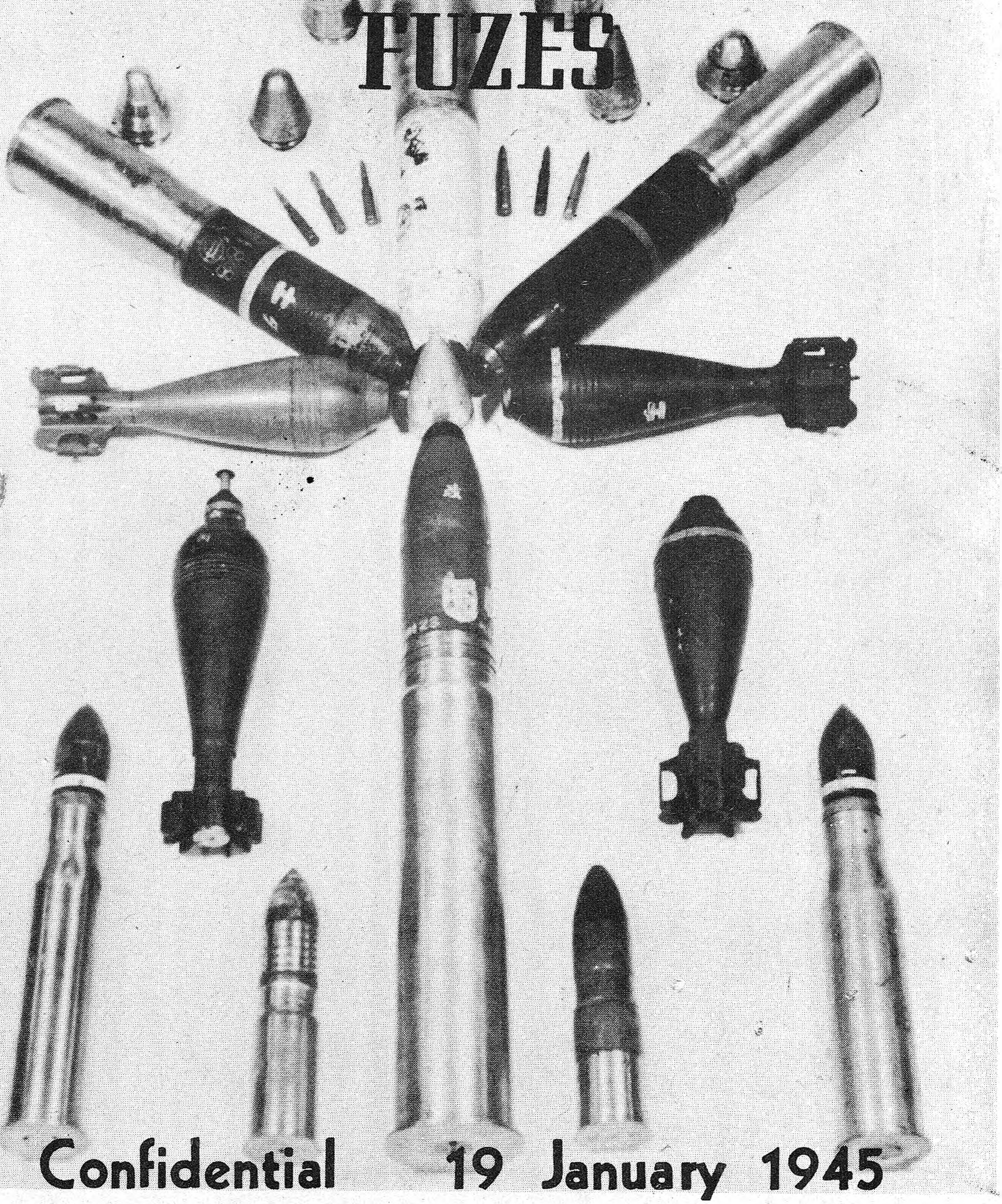
JAPANESE PROJECTILES & FUZES



Confidential 19 January 1945

MOBILE EXPLOSIVES INVESTIGATION UNIT NO. 4

Care of Fleet Post Office
San Francisco, California

There are 39 pages in this set of additions and corrections.

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RESTRICTED ADDITIONS & CORRECTIONS 16 APRIL 1945

to "JAPANESE PROJECTILES AND FUZES" NO. II

- -

There are 27 pages in this set of additions and corrections.

p. ix. I Army Projectiles add: (Major Caliber).

p. x. II Navy Projectiles add: (Major Caliber).

p. 32. at bottom of page add:

Gun Used In:	Overall Lt.(unfuzed):	Lt. of Case:
Type 90 Field Gun.	27.2 inches.	16.7 inches.

p. 36. Fuzes: Delete: Probably type - - - AA Round.
Remarks: Delete all, add:
Remarks: This projectile has been recovered without the copper band at the bourrelet.

p. 40. Fuzes: Delete all, add: Medium Mk. I Base Fuze.

p. 44. Bottom of page "75 mm APHE" delete whole half of page.
(see page 40a)

p. 57. add:
Remarks: A projectile of one piece construction, but otherwise identical to the above has been recovered. The tail section and body were not threaded together but was apparently welded and machined smooth.

p. 67. add:
Remarks: A fuze identical to this one, but made of aluminum has been recovered in an HEI round for 20 mm Ho-5 ACMG.

p. 77. Use: delete: "Not known", add: 40 mm Ho 301.

p. 82. Type: delete all, add: Medium Mk. I Base Fuze.
Use: add: and 75 mm APHE for Type 90 Field Gun.

p. 82a. Operation: delete all. Remarks: delete all, add:
Operation: On setback the setback pin in the shutter moves down against its spring and locks the shutter in the unarmed position until the force of setback is no longer strong enough to hold the pin down. Then the setback pin is forced forward by its spring, unlocking the shutter so it can move out upon centrifugal force. The two (2) creep detents fall forward in front of the shutter pins when the shutter is in the armed position. Centrifugal force also causes the detents to free the striker.

p. 91 bottom, "13 mm AA Projectile" delete all.

p. 110. Guns Used In: delete: 40 cal 8 cm Mk. 2 add:
40 cal. 8 cm Coast Defense Gun.
delete: Overall Lt.: 370 mm.
add: Remarks: Designated 8 cm by the Japanese, but actually measures 3 inches.

p. 111. Guns Used In: delete: "AA" add:
8 cm 40 Cal Dual Purpose Gun.
add: Remarks: Designated 8 cm by the Japanese, but actually measures 3 inches.

p. 124. at top of page add:
Type: H.E. Anti-Aircraft, Anti-Sub Dual Purpose.
Source: Change No. 17 to No. 38.
Wt. of Loaded Projectile: replace 120 lb. with 101 lb.

p. 125. Guns Used In: add: and mobile tube launcher. **RESTRICTED**

p. 126. add: Color: Blue-grey overall with red band on after end of base cap.

add: Data:

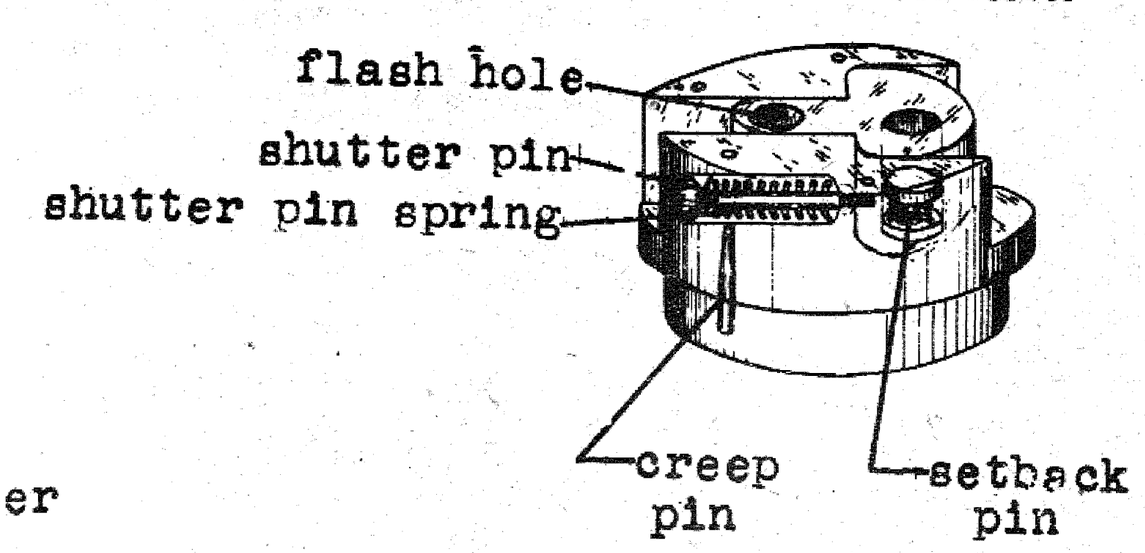
Overall Length: 33 inches.
Maximum Diameter: 7.9 inches.
Lt. of Propellant Cylinder: 11.5 inches.
Dia. of Propellant Cylinder: 7.4 inches.
Length of Tail Fins: 11.8 inches.
Width of Tail Fins: 3.6 inches.
Wt. of Propellant: 5.7 kg.

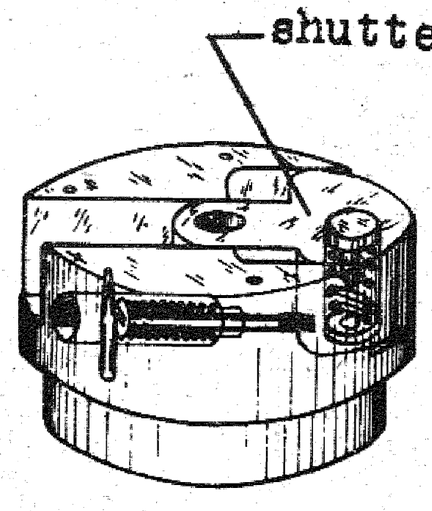
p. 135, Type: Delete all, add:
Type 88 Modification 2 Projectile Fuze.
Change: Picture title, delete all, add:
TYPE 88 MODIFICATION 2 PROJECTILE FUZE
Description: after last sentence, add:
The gaine threads onto the base plate.

add: Remarks: A safety pin fits into the base of the fuze and passes through the plunger returning sleeve and setback plunger. This pin is removed before the fuze is put into the projectile.

p. 82a, Delete pictures shown and add the following cross sections:

DURING SETBACK





FULLY ARMED

MOBILE EXPLOSIVES INVESTIGATION UNIT #4
c/o Fleet Post Office
San Francisco, Calif.

This publication is a compilation, from numerous sources, of pertinent information on recovered Japanese projectiles and fuzes and is intended as a reference for Bomb Disposal personnel.

It is not an official publication, but all information contained herein is believed to be accurate as of 19 January 1945.

A. B. Haley

A. B. HALEY
Lieutenant, USNR
Officer-in-Charge

GLOSSARY

1	一	or 壹
2	二	or 貳
3	三	or 參
4	四	
5	五	
6	六	
7	七	
8	八	
9	九	
0	○	or 零
10	十	or 一○
20	廿	
30	卅	
100	百	
A	甲	
B	乙	
C	丙	
D	丁	
Taisho	大正	
Showa	昭和	
Year	年	
Month	月	
Type	式	
Mark	號	
Model	型	
Modif	改	
Number	番	
Army	陸軍	
Navy	海軍	
mm.	粍	
cm.	糎	
Gram	瓦	

Kg.	瓩
Caliber	口徑
Explosive	爆藥
Rocket	×箭
Experimental	試製ノ
Mortar	臼砲
Pyrotechnic	信號彈
Projectile Fuze	信管
Instant. (Fuze)	瞬發
Combination (Fuze)	複動
Short Delay	短延期
Time	曳火
Projectile	弓單丸 or 包弓單
Projectile Case	藥筒
Smoke Shell	發煙弾
Incendiary	燒夷
Illuminating	照明
A.P.	破甲彈 or 徹甲彈
Target	目標彈
H.E.	榴
Common	普通
A/T	對戰車
Sand Filled	填砂弾
Shrapnel	榴霰
Incendiary Shrapnel	燒霰
Practice	代用
Semi-steel Cast	鋼性鉄
Gun	砲
L.M.G.	車亞機關銃
H.M.G.	重機關銃
Automatic (gun)	自動砲
Howitzer	榴彈砲

Mountain Gun	山砲
Field Gun	野砲
Cavalry Gun	騎砲
Anti-Aircraft	對空 or 高射砲
D.P.	高角砲
Infantry Cannon	平射步兵砲
Infantry Mortar	曲〃〃〃
Grenade Thrower	擲彈筒
Rifle	步銃
Pistol	拳銃
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JAPANESE PROJECTILES & FUZES

Introduction:

I. Army Projectiles.

(a) H.E. The original color scheme for H.E. projectiles was black overall with a small red band at the nose to indicate the projectile was loaded. A yellow band was located just aft of the bourrelet if the projectile was loaded with a cast or hard pressed explosive. If it was loaded with a small grain explosive there was no band in this position. Just above the rotating band were color bands to indicate the material of the shell. These were white for high grade steel, green for low grade or semi-steel, and no band for cast iron. Many projectiles may still be found painted in this manner. The newer color scheme eliminates the least important or least obvious of the two (2) color bands. Thus an H.E. shell will usually have only the yellow band and the red nose band while a semi-steel H.E. shell will have only a green band and red nose band.

(b) A.P. Most armor piercing projectiles are filled with explosives that cannot be cast or pressed into the cavity, e.g.; cyclonite (RDX) and PETN. In such cases only a white band will be present. Large caliber AP projectiles may have a cast or hard pressed explosives filling (e.g.; 310 mm APHE). In this case only the yellow band will appear on the outside.

(c) Shrapnel. The projectiles are black overall and usually have a red band between the rotating band and bourrelet, and a red nose band. The explosive is usually black powder, hence no yellow band.

(d) Converted Projectile. Projectiles which have been manufactured for a specific purpose and later modified for another purpose (e.g.; shrapnel to HE) will have most of the nose forward of the bourrelet painted white. Other markings will indicate its use after modification.

(e) Chemical Projectiles. The markings of chemical filled projectiles are not consistent. Incendiary shells may be grey overall as most chemical filled shells are, but have been found painted black with only a red nose tip. A mortor shell, 75 mm vomit gas shells and 75 mm blister gas shells, have been found painted grey overall with red and blue bands on the nose. The red band indicates explosive filled and blue band indicates gas filled. Definite evidence is lacking but chemical shells are thought to be painted grey overall with the following color bands on the body to indicate the type of chemical used:

white	-	screening smoke
green	-	tear gas
blue	-	choking gas
yellow	-	blister gas
red	-	vomit gas
brown	-	blood and nerve poisons.

Usually an H.E. burster charge is used and a yellow band will be present. A white band just above the rotating band may also be found. Both bands are in addition to the gas content markings in the old color system. In the new system these latter two bands are eliminated. Smoke screening shells and incendiary shells usually contain white phosphorus which is ignited upon contact with air.

(f) Miscellaneous. Other types of shells are very scarce but the following characters will be found between the rotating band and bourrelet on special types with the body painted in the colors indicated.

Kind	Character	Body Color
smoke	ケ	white
incendiary	ヤ	red
illuminating	ア	green
target	モ	white
communication	フ	white
sand filled	ス	white

II. Navy Projectiles.

(a) H.E. Many Naval common projectiles are base fuzed only. The nose has a short ogive and is pointed. Some of these common projectiles are also capped. Other H.E. projectiles are nose fuzed but none have been recovered which were both nose and base fuzed. H.E. projectiles are painted maroon overall and have a 3" green band at the nose tip and a yellow band on the body. A red tip on the nose indicates a base fuze. The projectiles of fixed ammunition are not painted below the rotating band. Navy H.E. projectiles very often have a base plate and are loaded through the base with performed explosive blocks.

(b) A.P. Armor Piercing projectiles are painted white overall with a green band at the nose and a red tip to indicate base fuzed.

(c) Practice. These projectiles are black overall and have a yellow nose if they have been converted for practice from other types. Practice projectiles are usually inert and filled with sand, saw-dust or iron filings.

(d) Miscellaneous.

Kind	Body Color
Illuminating	blue
Shrapnel	grey
Target	green
Smoke tracer	red.

III. Conversion figures.

2.2 lb. = 1 Kg.	25.4 mm = 1 inch
.4545 Kg. = 1 lb.	.3937 inches = 1 cm (10 mm)

JAP ARMY PROJECTILES

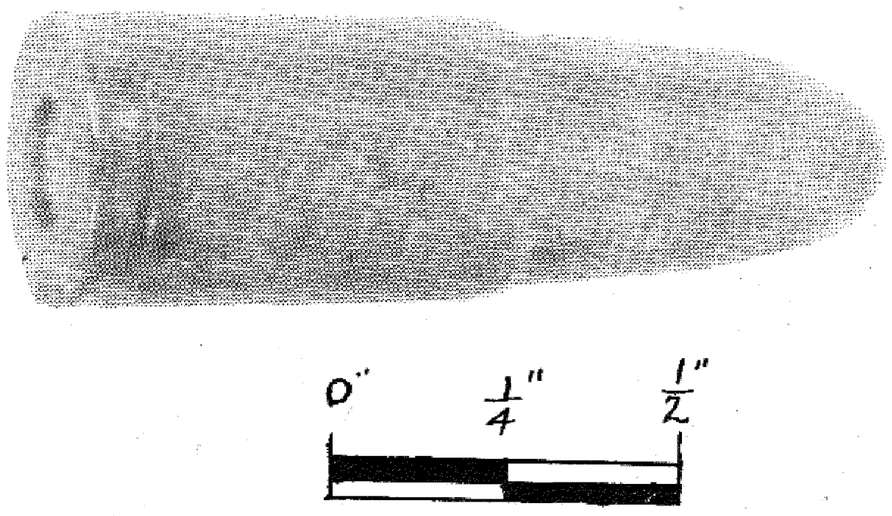
General Description: All army small arms ammunition excepting pistol ammunition is marked as to type by a painted band around the crimp. In dismantling, care should be taken in exploding the pressed-in primers since they often are blown out when detonated.

---

8 MM AMMUNITION

Type: Pistol Ammunition.

Source: Japanese Infantry Weapons.



Description: The projectile for this round is CuNi jacketed with a lead core. The propelling case is rimless and made of brass. Only one round, i.e., ball, is known to be used.

Data:

Gun Used In: Nambu Pistol.
Type 14 Pistol.
Type 94 Pistol.
Jap "solothurn" Sub-machine gun.

Overall Lt.: 1 1/4 inches.

Lt. of Case: 13/16 inch.

JAPANESE PROJECTILE & FUZES

INTRODUCTION:

I. Navy Projectiles.

(a) Small arms are marked as to type by a painted primer and are generally used in aircraft guns.

(b) The color scheme of large calibre projectiles is believed to be as follows:

overall maroon with green nose - H.E.
black with yellow nose - - - - - Practice
red tip - - - - - - - - - - - - - Base fuzed.
overall blue - - - - - - - - - - Illuminating.
white with green nose - - - - - A.P.

(c) Many common navy projectiles are capped and should not be confused with armor piercing rounds.

(d) Navy projectile gaines are considerably larger than army gaines.

(e) On navy projectiles there will be stamped into the body the naval arsenal mark and an anchor  .

II. Army Projectiles.

(a) Basic color is black overall, red nose indicating H.E. loaded.

(b) White ballistic markings on projectile indicate overweight or underweight (— underweight, ± approximately correct weight, + + overweight).

(c) Stamped on the body of army projectiles will be the arsenal mark and crossed cannons  or a star ☆.

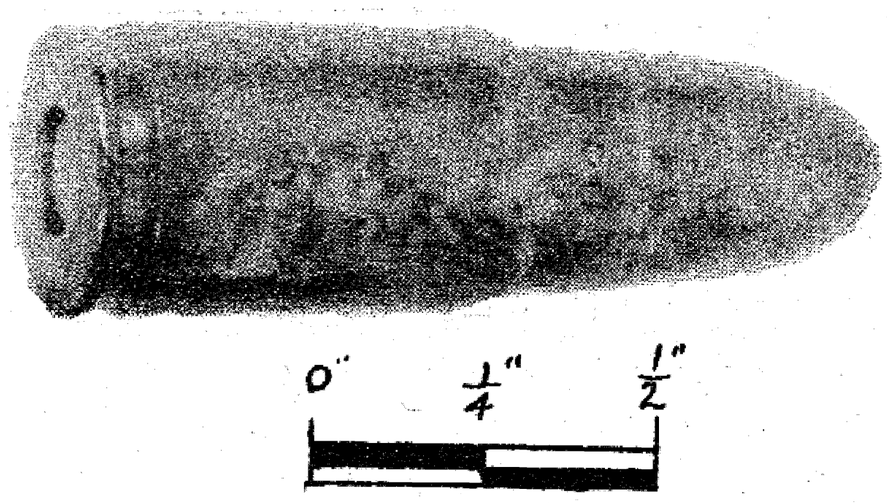
General Description: All army small arms ammunition excepting pistol ammunition is marked as to type by a painted band around the crimp. In dismantling, care should be taken in exploding the pressed-in primers since they often are blown out when detonated.

---

8 MM AMMUNITION

Type: Pistol Ammunition.

Source: Japanese Infantry Weapons.



Description: The projectile for this round is CuNi jacketed with a lead core. The propelling case is rimless and made of brass. Only one round, i.e., ball, is known to be used.

Data:

Gun Used In: Nambu Pistol.
Type 14 Pistol.
Type 94 Pistol.
Jap "solothurn" Sub-machine gun.

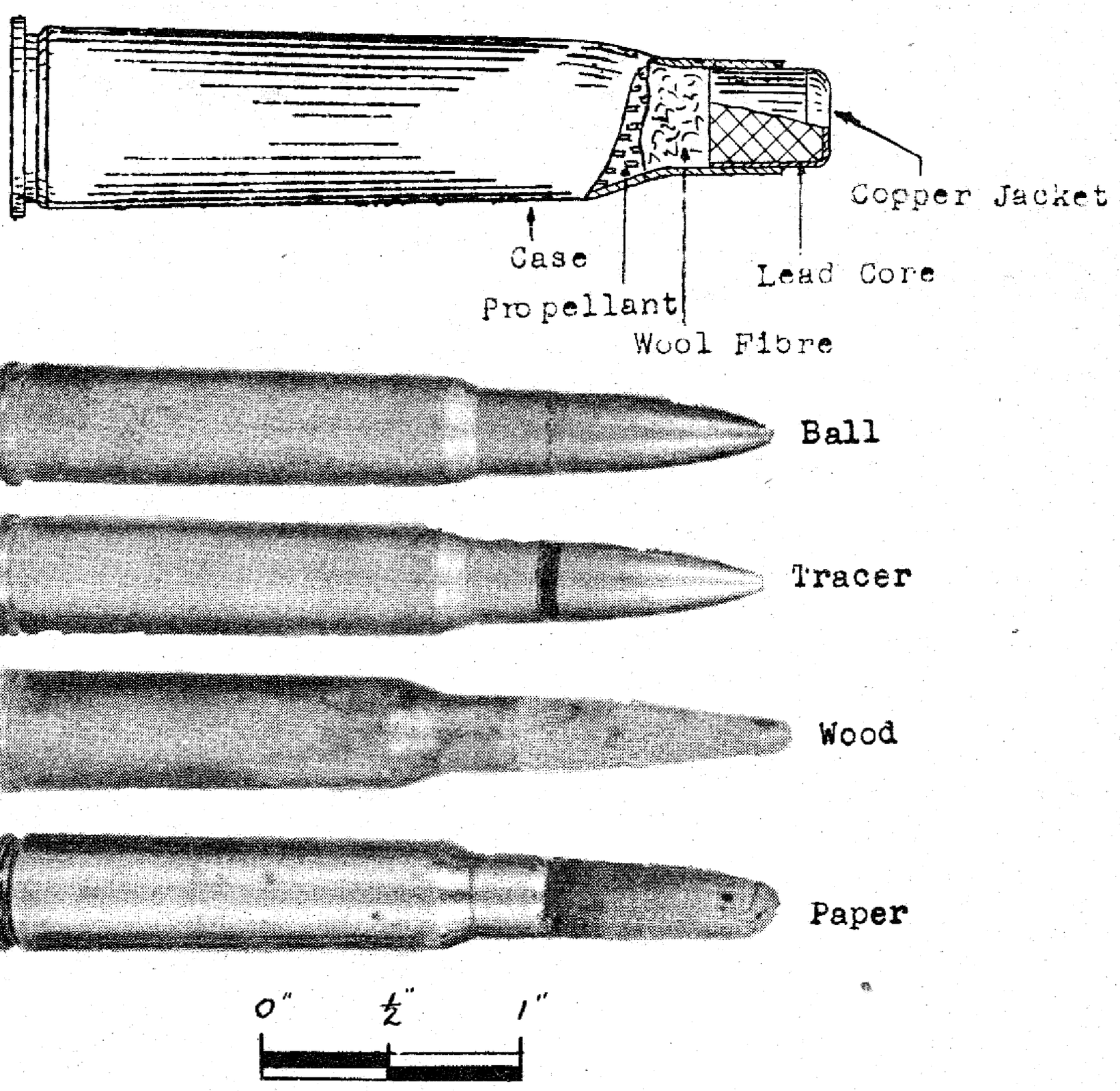
Overall Lt.: 1 1/4 inches.

Lt. of Case: 13/16 inch.

Type: 6.5 mm Type 38 Ammunition.

Source: Army & Navy Intelligence Reports and recovered rounds.

JAPANESE 6.5 MM SNUB-NOSED ROUND



Color:	Type	Bands	Proj. Jacket	Proj. Core
	Ball	pink	CuNi	lead
	Ball	pink	Steel	lead
	Blank	wood		
	Blank	paper (purple)		
	Tracer	green	CuNi	lead.

Data:

Gun Used In: Type 38 rifle
Type 44 rifle
6.5 Snipers rifle
Type 38 carbine
Type 38 heavy machine gun
Type 3 heavy machine gun.

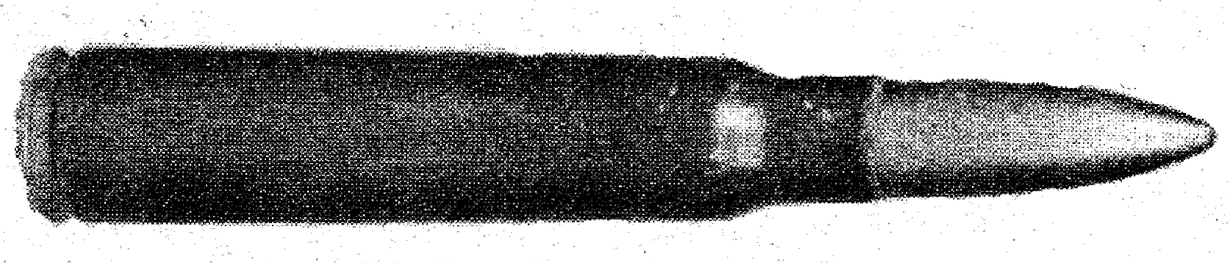
Overall Lt.: 3 inches.

Lt. of Case: 2 inches.

Remarks: Ammunition when used in rifles and light machine guns will be found in clips of 5 rounds each. When used in the heavy machine guns it will be found in feeder strips of 30 rounds each. The wooden bullet round is used with the rifle to launch the rifle smoke grenade. The paper bullet round is believed to be used to launch rifle grenades. The propelling powder used in the blank rounds is nitro-celluslose while in the other rounds it is grafite-coated nitro-celluslose.

Type: Type 92 Semi-rimmed.

Source: Army & Navy Intelligence Reports and recovered rounds.



H.E. ROUND

Color:	Type	Color	Proj. Jacket	Proj. Core
	Ball	pink	CuNi	lead
	Tracer	green	CuNi	lead
	A.P.	black	CuNi	hard steel
	Incend.	wine red	CuNi	W.P. & lead
	H.E.	deep purple	CuNi	PETN & lead.

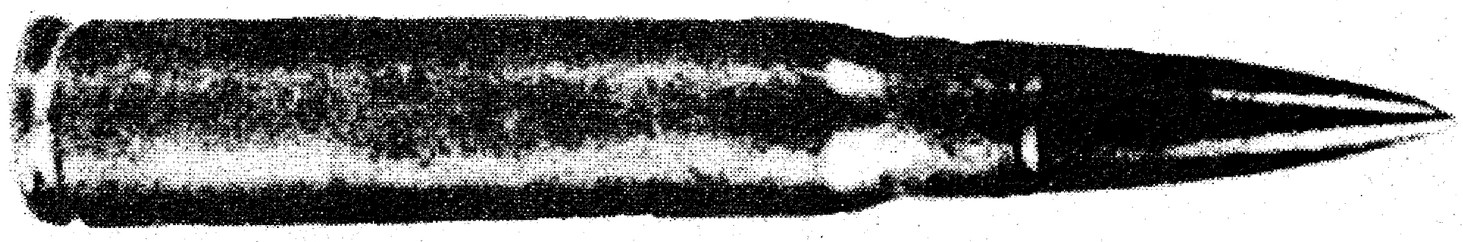
Data:

Gun Used In: Type 92 heavy machine gun.
Type 89 machine gun - A/C.
Overall length: 3.15 inches.
Lt. of Case: 2 1/4 inches.

Remarks: Type 92 heavy machine gun uses feed strips of 30 rounds.

Type: Type 99 rimless.

Source: Army & Navy Intelligence Reports and recovered rounds.



A.P. ROUND

Color:	Type	Bands	Proj.Jacket	Proj. Core
	Ball	pink	CuNi	lead
	Tracer	green	CuNi	lead
	A.P.	black	CuNi	hard steel.
	blank	wood		
	blank	paper (purple)		

Data:

Gun Used In: Type 99 rifle.
Type 96 light machine gun.
Type 99 " " " .
Type 92 heavy " " .
Overall Lt.: 3 1/8 inches.
Lt. of Case: 2 1/4 inches.

Remarks: Two (2) type cases, i.e., brass or steel, clips of five (5) for rifle and light machine gun - feed strips of 30 rounds for heavy machine gun.

7.92 MM AMMUNITION

Type: Aircraft Machine Gun - Rimless.

Source: Japanese Aircraft Ammunition.

Color:	Type	Color	Proj.Jacket	Proj. Core:
	A.P.	black	CuNi	hard steel
(W.P.)	Inc.	red	CuNi	W.P. & Lead
(PETN)	H.E.	white	CuNi	PETN & Lead.

Data:

Gun Used In: 7.92 Type 98 Machine Gun - A/C
7.92 Type 100 " " "

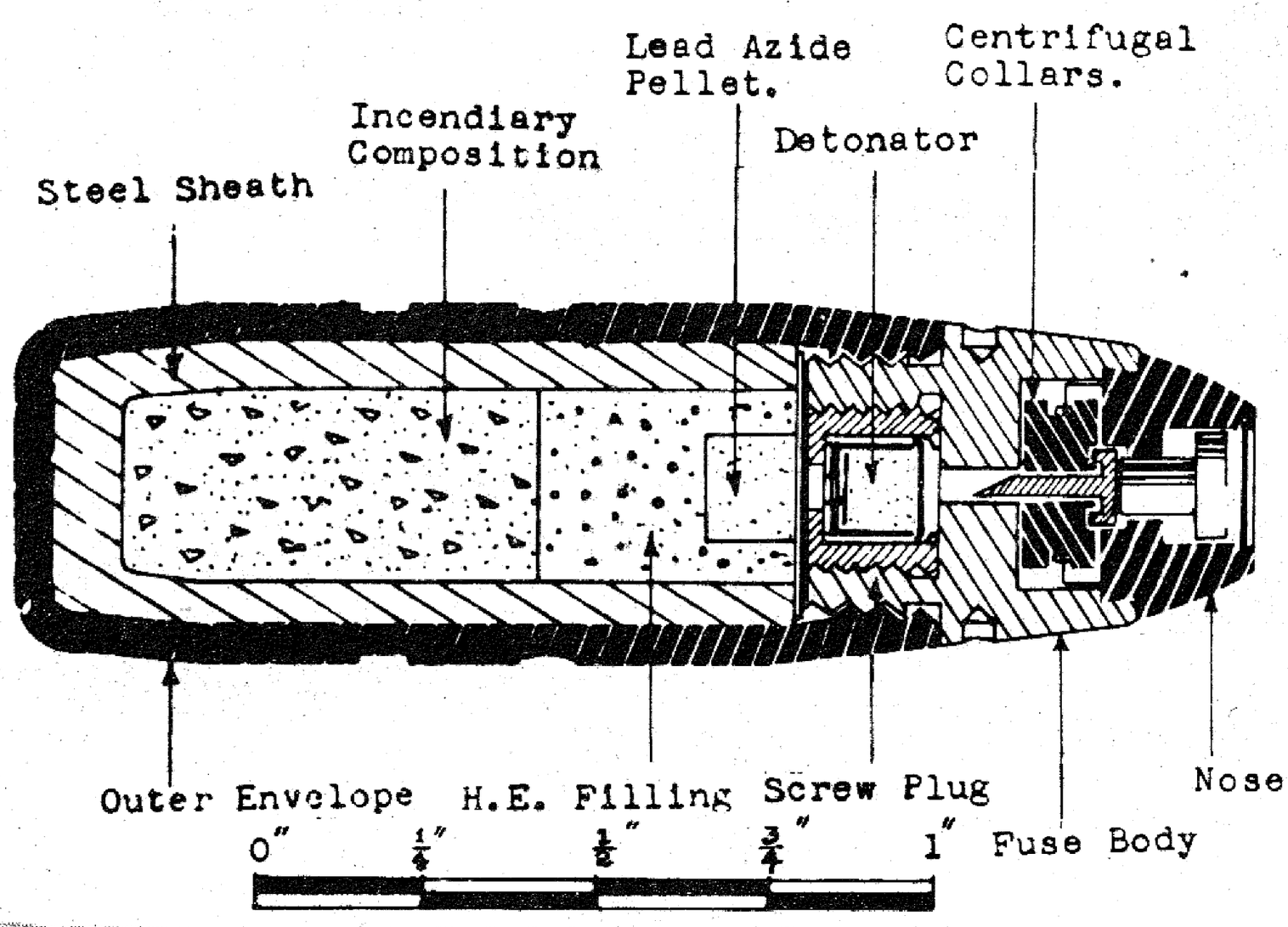
Overall Lt.: 3.15 inches.

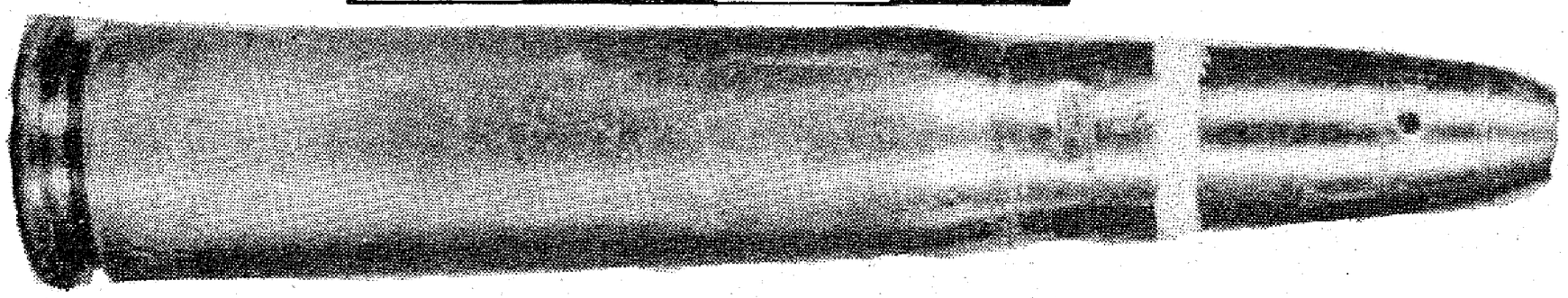
Lt. of Charge: 2 1/4 inches.

Type: Browning Type Machine Gun - Semi-rimmed aircraft.

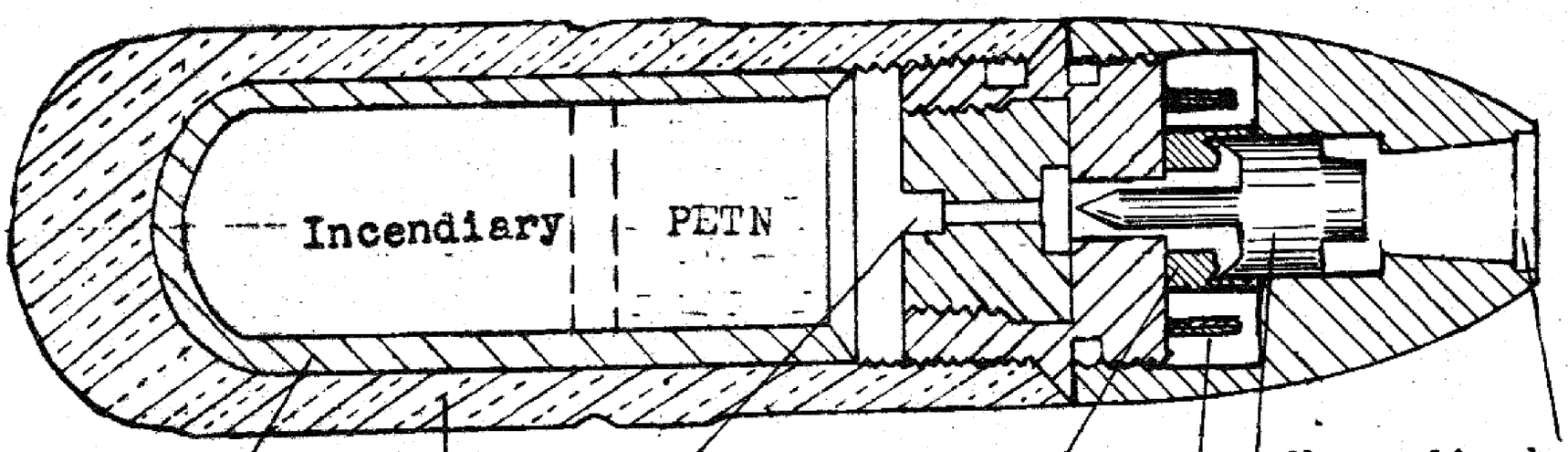
Source: M.E.I.U. #1 Report No. 28, Jap Aircraft Ammunition.

