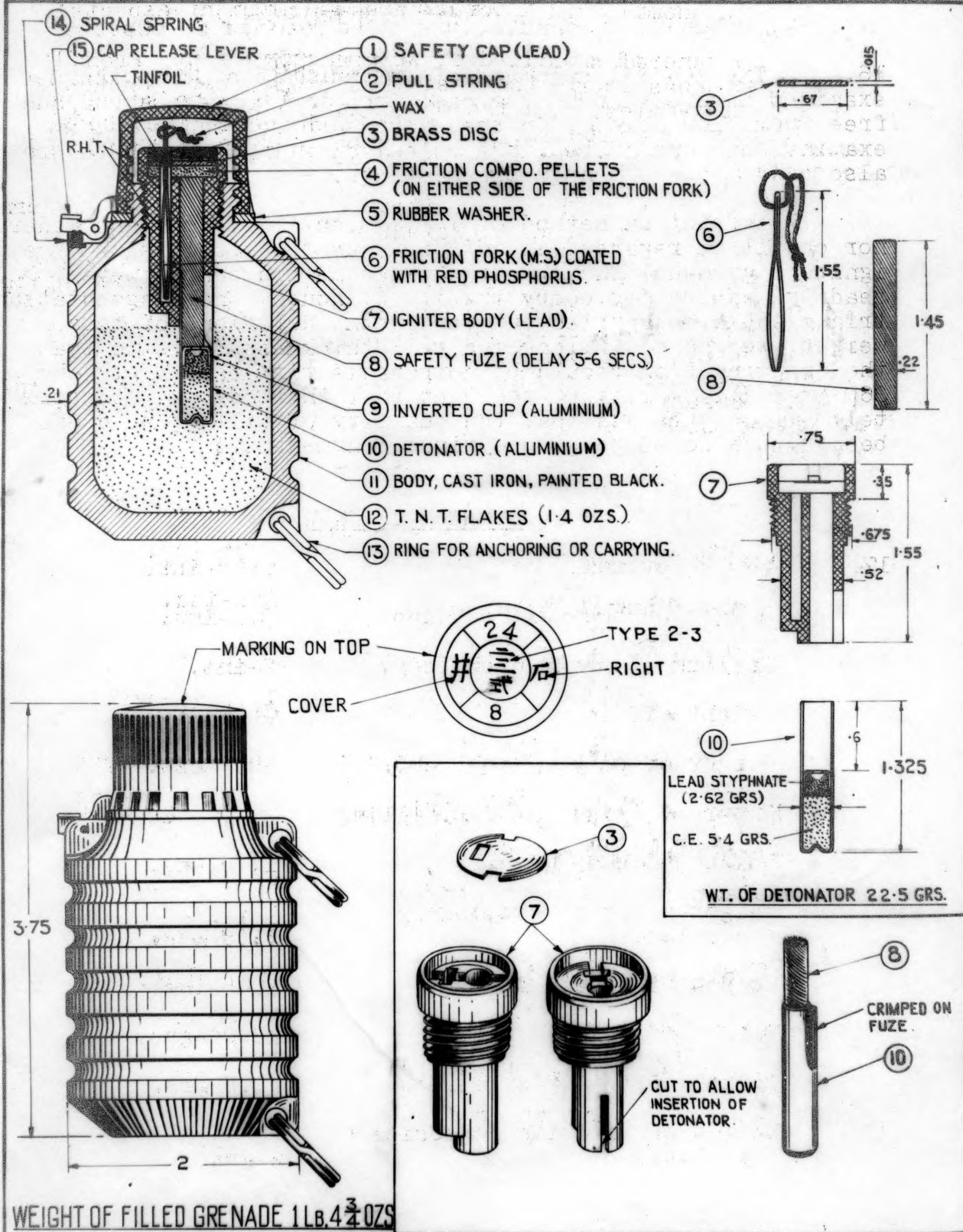


JAPANESE GRENADE, HAND, H.E., PULL TYPE.

(BELIEVED TO BE TYPE 2-3)

DIMENSIONS IN INCHES.

C.I. Arm. 3/1232
JAPANESE AUG 1943



JAPANESE GRENADE, HAND, H.E., PULL TYPE.

(BELIEVED TO BE TYPE 2-3)