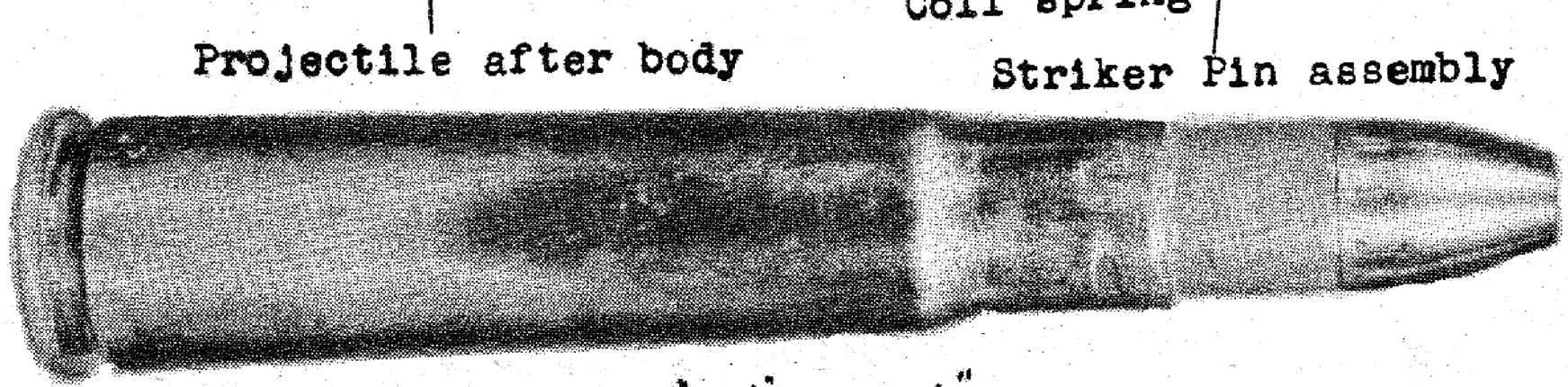
JAPANESE HE / INCENDIARY PROJECTILE (FUSED)





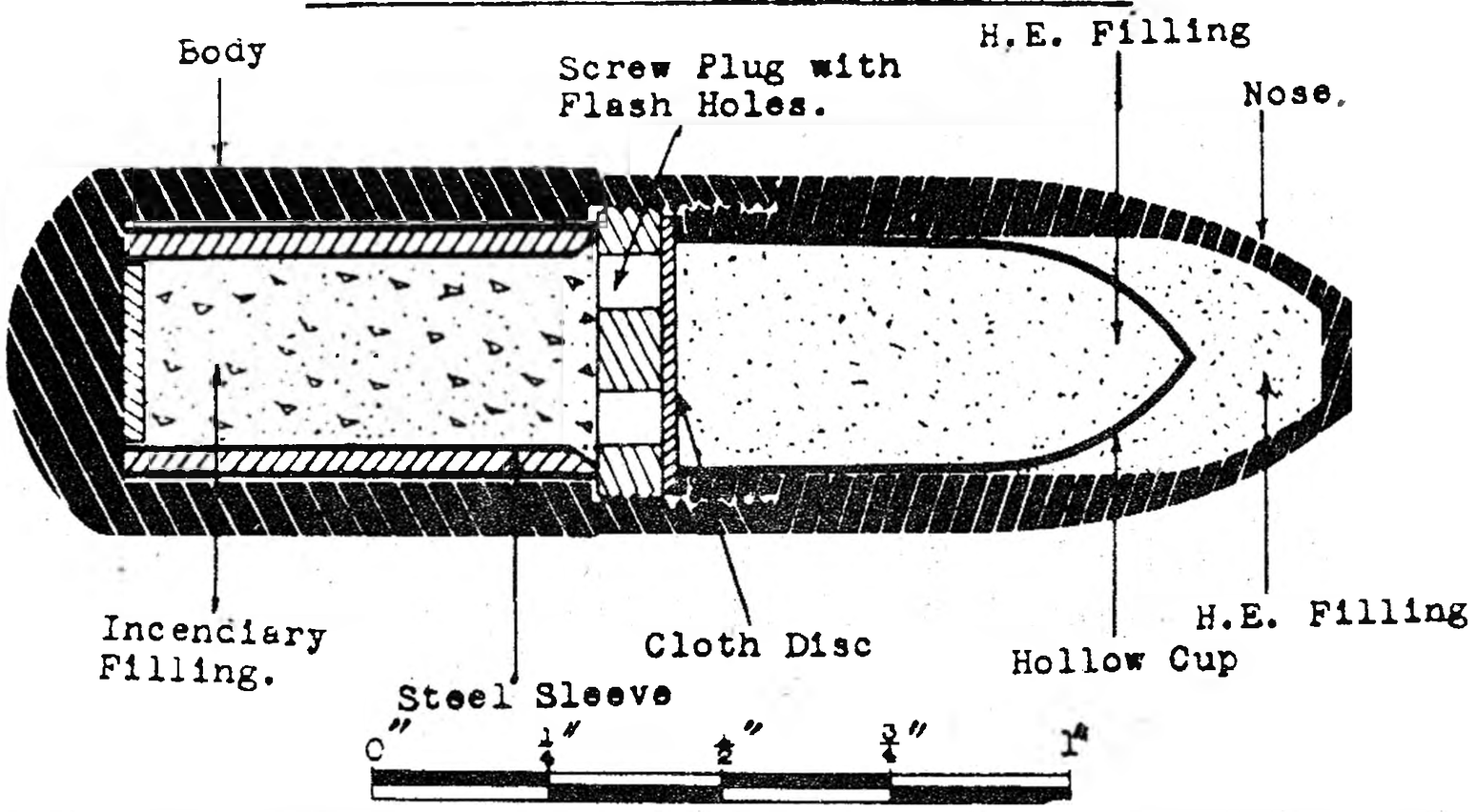
ITALIAN HEI

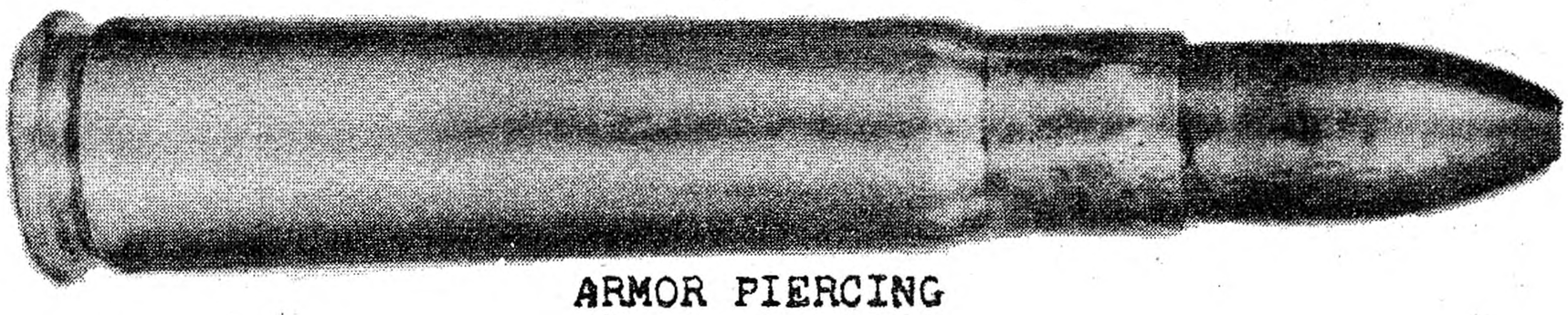




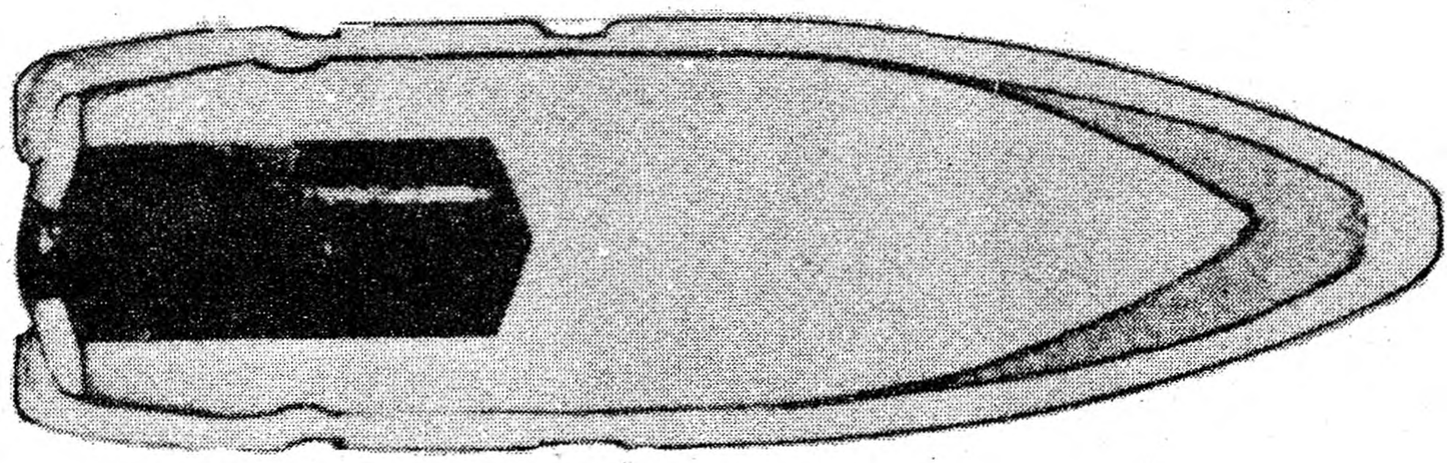
12.7 mm Ammunition (Continued)

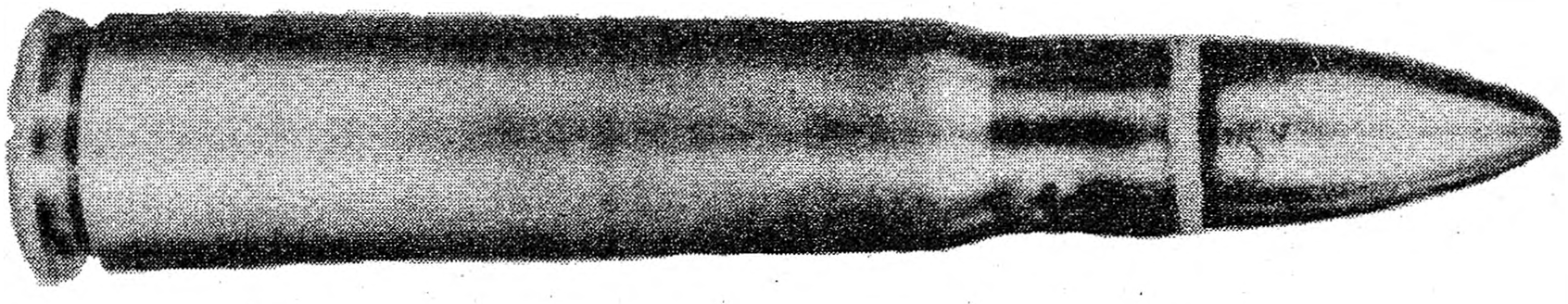
HE/INCENDIARY PROJECTILE (FUSELESS)





ARMOR PIERCING





Description: This ammunition was copied by the Japanese from the Italians. Of the two (2) HEI fuzed rounds, one is Italian and the other is a Japanese copy of it. The Japanese HEI fuzed differs from the Italian round in that the fuze used is of two (2) piece construction instead of one.

Color:	Type	Color Bands
	Ball	red
	APT	black
	APT	green and white
	HEI Fuzed	red, green, or blue body
	HEI	deep purple
	HEI Fuzed	white.

Filler
HEI - PETN and Incendiary Mixture.

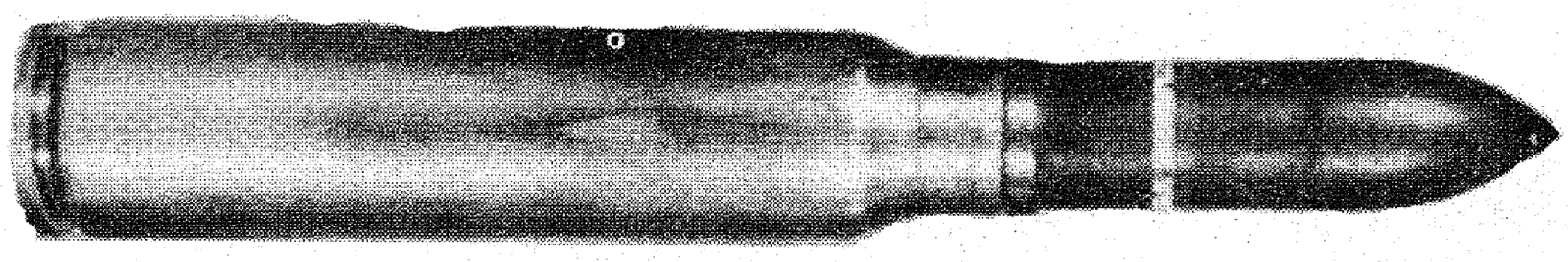
Data:

Gun Used In: 12.7 Browning Type Machine Gun - A/C.
Overall Lt.: 4.18 inches.
Lt. of Case: 3 3/16 inches.
Fuzes: Italian 12.7 mm Fuze or Japanese 12.7 mm Fuze.

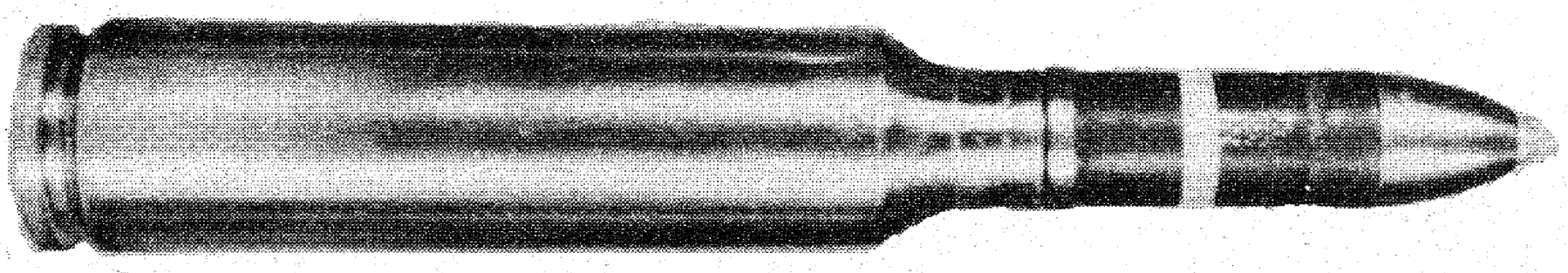
General Description: The Japanese army is known at the present to be using four (4) different types of 20 mm ammunition; three (3) of their own design, and one of German design.

The German rounds, or Jap copy, are used in a Mauser machine gun 151/20 aircraft cannon. Standard German coloring, marking, and fuzing is used.

Of the three (3) Japanese rounds, the Type 97 and Type 98 are well known. The Type 97 is used in the Type 97 A/T gun, and a modified Type 97 aircraft gun. The Type 98 is used in the Type 98 A.A. A/T gun. The Two (2) types of ammunition differ in the size of the propelling cases, the Type 98 propelling case being longer and wider than the Type 97. The projectiles used in both types of ammunition are the same size and appear to be inter-changable with either Type 97 or Type 98 cases. The projectile body is colored black, with different combinations of colored bands to indicate projectile filler. Japanese characters on case refer to date and place of manufacture of case and to the gun using the round. Characters on projectile pertain to date and place of manufacture and to design of projectile.



TYPE 97



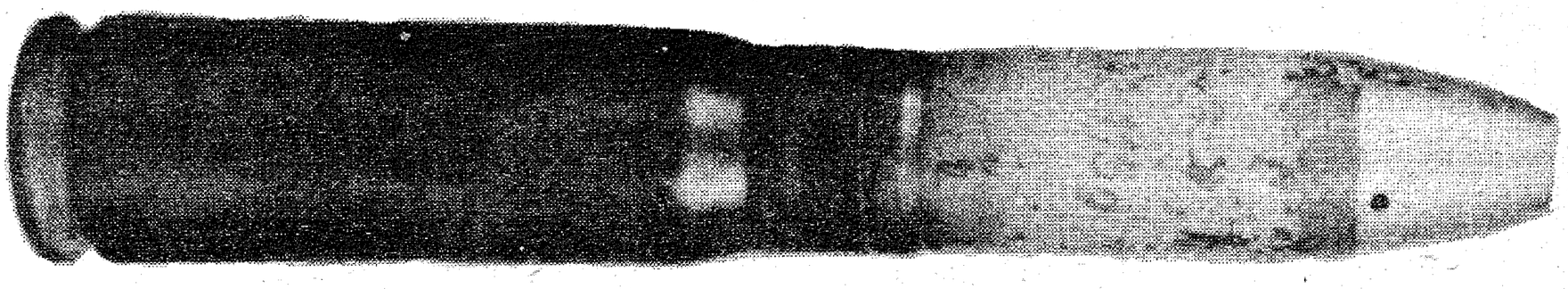
TYPE 98

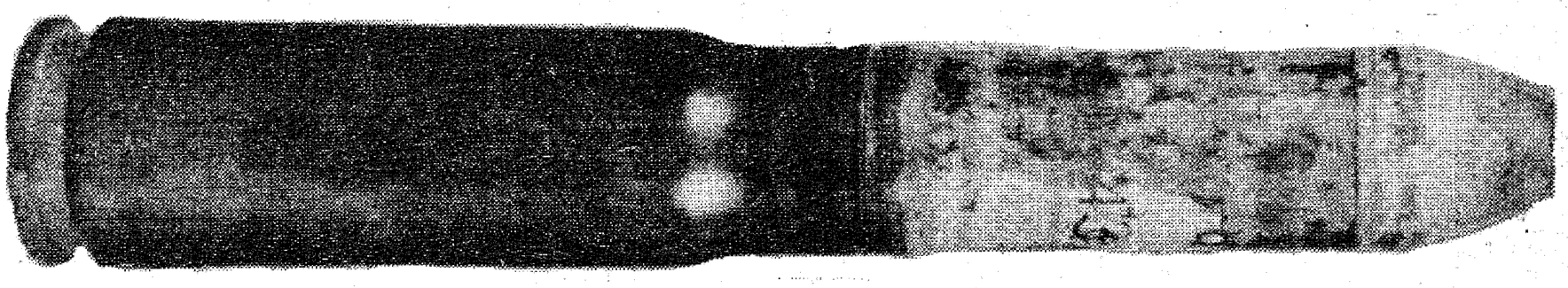
The third Japanese manufactured 20 mm round has been recovered only recently. It is used in an aircraft gun on Army planes. The gun is marked the ホ五 (HO-5). This new ammunition would be called HO-5 ammunition.

20 MM AIRCRAFT CANNON PROJECTILE

Type: Mauser (German Round).

Source: Japanese Aircraft Armament.





Color:	Type	Color	Wt.
	A.P.	Black body, no fuze.	115 gms.
	H.E.	yellow body, blue & red band	86.4 in.
	A.P.H.E.	black body, wide yellow band,no fuze	116 in.
	H.E.I.	yellow body, green & red band	113 in.
	H.E.I.	yellow body, green band below fuze	?
	A.P.I.	black body, blue band, no fuze	116 in.

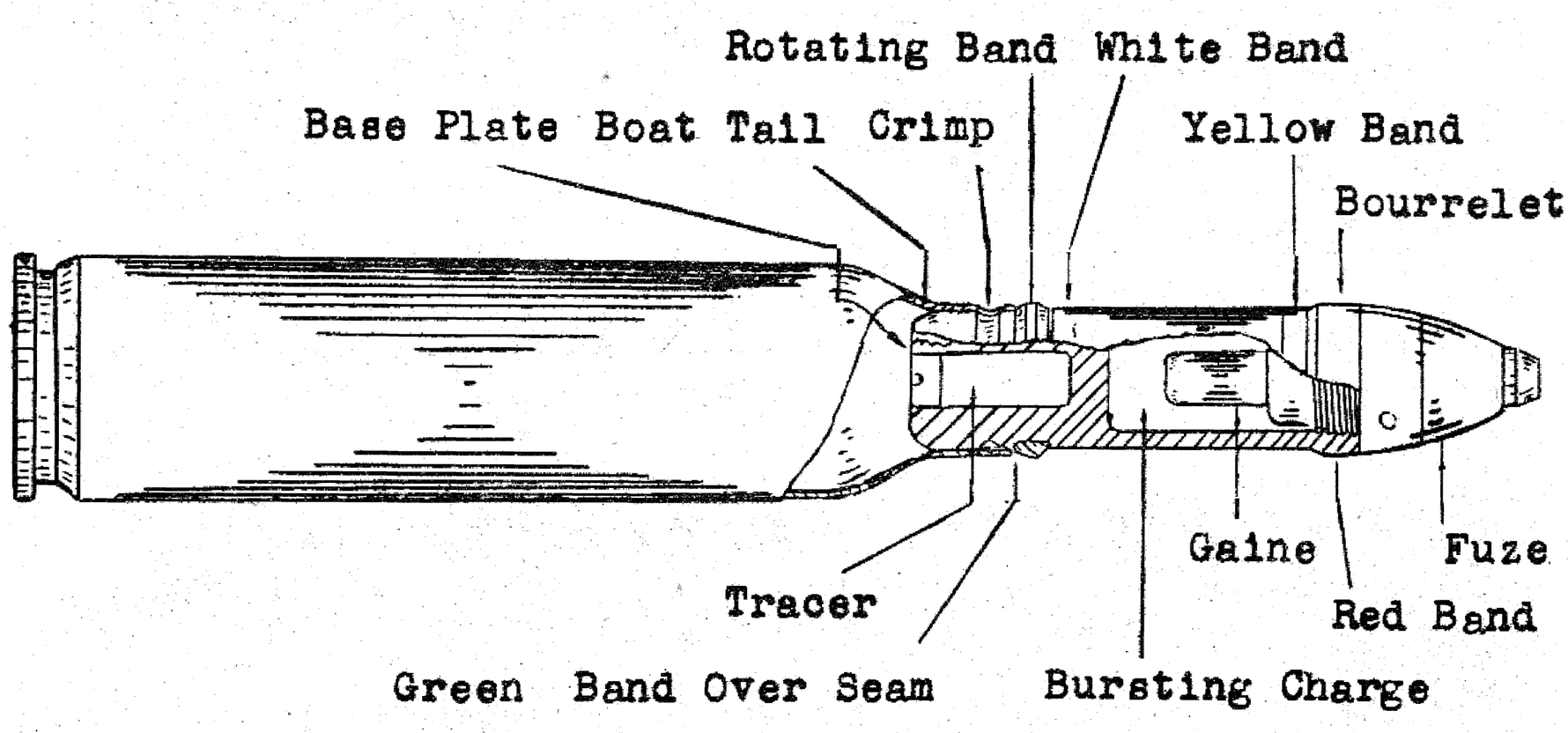
Data:

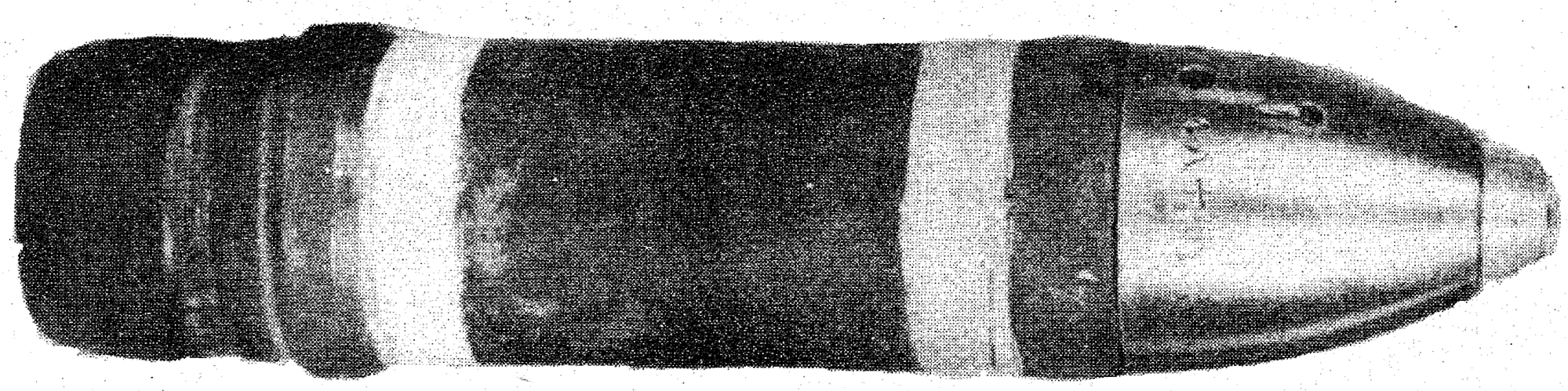
Gun Used In: Mauser (Machine gun 151/20-German Guns).
Overall Lt.: 5.75 inches.
Lt. of Case: 3 3/16 inches.
Fuzes: AZ - 1504 or AZ - 1505.
Type of filling: PETN and Flash type incendiary.

Type: HET.

Source: M.E.I.U. #1 Report No. 91.

JAPANESE 20 MM HIGH EXPLOSIVE - TRACER ROUND





Description: This projectile is made of steel with two (2) cavities separated by a septum. The round is characterized by a sharp bourrelet. The main charge cavity is filled with cyclonite. It has a red tracer.

Color: Black body. Yellow band just aft of bourrelet. White band forward of rotating band.

Data:

Gun Used In:	Overall Lt.:	Lt. of Case:
Type 98 A.A. A/T	8.2 inches	5.5 inches.

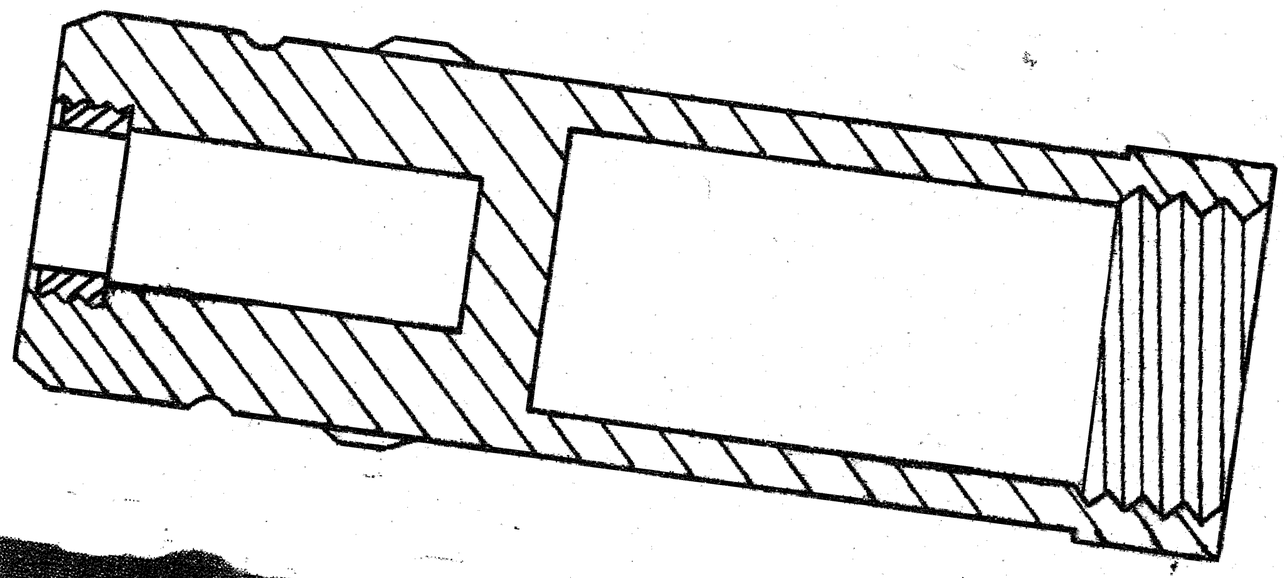
Fuzes: Type 93.

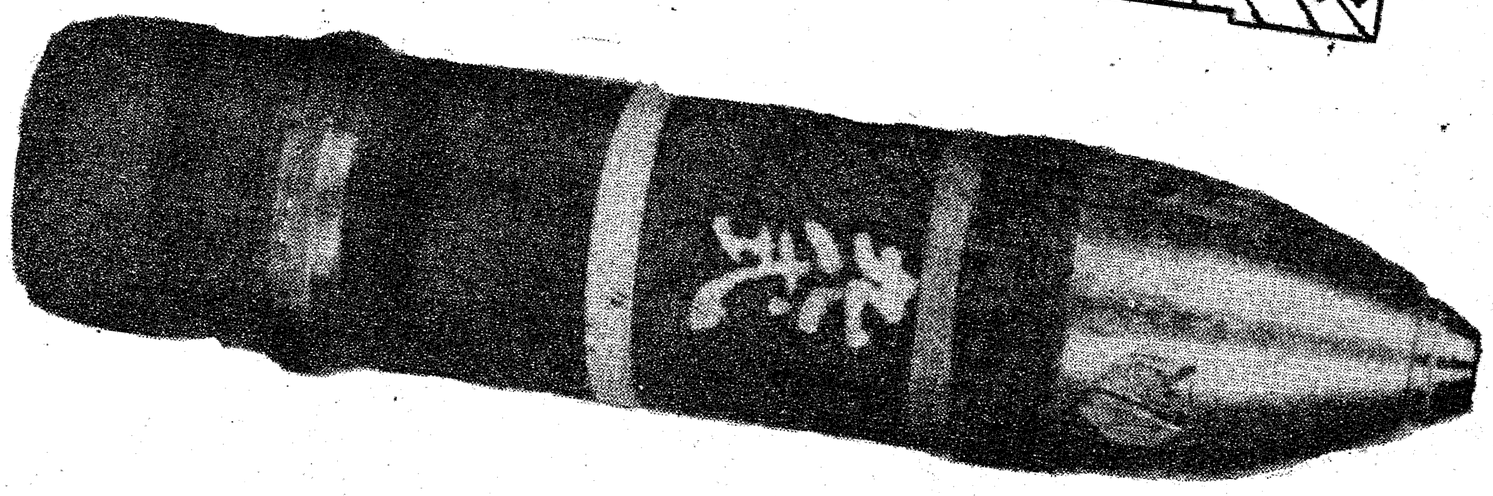
ARMY

20 MM PROJECTILE

Type: HET.

Source: M.E.I.U. #1 Report No. 91.





Description: A steel casing with two (2) cavities separated by a septum. The projectile is characterized by a sharp bourrelet. With different markings, and tracer colors, it is used in different guns.

Color: Black body. Red band just aft of bourrelet. Green and yellow band forward of rotating band.

Data:

Gun Used In:	Overall Lt.:	Lt. of Case:
Type 97 A/T	7.6 inches	4.87 inches.
Type 98 A.A. A/T	8.2 inches	5.5 inches.

Fuzes: Type 93 nose impact.

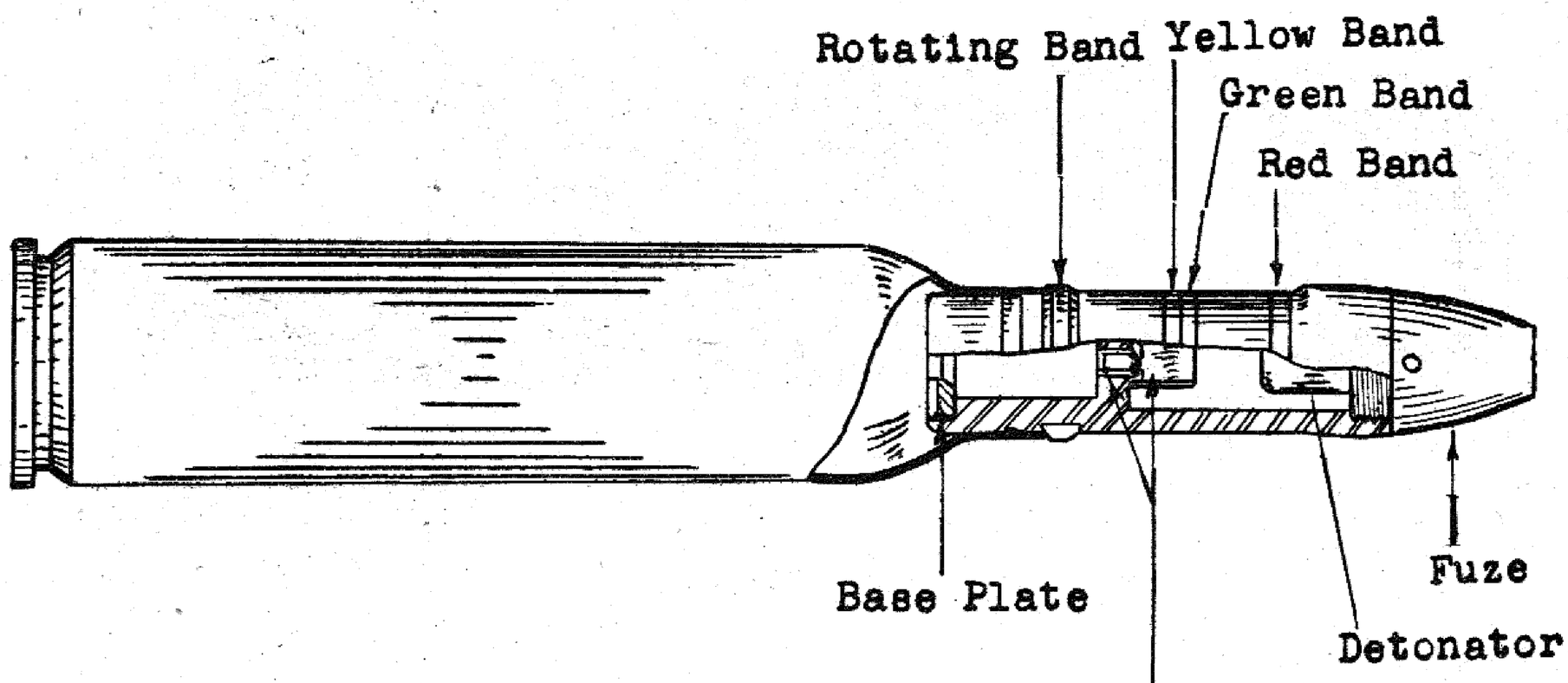
Remarks: Main charge cavity filled with cyclonite.

20 MM AIRCRAFT CANNON PROJECTILE

Type: HET (S.D.)

Source: M.E.I.U. #1 Report No. 91.

ARMY 20 MM SELF-DESTROYING





Description: This projectile is made of steel with two (2) cavities separated by a perforated septum. Self-destruction of this projectile is accomplished when the tracer element burns down to the perforated septum, setting off the black powder in the septum hole and the main charge. There are two (2) variations of this round which differ in filler. The main filler for service round is cyclonite while that for practice round is black powder.

Color: Black body. Red band just aft of bourrelet. Green and yellow band forward of rotating band.

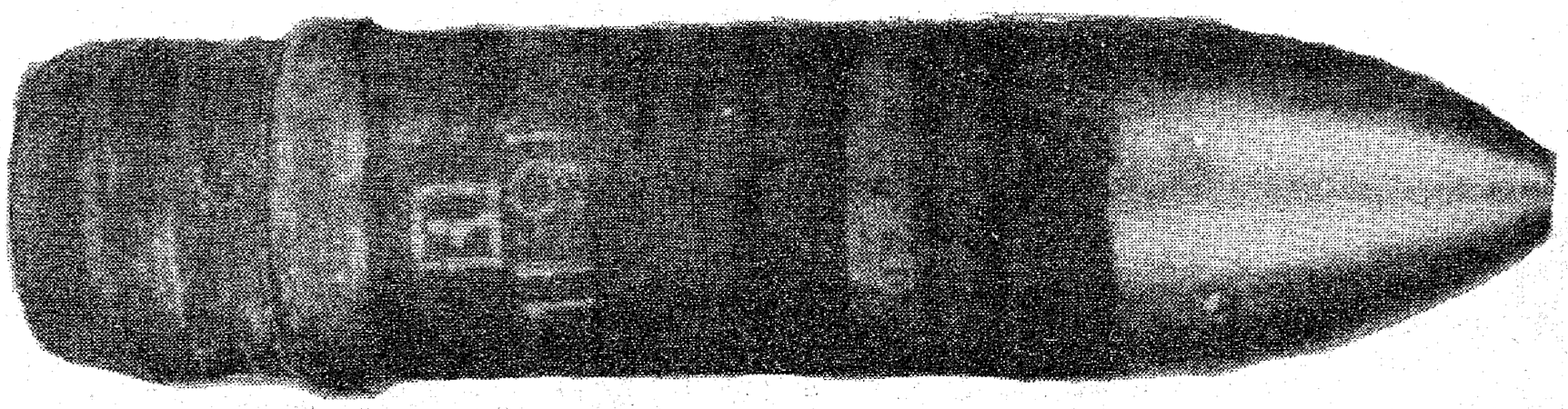
Data:

Gun Used In: Type 98 A.A.,A.T.
Overall Lt.: 8.2 inches.
Lt. of Case: 5.5 inches.
Fuzes: Type 100.

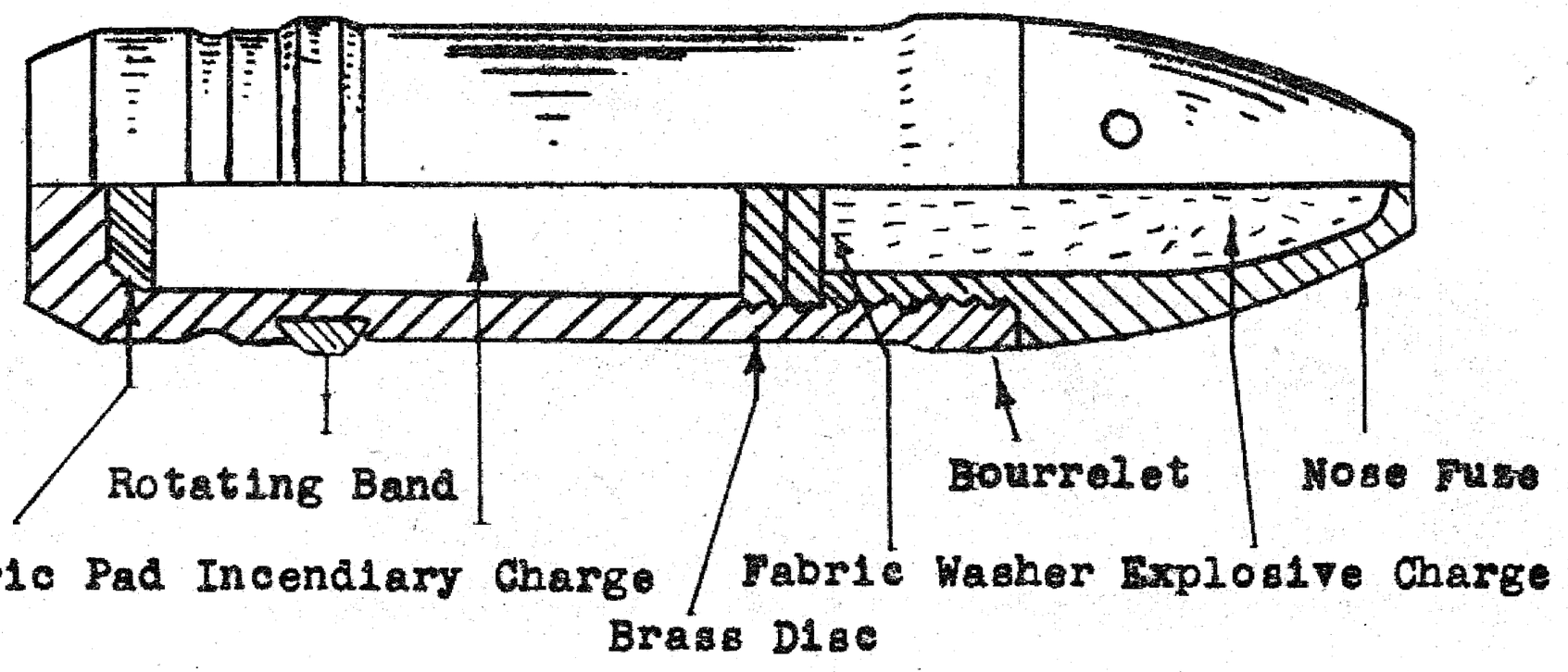
20 MM PROJECTILE

Type: HEI.

Source: M.E.I.U. #1 Report No. 91.



20 M.M. H.E.INCENDIARY



Description: Projectile is made of steel. A brass nose piece, filled with PETN, threads into the incendiary filled projectile. Detonation of the projectile is accomplished by the crushing action of the PETN filled nose piece.

Color: Black body. Red band aft of bourrelet.

Data:

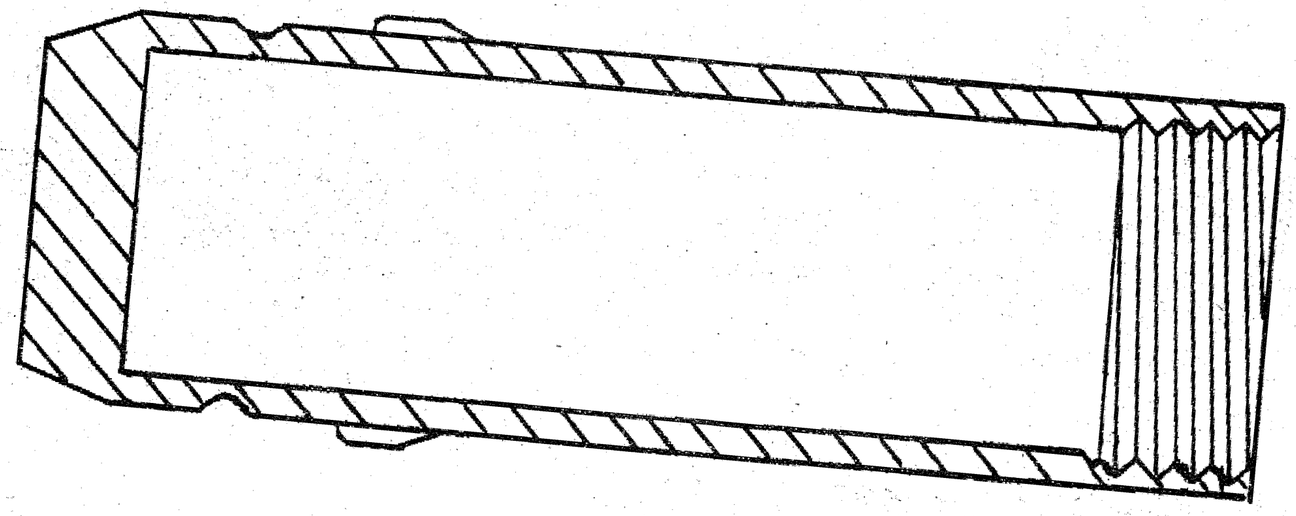
Gun Used In:	Overall Lt.:	Lt. of Case:
Type 97 A/C	7.6 inches.	4.87 inches.

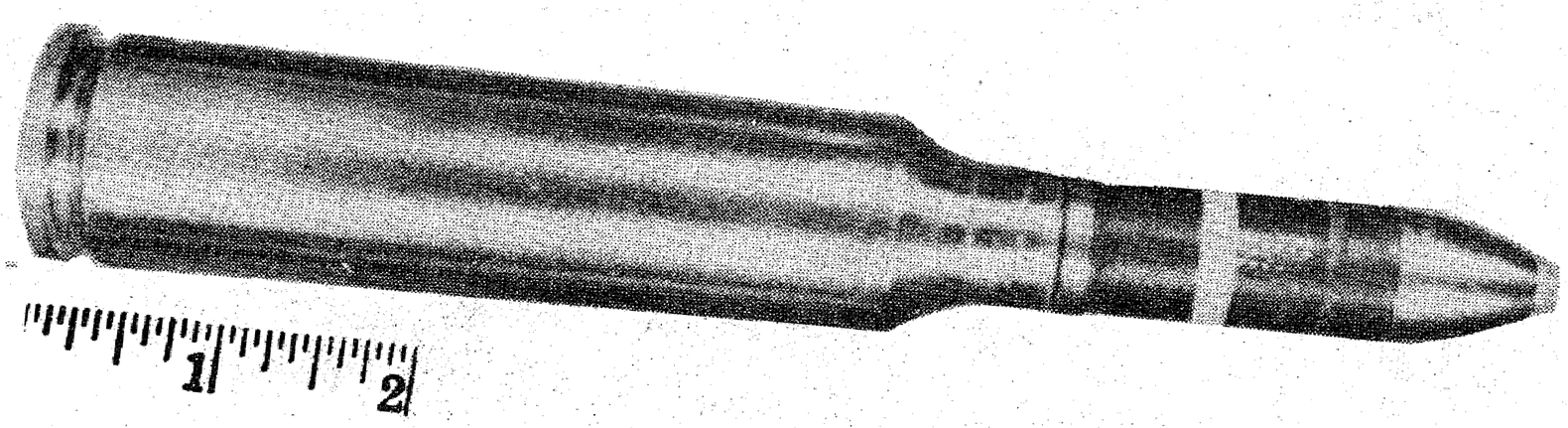
Fuzes: Fuzeless.

20 MM PROJECTILE

Type: HEI.

Source: M.E.I.U. #1 Report No. 91.





Description: This projectile is made of steel. It contains two (2) pellets, the forward one, surrounding the fuze gaine, is cyclonite wnile the after pellet is an Incendiary mixture.

Color: Black body. Red band just aft of bourrelet. Yellow band forward of rotating band.

Data:

Gun Used In: Type 97 A/C
Fuzes: Type 93.

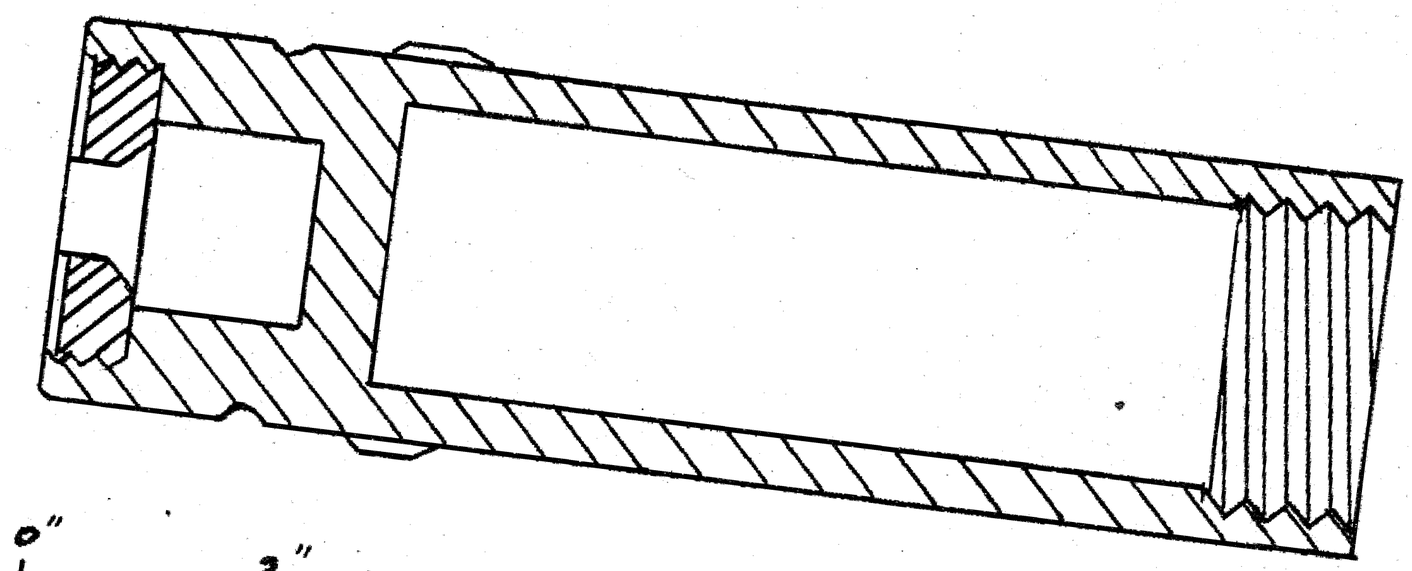
Overall Lt.: 7.6 inches.

Lt. of Case: 4.87 inches.

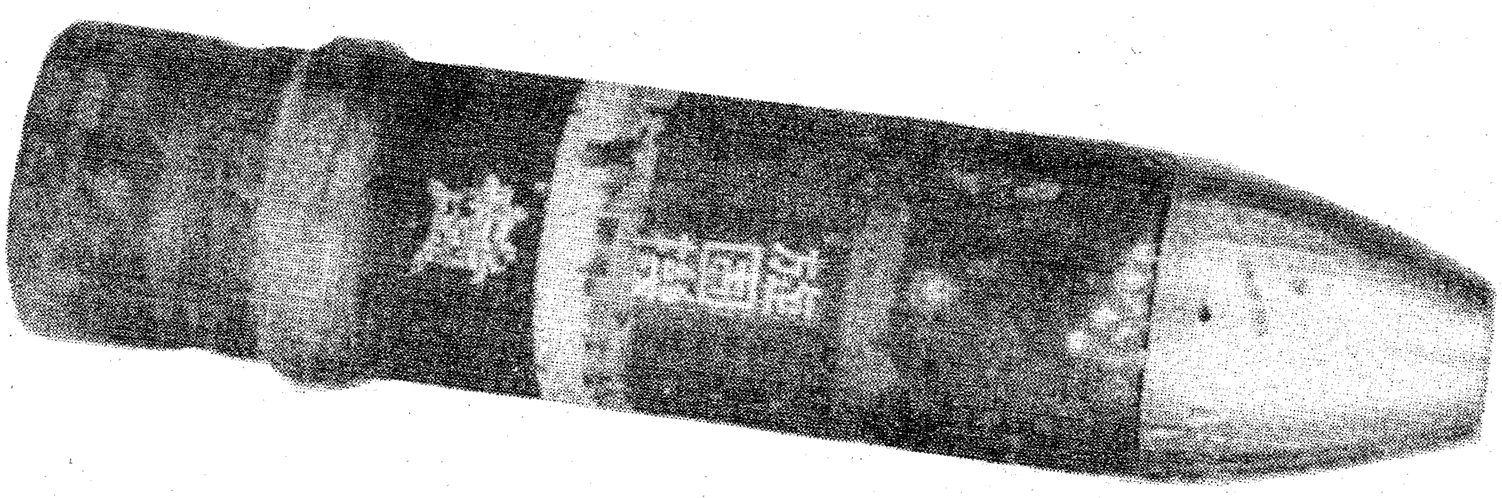
20 MM PROJECTILE

Type: HEIT.

Source: M.E.I.U. #1 Report No. 91.







Description: Projectile is made of steel and has two (2) cavities, a main charge cavity and a tracer cavity, separated by a septum. The main charge cavity contains two (2) pellets, the forward one, fitting around the fuze gaine, is cyclonite while the after one is an incendiary mixture.

Color: Black body. Red band just aft of bourrelet. A green and yellow band forward of rotating band.

Data:

Gun Used In:
Type 97 A/C

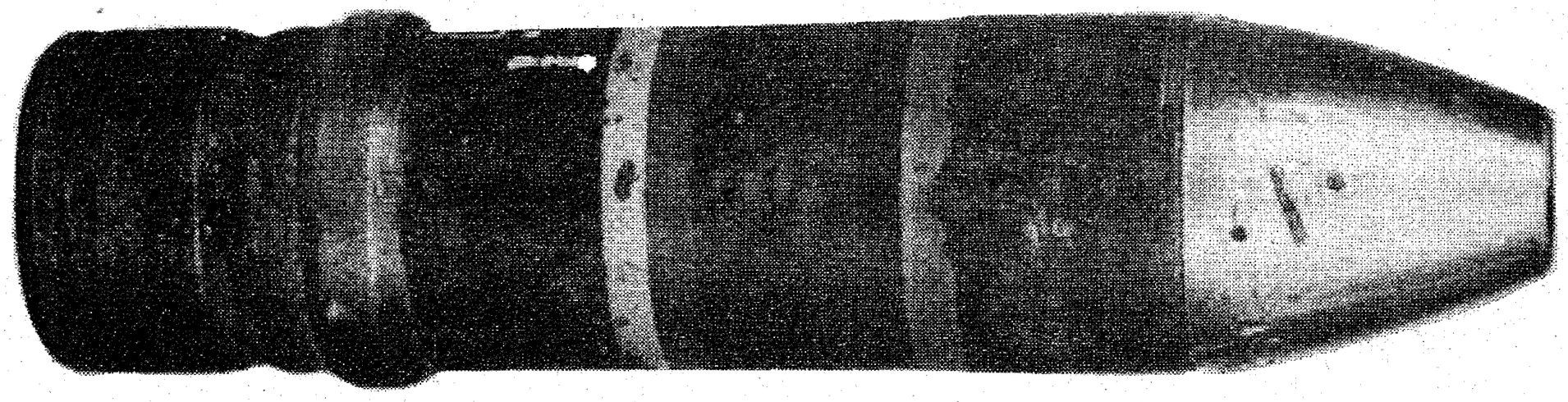
Fuzes: Type 100.

Overall Lt.:
7.7 inches.

Lt. of Case:
4.87 inches.

Type: Type 100 modification 2 - IT (S.D.).

Source: M.E.I.U. #1 Report No. 91.



Description: The projectile body is made of steel with a perforated septum between main charge cavity and tracer cavity. The main charge cavity contains two (2) perforated pellets, the forward one, fitting around the fuze gaine, is a pressed grey incendiary mixture. The after pellet is black powder. Self-destruction of the projectile occurs when the tracer element burns down to the perforated septum, igniting the B.P. in the septum hole, the B.P. pellet in the main charge cavity, and the incendiary mixture.

Color: Black body. Red band just aft of bourrelet. Green and yellow band forward of rotating band.

Data:

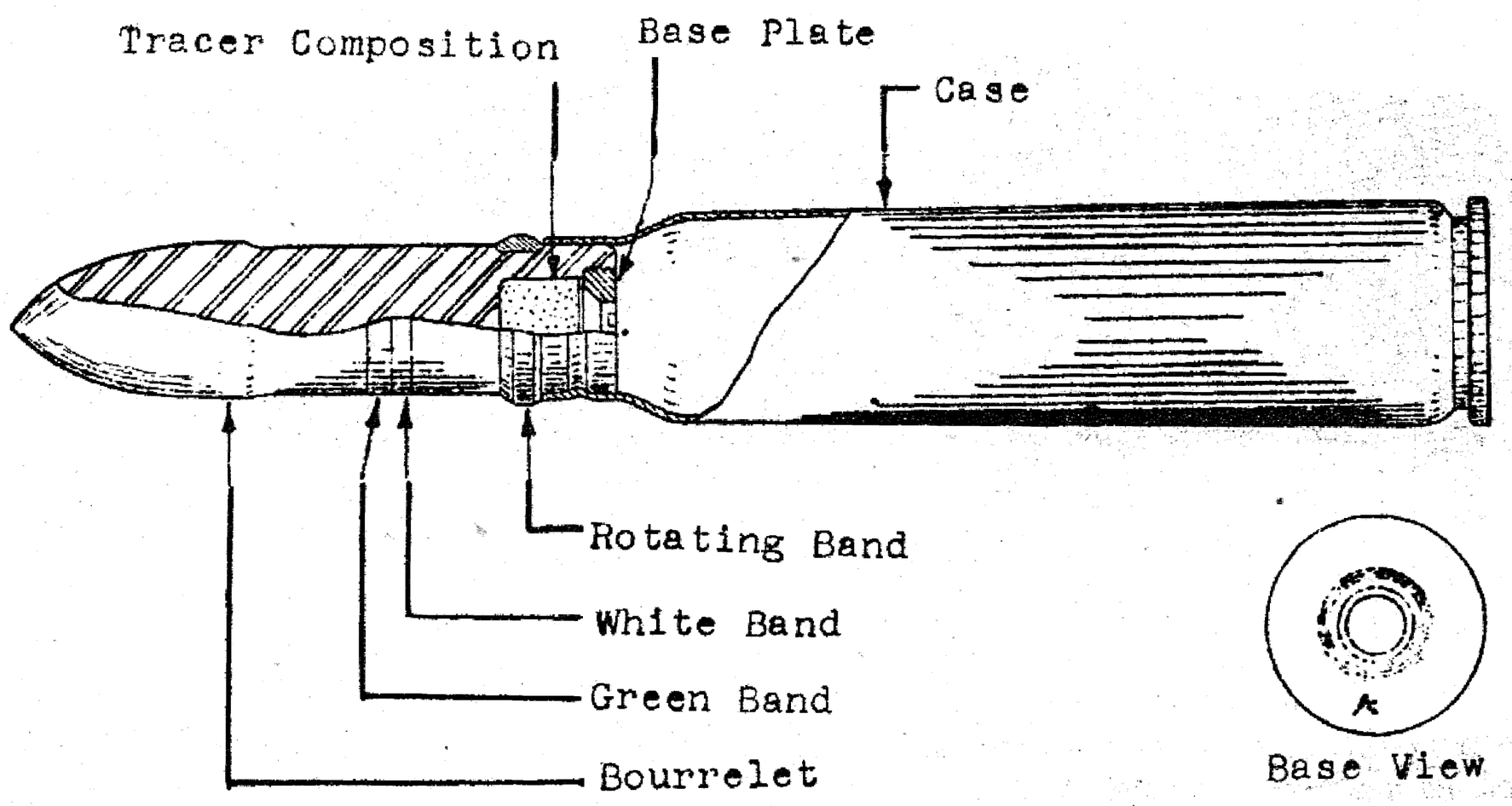
Gun Used In:	Overall Lt.:	Lt. of Case:
Type 98 A.A. A/T	8.2 inches	5.5 inches.
Fuzes: Type 100		

20 MM PROJECTILE

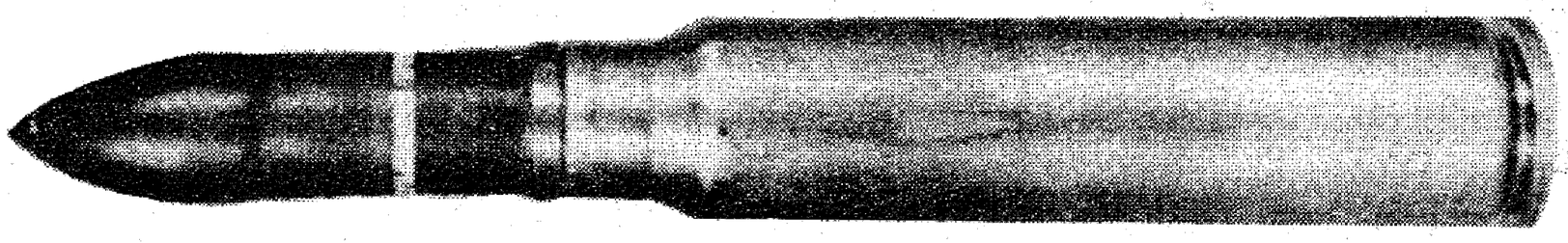
Type: APT.

Source: M.E.I.U. #1 Report No. 91.

JAPANESE ARMOR PIERCING 20 MM ROUND



Base View



Description: This projectile is a solid steel shot with a tracer cavity drilled into the base. This projectile, with different colored tracers and markings, is used in three (3) guns.

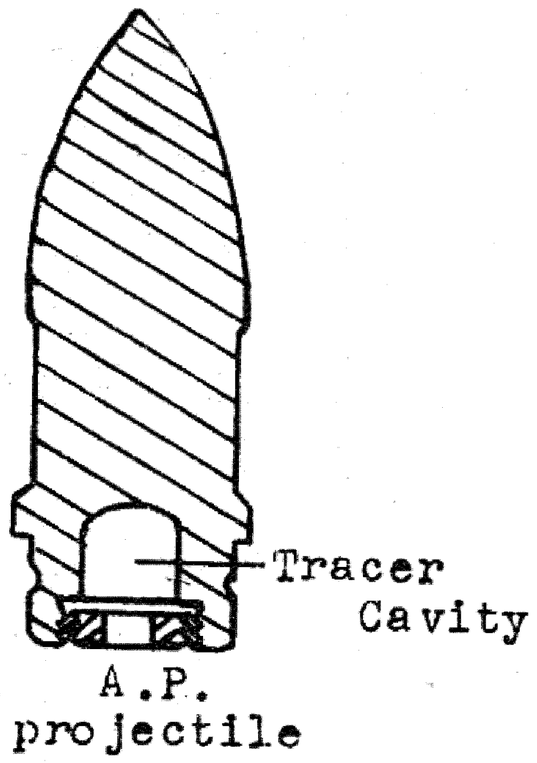
Color: Black body. Green and white band forward of rotating band.

Data:

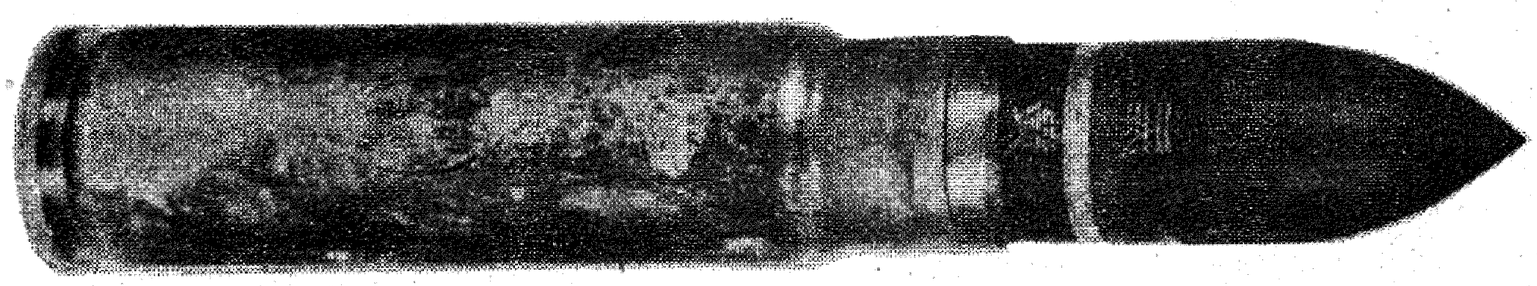
Gun Used IN:	Overall Lt.:	Lt. of Case:
Type 97 A/T	7.62 inches	4.87 inches.
Type 97 A/C	7.62 inches	4.87 inches.
Type 98 AA A/T	8.25 inches	5.5 inches.

Type: APT (HO-5).

Source: M.E.I.U. #4 Report No. 34.



A.P.
projectile



Description: This projectile is a solid steel shot with a tracer cavity drilled in the base.

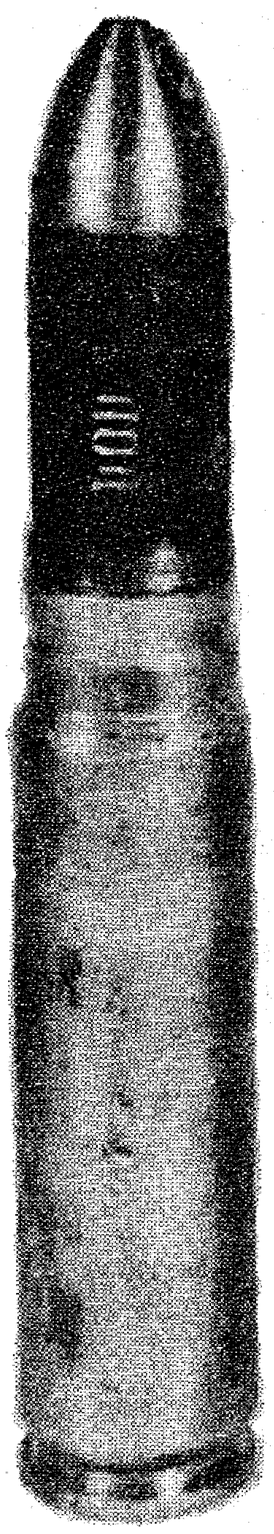
Color: Black body - green and white band midway between bourrelet and rotating band.

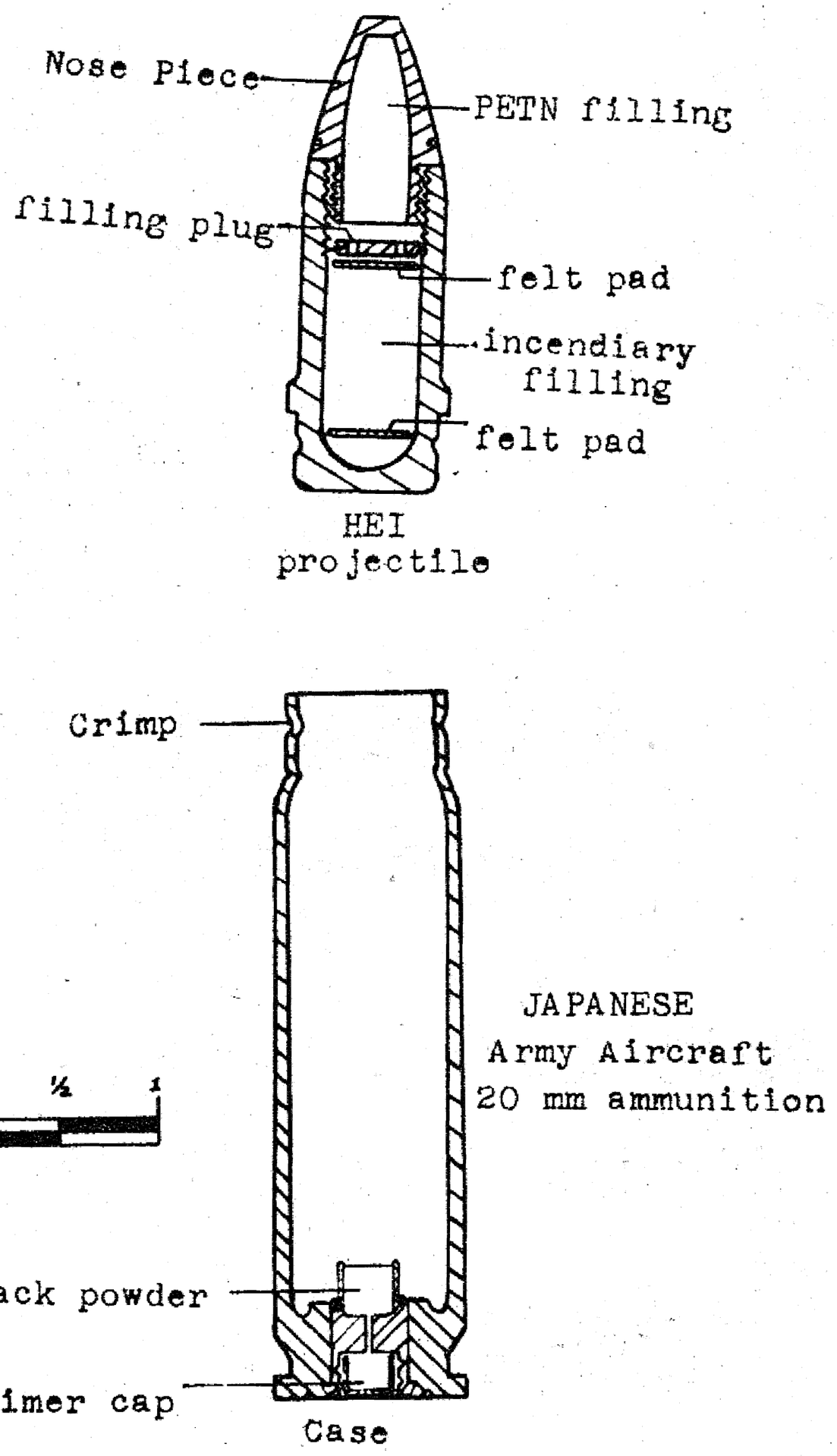
Data:

Gun Used In: HO-5 A/C.
Overall Lt.: 5 3/4 inches.
Lt. of Case: 3 11/16 inches.

Type: HEI (HO-5).

Source: M.E.I.U. #4 Report No. 34.





Description: The projectile is made of steel with a brass nose piece threaded to it. The nose piece is filled with PETN and is designed to explode by the crushing action of impact. An incendiary mixture contained in the steel body is separated from the high explosive by a felt pad and a threaded brass disc. This disc has two (2) lead in holes.

Color: Black body.

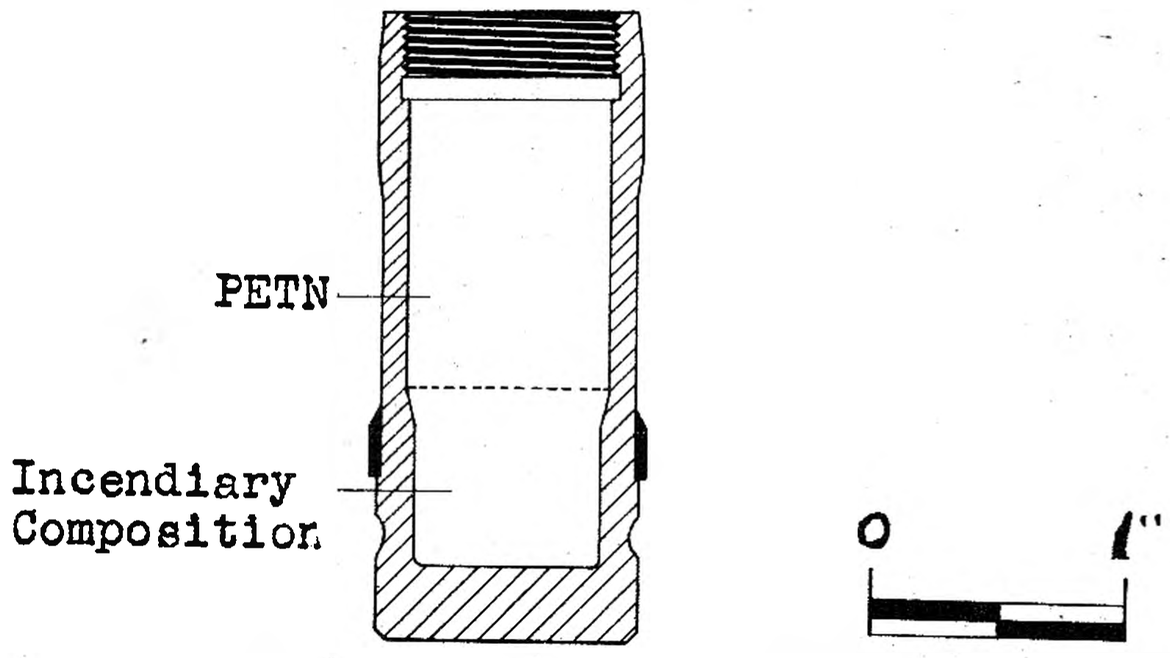
Data:

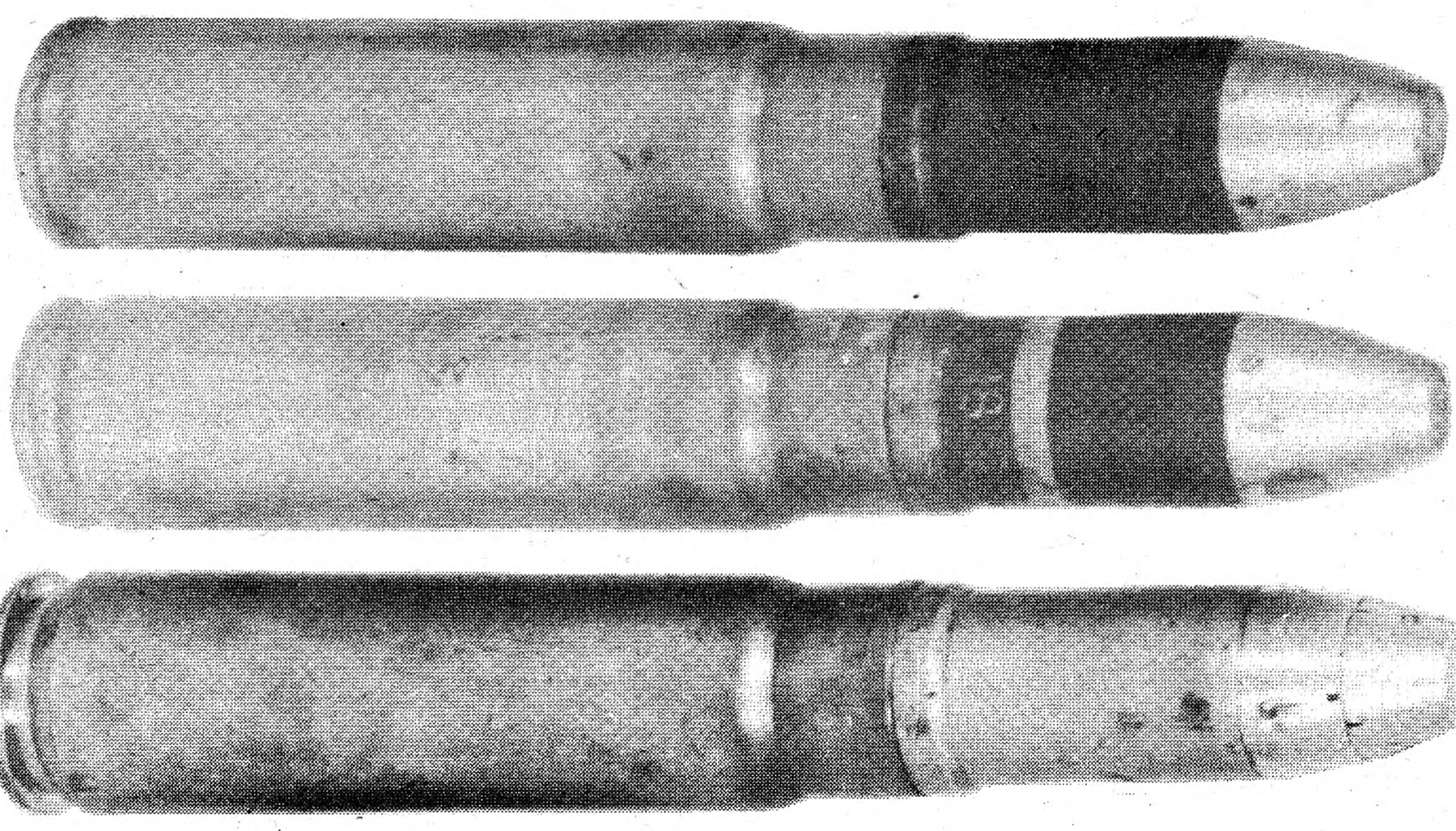
Gun Used In:	Overall Lt.:	Lt. of Case:
HO-5 A/C	5 3/4 inches.	3 11/16 inches.

Fuzes: Fuzeless.

Type: 20 mm HEI (HO-5)

Source: M.E.I.U. #4 specimen





Description: There has been three (3) rounds containing this projectile recovered by MEIU #4. These projectiles are identical in construction and filling, differing only in color markings. The open nose of the projectile is threaded internally (R/H) to take the fuze. Aft of the rotating band is a crimp groove.

Color: (1) Black overall.
(2) Black overall with yellow band between rotating band and bourrelet and a red band just below the fuze.
(3) Aluminum color overall.

Data:

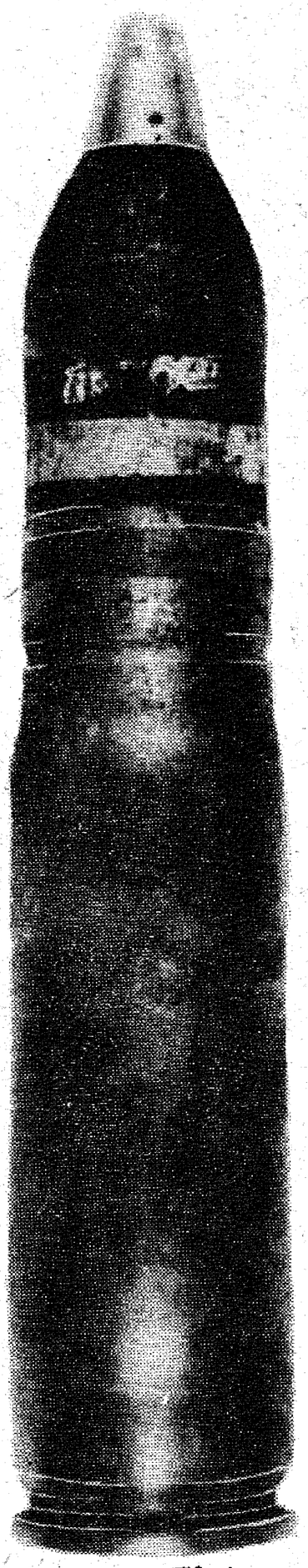
Gun Used In: HO-5 A/C
Length of Case: 3 11/16 inches.
Wt. of Projectile (filled and unfuzed): 2 1/4 ounce.
Length of Projectile: 2 7/16 inches.

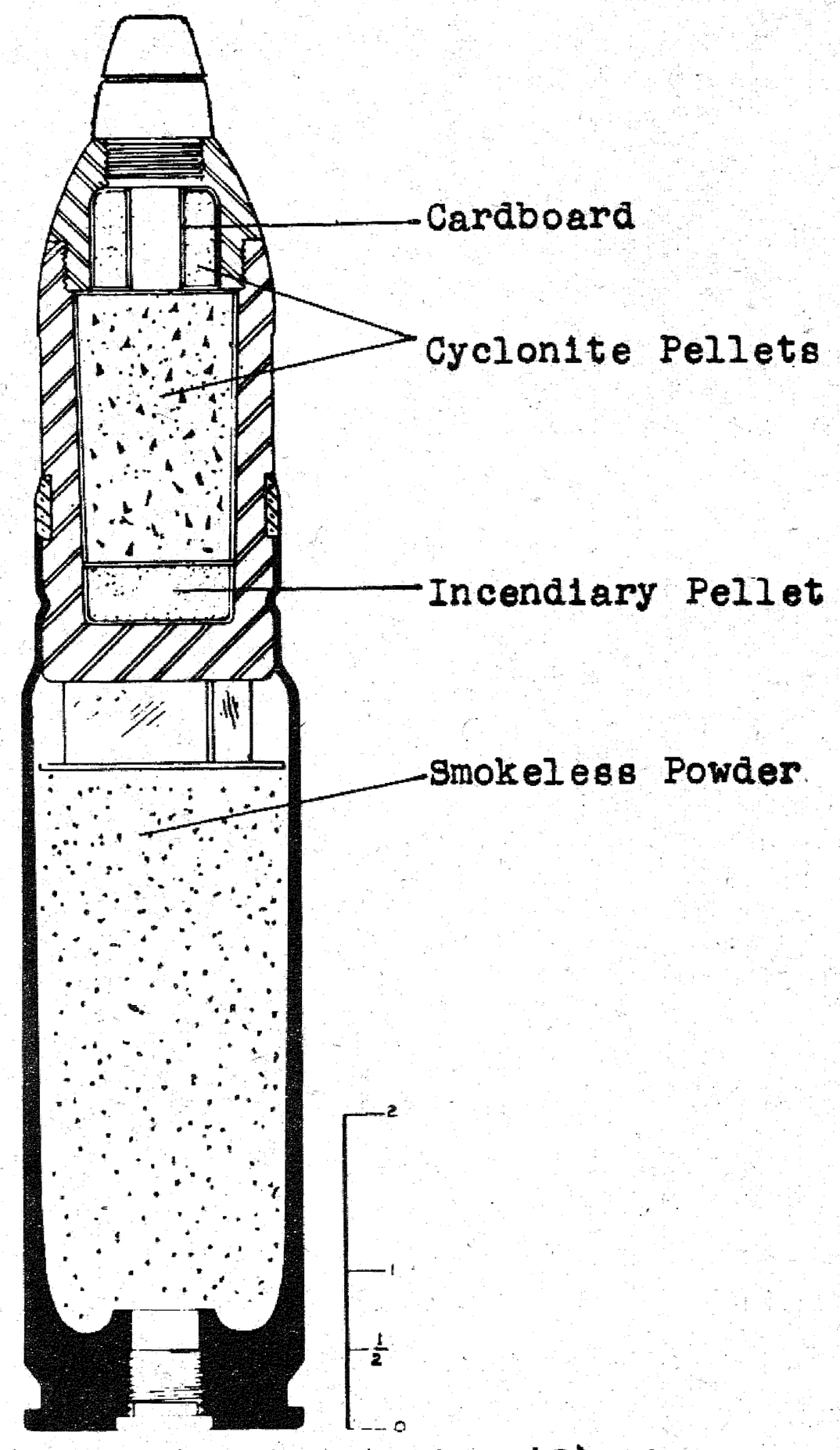
Type Filling: HE and Incendiary Composition.
Fuzes: Type 100 small instantaneous, Air column (one piece) or Air column (two piece).

37 MM PROJECTILE

Type: HO 204 HEI.

Source: M.E.I.U. #1 Report No. 161.





Description: This projectile is constructed in two (2) pieces: a straightsided main body and an ogival-shaped nose which screws into the main body. The nose is threaded to receive a nose fuze. There is only one cavity into which both the incendiary and HE filling is pressed. The filling is in three (3) separate pellets, each surrounded by cardboard. The incendiary pellet is in the bottom of the cavity, two (2) cyclonite pellets fill the remainder of the cavity and the nose piece. The case is a short, brass case which is slightly necked. The propellant consists of graphited smokeless powder in flat 4 mm squares.

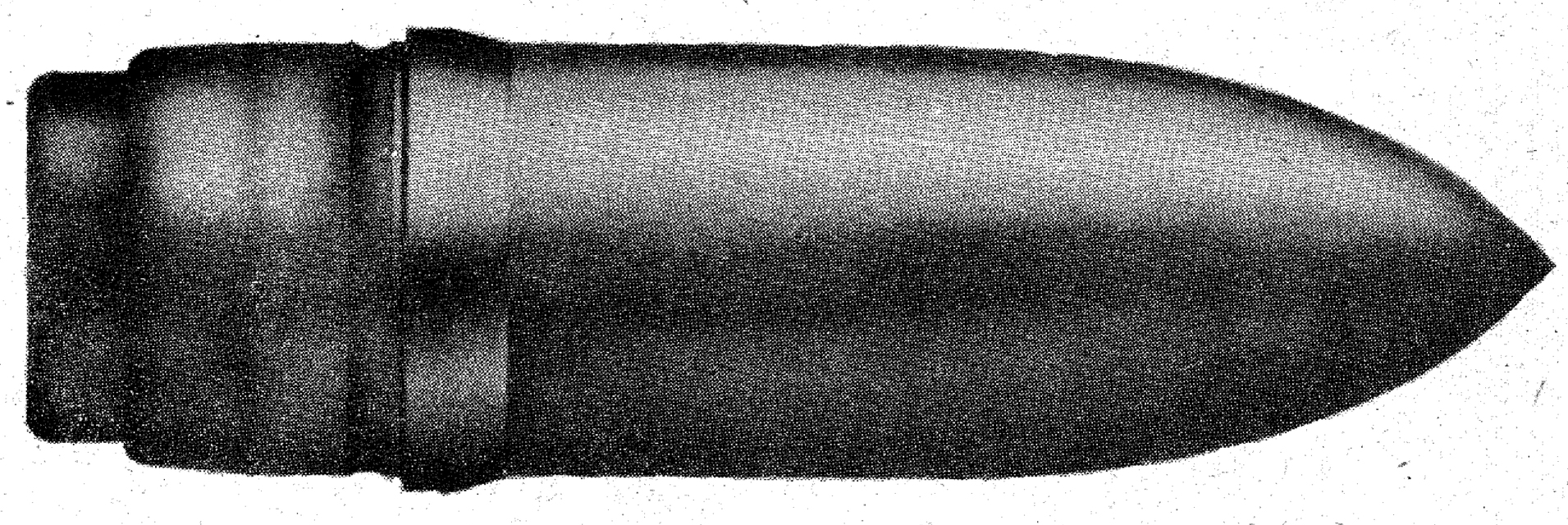
Color: Black body, yellow band above the rotating band. The designation HO 204 is stencilled in wnite paint on the body.

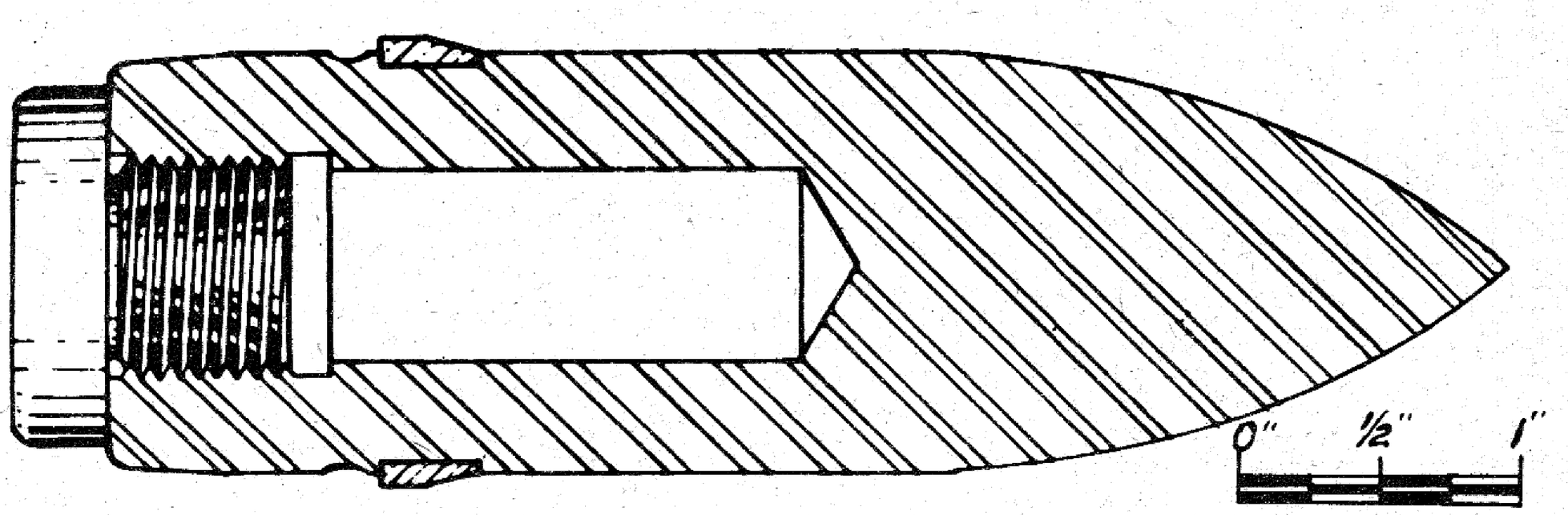
Data:

Gun Used In: HO 204 Aircraft Cannon.
Overall Lt.(unfuzed): 8 1/4 inches.
Lt. of Case: 5 21/32 inches.
Lt. of Proj. (unfuzed): 3 1/2 inches.
Fuze: Type 4 Super Detonating.
Wt. of Loaded Proj.: 436.2 grams.
Width of Rotating Band: 13/32 inch.

Type: HO 204 Practice.

Source: M.E.I.U. #1 Report No. 161.





Description: This projectile appears to be an AP projectile. It is sawdust filled and has the cavity closed by a base plug. The rotating band is of slightly smaller diameter than the HEI projectile.

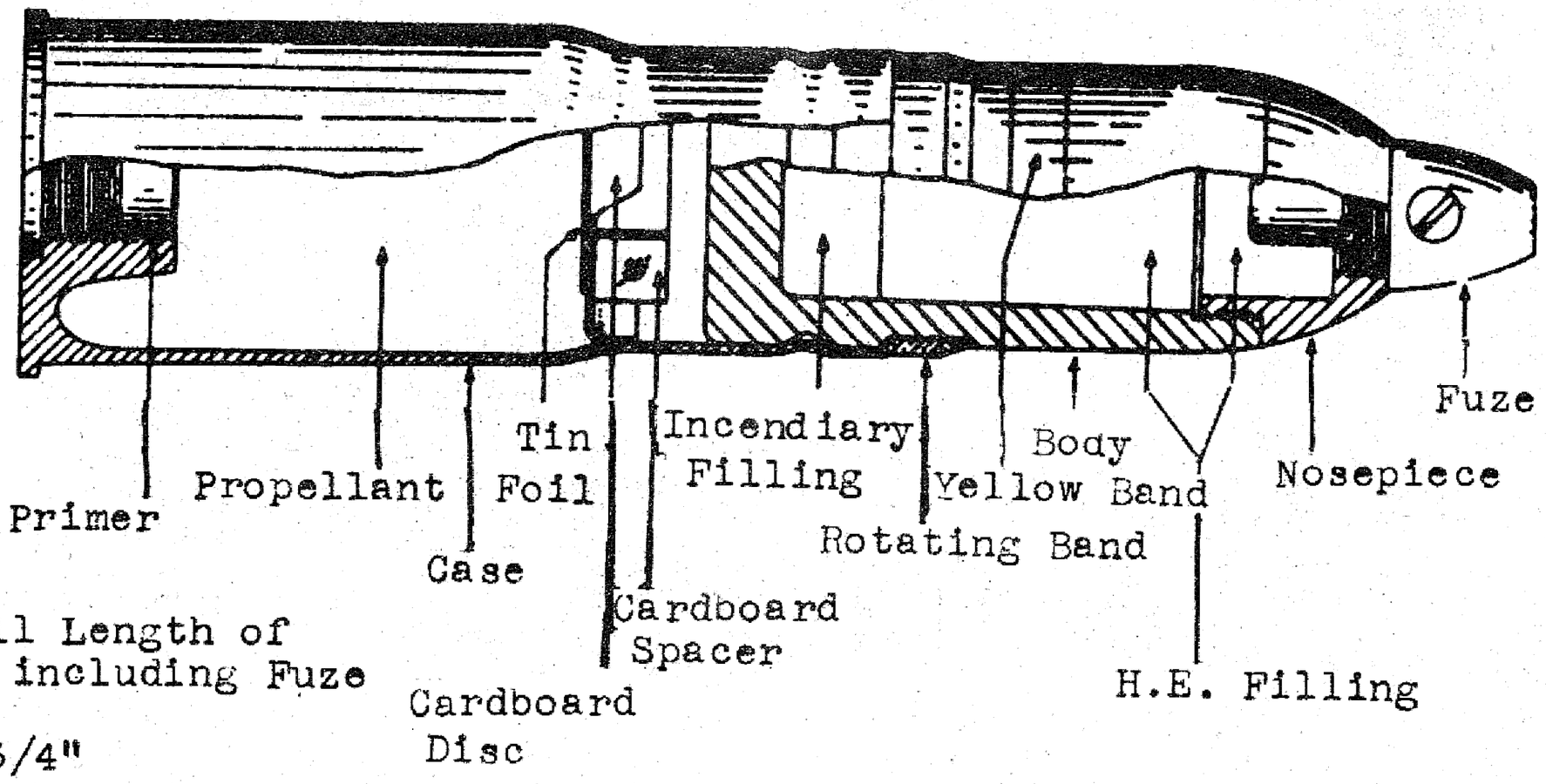
Data:

Gun Used In: HO 204 Aircraft Cannon.
Overall Lt.: 9 9/16 inches.
Lt. of Case: 5 21/32 inches.
Fuze: Plug.
Wt. of Proj. (empty): 728 grms.
Width of Rotating Band: 45/64 inch.

Type: HO 203 - HEI.

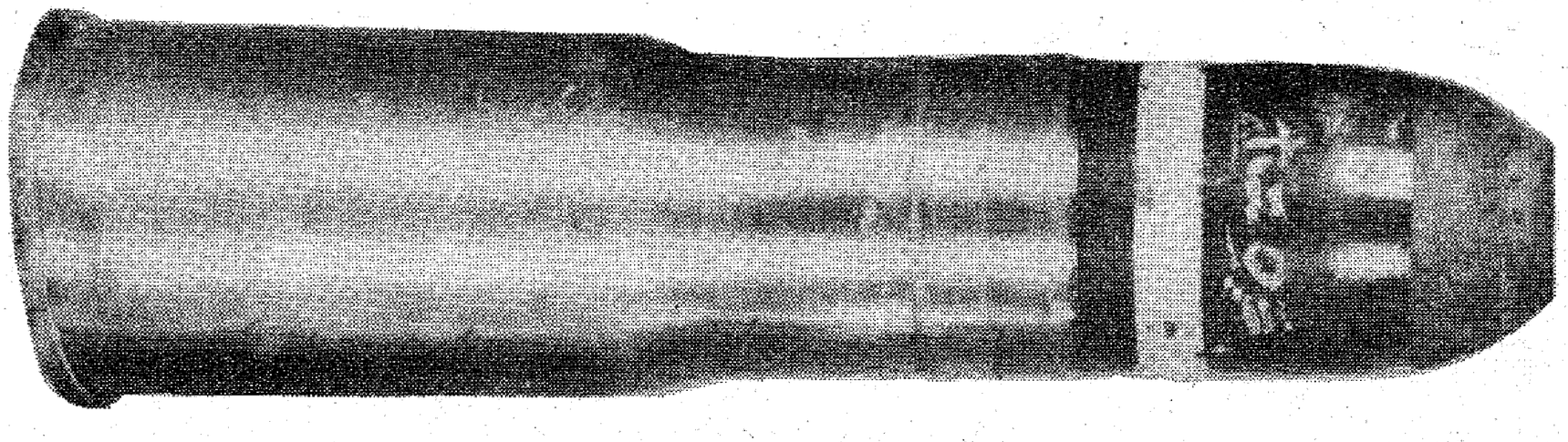
Source: M.E.I.U. #1 Report No. 87.

JAPANESE 37 MM AIRCRAFT CANNON AMMUNITION
"HO 203"



Overall Length of Round including Fuze

7 3/4"



Description: This projectile is constructed in two (2) pieces. A nearly straight-sided main body and an ogival-shaped nose piece which threads into the main body. The main charge is cyclonite and an incendiary mixture. The incendiary mixture is pressed into the base of the cavity, with the cyclonite filling the remainder of the cavity and the nose piece.

Color: Black body, red nose band, and yellow body band.

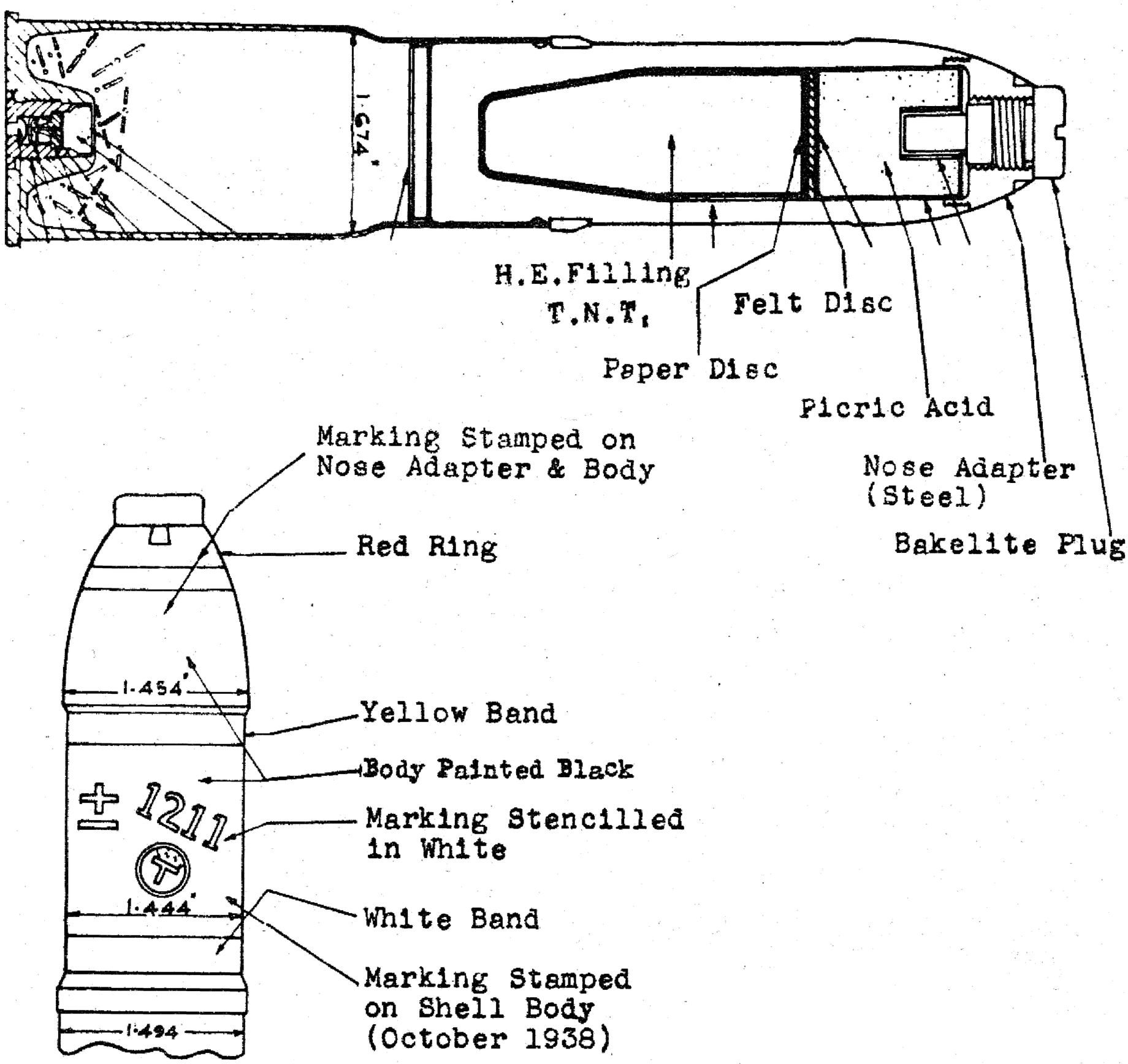
Data:

Gun Used In: HO - 203 Aircraft Cannon.
Overall Lt.: 197 mm (7 3/4").
Lt. of Case: 111.5 mm.
Fuzes: Type 100 small instantaneous.
Lt. of Projectile (unfuzed): 89.0 mm.
Wt. of loaded Projectile: 436.2 grams.
Type of filling: Cyclonite and incendiary mixture.
Width of Rotating Band: 10.0 mm.

Type: H.E.

Source: Periodical Technical Summary No. 31 and examination of Specimen recovered by M.E.I.U. #4.

37 MM H.E. PROJECTILE



Description: This projectile is constructed of steel and is filled with TNT and picric acid. The TNT is cast and occupies the aft 2/3 of the projectile cavity, while the picric acid pellet is placed forward of the TNT. The entire bursting charge is encased in waxed paper with double thickness between the two (2) charges.

Color: Black body. Red nose band. Yellow band just aft of bourrelet. White band forward of rotating band.

Data:

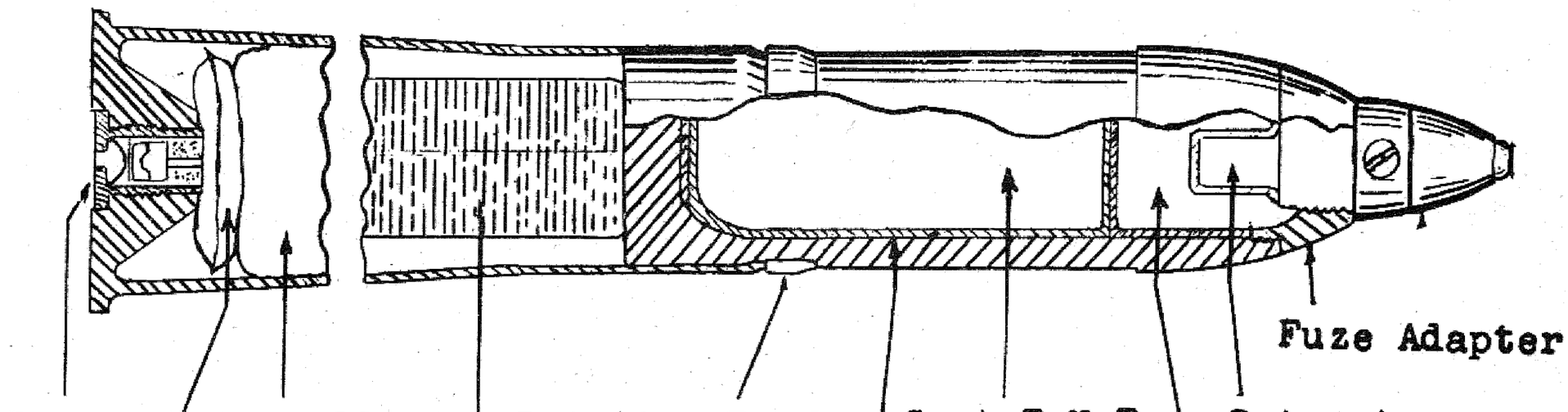
Gun Used In:	Overall Lt.:	Lt. of Case:
Not known	8.68 inches	4.4 inches.

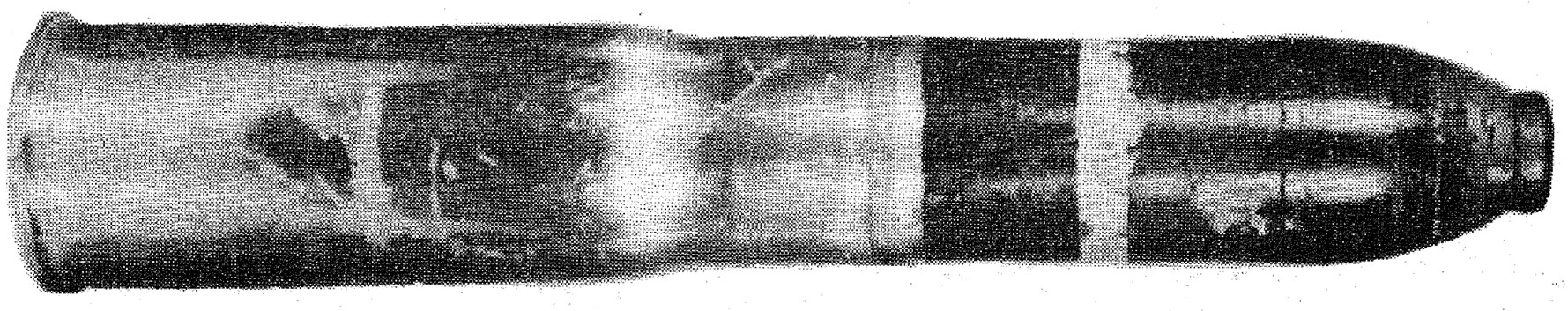
Fuzes: Type 93 Small Instantaneous.
Lt. of Projectile (unfuzed): 4.9 inches.
Wt. of loaded Projectile: 581.2 gr.
Type of filling: TNT and Picric Acid.
Width of Rotating Band: .32 inch.

Type: H.E.

Source: M.E.I.U. #1 Report No. 20.

JAPANESE 37 MM H.E.





Description: This steel projectile is filled with TNT and picric acid. The aft 2/3's of the projectile cavity is filled with high grade cast TNT. The forward 1/3 of the projectile cavity is filled picric acid. The entire bursting charge is enclosed in a heavy waxed paper casing with a double thickness between the TNT and picric acid charge.

Color: Black body. Red nose band. Yellow body band (some rounds may have a white body band added).

Data:

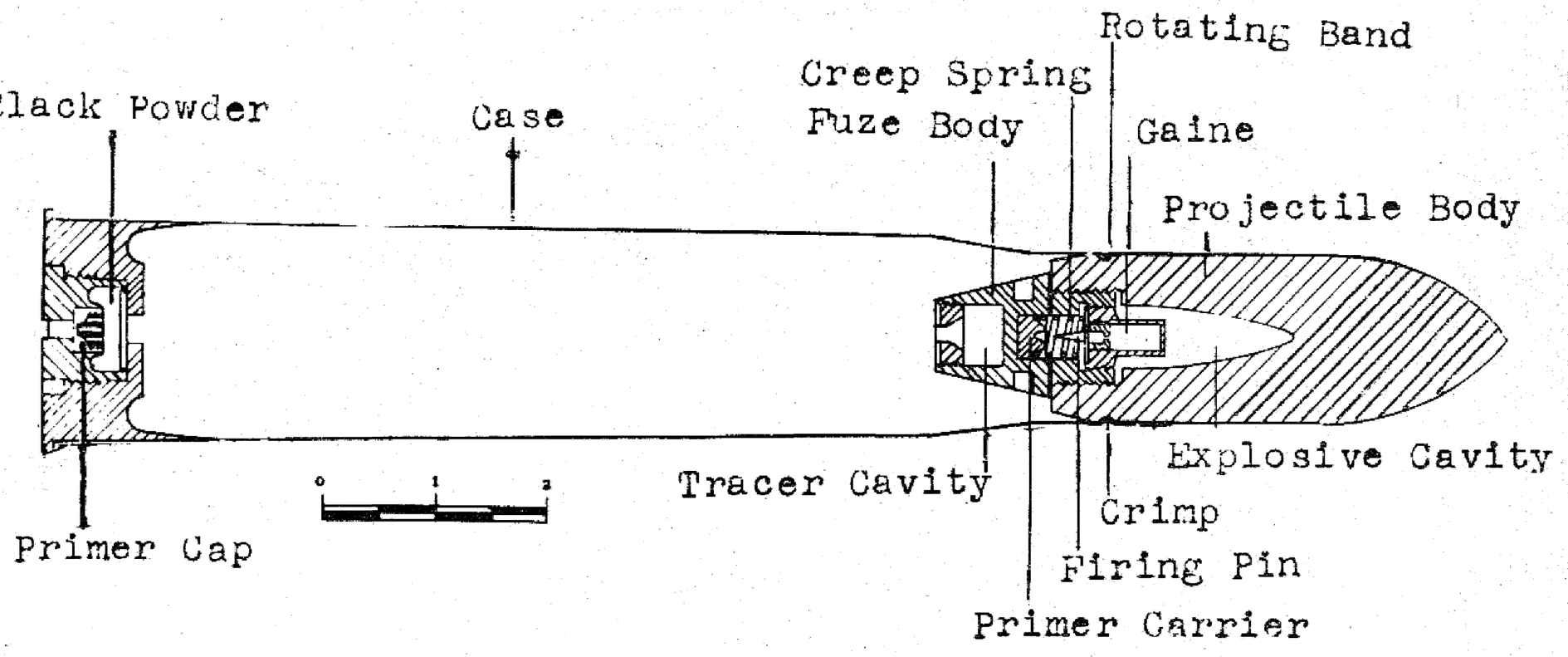
Gun Used In:	Overall Lt.:	Lt. of Case:
Type 97 A/T	14.28 inches	9.84 inches
Type 94 A/T	10.5 inches	6.5 inches
Type 94 Tank	9.18 inches	5.25 inches.

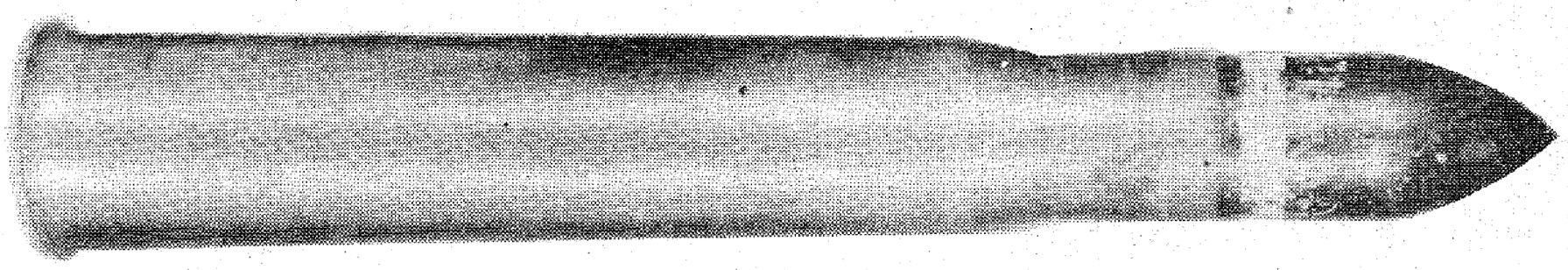
Fuzes: Type 93 small instantaneous fuze.
Lt. of Projectile (unfuzed): 125 mm.
Wt. of loaded Projectile: 595.1 gr.
Type of filling: Picric acid and TNT.
Width of Rotating Band: 8 mm.

Type: AP HET.

Source: M.E.I.U. #4 Report No. 35.

JAPANESE
37 MM TANK GUN
AMMUNITION





Description: This projectile is constructed of high grade steel. It uses a small Mk. 1 base fuze which also acts as a base plug. When projectile is assembled with case, the round is similar in appearance to the AP HE Type 97 37 mm round, but differs in overall length of round, and diameter of the primer in the propelling case, the Type 97 round being a little longer in overall length and having a smaller primer.

Color: Black body. Red nose tip. White body band.

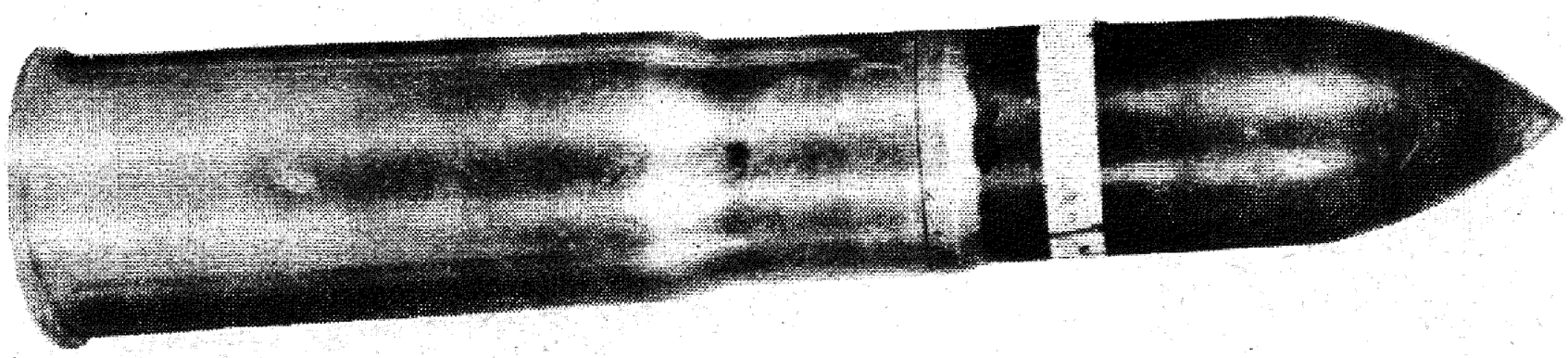
Data:

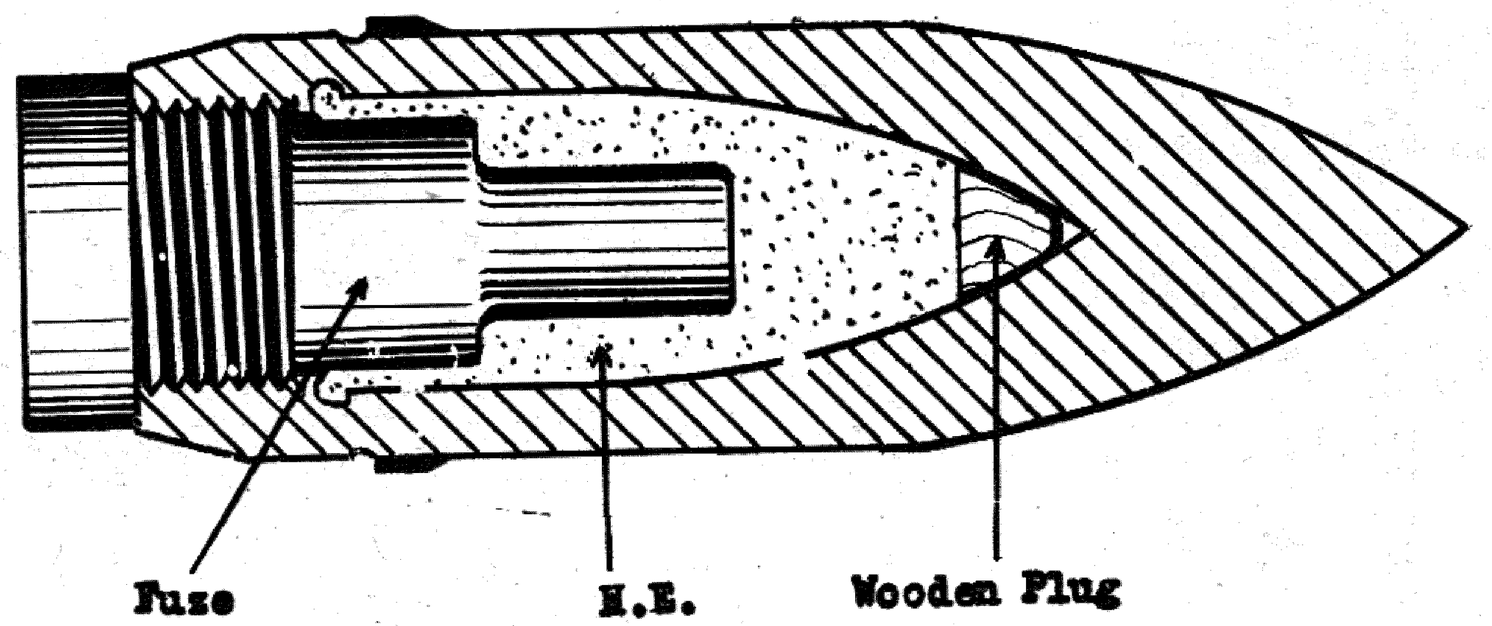
Gun Used In: Type (?) 37 mm Tank gun.
Overall Lt.: 13.09 inches.
Lt. of Case: 9 27/32 inches.
Fuzes: Small Mk. 1 base fuze.
Lt. of Projectile (unfuzed): 4 1/8 inches.
Wt. of loaded Projectile: ?
Type of filling: ?
Width of Rotating Band: 7/16 inch.

37 MM PROJECTILE

Type: AP HE.

Source: Recovered rounds.





Description: This projectile is made of high grade steel. The main charge cavity contains a small wooden plug in the forward portion and a paper covered picric acid charge aft of the wooden nose plug. The Type 94 small delay base fuze screws into the base of the projectile, acting as a base plug. This projectile, fitted with the appropriate case, is used in the Type 94 A/T, Type 94 tank, and Type 97 A/T gun.

Color: Black body. Red nose tip. White body band.

Data:

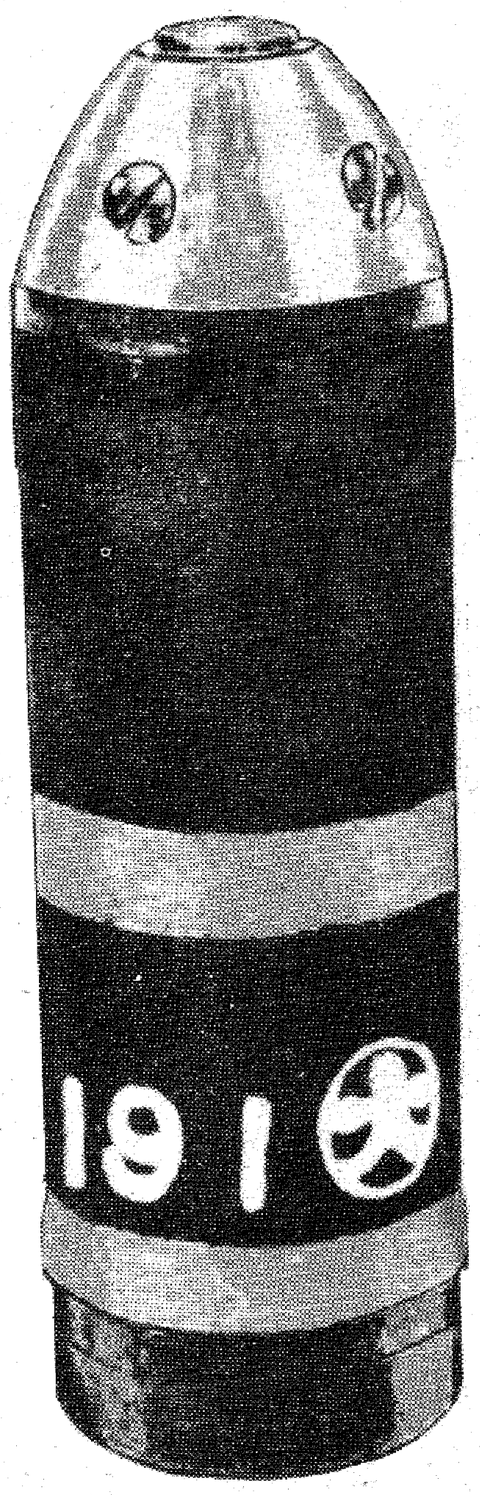
Gun Used In:	Overall Lt.:	Lt. of Case:
Type 94 Tank.	9.0 inches	5.25 inches.
Type 94, A/T	10.35 inches	6.5 inches.
Type 97 A/T	13.6 inches	9.84 inches.

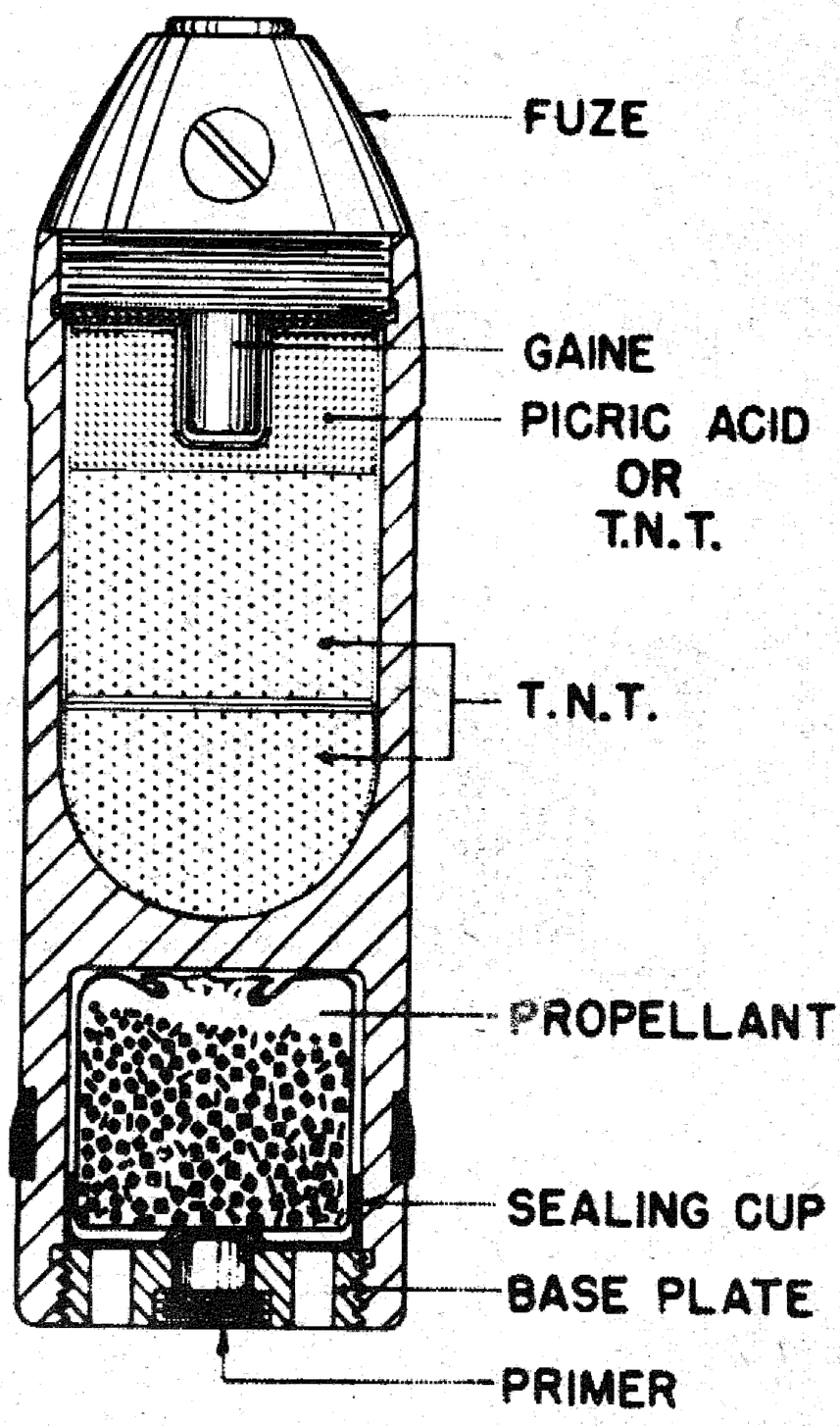
Fuzes: Type 94 small delay base.
Lt. of Projectile (unfuzed): 4.5 inches.
Wt. of loaded Projectile: 1 lb. 1/4 oz.
Type of filling: Picric acid.
Width of Rotating Band: 3/8-inch.

Type: Ho 301.

Source: Specimen and U.S.N.B.D.S. Intelligence Bulletin No. 82.

HO-301





COMPLETE ROUND

Description: A distinctly different design in projectiles, this round has no conventional propellant case. It has an ordinary rotating band but is otherwise much like the 50 mm knee mortar round in that the propellant is contained in the base of the projectile. The round is, however, breech loaded in an aircraft machine cannon. The main body contains two (2) pellets of TNT loaded through the nose. The propellant is in a silk bag and is small grain smokeless powder which is covered on its after end by a metal sealing cap. The flash of the propellant drives the projectile through the holes in the base plate.

Color: Black overall with yellow band around middle of body and red band just below fuze.

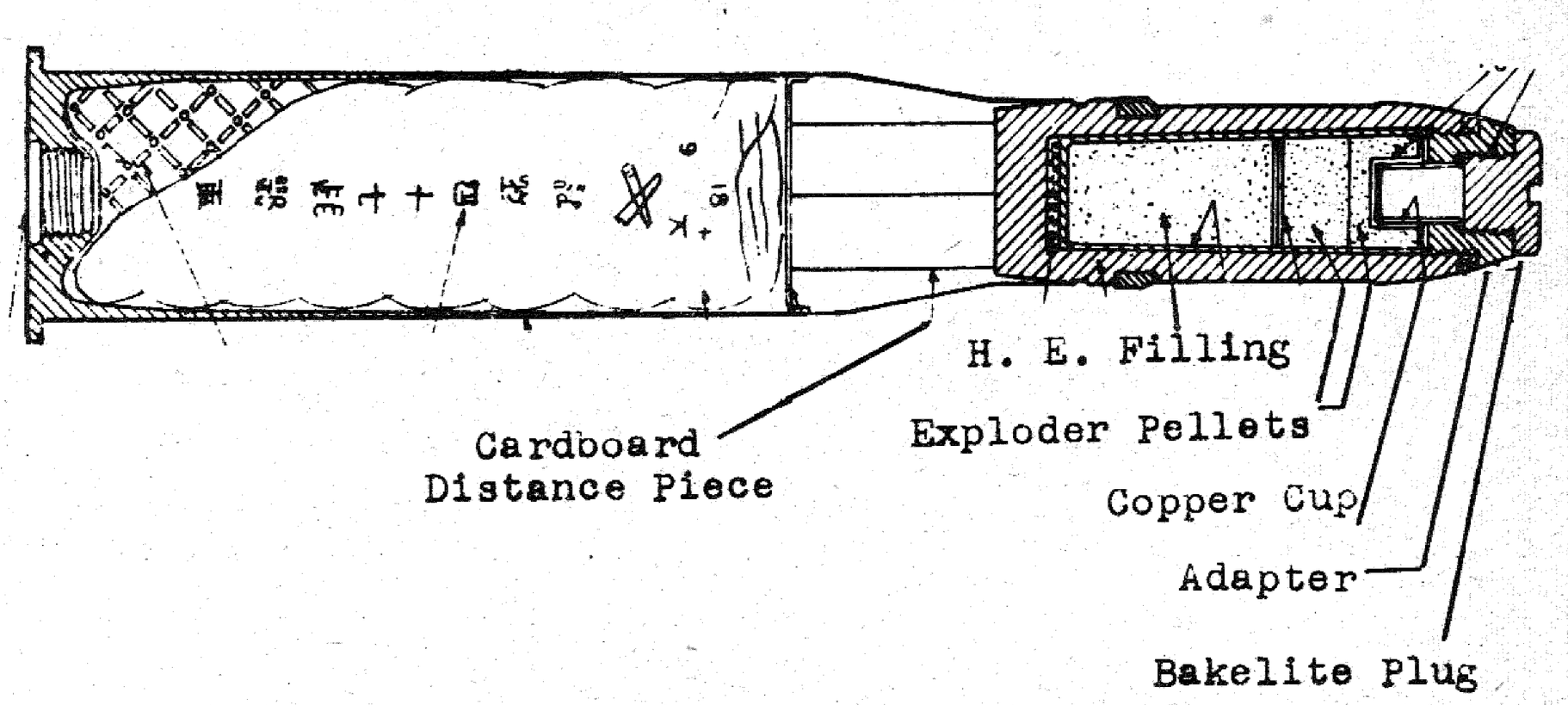
Data:

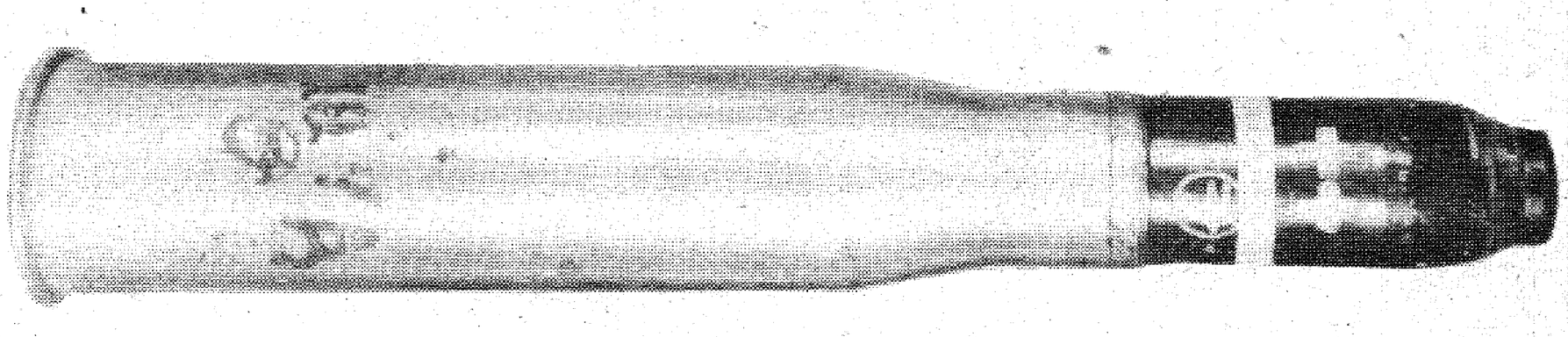
Guns Used In: 40 mm Ho 301 ACMC
Overall Lt.(unfuzed): 4 1/4 inches.
Fuze:(undesignated) see p. 77.
Width of Rotating Band: 9/32 inch.
Type of Filling: Cast TNT pellets.

Type: H.E.

Source: Periodical Technical Summary No. 31 and rounds recovered by M.E.I.U. #4. -

47 mm. H. E. Round





Description: This projectile is constructed of steel with a fuze adaptor ring. One pellet of TNT is located in the aft end of the projectile cavity and 2 pellets of picric acid are located forward of the TNT. The entire bursting charge is encased in heavy waxed paper.

Color: Black body. Red nose band. Yellow body band.

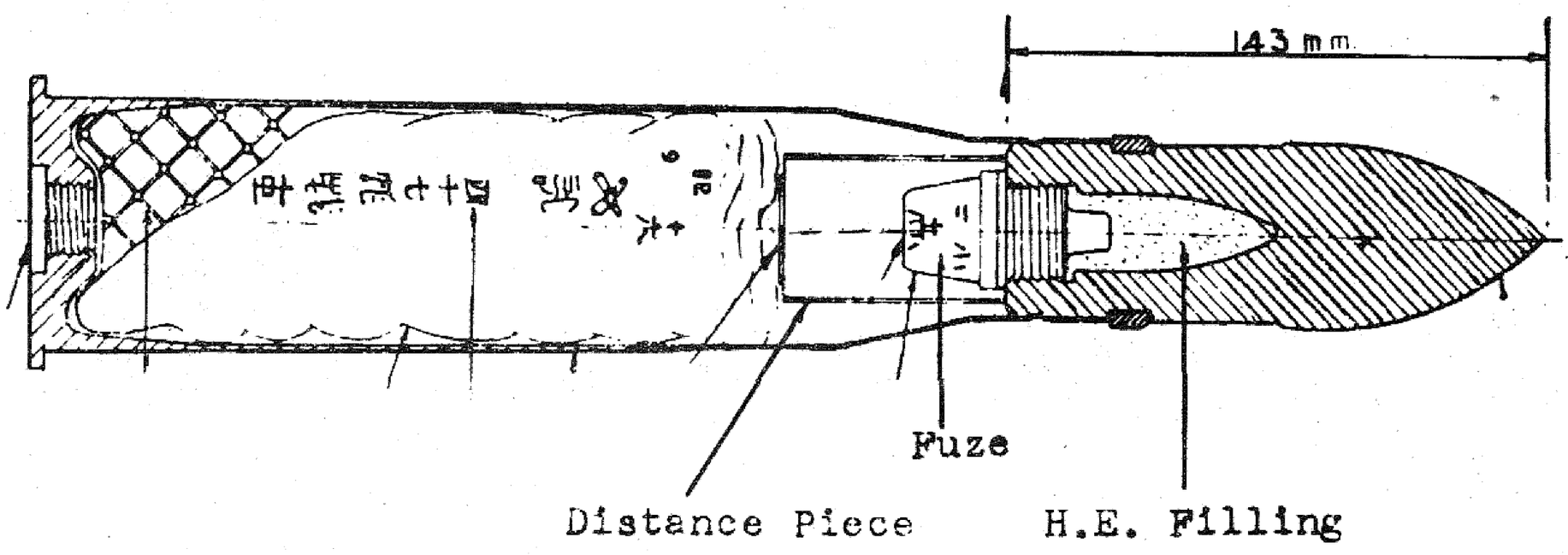
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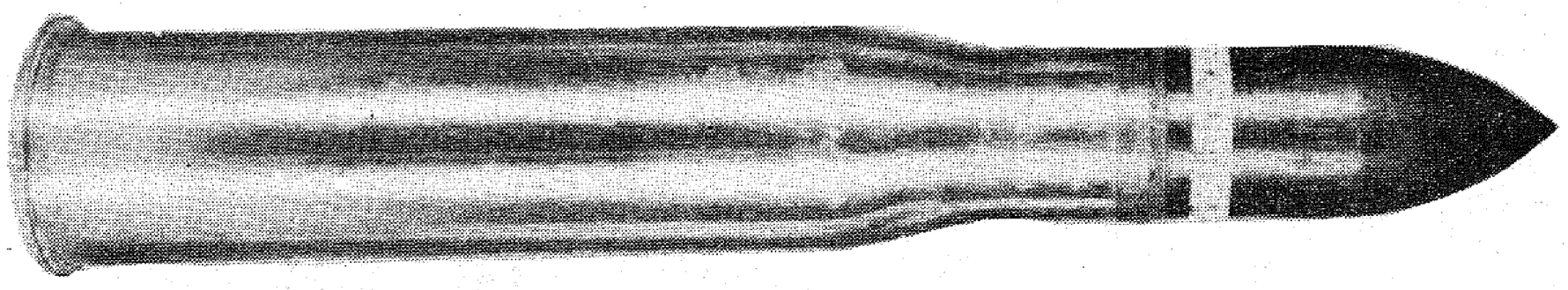
Gun Used In: Type 1 Mobile Anti-Tank and type 1 tank gun.
Overall Lt.: 15.7 inches.
Lt. of Case: 11.2 inches.
Fuzes: Type 88 Instantaneous or Type 88 short delay.
Lt. of Projectile (unfuzed): 5.2 inches.
Wt. of loaded Projectile: 2.8 lbs.
Type of filling: TNT and Picric Acid.
Width of Rotating Band: .5 inch.

Type: A.P. H.E.

Source: Periodical Technical Summary No. 31 and round recovered by M.E.I.U. #4.

47 mm. A.P. Shell





Description: This projectile is constructed of high grade steel. It uses a small Mk. 2 base fuze that also serves as a base plug.

Color: Black body. Red nose tip. White body band.

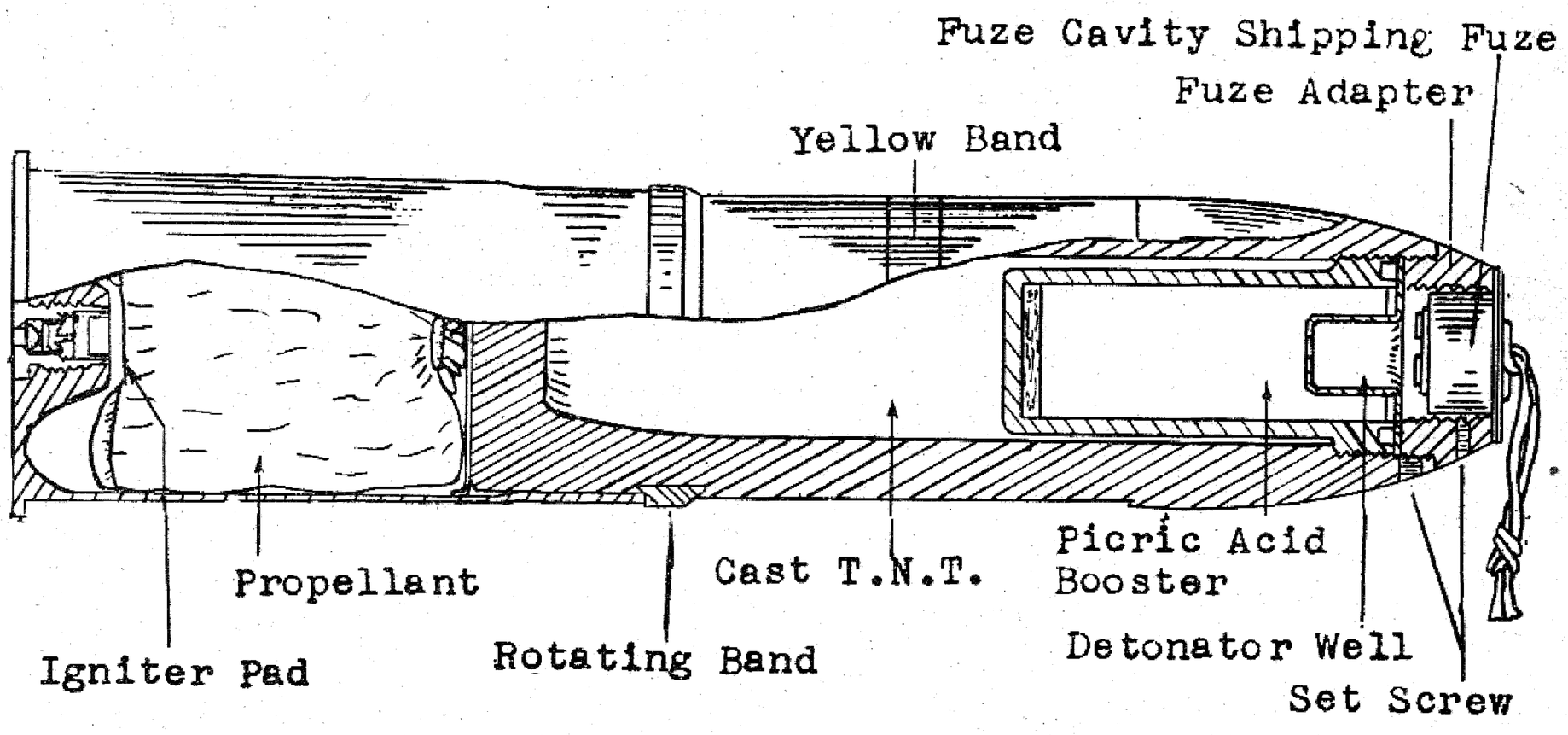
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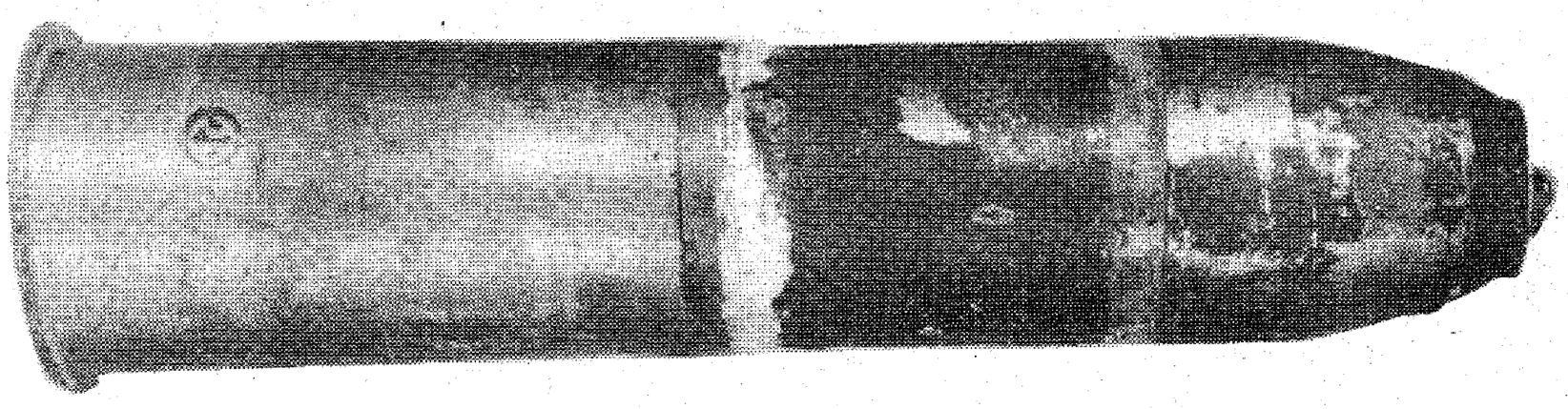
Gun Used In: Type 1 Mobile Anti-Tank.
Overall Lt.: 15.6 inches.
Lt. of Case: 11.2 inches.
Fuzes: Small Mk. 2 base fuze.
Lt. of Projectile (unfuzed): 5.7 inches.
Wt. of loaded Projectile: 2.5 lbs.
Type of filling: Cyclonite.
Width of Rotating Band: .5 inch.

Type: H.E.

Source: M.E.I.U. #1 Report No. 56.

JAPANESE 57 MM
AMMUNITION





Description: This projectile is made of steel and has a fuze adaptor ring. The aft 2/3 of the projectile cavity is filled with TNT while the upper one-third is filled with waxed paper covered picric acid.

Color: Black body. Red nose band. Yellow body band. **May have both yellow and white bands.**

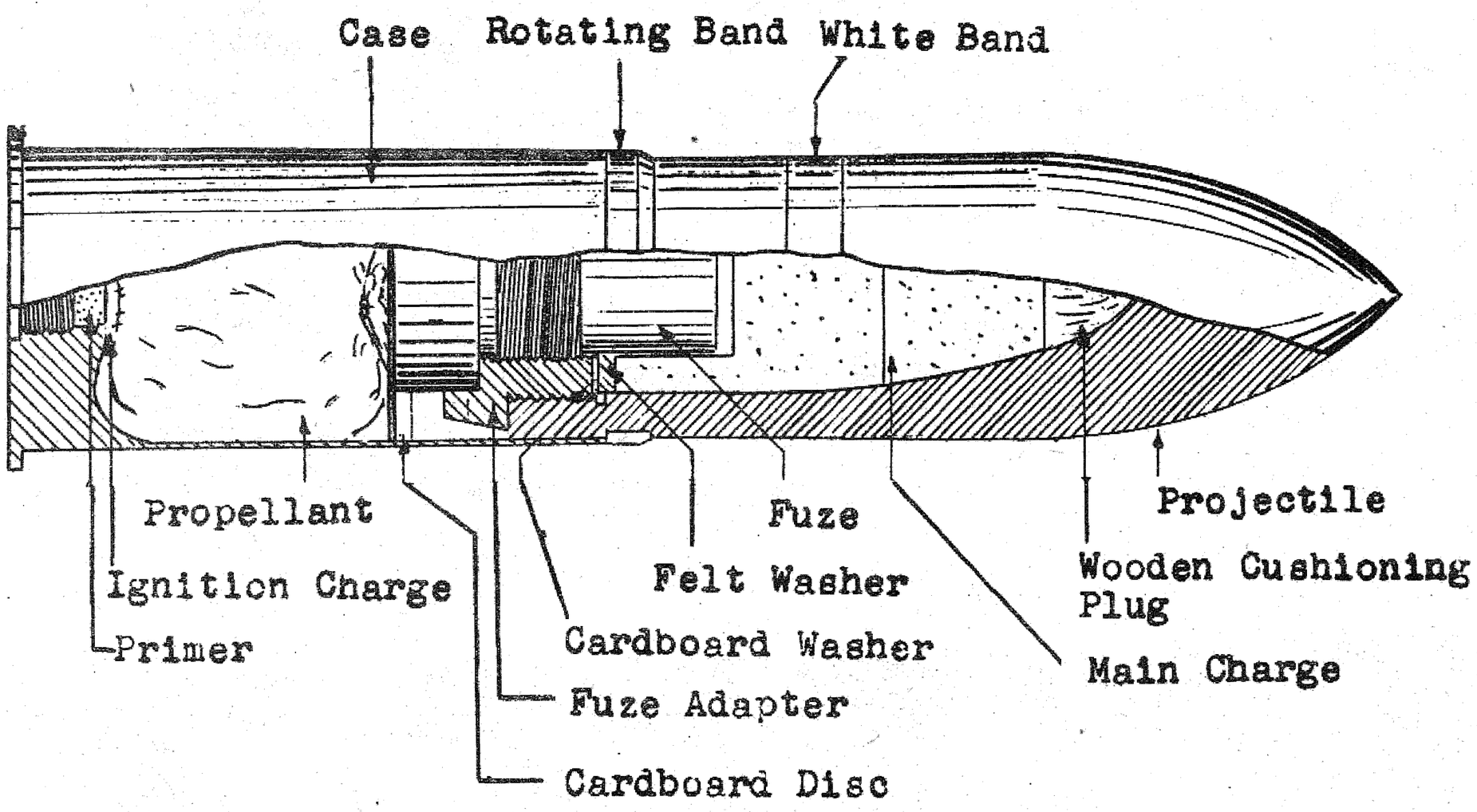
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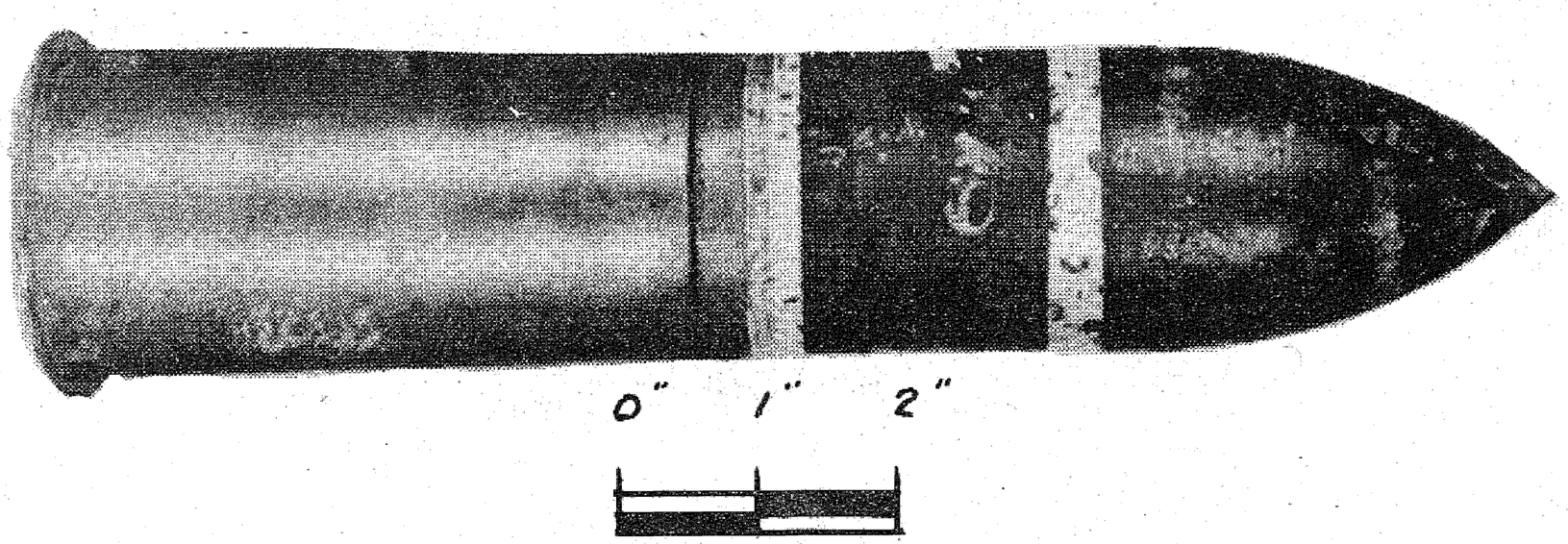
Gun Used In: Type 97 Tank Gun.
Overall Lt.: 10.9 inches.
Lt. of Case: 4.7 inches.
Fuzes: Type 88 Instantaneous or Type 88 Short Delay (Gun Type).
Lt. of Projectile (unfuzed): 181.0 mm.
Wt. of loaded Projectile: 1828 grams.
Type of filling: TNT and Picric Acid.
Width of Rotating Band: 9.5 mm.

Type: A.P. H.E.

Source: M.E.I.U. #1 Report No. 63.

JAPANESE 57 MM A.P. ROUND





Description: This projectile is constructed of hard steel. A wooden plug is located in the forward part of the projectile cavity aft of which are a pellet of picric acid and a pellet of TNT. These two (2) pellets are enclosed in a waxed paper container.

Color: Black body. Red nose tip. White body band. May have both yellow and white band.

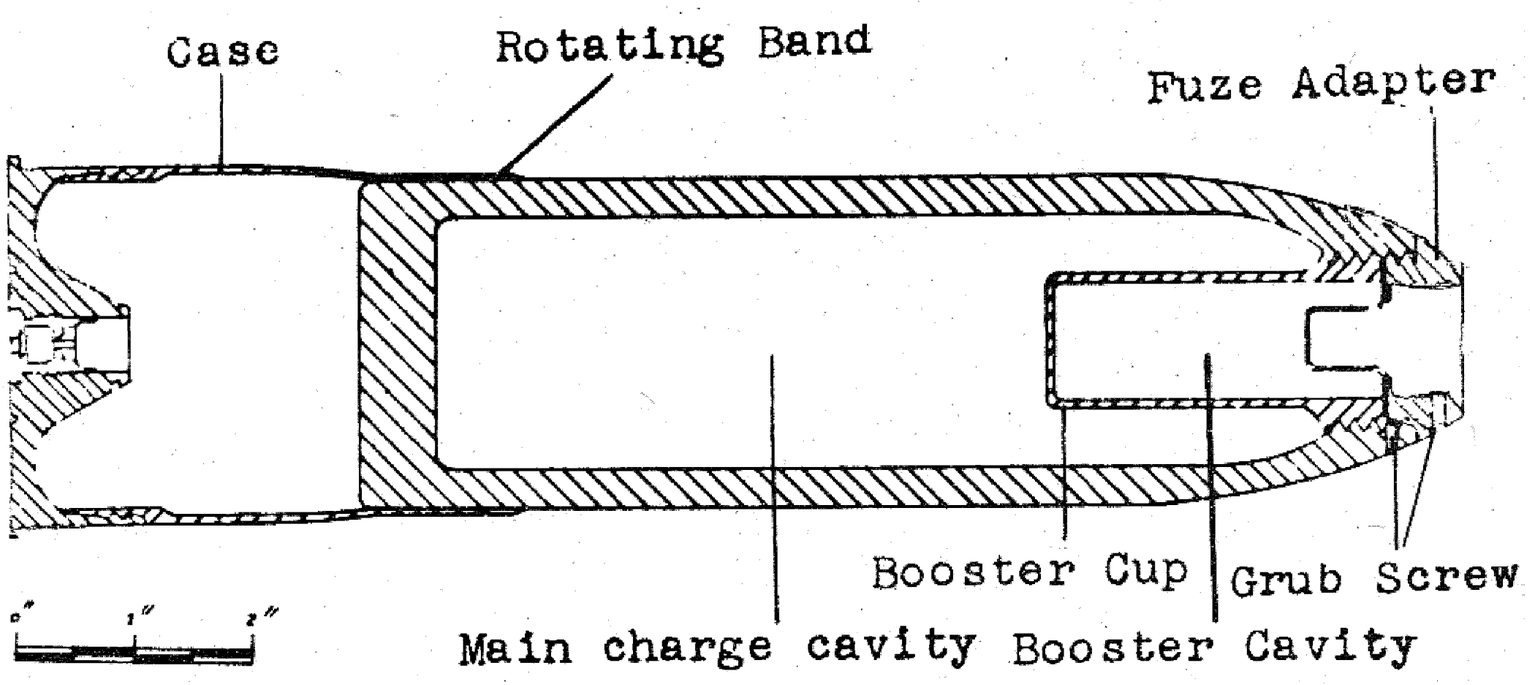
Data:

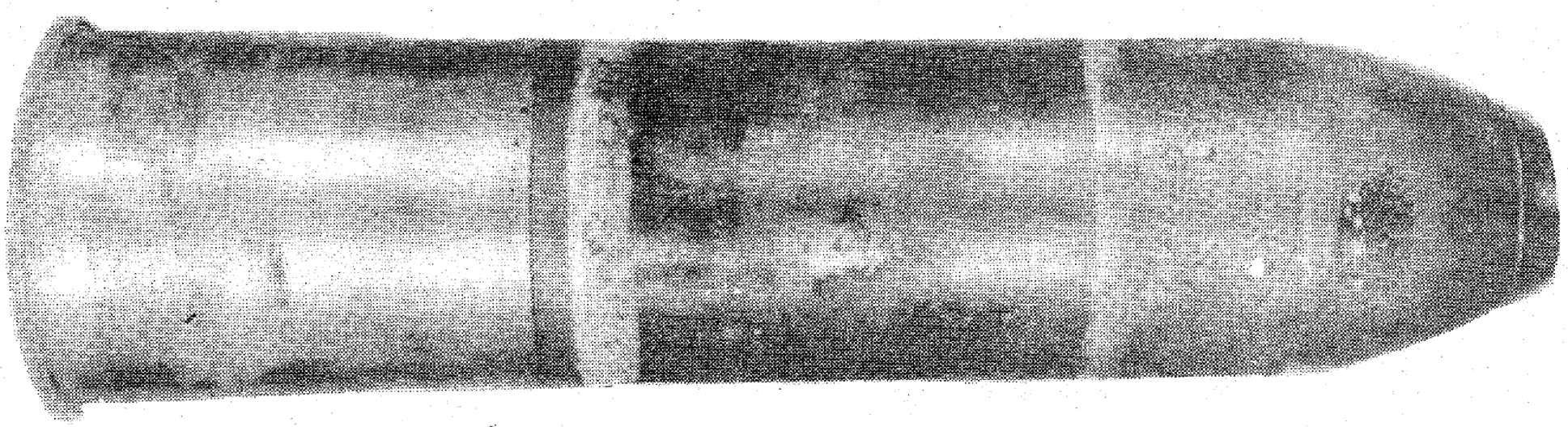
Gun Used In: Type 97 Tank Gun.
Overall Lt.: 11.1 inches.
Lt. of Case: 4.7 inches.
Fuzes: Type 92 small base fuze.
Lt. of Projectile (unfuzed): 181.5 mm.
Wt. of loaded Projectile: (without fuze) 2258 grams.
Type of filling: Cast TNT and Picric Acid - wood nose cushion
Width of Rotating band: 10.0 mm.

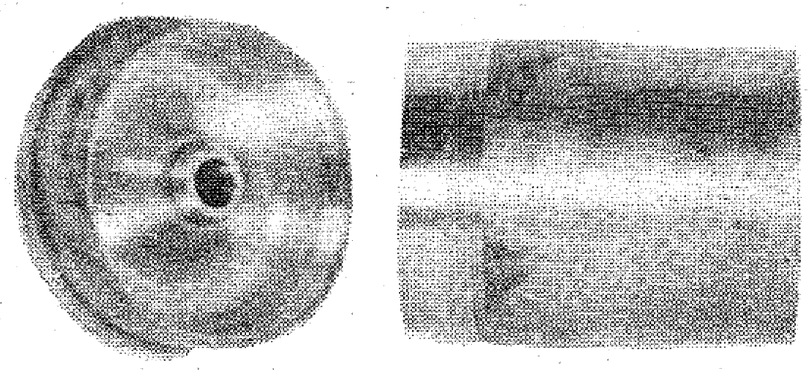
Type: H.E.

Source: Recovered round.

70 MM H.E. PROJECTILE







TWO PIECE CASE

Description: This projectile is constructed of steel and consists of the projectile body, booster tube, and fuze adaptor ring. The projectile cavity is filled with cast TNT and the booster with picric acid.

Color: Black body. Red nose band. Yellow body band.

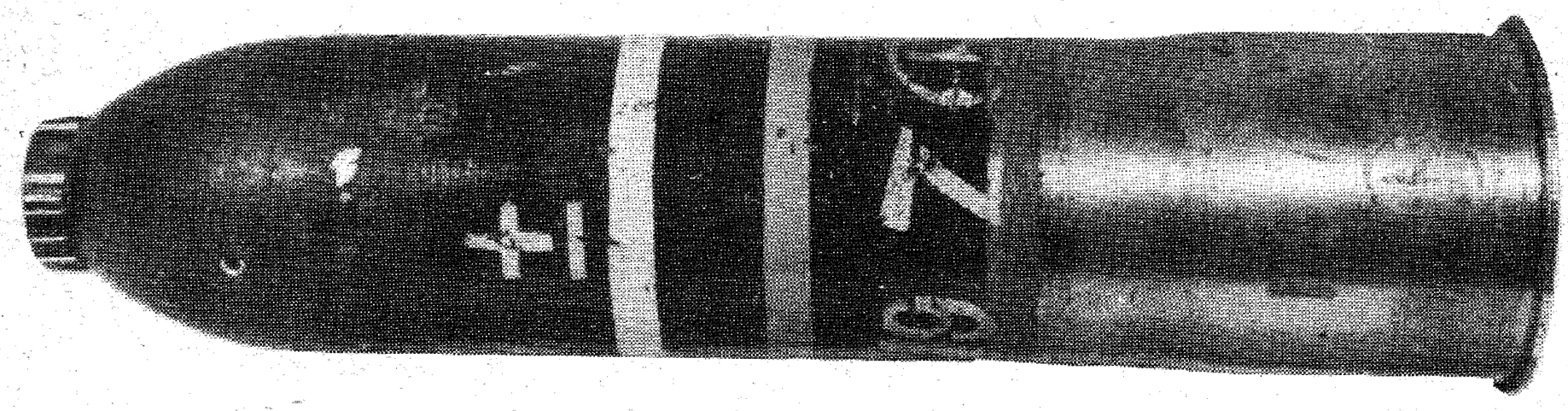
Data:

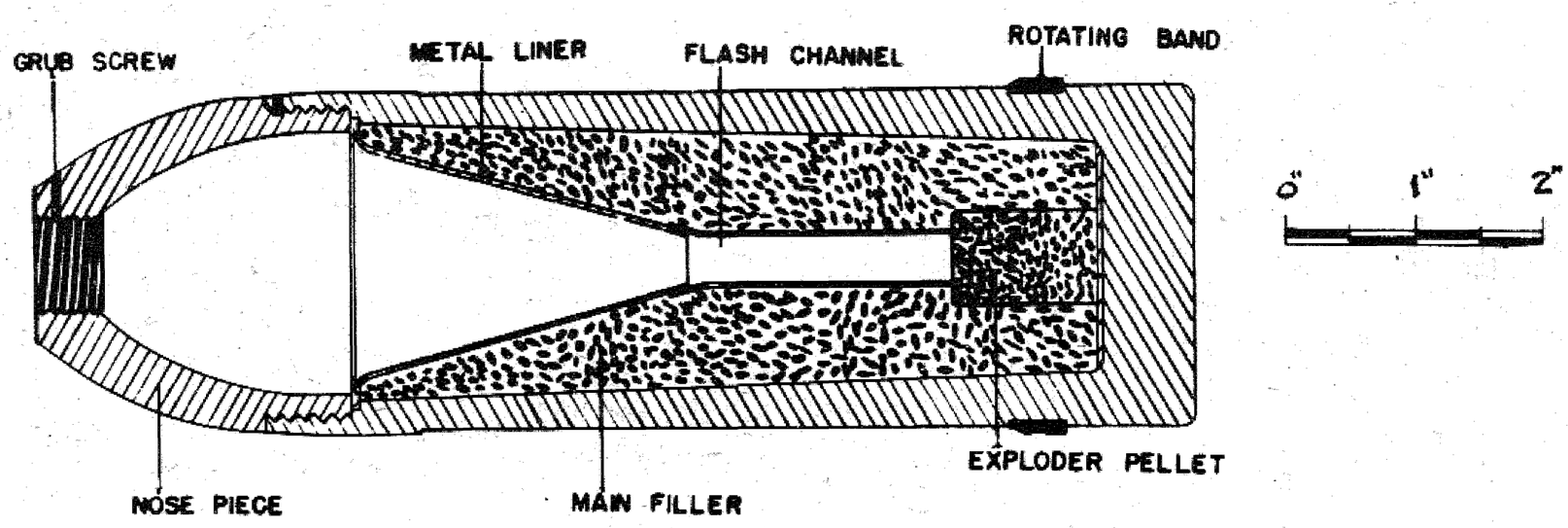
Gun Used In: Type 92 Battalion Gun.
Overall Lt.: 12.25 inches.
Lt. of Case: 4 inches.
Fuzes: Type 88 Instantaneous or Type 88 Short Delay Fuze.
Lt. of Projectile (unfuzed): 235 mm.
Wt. of loaded Projectile: 8 lbs. 1/4 oz.
Type of filling: TNT.
Width of Rotating Band: 10 mm.

Remarks: This projectile recovered in both the two piece and one (1) piece case.

Type: HEAT.

Source: M.E.I.U. #4 specimen.





Description: This projectile appears to be identical in construction to the 75 mm H.E.A.T. The one piece projectile body is made of high grade steel. The body is threaded internally (R/H) to receive the soft metal nose piece. A light metal cone-shaped liner fits into the nose of the projectile body, the apex directed aft. A metal tube (flash channel) leads from the apex to the exploder pellet located in the base of the projectile. The cavity surrounding the metal cone and flash channel contains the high explosive filling. The rotating band is the same as that found on the 70 mm H.E. projectile. The case recovered with this projectile is described on page 30.

Color: Black overall, red nose tip, and a white band above a yellow band located between the bourrelet and rotating band.

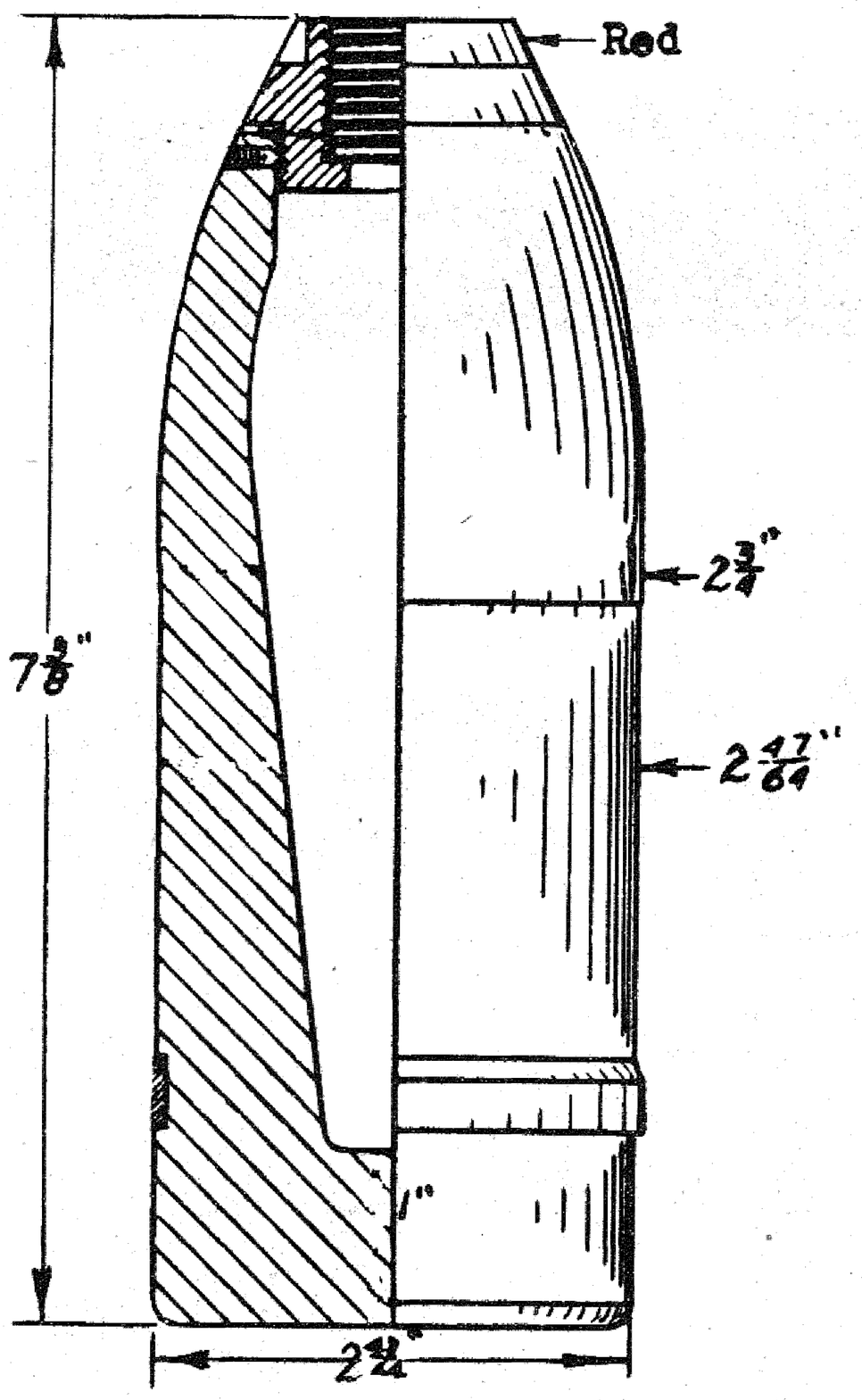
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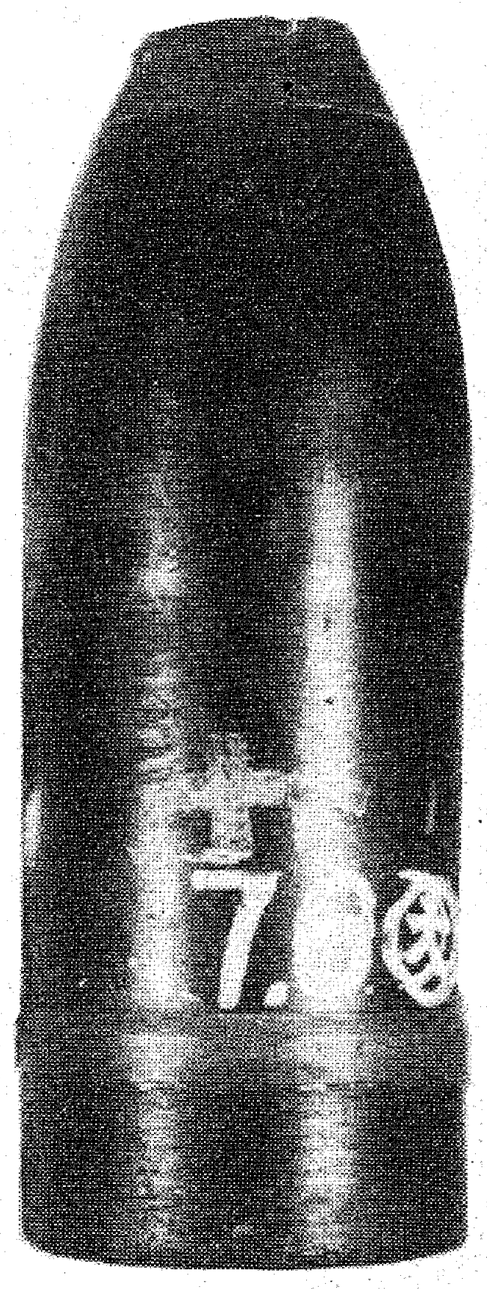
Gun Used In: Type 92 Battalion Howitzer.
Lt. of Case: 4 inches.
Lt. of Projectile (unfuzed): 9 inches.
Width of rotating band: .4 inch.
Lt. of nose piece: 2.3 inches.
Wt. of Projectile: 7 lb. 4 3/4 ounces.
Type of filling: TNT and RDX.
Fuze: Type 88 instantaneous. Howitzer-Mortar.

Type: Cast Iron.

Source: M.E.I.U. #1

70 MM CAST IRON
(Black Powder Filled)





Description: The projectile is short and has thick walls. The main filler is 103.5 grams of black powder, contained in 3 separate flannel bags. The case is short, just a fraction longer than 1/2 the projectile.

Color: Overall black with red fuze adapter.

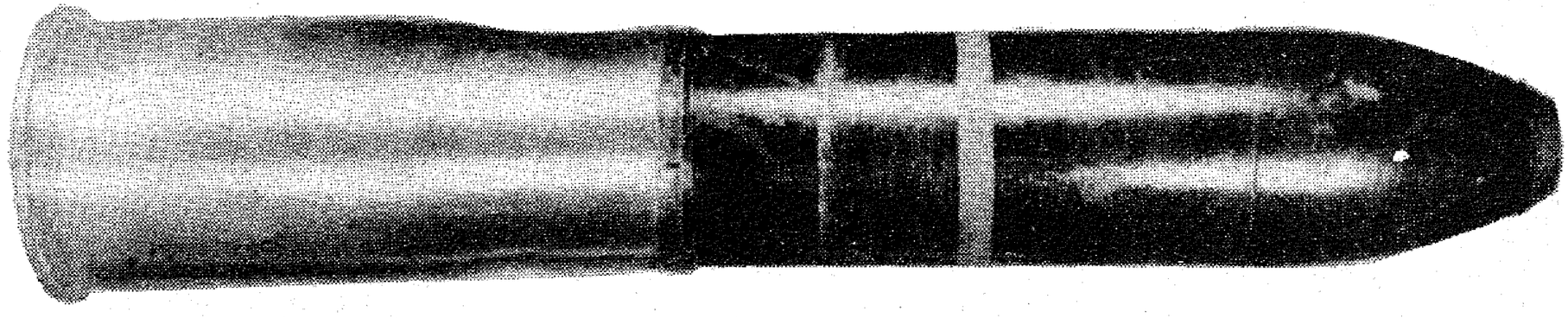
Data:

Projectile weight, empty: 7 lbs. 12 oz.
Lt. of Projectile (unfuzed): 186 mm.

Type: H.E.

Source: Periodical Technical Summary No. 31 and M.I.S. Intelligence Bulletin Vol. III No. 1.

75 MM H.E. PROJECTILE



Description: Steel projectile with plain copper rotating band sloped at the forward edge. Base has slight boat-tail. Steel exploder container and fuze adapter, both screw into the nose of the projectile with a left hand thread. Grub screw locks adapter in place. Adapter has left hand internal thread to take the fuze and a grub screw to secure it in place.

Color: Black overall with red adapter. Yellow band below bourrelet. White band above rotating band.

Data:

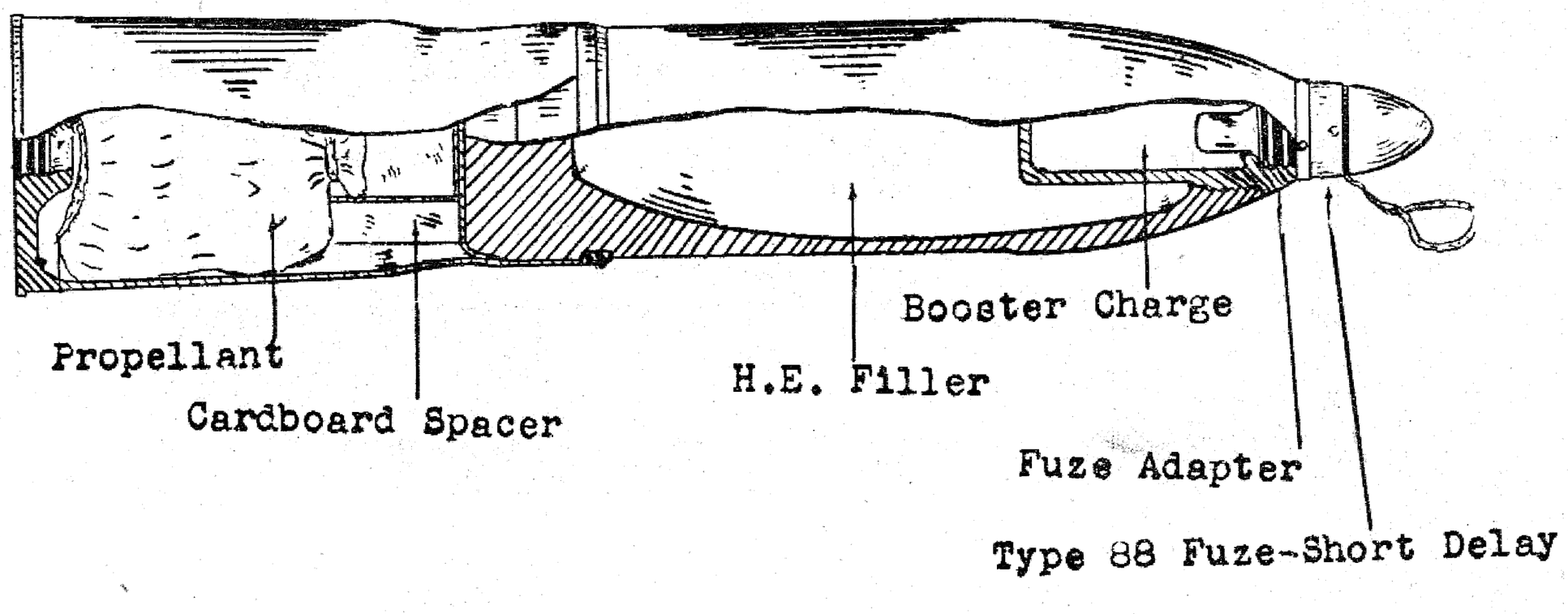
Gun Used In:	Overall Lt. (unfuzed):	Lt. of Case:
Type 38	22 inches	11.5 inches.
Type 38 (improved)	22 inches	11.5 inches.
Type 41 Cavalry	22 inches	11.5 inches.
Type 41 Mountain	17.8 inches	7.3 inches.
Type 94 Mountain	22 inches	11.5 inches.
Type 95 Field Gun	22 inches	11.5 inches.

Fuzes: Type 88 Instantaneous or Type 88 Delay.
Lt. of Projectile (unfuzed): 11.9 inches.
Wt. of loaded Projectile: 13.4 lb. (TNT Loaded), 12.8 lb. (RDX etc. loaded).
Type of filling: Cast TNT or 15% RDX, 42% Ammonium Nitrate, 43% Potassium Nitrate.
Width of Rotating Band: 0.39 inch.

Type: H.E.

Source: M.E.I.U. #1 Report No. 64.

75 MM. H.E. PROJECTILE



Description: Projectile is a mild steel casting of conventional H.E. design. Main difference is in tapering of the inner cavity toward the base of the projectile to give a heavy wall at the rotating band.

Color: Black overall with a red band around the fuze adapter and a green band around the center of gravity.

Data:

Gun Used In: Type 41 Mountain.
Overall Lt.: (unfuzed) 14.85 inches.
Lt. of Case: 7.3 inches.
Fuzes: Type 88 instantaneous or Type 88 delay.
Lt. of Projectile (unfuzed): 10.6 inches.
Wt. of loaded Projectile: 12.1 lbs.
Type of filling: Cast TNT.
Width of Rotating Band: 0.39 inch.

RESTRICTED 75 MM PROJECTILE

Type: H.E.

Source: M.E.I.U. #1 Report No. 64.

Description: Typical Army H.E. construction. Slightly larger than usual 75 mm projectile. It has a pronounced bourrelet and the base is slightly boat-tailed. Fuze adapter threads into the nose and is secured by a grub screw.

Color: Orange overall.

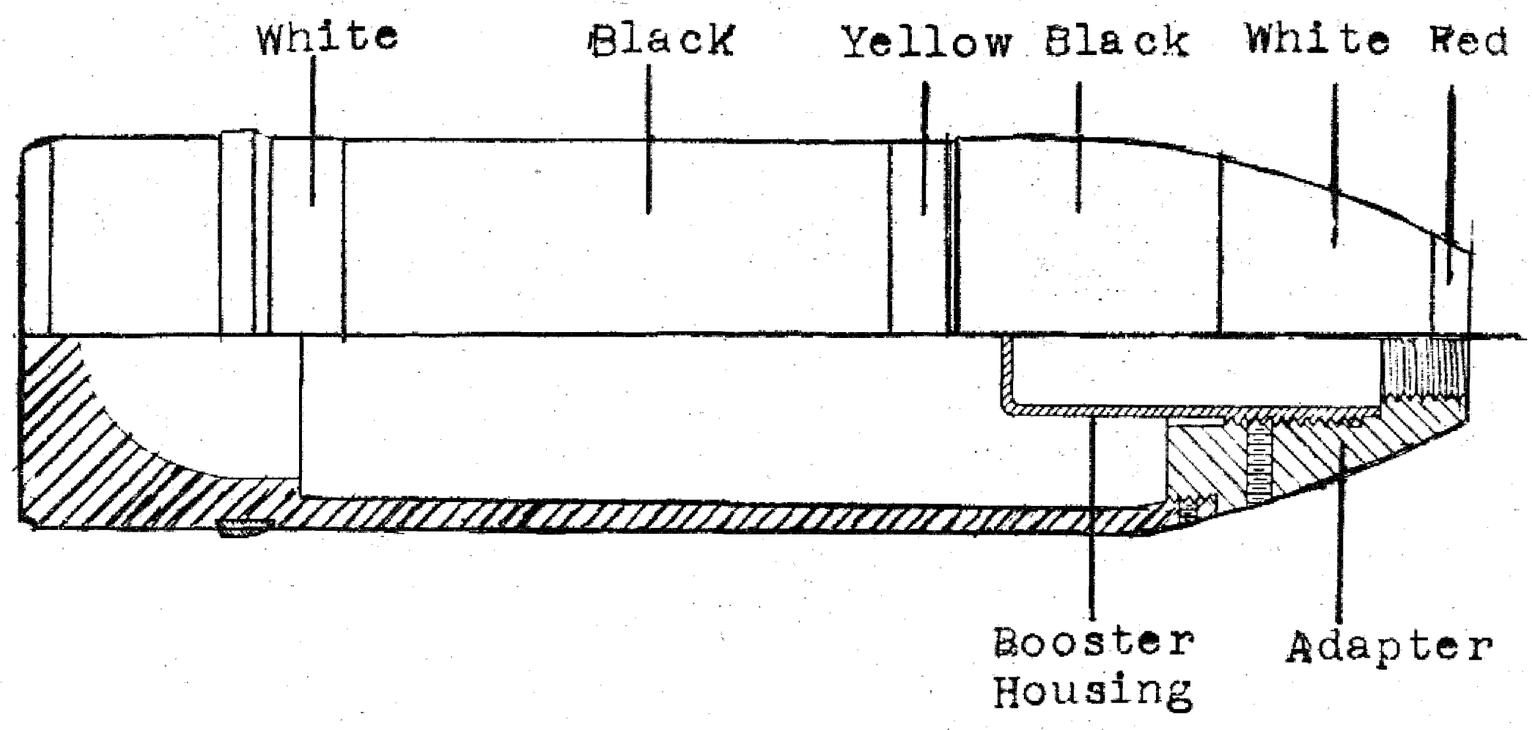
Data:

Gun Used In: Type 41 Mountain Gun.
Fuzes: Type 88 Instant. (P.D.) or Type 88 Delay (P.D.).
Lt. of Projectile (unfuzed): 11.9 inches.
Wt. of loaded Projectile: 12.1 lb.
Type of filling: Cast TNT with Picric Acid Booster.
Width of Rotating Band: 0.39 inch.

Type: Type 98 - 75 mm modified H.E. (converted shrapnel proj.).

Source: M.E.I.U. #1 Report No. 97.

75 MM CONVERTED SHRAPNEL PROJECTILE



Description: The steel projectile is threaded at the nose to receive the fuze adapter which is held by a grub screw. The booster housing is threaded into the bottom of the adapter with a left-hand thread.

Color: Black overall with a narrow red band on the forward part of the adapter, the greater part of which is painted white. Has a yellow band under the bourrelet and a white band forward of the rotating band.

Data:

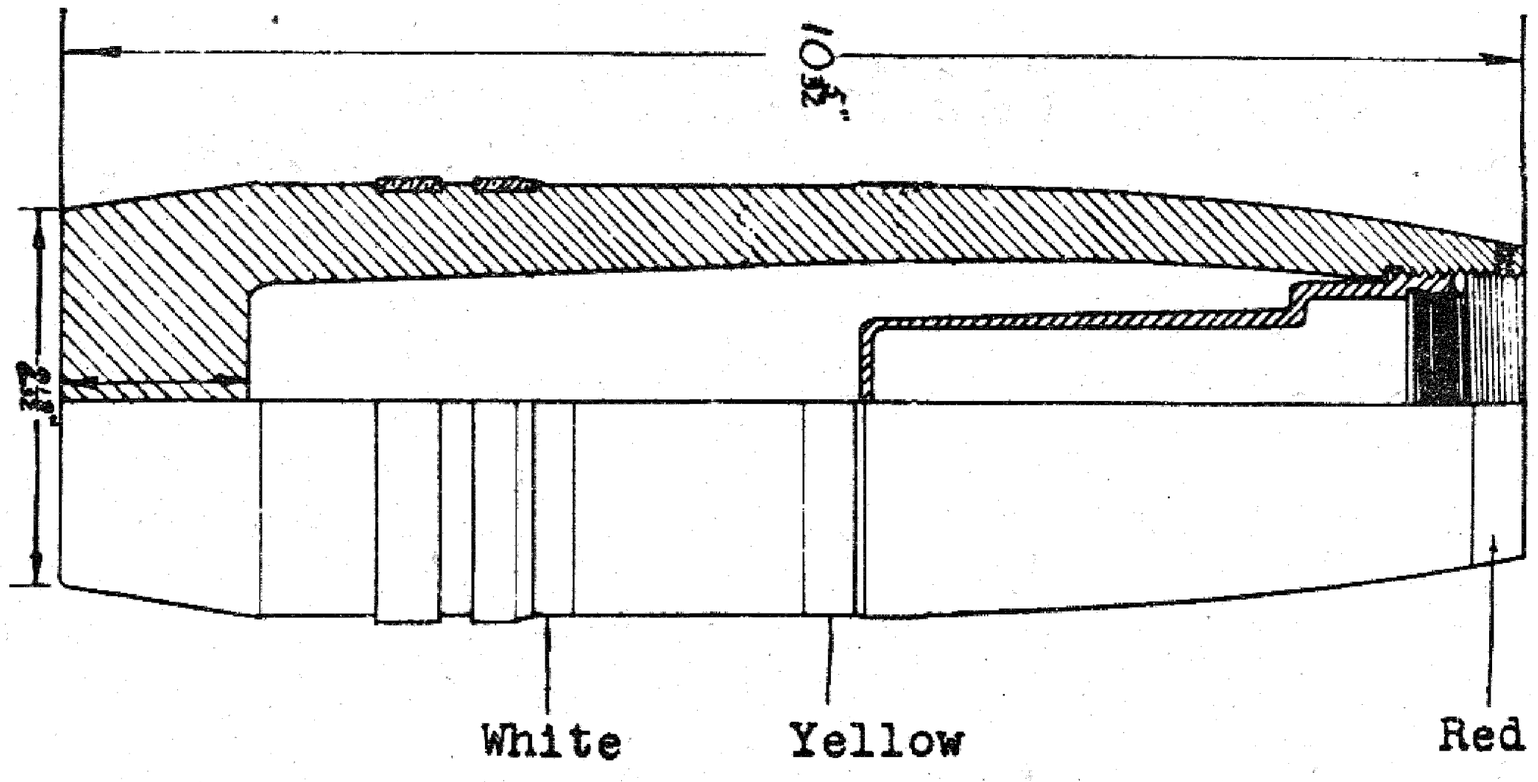
Gun Used In:	Lt. of Case:
Type 41 Mountain	7.3 inches.
Type 94 Mountain	11.5 inches.

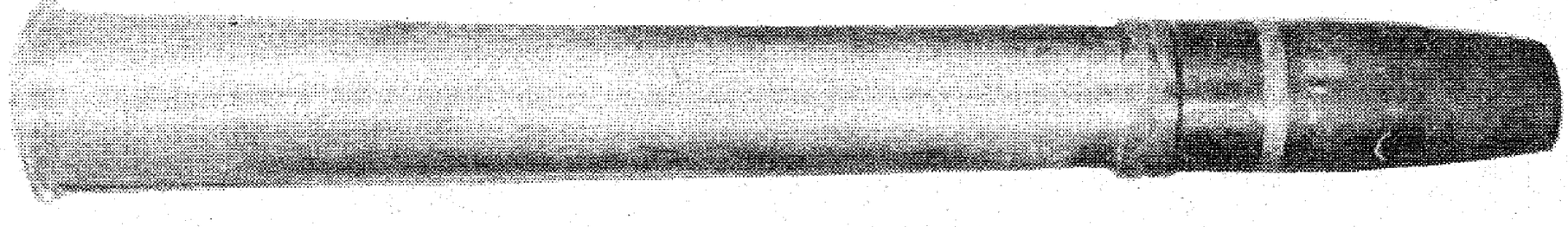
Fuzes: Type 88 Instant. or Type 88 delay.
Lt. of Projectile (unfuzed without adapter): 9.1 inches.
Wt. of loaded Projectile (unfuzed): 9 lb. 10 oz.
Type of filling: Cast TNT.
Width of Rotating Band: 0.35 inch.

Type: Type 90 - 75 mm A.A. H.E.

Source: Examination of Specimen.

75 MM A.A. H.E. PROJECTILE





Description: Steel projectile with a long, ogival nose and a slightly boat-tailed base. Has an unusually wide rotating band with a single, wide cannelure at its center. No fuze adapter is used. A grub screw secures the nose fuze.

Color: Black overall with a yellow band midway between rotating band and the bourrelet.

Data:

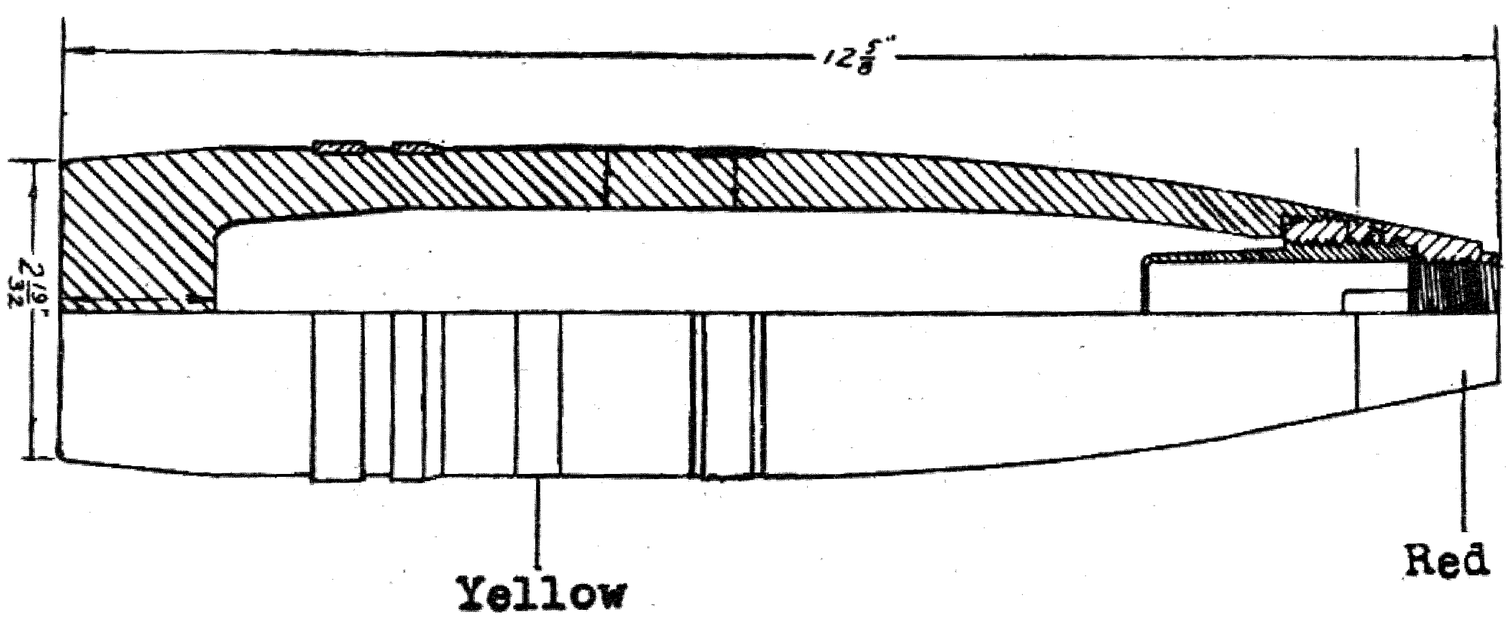
Gun Used In:	Overall Lt.:	Lt. of Case:
Type 11 A.A.	19.4 inches.	11.5 inches.
Type 88 A.A.	27.4 inches.	19.5 inches.
Type *88 A.A.	27.4 inches.	19.5 inches.

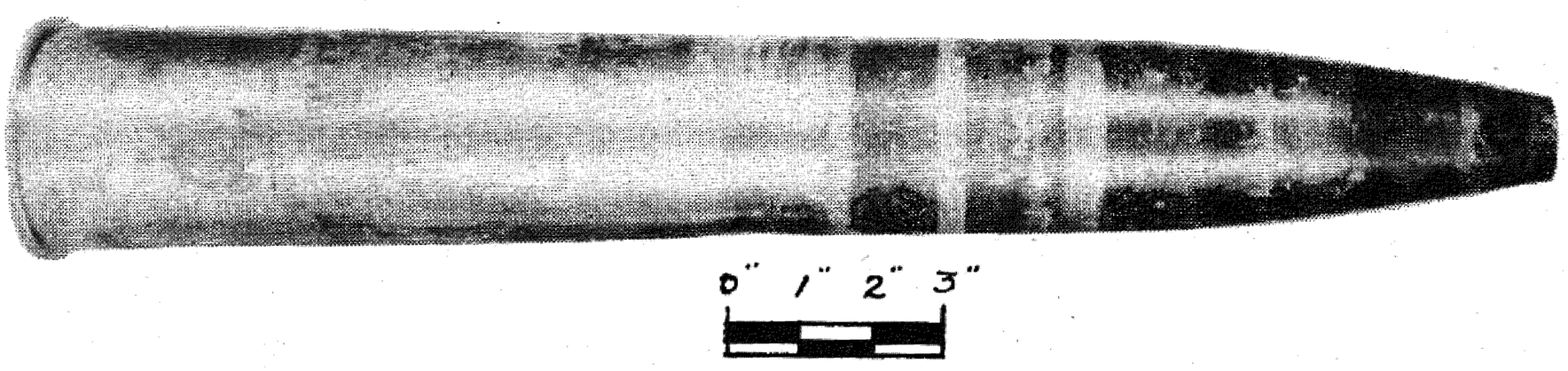
Fuzes: Type 89 Long Pointed A.A. fuze with 75 mm Auxiliary Detonating Fuze.
Lt. of Projectile (unfuzed): 10.1 inches.
Wt. of Projectile (unloaded): 11.8 lbs.
Type of filling: Cast TNT.
Width of Rotating Band: 1 inch.

Type: Type 90 Pointed 75 mm H.E.

Source: M.E.I.U. #1 Report No. 66 and examined specimen.

75 MM A.A. (POINT DET. FUZE)





Description: Steel projectile having a long, tapered, ogival nose with a long fuze adapter which is held by a grub screw. Has a copper front band in place of a bourrelet, and the usual type of copper rotating band. The base of the projectile is slightly boat-tailed.

Color: Black overall with a red band around the top of the adapter. Yellow band between front band and rotating band.

Data:

Gun Used In:	Overall Lt.:	Lt. of Case:
Type 88 Field	21.9 inches	11.5 inches.
Type 94 Mountain	21.9 inches	11.5 inches.
Type 41 Cavalry	21.9 inches	11.5 inches.
Type 38 Field (Improved)	21.9 inches	11.5 inches.
Type 95 Field	21.9 inches	11.5 inches.
Type 90 Field	27.1 inches	16.7 inches.
Type 88 A.A.	29.9 inches	19.5 inches.

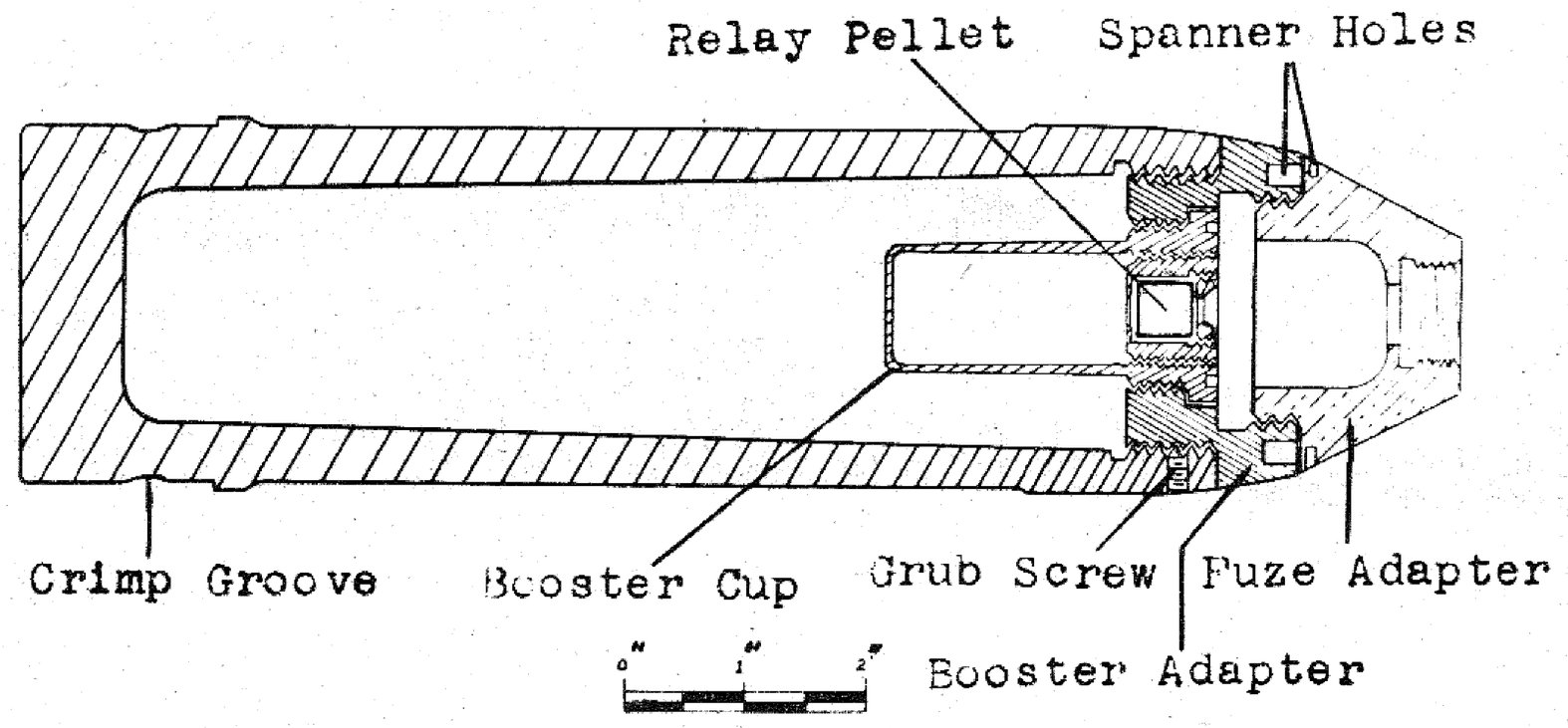
Fuzes: Type 88 Instantaneous or Delay; Probably Type 89 when projectile is used as A.A. round.
Lt. of Projectile (unfuzed): 12 5/8 inches.
Wt. of loaded Projectile: 13.5 lbs.
Type of filling: Cast TNT Booster-Cyclonite.
Width of Rotating Band: 0.39 inch.

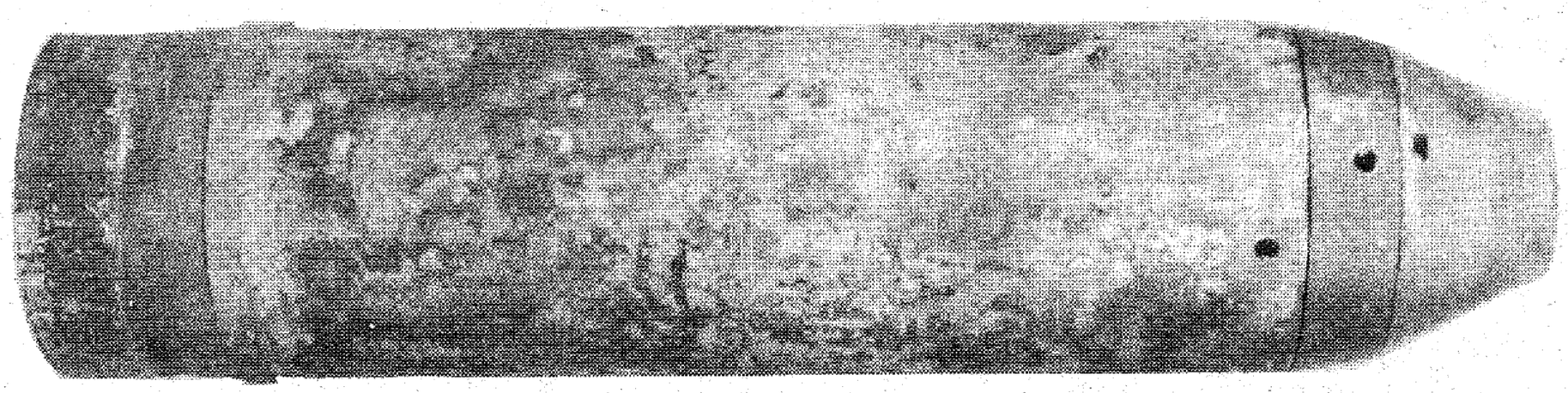
Remarks: The adapter of this projectile is removed when used as an A.A. round.

Type: H.E. (Adaptable for time or impact fuzing).

Source: Specimen.

75 MM H.E. (ADAPTABLE FOR TIME OR IMPACT FUZING)





Description: Cylindrical steel body with sharp cornered base. Conventional rotating band with single cannelure at rear. Time fuze adapter is threaded to nose of projectile, and held secure by a grub screw. A time fuze or an impact fuze adapter may be threaded into the time fuze adapter. Both the time fuze adapter and the impact fuze adapter have grub screws to hold respective fuzes in place.

Color: Black overall with yellow band approximately midway between bourrelet and rotating band. White band forward of yellow one.

Data:

Gun Used In:	Overall Lt.:	Lt. of Case:
Type 38 Field	21.6 inches	11.5 inches.

Fuzes: Type 88 Instant or delay (Probable).
Type 3rd Year combination " .
Type 5th Year combination " .

Lt. of Projectile (unfuzed): with adapter (for impact fuze) - 12.2 inches.
without adapter (for time fuze) 10.6 inches.

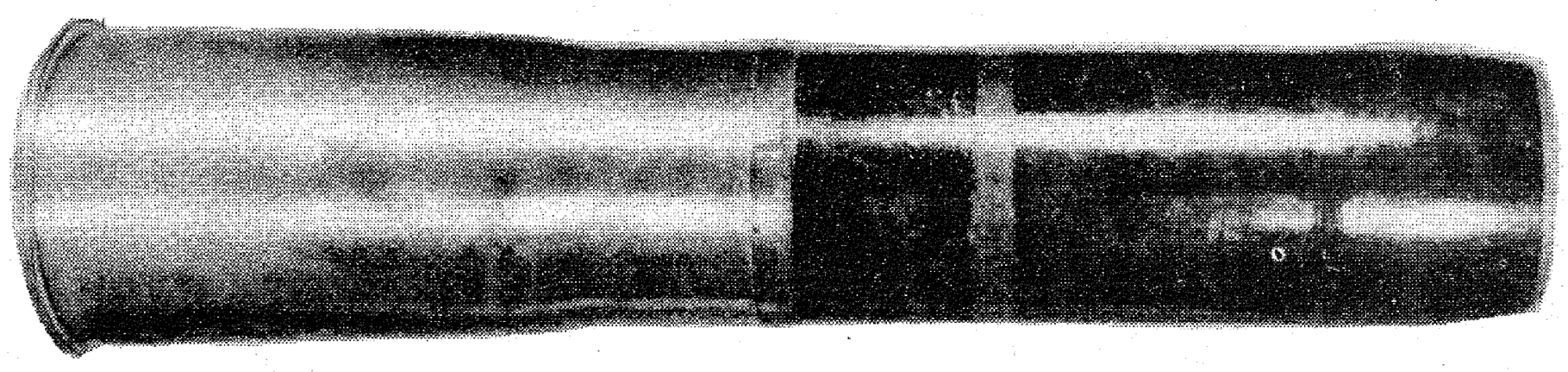
Wt. of loaded Projectile: 11.5 lb.

Type of filling: Picric Acid.

Width of Rotating Band: 0.39 inch.

Type: Type 90 - 75 mm Shrapnel Projectile.

Source: M.E.I.U. #1 Report No. 64.



Description: Steel projectile with solid base and single rotating band. Nose of projectile threaded to receive a fuze adapter which has a steel diaphragm in its base perforated to provide access to the transmission tube. The brass transmission tube, filled with black powder, extends from the base of the adapter through a steel disc, to the base ejection charge. The steel spacer disc rests on a shoulder machined into the projectile wall near the base. The base ejection charge is confined in the base of the projectile below the spacer disc. Lead balls in a rosin matrix, one assembled about the transmission tube between the fuze adapter and the spacer disc.
Color: Black overall with a red band forward of rotating band and red adapter. Also reported black overall with white band forward of rotating band.

Data:

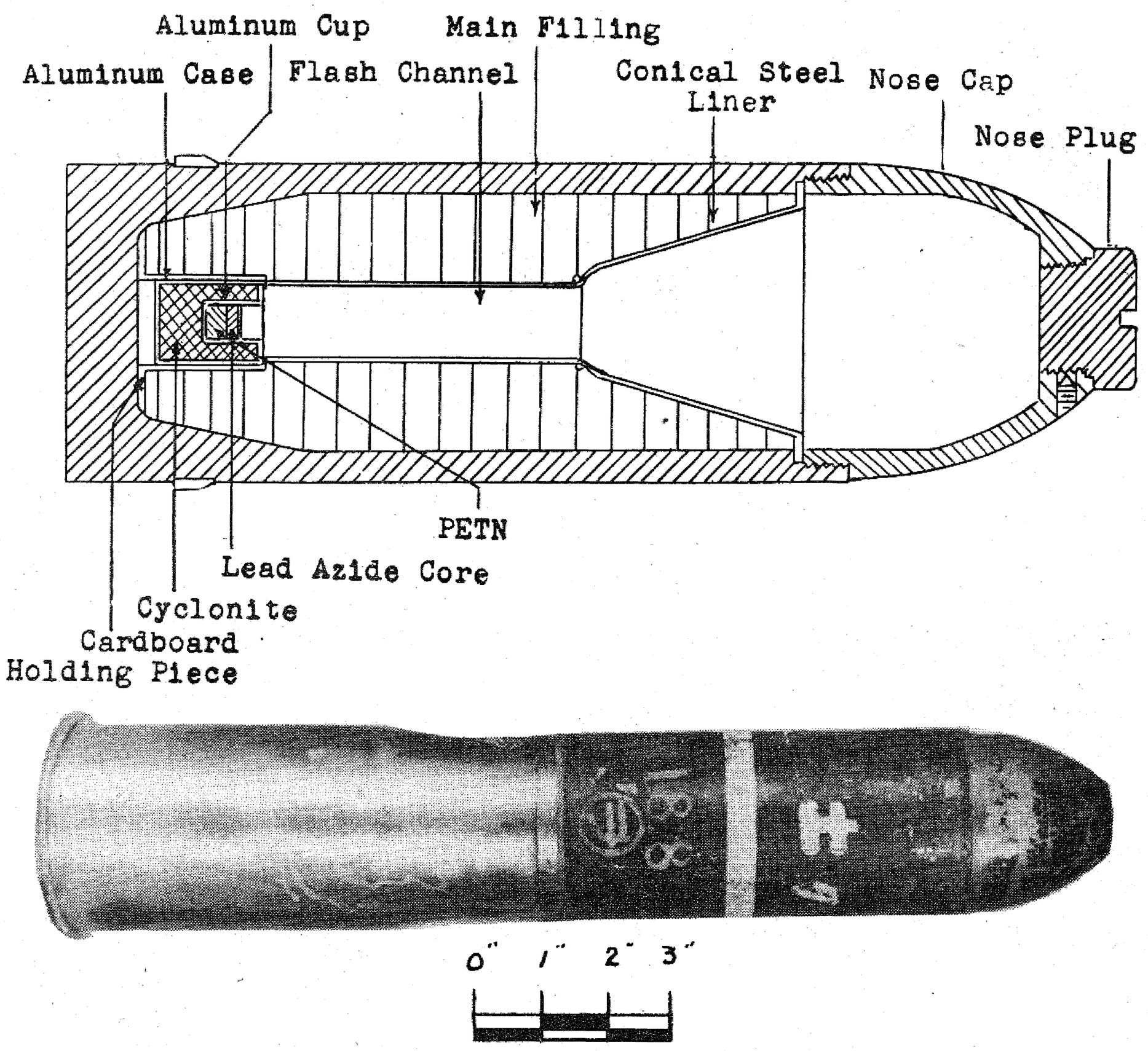
Gun Used In:	Overall Lt. (unfuzed):	Lt. of Case:
Type 41 Mountain	15.2 inches	7.3 inches .
Type 38 Field	19.3 inches	11.5 inches.
Type 41 Cavalry	19.3 inches	11.5 inches.
Type 95 Field	19.3 inches	11.5 inches.
Type 94 Mountain	19.3 inches	11.5 inches.
Type 90 Field	24.5 inches	16.7 inches.
Type 88 A.A.	27.3 inches	19.5 inches.

Fuzes: Type 3rd Year Combination Fuze, or
Type 5th Year Combination Fuze.
Lt. of Projectile (unfuzed): 9.2 inches.
Wt. of loaded Projectile: (unfuzed) 13.1 lb.
Type of filling: 272 lead balls in a rosin matrix.
Black powder ejection charge.
Width of Rotating Band: 0.39 inch.

Type: H.E.A.T. (Hollow Charge).

Source: M.E.I.U. #1 Report No. 70.

75 MM HOLLOW CHARGE PROJECTILE



Description: Projectile body is a turned steel cylinder with a soft non-ferrous alloy nose cap which threads into the body forward of the bourrelet and is held by a grub screw. This nose cap has two (2) wrench flats and a grub screw to secure the fuze. The projectile has a square base (not boat-tailed).

In the nose of the explosive canister there is a steel cone shaped liner from which an aluminum tube (flash channel) runs aft to the exploder pellet in the base of the projectile.

Data:

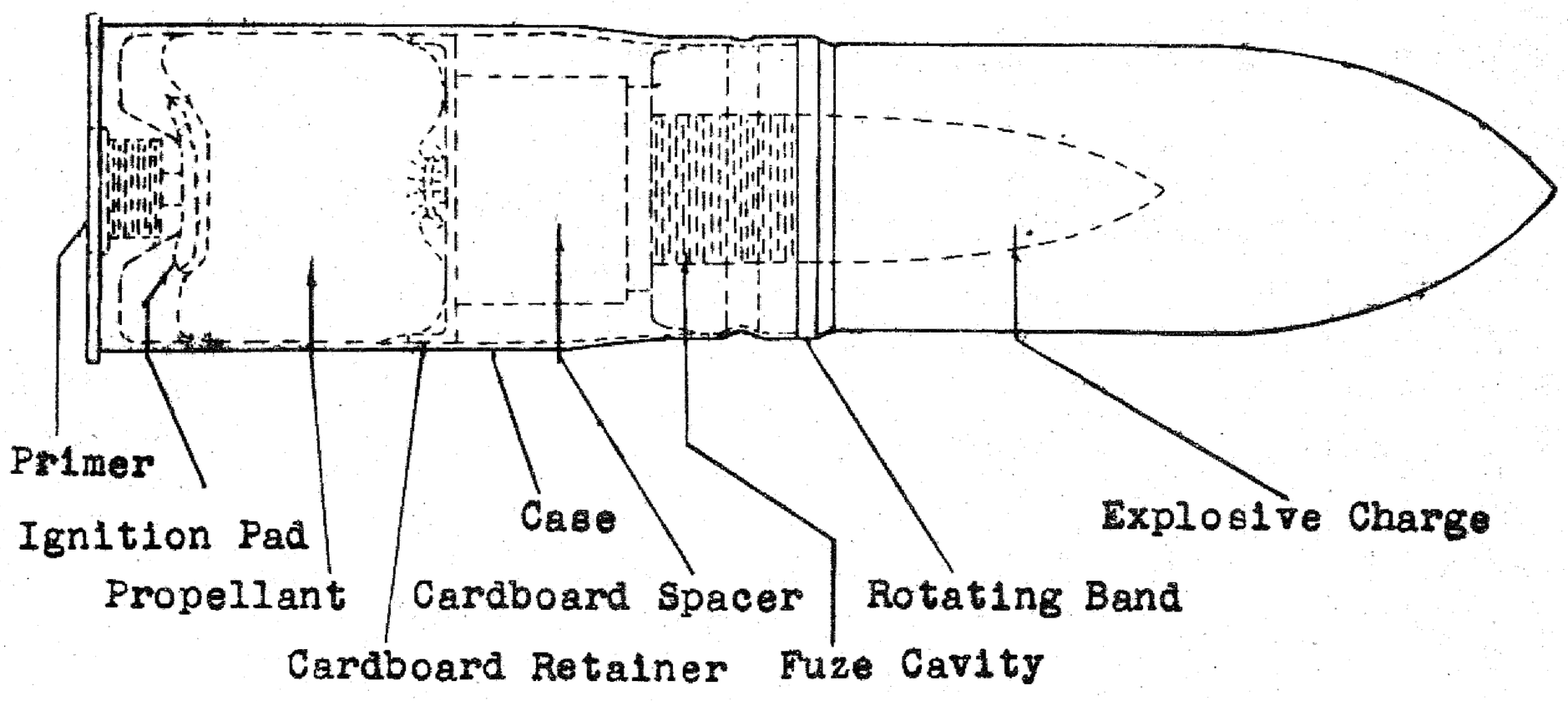
Gun Used In: Type 41 Mountain
Overall Lt. (unfuzed): 15.8 inches
Lt. of Case: 7.3 inches.
Fuzes: Type 88 Instantaneous.
Lt. of Projectile (unfuzed): 9.5 inches.
Wt. of loaded Projectile: 10 lbs. 8 oz.
Type of filling: Cast 40/60 RDX and TNT. Exploder pellet is RDX with PETN cone.
Width of Rotating Band: 0.39 inch.

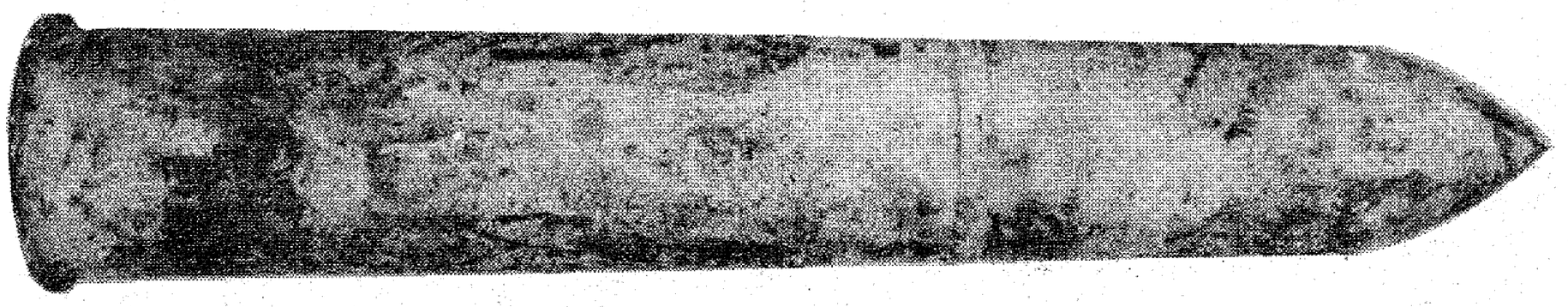
Remarks: Fuze threads directly into the nose cap. No fuze adapter used. Penetrated 3 inches Navy hull plate in firing tests.

Type: Type 95 AP HE.

Source: M.E.I.U. #1 Report 30.

75 MM - A.P. ROUND
JAPANESE





Description: Sharp pointed, chilled steel projectile with a slight boat-tail. Small explosive charge. Cannelure below rotating band holds crimp of the casing.

Color: Black overall with a red tipped nose and a white band at the center of gravity.

Data:

Gun Used In:	Overall Lt.:	Lt. of Case:
Type 41 Mountain	15.5 inches	7.3 inches.
Type 38 Field	19.7 inches	11.5 inches.
Type 94 Mountain	19.7 inches	11.5 inches.
Type 41 Cavalry	19.7 inches	11.5 inches.
Type 95 Field	19.7 inches	11.5 inches.
Type 90 Field	24.9 inches	16.7 inches.

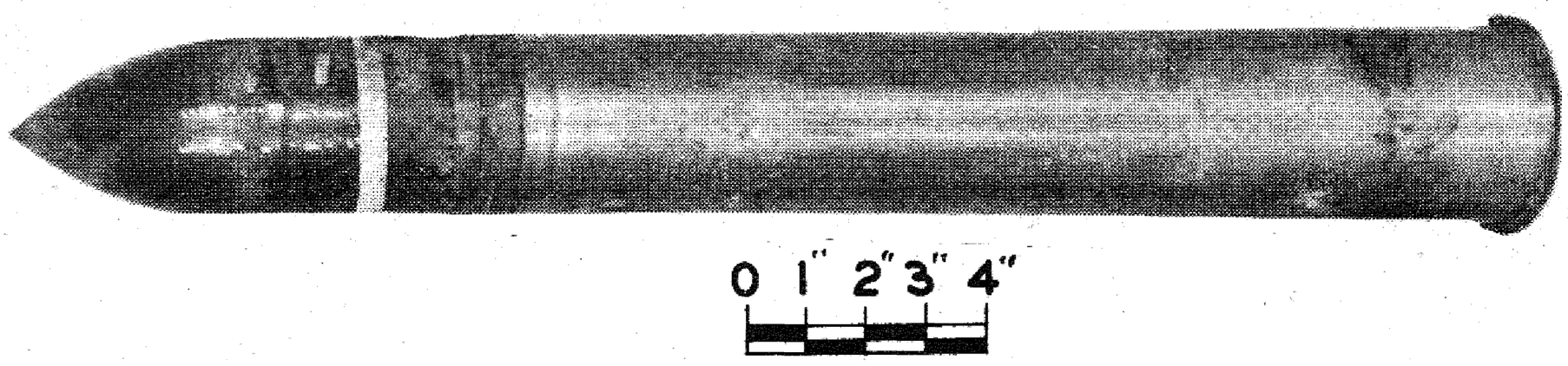
Fuzes: Undesignated delay action base detonating fuze. (Possible Type 95 A.P. B.D.F.).
Lt. of Projectile (unfuzed): 9.4 inches.
Wt. of loaded Projectile: 13.4 lb.
Type of filling: RDX 84.9%, Beeswax 15.1%.
Width of Rotating Band: 0.39 inch.

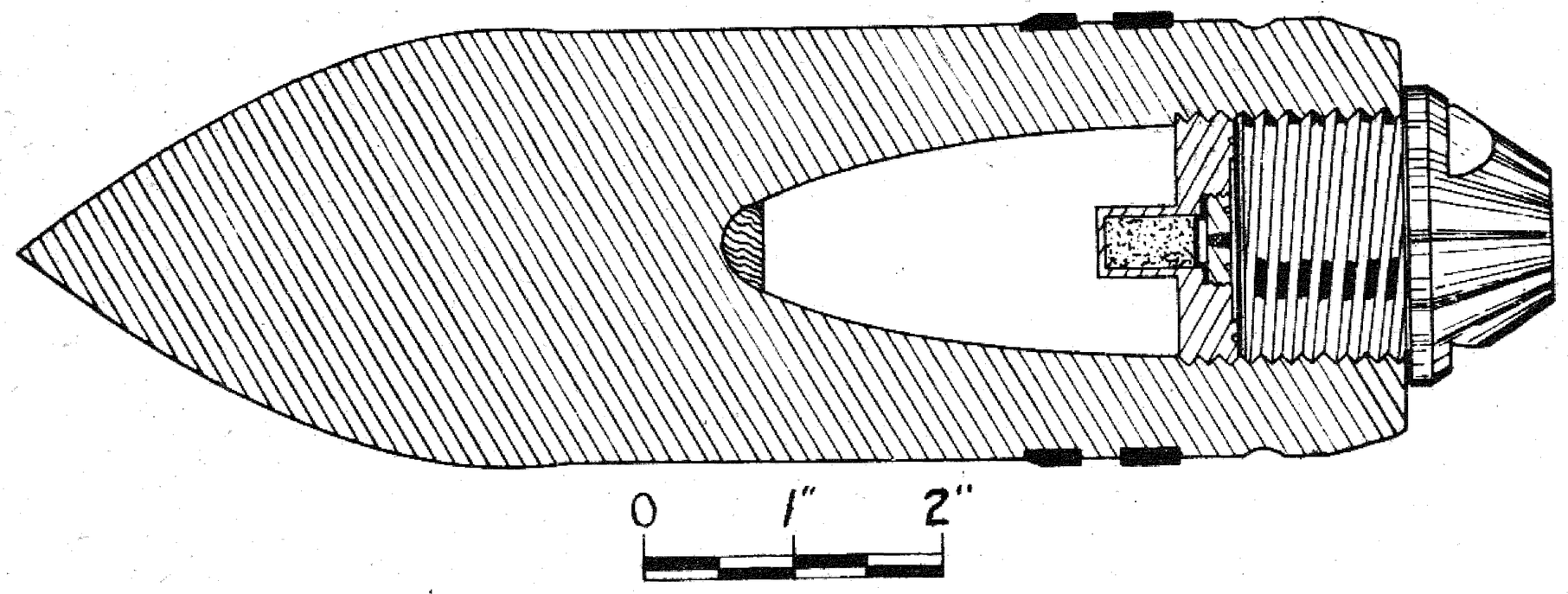
Remarks: The explosive filling is carried in an aluminum container. A wooden cushion forward, and a felt pad aft, cushion the filling from shock.

Probable penetration is 50 mm at a normal angle and 40 mm at a 30° angle when used in the Type 94 Mountain gun.

Type: A.P.H.E.

Source: MEIU #4 specimen.





Description: The projectile is constructed of chilled steel. There are two (2) single rotating bands the forward edge of the forward band being beveled. Aft of the after rotating band is machined into the projectile body a shallow case crimp groove. The case recovered with this round (Type 90 field gun) is made of brass and has no bottle-neck. The explosive filling is made into an ogival pellet and wrapped in a lead foil. In the apex of the conical explosive cavity is fitted a small wooden shock absorber. Into the after end of the explosive pellet is pressed a well to receive the base fuze gaine.

Color: The projectile is painted black overall with a red nose tip and a white band forward of the rotating bands.

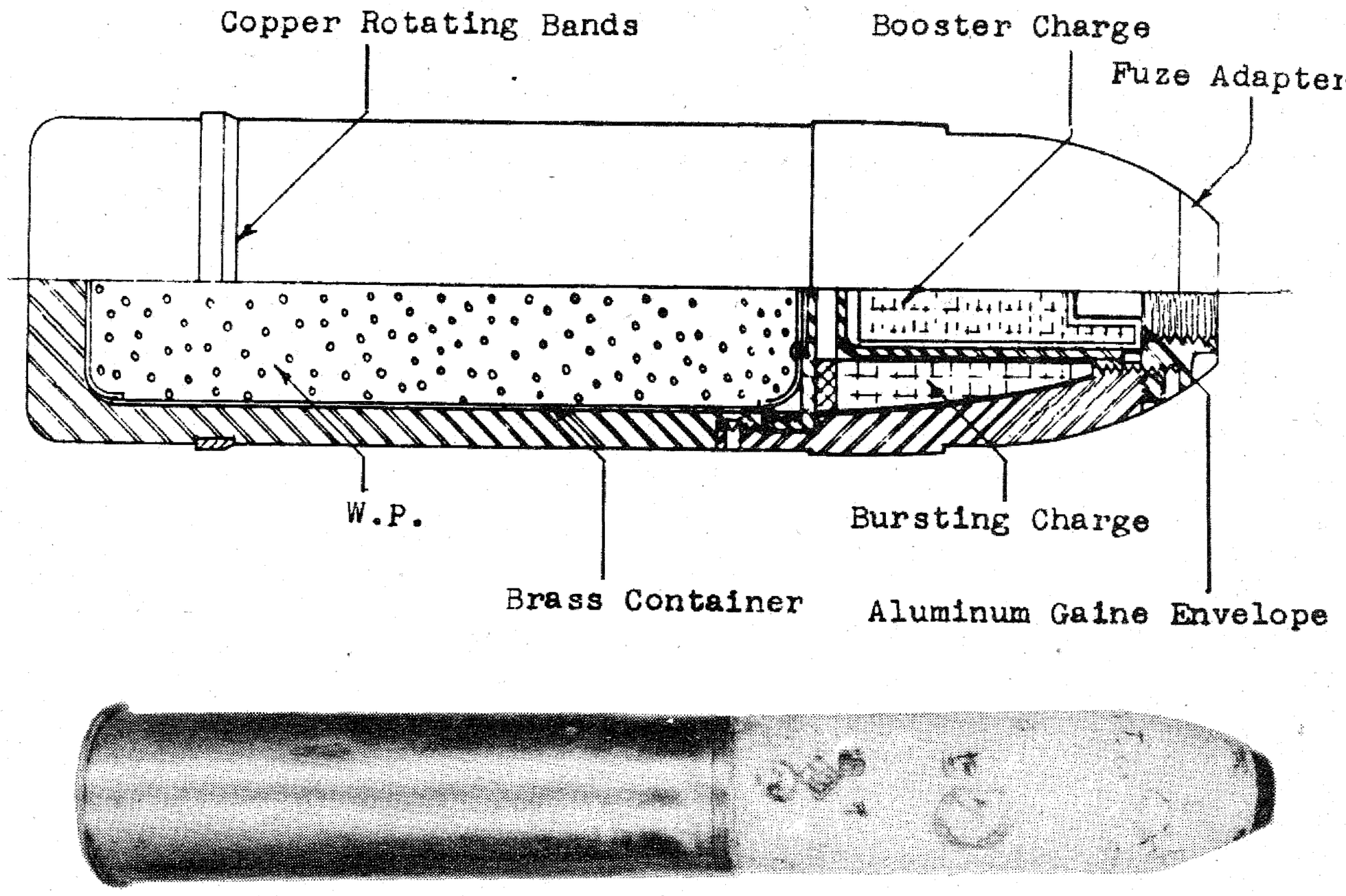
Data:

Gun Used In: Type 90 field gun.
Lt. of Case: 16 11/16 inches.
Lt. of Projectile: 9 7/16 inches.
Wt. of projectile (filled): 14 lb. 6.2 oz.
Type of Filling: RDX.
Width of each rotating band: 3/8 inch.
Fuze: Medium Mark I Base Fuze.

Type: Type 90 - 75 mm White phosphorus projectile.

Source: Japanese Chemical Warfare.

75 MM WHITE PHOSPHORUS PROJECTILE



Description: Forged steel projectile casing composed of an ogival head and a lower body. A brass container of W.P. is inclosed within the lower body, the container being sealed intact by a threaded cap. The ogival head containing a burster charge of high explosive is threaded to the lower body. The nose of the ogival head is threaded to receive the booster tube and fuze adapter. A grub screw holds the fuze adapter in place.

Color: White overall with adapter painted red.

Data:

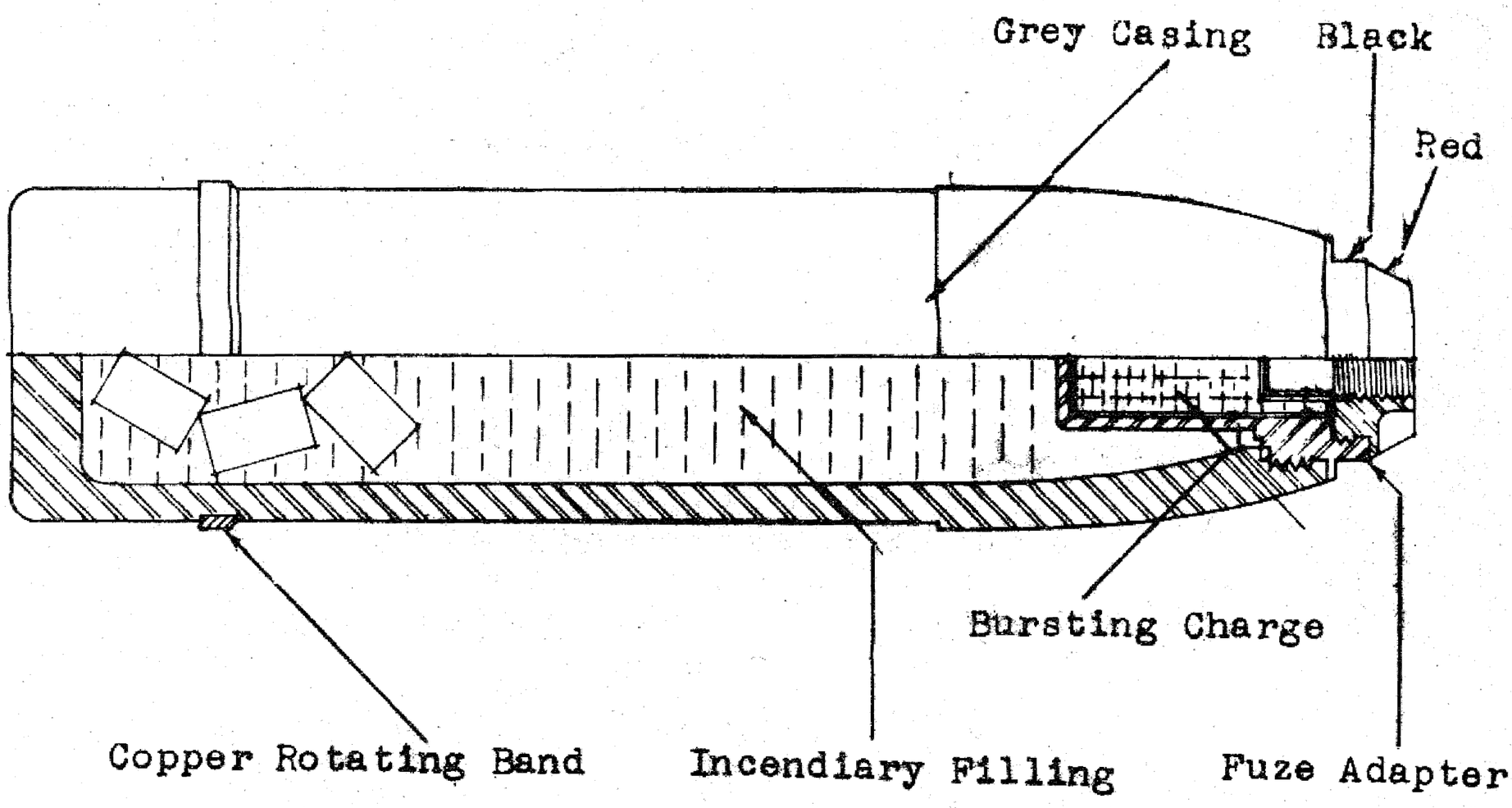
Gun Used In:	Overall Lt. (unfuzed):	Lt. of Case:
Type 41 Mountain	17.3 inches	7.3 inches.
Type 38 Field	21.5 inches	11.5 inches.
Type 41 Cavalry	21.5 inches	11.5 inches.
Type 95 Field	21.5 inches	11.5 inches.
Type 94 Mountain	21.5 inches	11.5 inches.
Type 90 Field	26.7 inches	16.7 inches.

Fuzes: Type 88 Instantaneous.
Lt. of Projectile (unfuzed): 11.5 inches.
Wt. of loaded Projectile: 15.5 lb.
Type of filling: White phosphorus.
Width of Rotating Band: 0.39 inches.

Type: Type 90 - 75 mm Incendiary Projectile.

Source: Japanese Chemical Warfare.

ARMY 75 MM INCENDIARY



Description: Forged steel projectile with nose threaded to take the burster well into which screws the fuze adapter. Inside of projectile body and inside and outside of ourster well are covered with protective red lacquer. The rubber pellets are cylindrical in shape and the liquid filling solution is a milky yellow color.

Color: Blue-grey overall with a red band around the nose.

Data:

Gun Used In:	Overall Lt.: (unfuzed)	Lt. of Case:
Type 41 Mountain	18 inches	7.3 inches.
Type 38 field	22.2 inches	11.5 inches.
Type 41 cavalry	22.2 inches	11.5 inches.
Type 95 field	22.2 inches	11.5 inches
Type 94 mountain	22.2 inches	11.5 inches.
Type 90 field	27.4 inches	16.7 inches.

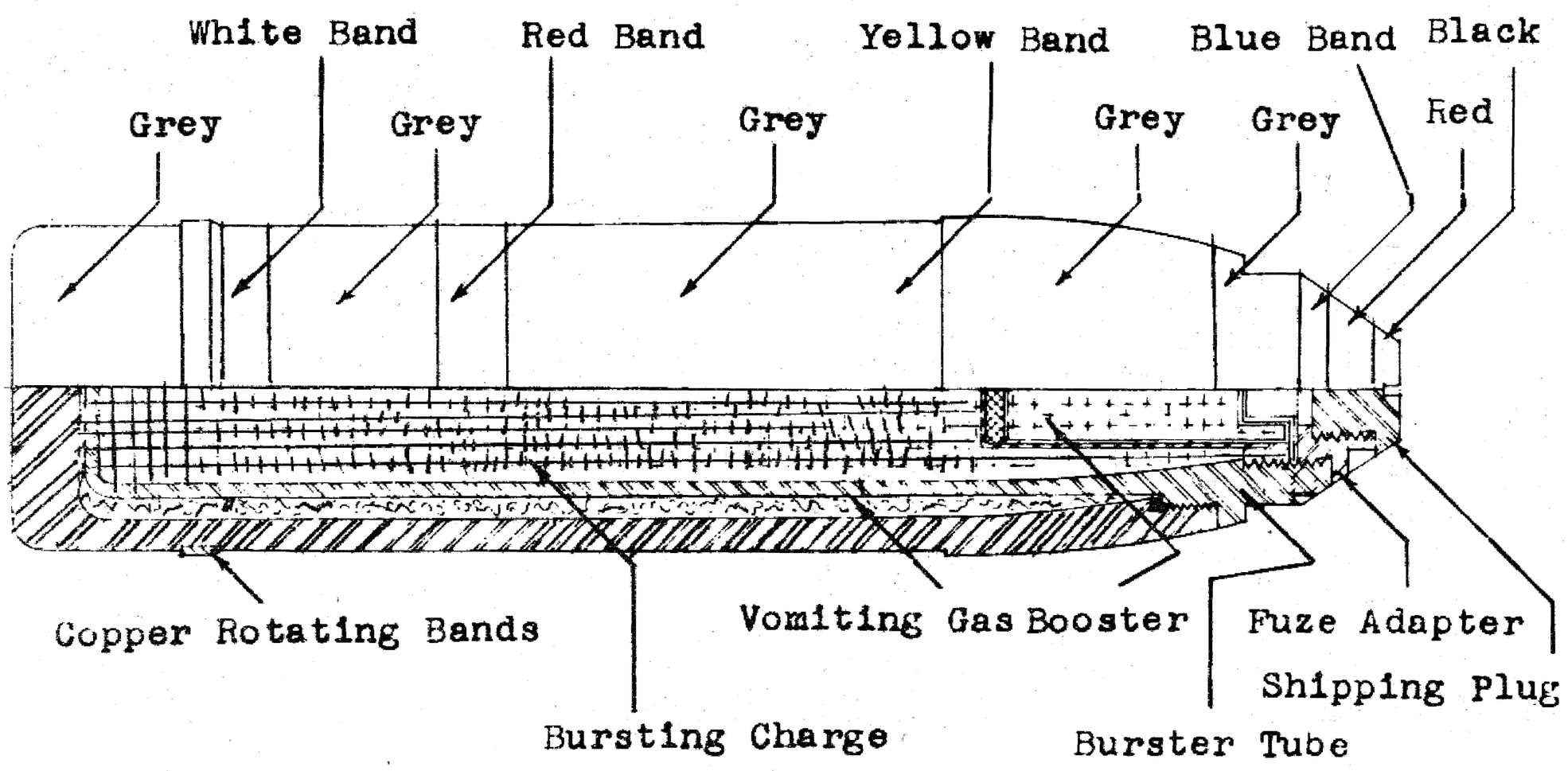
Fuzes: Type 88 Instantaneous fuze or Type 5th Year Combination Fuze.
Lt. of Projectile (unfuzed): ?
Wt. of loaded Projectile: 13.5 lbs.
Type of filling: Cylindrical rubber pellets in a mixture of W.P. and carbon disulfide.
Width of Rotating Band: .39 inch.

Remarks: Spontaneously combustible on contact of filling with air. Shipping boxes marked with a yellow stripe at each end.

Type: 75 mm Vomiting gas projectile (DC).

Source: Japanese Chemical Warfare.

75 MM VOMITING GAS PROJECTILE



Description: Forged steel projectile body into which threads the burster tube. The booster and the fuze adapter thread into the burster tube. Space between the burster tube and wall of the shell body filled with D.C.

Color: Grey overall with red and blue bands on nose. Yellow band below bourrelet. White and red bands respectively above rotating band.

Data:

Gun Used In: Type 41 Mountain.
Overall Lt. (unfuzed): 18 inches.
Lt. of Case: 7.3 inches.
Fuzes: Type 88 instantaneous.
Lt. of Projectile (unfuzed): ?
Wt. of loaded Projectile: 15 lb. 2 oz.
Type of filling: Booster-picric, Burster TNT and Napthalene, Gas - D.C.
Width of Rotating Band: 0.39 inches.

Remarks: Two (2) parallel, diagonal red lines on each end of packing box.

Type: 75 mm Blister gas projectile (HL).

Source: Japanese Chemical Warfare.

Description: Forged steel projectile which is threaded at the nose to take the burster adapter. Burster adapter takes the nose fuze. Projectile has a flat base.

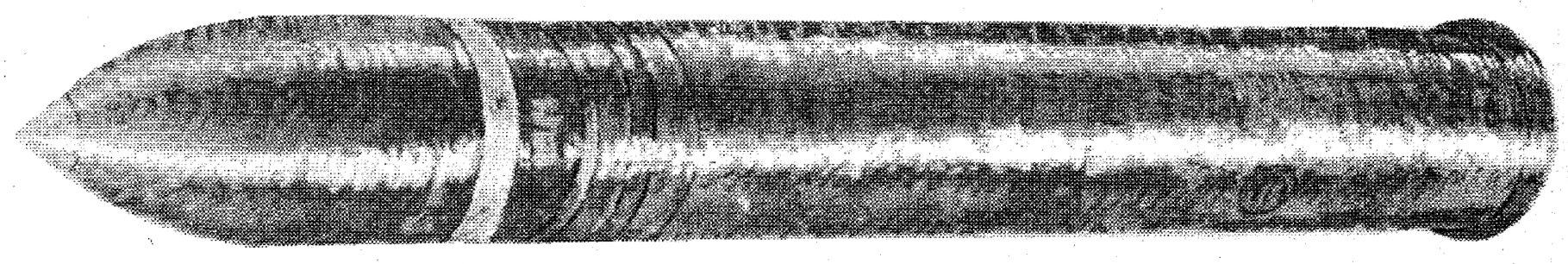
Color: Grey overall with a red band on the adapter and a blue band immediately below it on the body. White and yellow band respectively above rotating band.

Data:

Gun Used In: Type 41 Mountain.
Overall Lt.: (unfuzed) 18.3 inches (estimated).
Lt. of Case: 7.3 inches.
Fuzes: Probably Type 88 instantaneous.
Lt. of Projectile (unfuzed): ?
Wt. of loaded Projectile: 16 lb. (estimated).
Type of filling: Burster charge picric pellets. Filling - 50/50 mustard and lewisite.
Width of Rotating Band: .39 inches.

Type: 75 mm APHE.

Source: MEIU #1.



Description: Sharp pointed projectile with small explosive cavity of cyclonite (RDX) closed by the base fuze. It has two (2) rotating bands in the usual rotating band position. A groove is present aft of the rotating band to take the crimping of the case. The case is slightly tapered and not bottle-necked. The primer is the common small screw in type found in most 75 mm rounds.

Color: Black overall with white band around body and red nose tip.

Data:

Gun Used In: Type 90 Field Gun.
Overall Lt.: 24.6 inches.
Lt. of Case: 16.7 inches.
Lt. of Projectile: 9.3 inches.
Fuze: Undesignated base fuze (maybe Type 95)
Type of Filling: Cyclonite (RDX) and wax

Type: 75 mm Illuminating Projectile.

Source: M.E.I.U. #1 Supplement to Japanese Explosive Ordnance.



Color: Either (1) black overall with a white band at the center of gravity or (2) red overall.

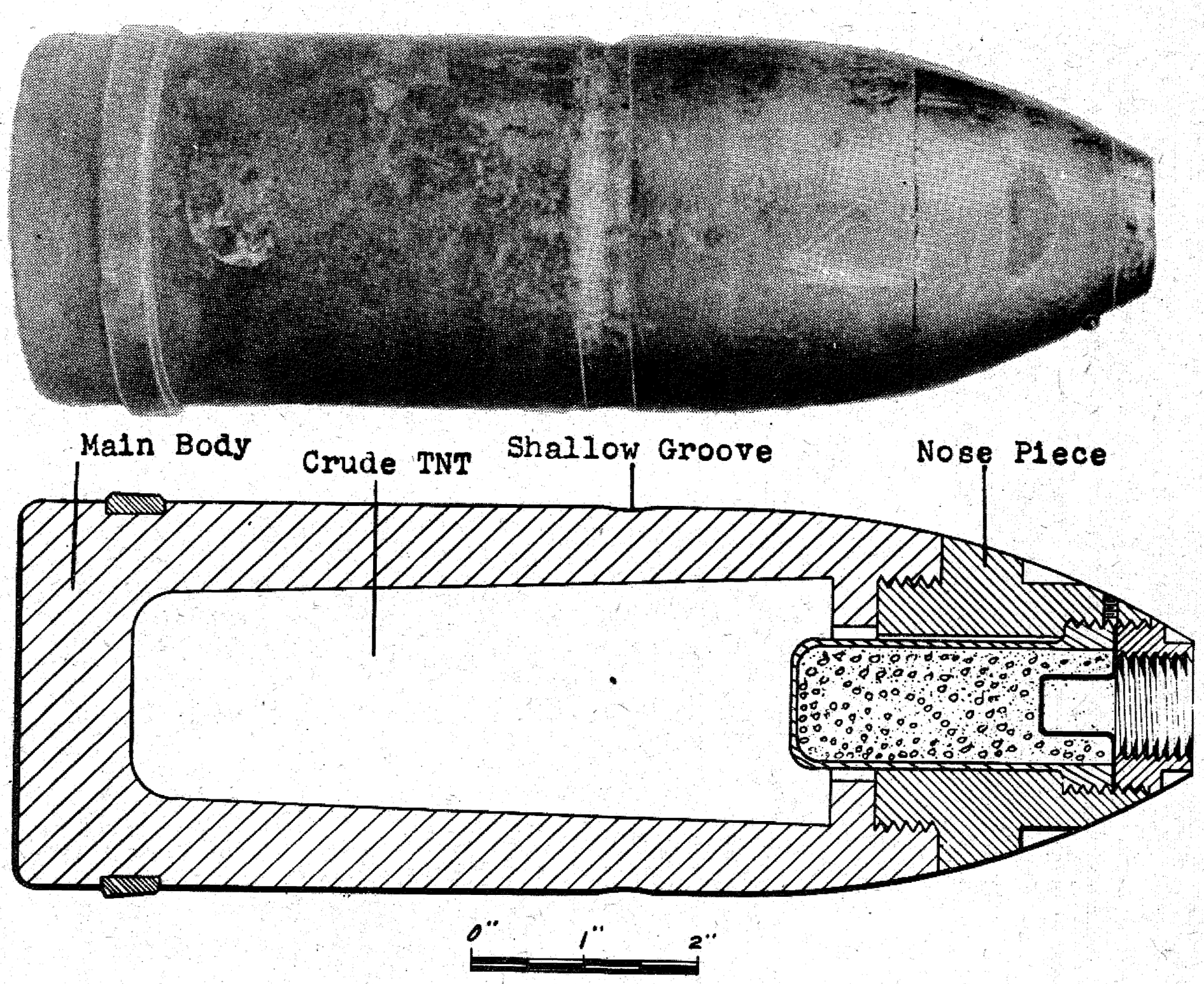
Remarks: No rounds are available for examination. The picture is presented for identification purposes. Specimens are desired.

Data:

Fuze: 5th Year Type Combination Fuze.
Gun Used In: Type 88 75 mm A.A. Gun.

Type: H.E.

Source: M.E.I.U. #4 Report No. 80.



Description: The projectile consists of a main body and a nose piece. The nose piece is a heavy adapter in effect and has an opening through the center which receives a metal booster cup. The main body has a thick case, small explosive cavity, and a single rotating band. Directly below the bourrelet is a shallow circumferential groove.

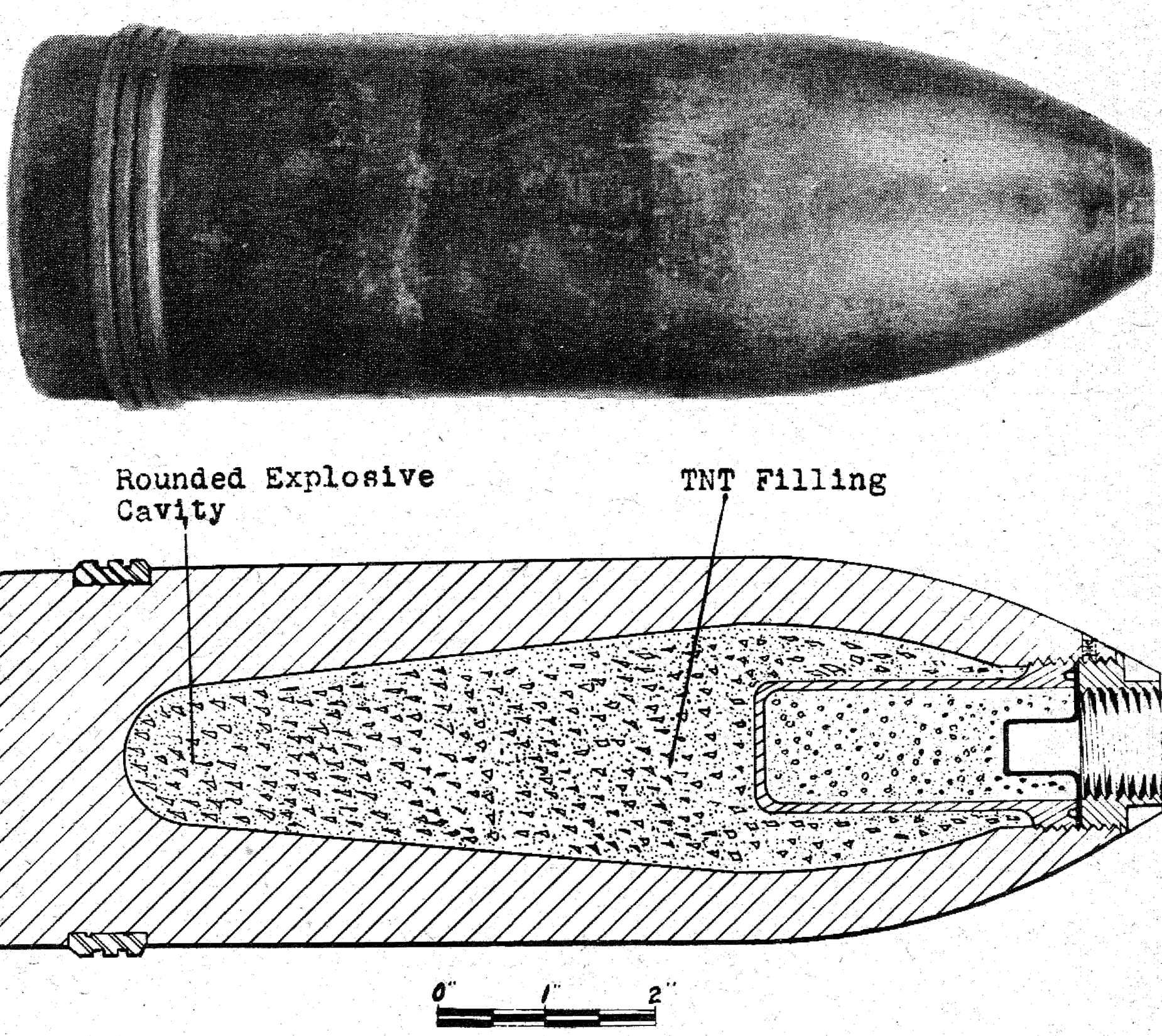
Color: Black overall with a red fuze adapter and a yellow body band.

Data:

Gun Used In: 90 mm breech loading mortar.
Overall Lt.: 10 7/16 inches.
Wt. of Loaded Proj.: 17 pounds 2 ounces.
Type of Filling: Crude T.N.T.
Width of Rotating Band: 5/8 inch.
Fuze: Type 88 Howitzer-Mortar.

Type: H.E.

Source: M.E.I.U. #4 Report No. 80.



Description: The projectile is of conventional H.E. design. The after end of the explosive cavity is rounded. A small nose fuze adapter threads into the nose of the projectile and is secured by a grub screw. The copper rotating band is beveled fore and aft and has two (2) grooves.

Color: The projectile is painted black overall with the exception of the rotating band. The fuze adapter is painted red and there is a green band forward of the rotating band.

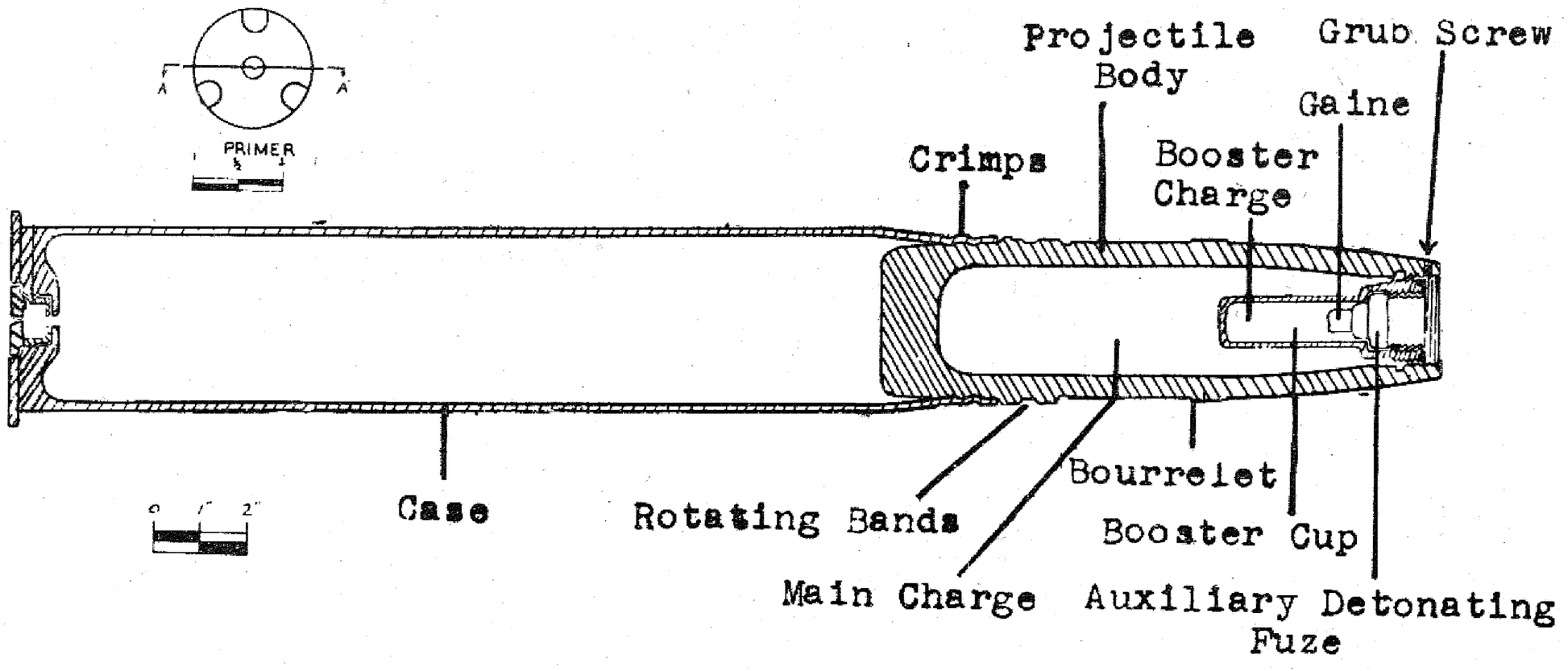
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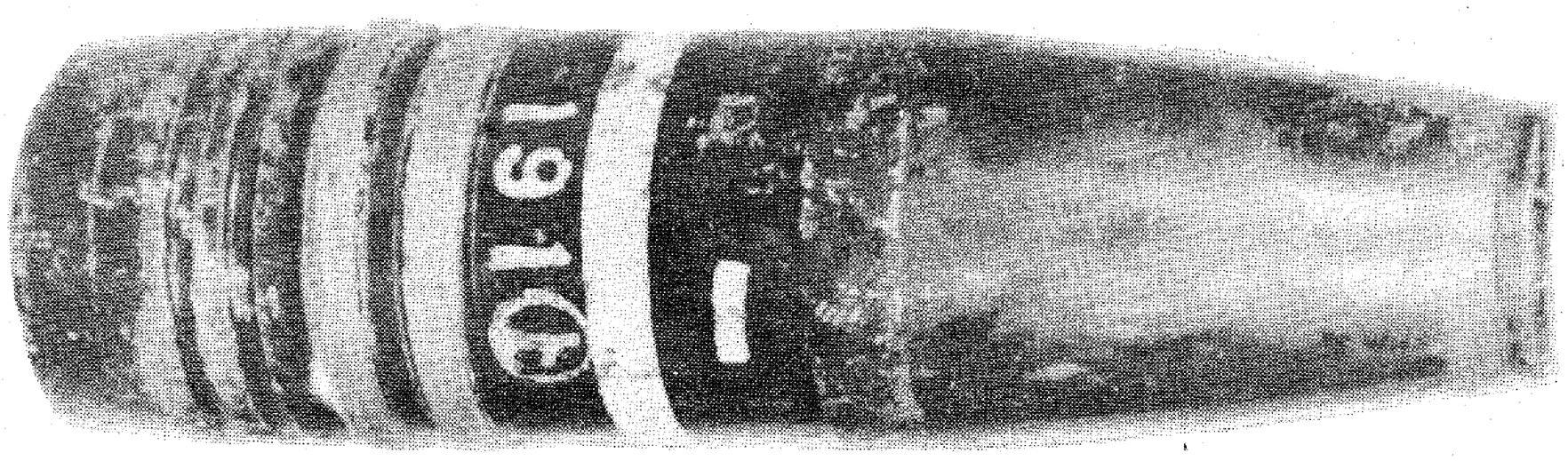
Gun Used In: 90 mm breech loading mortar.
Overall Lt.: 10 3/8 inches.
Wt. of Loaded Projectile: 17 lbs. 4 3/4 ounces.
Type of Filling: T.N.T.
Width of Rotating Band: 5/8 inch.
Fuze: Type 88 Howitzer-Mortar.

Type: Type 100 88 mm Long Pointed A.A. Projectile.

Source: M.E.I.U. #4 Report No. 32.

JAPANESE 9 Centimeter Anti-Aircraft Round





Description: Steel projectile casing with a long ogival nose and slight boat-tail. There are two (2) rotating bands of equal width which are slightly beveled both forward and aft. Aft of the after rotating band are two (2) cannelures in the body of the projectile for case crimping.

Color: Black overall with red band at nose and yellow band midway between bourrelet and rotating band.

Data:

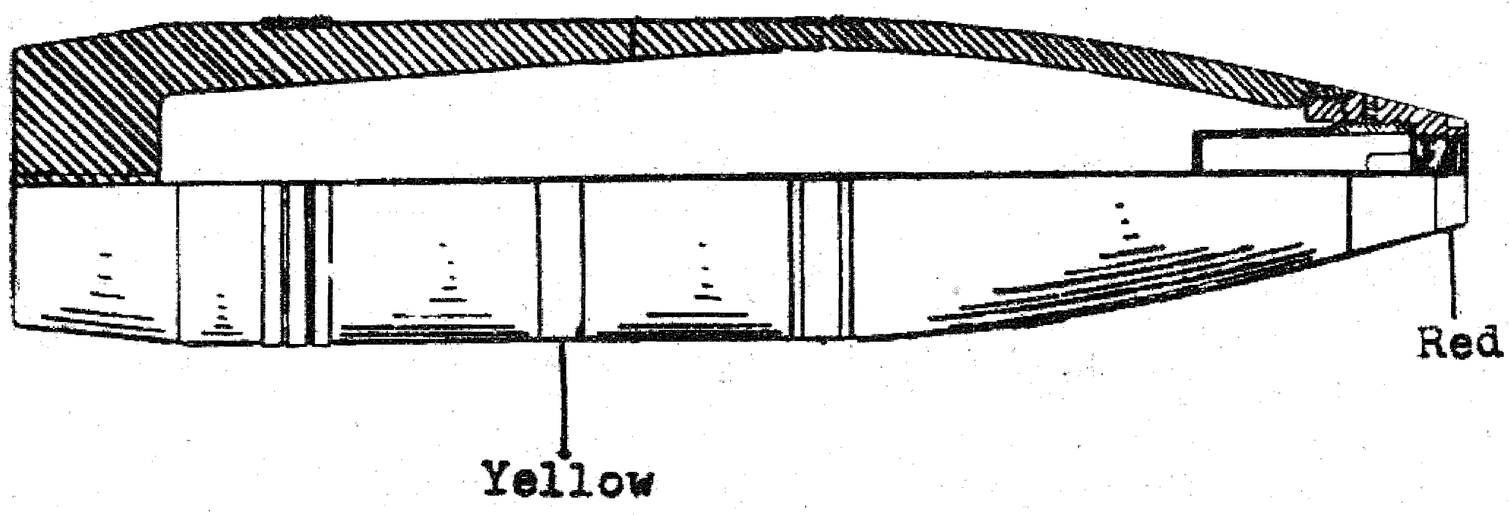
Gun Used In:	Overall Lt.:	Lt. of Case:
Type 99 88 mm A.A. Gun.	31.6 inches	22.4 inches.

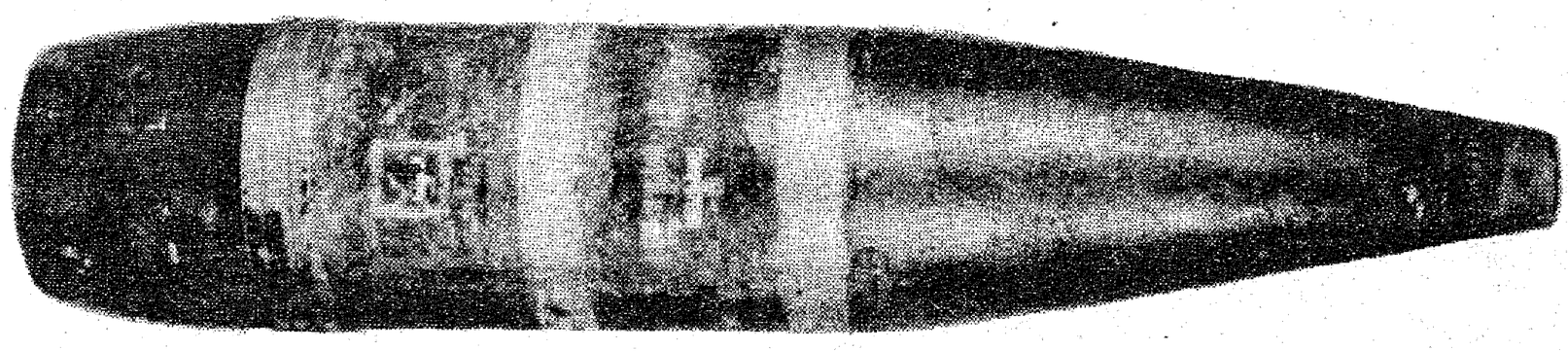
Fuzes: Type 100 mechanical nose time fuze with 75 mm Auxiliary Detonating Fuze.
Lt. of Projectile (unfuzed): 11.7 inches.
Wt. of loaded Projectile: 16 lb. 5 oz.
Type of filling: Cast TNT.
Width of Rotating Band: 0.39 inch.

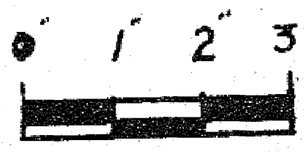
Type: H.E. Streamline.

Source: Specimen and M.I.D. Intelligence Bulletin.

105 mm STREAMLINED PROJECTILE







Description: Steel projectile with long ogival nose and a decided boat-tail which slopes aft from the rotating band. Has a plain copper bourrelet. The rotating band is also made of copper and is of the double cannelure type tapering fore and aft. The fuze adapter threads into projectile nose.

Color: Black overall with a red band which covers about half of the adapter. Yellow band between front band and rotating band.

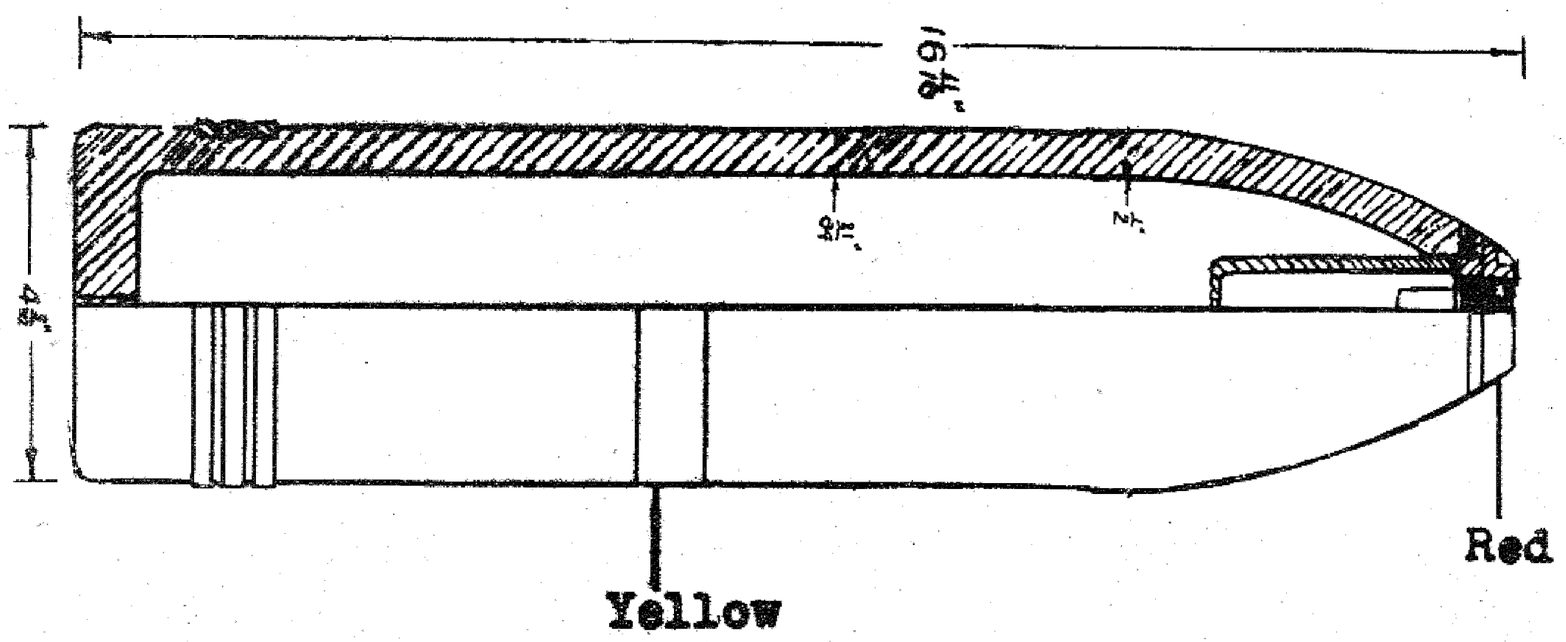
Data:

Fuzes: Probably Type 88 Instantaneous or Delay.
Lt. of Projectile (unfuzed): 19.9 inches.
Wt. of loaded Projectile: 35 lb. 1 oz.
Type of filling: Cast TNT.
Width of Rotating Band: 0.87 inch.

Type: H.E.

Source: Periodical Technical Summary No. 33 and M.I.D. Intelligence Bulletin.

105 mm BLUNT NOSE HOWITZER PROJECTILE



Description: Steel projectile body threaded to take the fuze adapter which is held by a grub screw. The rotating band has two (2) cannelures and it's forward portion is beveled. Base of projectile not boat-tailed.

Color: Black overall with red band at nose and a yellow band on the body.

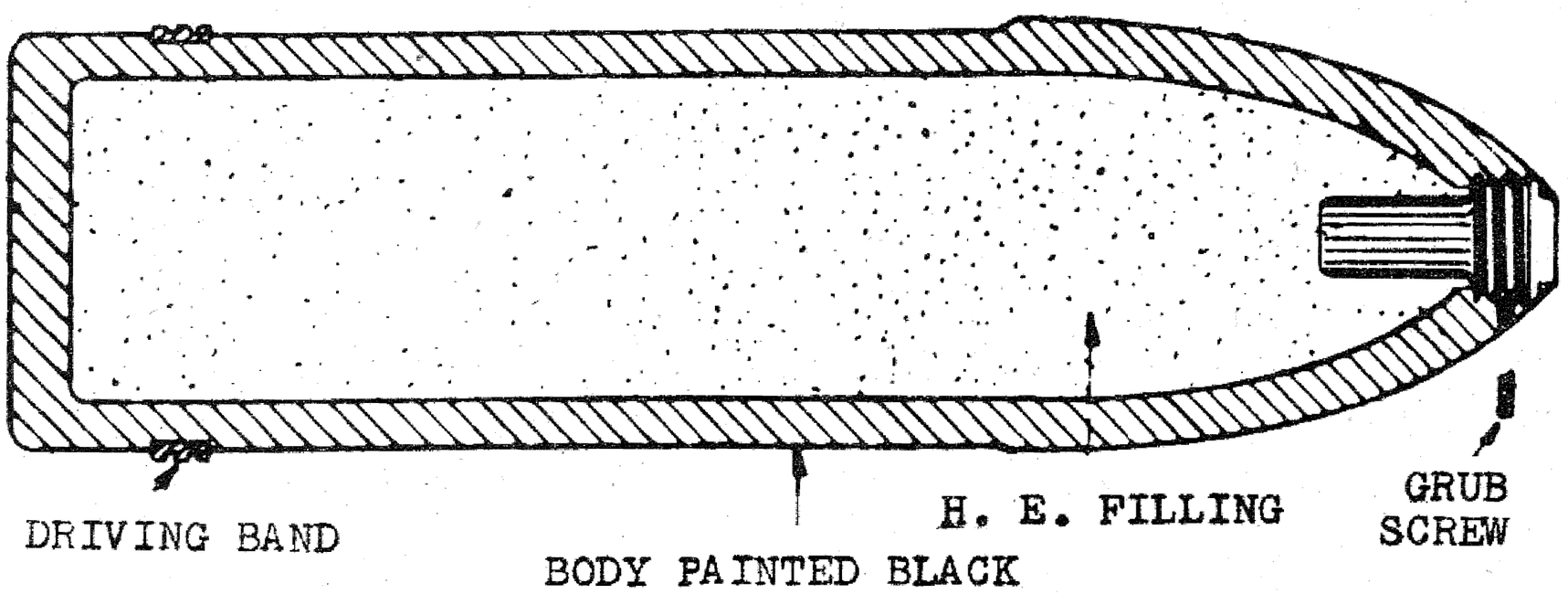
Data:

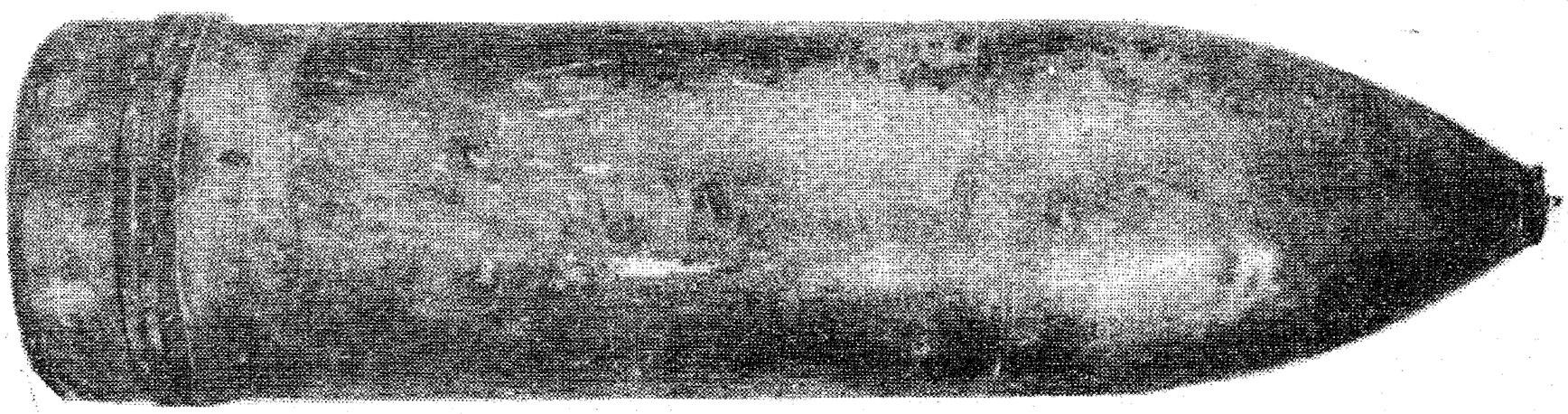
Fuzes: Probably Type 88 instantaneous or delay.
Lt. of Projectile (unfuzed): 16.8 inches.
Wt. of loaded Projectile: 35 lb.
Type of filling: Cast TNT.
Width of Rotating Band: 0.87 inch.

Type: Long Type.

Source: Periodical Technical Summary No. 33 and examination of Specimen.

150 MM H.E.





Description: Steel projectile body with a square base. Rotating band has two (2) cannelures. Fuze adapter has left-hand threads and is secured in projectile by a grub screw.

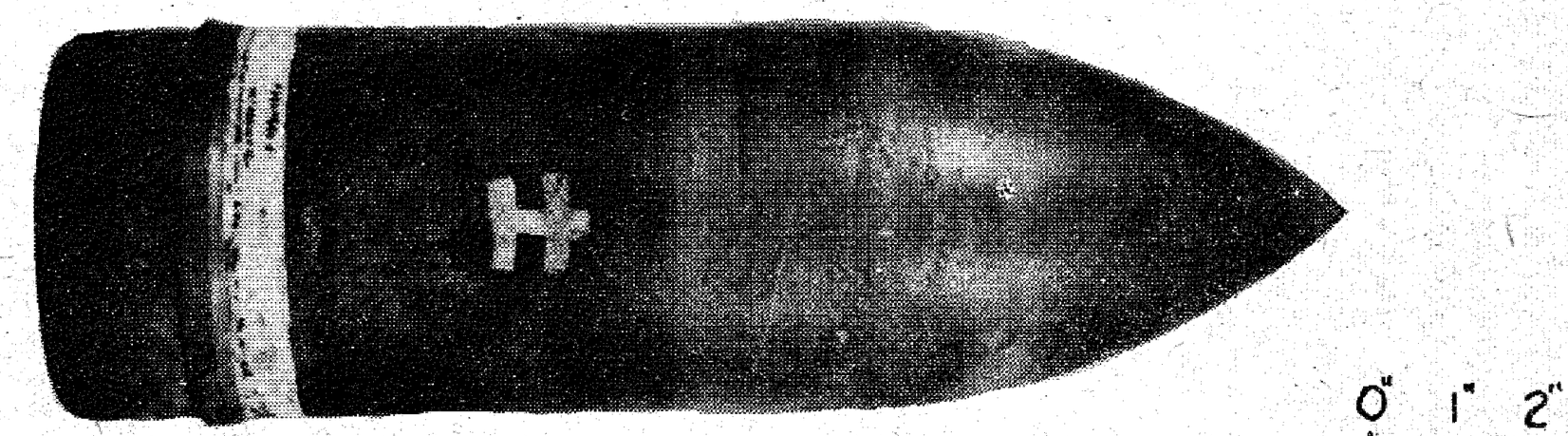
Color: Black overall with a white band above the rotating band and yellow band below the bourrelet. Adapter is painted red.

Data:

Fuzes: Probably Type 88 Instantaneous or Delay.
Lt. of Projectile (unfuzed): 22.3 inches.
Wt. of loaded Projectile: 80 lbs.
Type of filling: Cast TNT.
Width of Rotating Band: 0.75 inch.

Type: 12 cm A.P. H.E.

Source: M.E.I.U. #4 Report No. 74.



Description: The projectile is made of steel and is painted in the usual Army manner. The rotating band is of one piece construction, made of copper, and has a sloping forward edge. The base plate, which threads (L/H) into the base of the projectile, is internally threaded (L/H) to take the base fuze carrier. A high explosive charge of picric acid is fitted in the forward part of the projectile cavity. The charge consists of two (2), waxed, paper wrapped, preformed blocks with a small wooden nose plug in the forward block to cushion the shock of impact, and a well in the after block to receive the fuze. The charge is enclosed in a waxed, cloth bag. Three (3) washers (felt, wood, and cardboard) are inserted between the explosive charge and the base plate.

Color: The projectile is black overall with a red nose tip, a yellow band below the bourrelet, and a white band above the rotating band. The fuze carrier has a red ring painted on it to indicate the presence of a loaded base fuze.

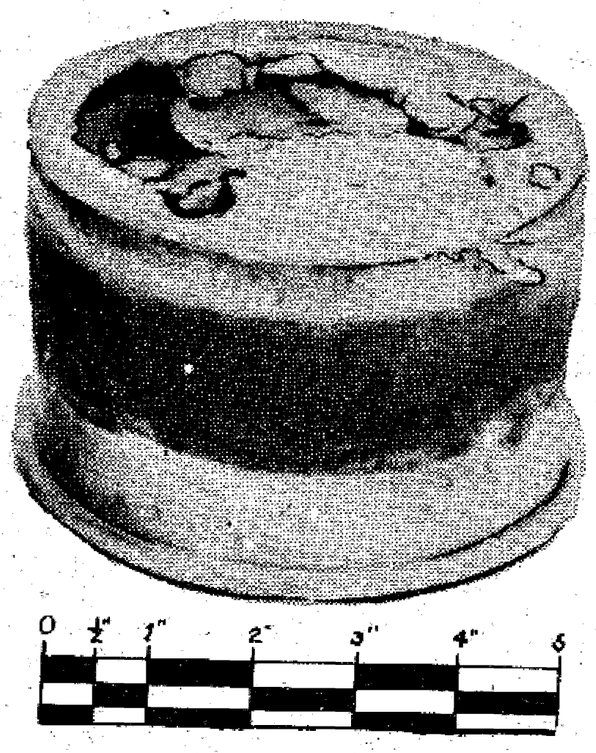
Data:

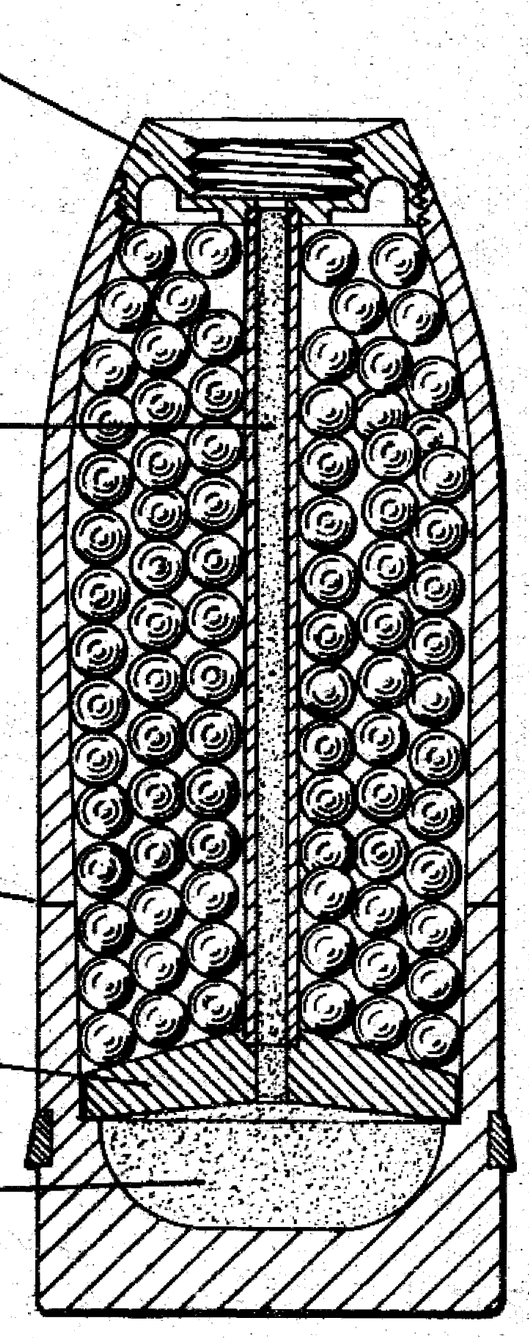
Gun Used In: Army 12 cm Type 38 Howitzer.
Lt. of Projectile: 14 15/16 inches.
Wt. of Projectile: 44 pounds.
Type of Filling: Picric Acid.
Weight of Filling: 2 lbs. 14 3/4 oz.
Width of Rotating Band: 7/16 inch.
Fuze: Type 88 Small Base Fuze (Howitzer).
Case: **Length:** 3 1/4 inches.
Diameter: 5 1/8 inches.
Wt. of Propellant: 17 3/8 oz.

Type: Shrapnel.

Source: M.E.I.U. #4 Report No. 74.







Description: Steel projectile with a solid base, slightly ogival nose, and a single copper rotating band. The projectile body was machined in two (2) sections and welded together 2 1/8 inches above the rotating band. The forward end of the projectile is threaded to receive a fuze adapter, which has a steel diaphragm in its base perforated to provide access to the transmission tube. The brass transmission tube, filled with black powder, extends from the adapter to the base ejection charge. A steel spacer disc rests on a shoulder machined into the projectile near the base. The black powder base ejection charge is confined in the base of the projectile below the spacer disc. Five hundred and thirty-nine (539) lead balls are imbedded in a rosin matrix and assembled about the transmission tube between the fuze adapter and the spacer disc.

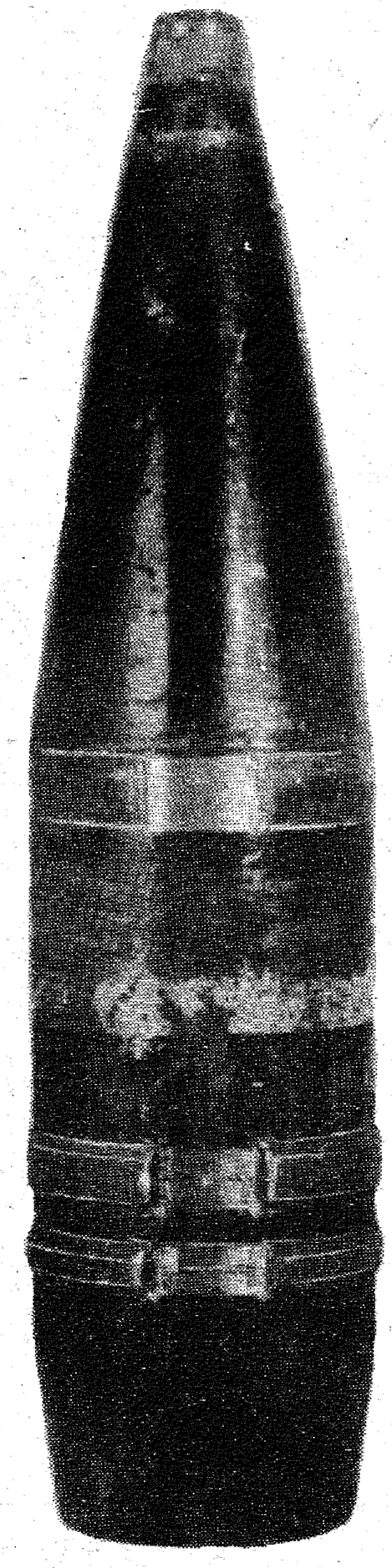
Color: The projectile is painted black overall with a red band on the fuze adapter and a white band forward of the rotating band.

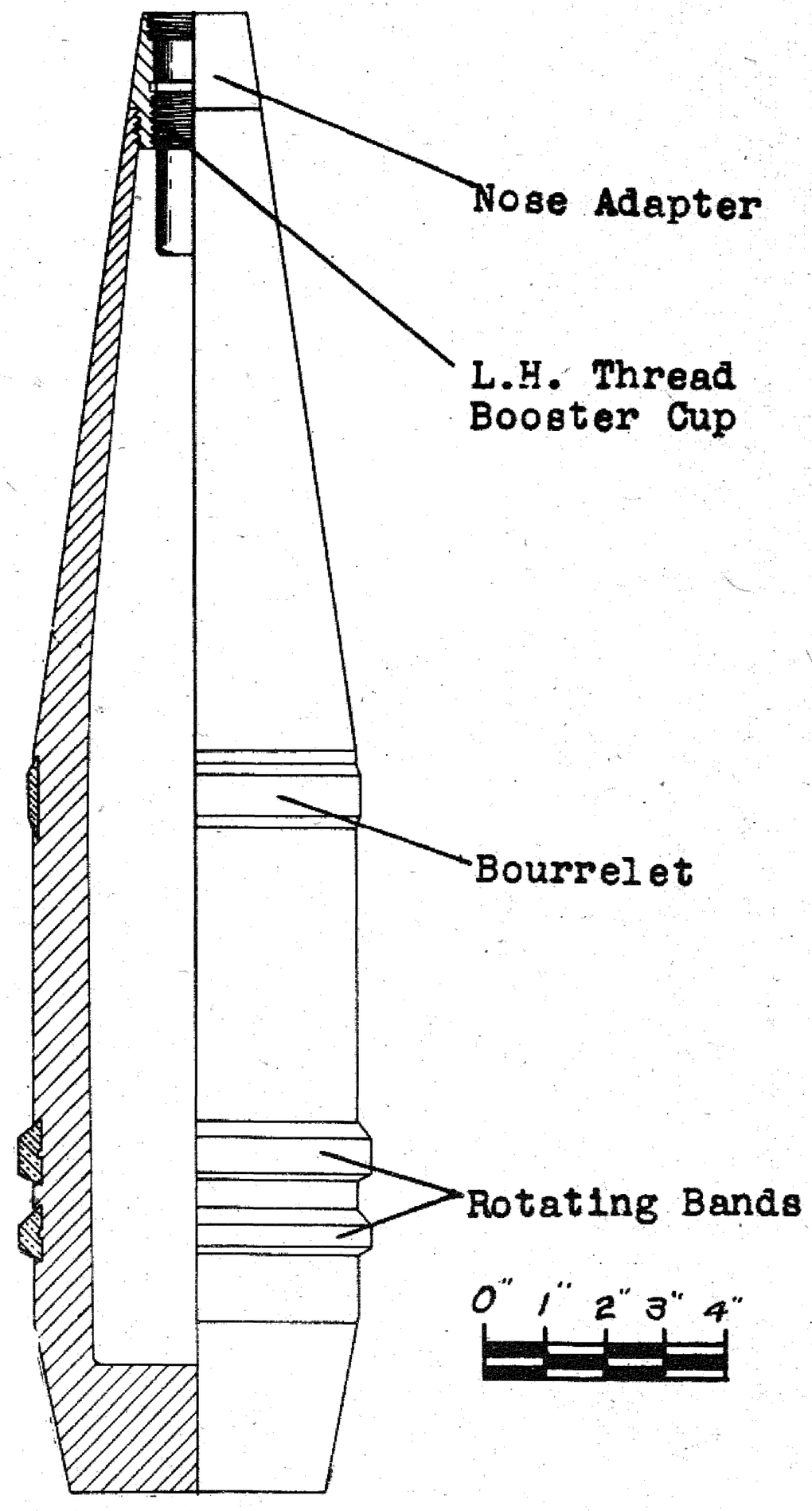
Data:

Gun Used In: Army 15 cm Type 38 Howitzer.
Fuzes: 5th Year Combination Time & Impact.
Length of Proj. (unfuzed): 12 3/8 inches.
Wt. of Projectile: 42 3/4 pounds.
Width of Rotating Band: 3/8 inch.
Type of Filling: 539 lead balls in rosin matrix.
Black powder ejection charge.
Case: Length: 3 1/4 inches.
Diameter: 5 1/8 inches.
Wt. of Propellant: 17 3/8 ounces.

Type: Type 93 H.E. streamline (long pointed).

Source: M.E.I.U. #4 specimen.





Description: Construction is similar to but heavier than the Type 92 150 mm streamline projectile. It is made of steel and is boat-tailed. The bourrelet is a copper band. There are two (2) smooth surfaced rotating bands beveled on the forward edge. A booster cup threads (L/H) into the base of the nose adapter which threads (R/H) into the nose of the projectile. There are single grub screws to secure the adapter and the fuze.

Color: Black overall with a yellow band midway between the bourrelet and the forward rotating band. There is a red nose band on the adapter.

Data:

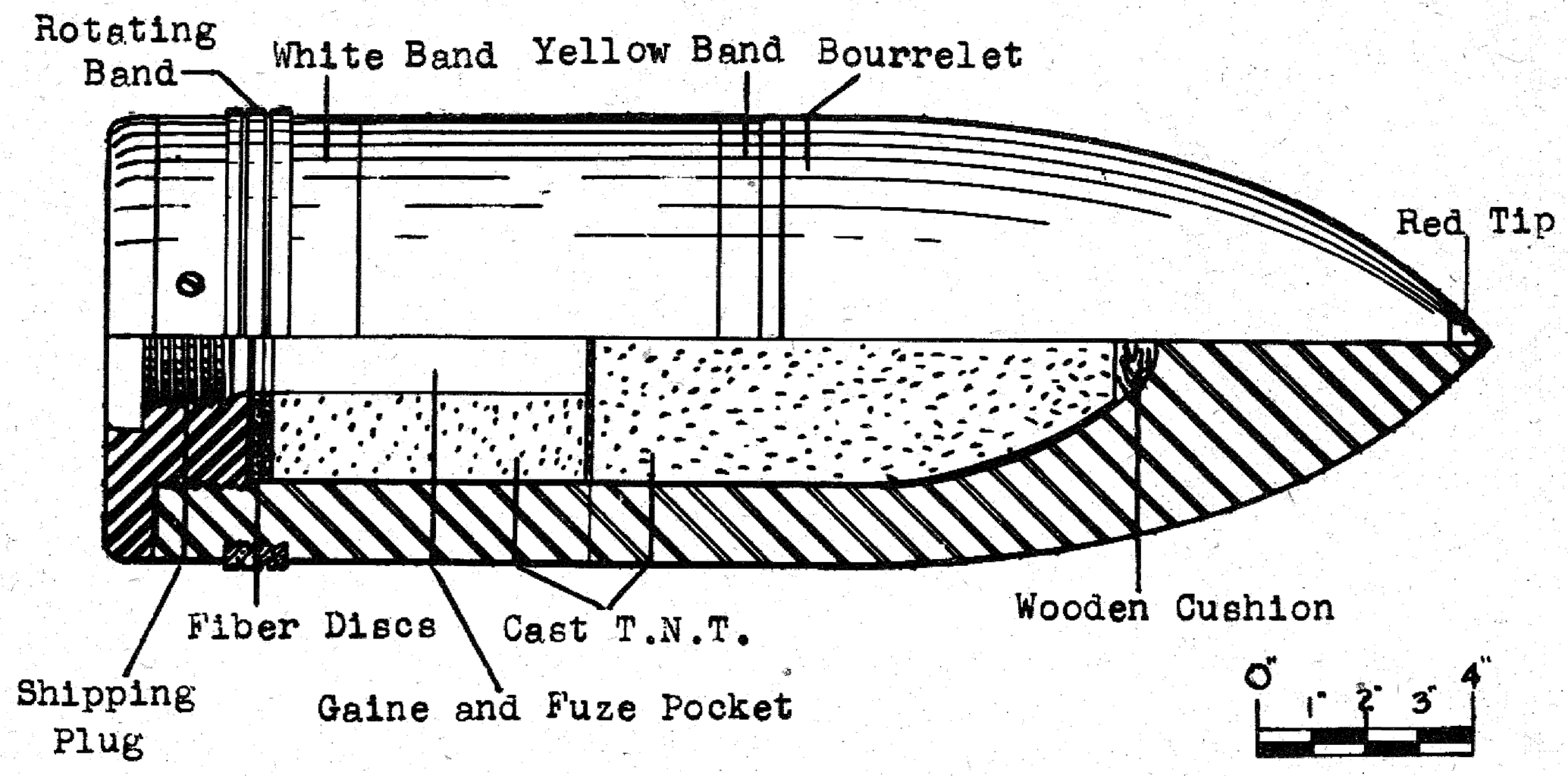
Gun Used In: Type 89 15 cm gun.
Lt. of Proj. (unfuzed): 24 3/4"

Width of Rotating Bands: Forward: 1 inch.
Aft: 3/4 inch.

Fuzes: Type 90 Instantaneous or Short Delay.

Type: A.P. H.E. (Howitzer).

Source: M.E.I.U. #1 Report No. 139.



Description: The projectile is uncapped with an ogival nose. The base plate is the same diameter as the body and threads internally into the explosive cavity. The fuze pocket is in the base plate and is threaded (R/H) to take the Type 95 Medium base fuze. Set-screws secure the base plate and fuze in place. The copper rotating band has two (2) annular grooves. The explosive filling consists of two (2) cast blocks of TNT wrapped in eaxed paper and flannel.

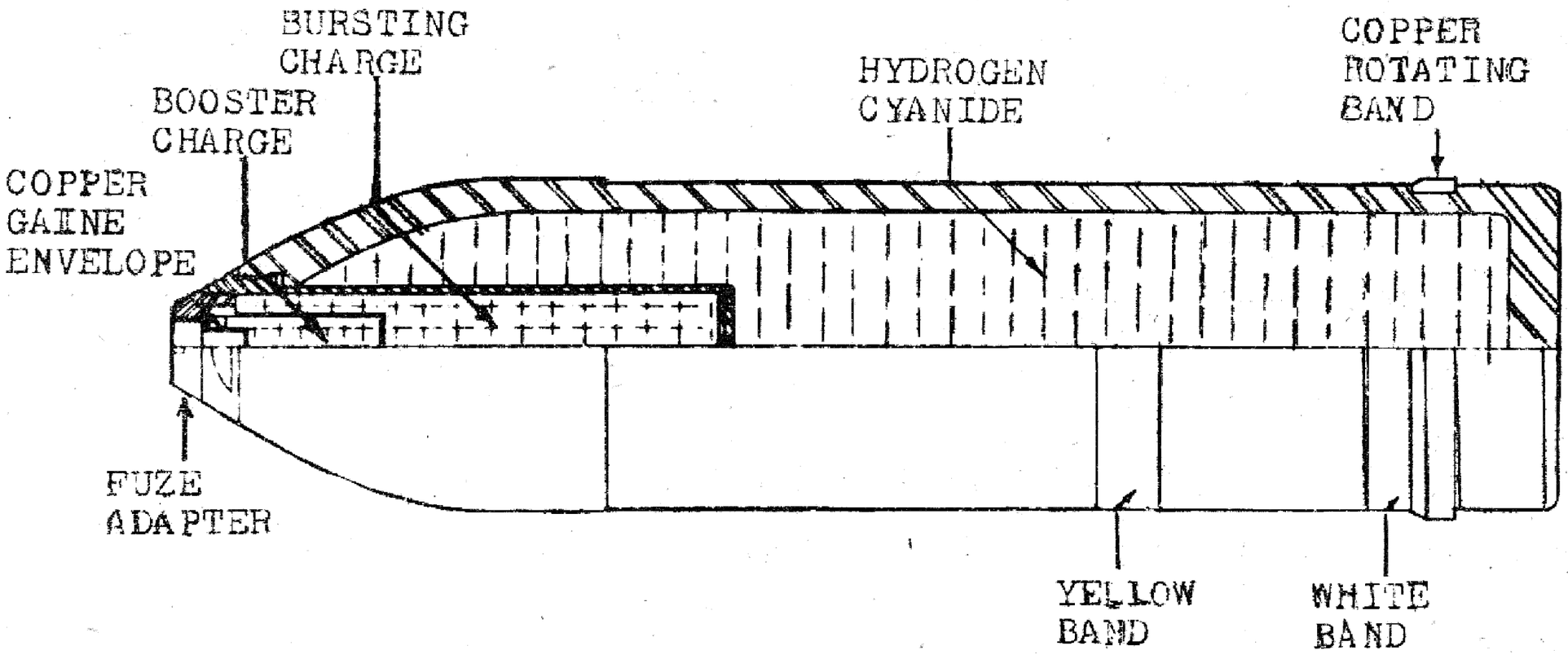
Color: Black overall with a white band forward of the rotating band, a yellow band at the center of gravity, and a red tipped nose.

Data:

Gun Used In: Army Type 96 15 cm Howitzer.
Lt. of Projectile: 17 11/16 inches.
Wt. of Projectile: 79 lbs. 8 oz.
Type of Filling: Cast T.N.T.
Weight of Filling: 5 pounds
Width of Rotating Band: 13/16 inch.
Fuzes: Type 95 Medium base fuze.

Type: 150 mm Gas Projectile (HCN).

Source: Japanese Chemical Warfare.



Description: Steel projectile case. A burster tube containing a burster charge threads into the nose. The booster and fuze adapter thread into the burster tube.

Color: Unknown. Has white band above rotating band and yellow band below bourrelet.

Data:

Gun Used In: 150 mm Howitzer.
Fuzes: Probably Type 88 Instantaneous.
Lt. of Projectile (unfuzed): 23 inches.
Wt. of loaded Projectile: 71 lbs.
Type of filling: Burster-Picric Acid.; H.C.N.

Type: 150 mm White phosphorus Shell.

Source: Chemical Warfare Intelligence Digest.

Description: Internal construction almost identical with that of the 75 mm W.P. projectile.

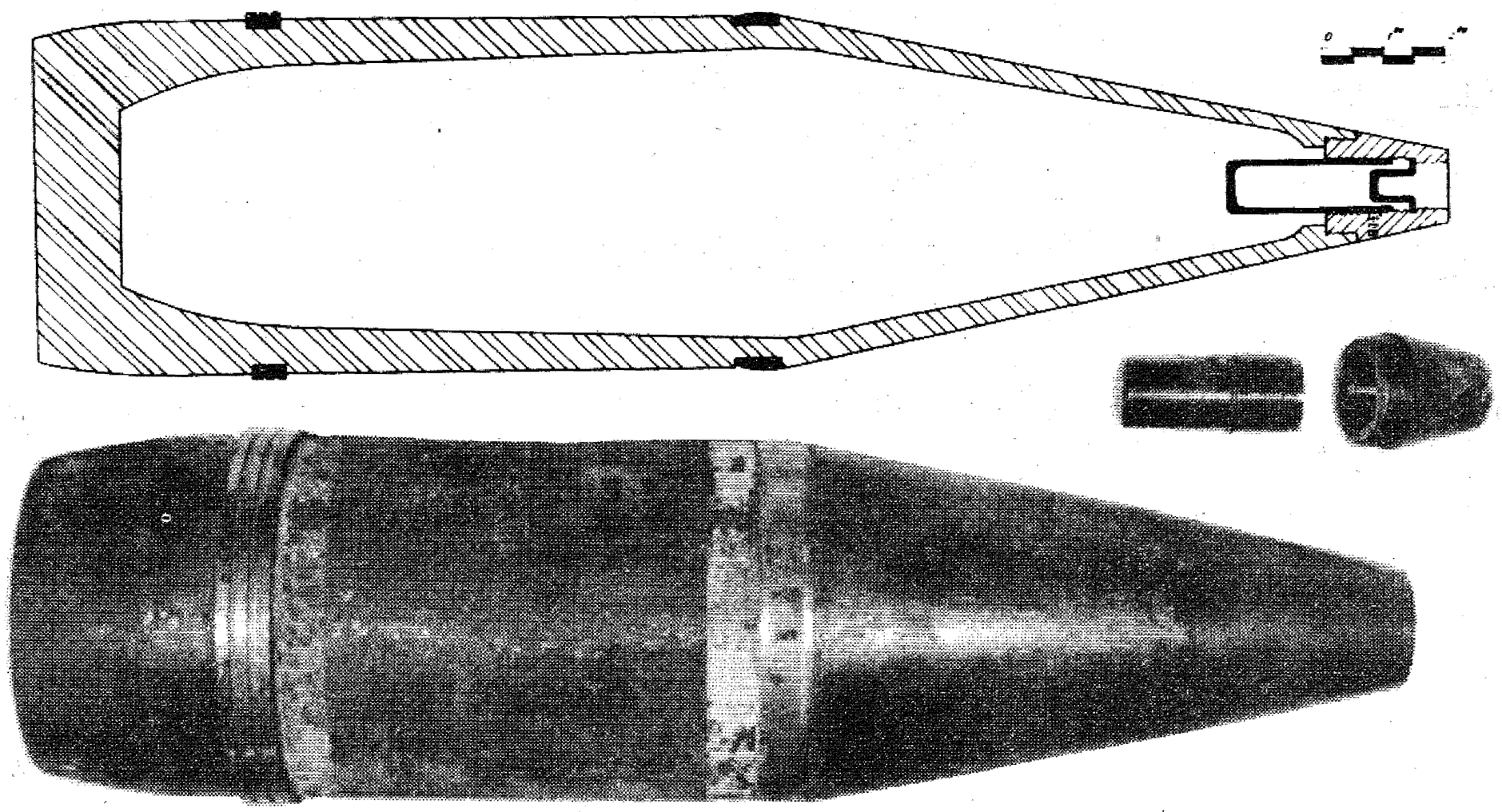
Color: Black overall with red band around the fuze adapter. White band 0.7 inch wide above rotating band and a 1 inch yellow band back of bourrelet.

Data:

Fuzes: Probably Type 88 Instantaneous.
Lt. of Projectile (unfuzed): 19.3 inches.
Wt. of loaded Projectile: 74.3 lbs.
Type of filling: W.P.

Type: 150 mm Streamline (long pointed). Probably Type 92.

Source: Examined specimen.



Description: Construction almost identical to 105 streamline projectile. It is made of steel and is boat-tailed. The bourrelet is a copper band. The copper rotating band has two (2) small cannelures. A booster cup threads into the nose adapter which in turn threads into the nose of the projectile.

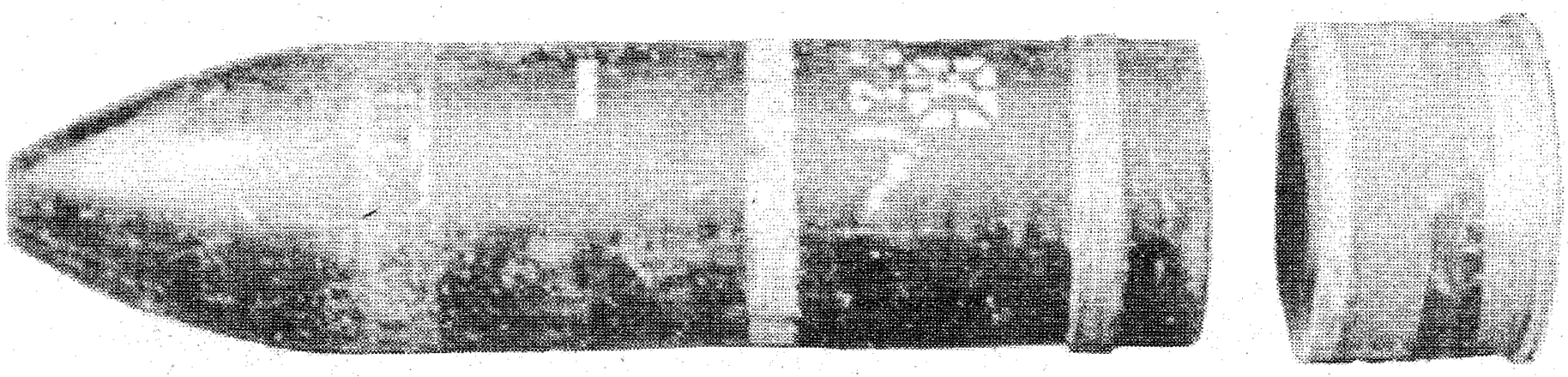
Color: Black overall with a white band just above the rotating band and a yellow band just below the bourrelet. May have a yellow band only. There is a small red band around the nose of the adapter.

Data:

Guns Used In: Probably Type 96 15 cm Howitzer.
Lt. of Projectile: 22 7/8 inches.
Wt. of Projectile (loaded): 68 lbs.
Fuzes: Type 88 instantaneous or short delay.
Type of Filling: Cast TNT (cyclonite booster)
Width of rotating band: 9/16 inches.

Type: Type 92 H.E. Short Nose.

Source: MEIU #1.



Description: Probably same projectile as described on p. 48. Filling is angayaku (RDX and Ammonium nitrate). Propellant case is only four (4) inches long, rimmed, and has common small screw-in primer.

Color: Black overall with yellow band around middle of body and red nose tip.

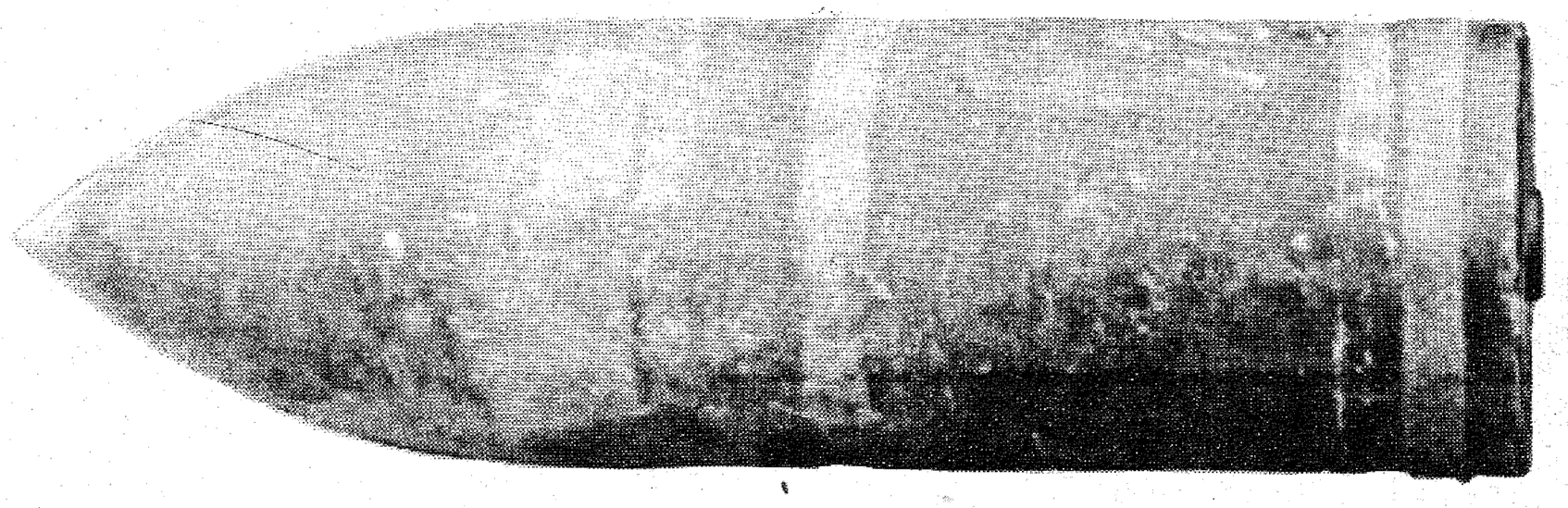
Data:

Guns Used In: Type 38 15 cm Howitzer.
Fuzes: Type 88 instantaneous or short delay.
Lt. of Projectile (unfuzed): 22.5 inches.
Lt. of Case: 4 inches.
Wt. of loaded projectile: 78 lb. 5 oz.
Type of filling: RDX and Ammonium nitrate.

310 MM PROJECTILE

Type: 30 cm APHE Rounds.

Source: MEIU #1.





Description: Two sizes have been recovered differing in overall length only. Made of steel and loaded with probably picric acid or TNT. The ogive is about two calibers. The rotating band is relatively light and slightly lipped. The case is straight sided rimmed, and contains the common small screw-in primer.

Color: Black overall. May have both yellow and white bands or just yellow band. The nose is red tipped.

Data:

Guns Used In: 7th Year Type 30 cm Howitzer.
Lt. of Proj: 42 1/16 inch or 48 2/5 inches.
Lt. of Case: 19 1/2 inches.
Width of rotating band: 2 1/16 inches.
Fuzes: Type 95 Large Mk. II.

280 MM PROJECTILE

Type: A.P. H.E.

Source: M.E.I.U. #4 Specimen.



Description: This projectile has a stubby appearance with a short ogive. It takes a base detonating fuze only.

Color: Black Overall.

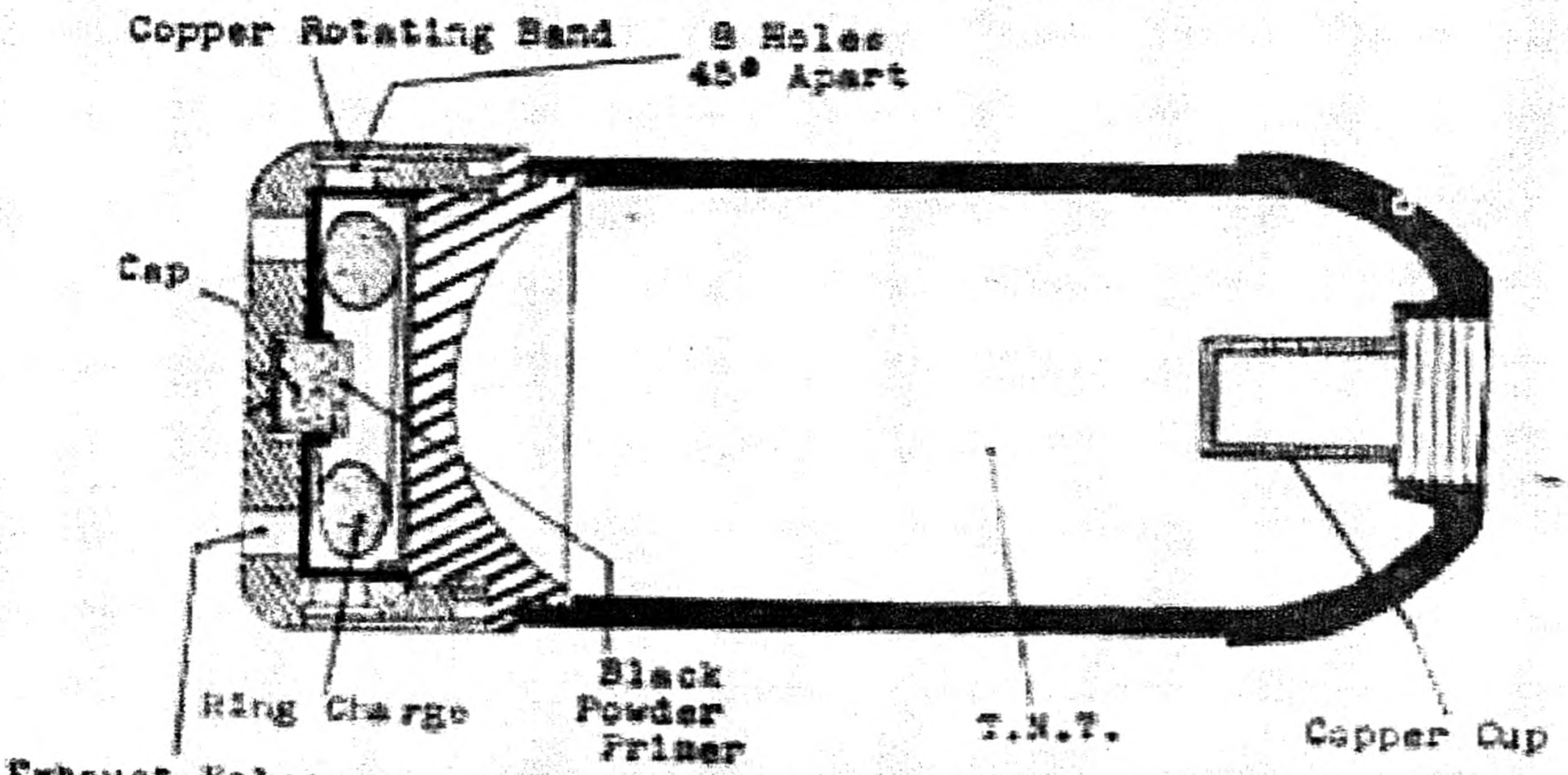
Data:

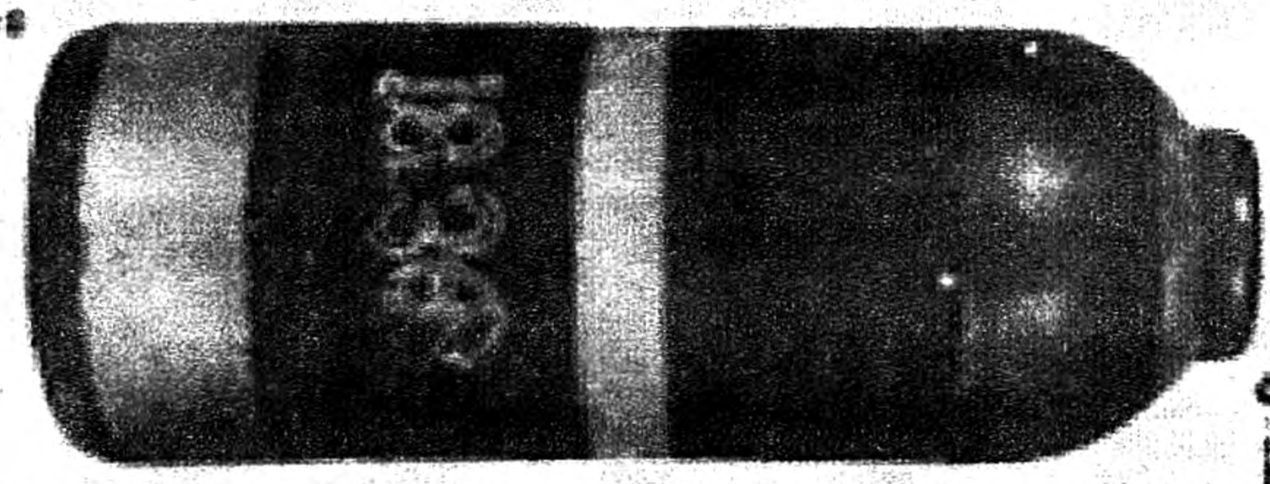
Fuze: Type 95 Large Mk II Base Fuze.
Gun Used In: 280 mm (1896) Super Heavy Coastal Defense Howitzer.
Lt. of Projectile: 35 inches.
Width of Rotating Band: 1 3/16 inches.

Type: Model 89, High Explosive.

Source: U.S.N. Bomb Disposal School publication "Japanese Hand, Rifle, and Mortar Grenades".

50 MM MODEL 89 H.E. MORTAR GRENADE







Description:

Propellant Base Housing: This is a steel case threaded at one end to receive the main shell base cover. A 5/8 inch wide copper rotating band is recessed into the base housing immediately over eight (8) holes. It is held in place by five (5) steel pins. The base housing contains the propellant and percussion primer.

Main Shell Base Cover: This is a couple threaded at both ends and used to unite the base housing to the main shell.

Main Shell: A steel container threaded at the base to receive the base cover and at the nose to receive the point detonating fuze. The high explosive is contained in this case.

Operation: Firing pin of mortar sets off the percussion primer which in turn ignites the propellant. Generated gases blow through the holes expanding the copper rotating band to the rifling of the mortar. This action imparts rotating to the shell and also acts as a gas seal.

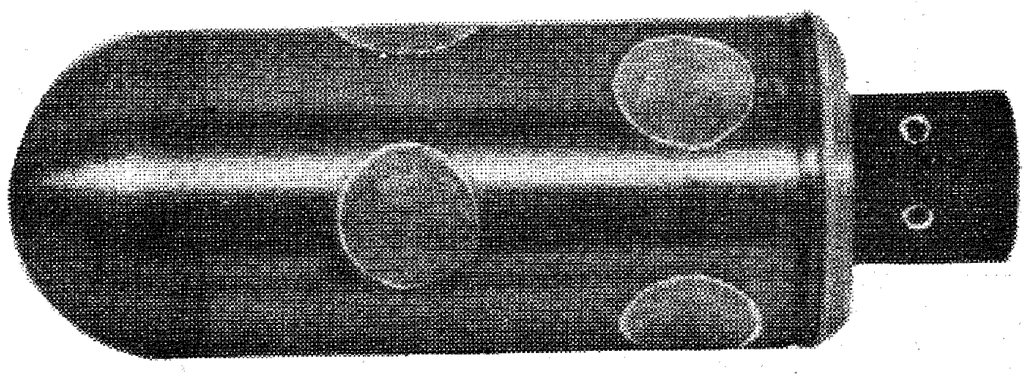
Color: Black overall with a red band at the nose, a yellow band below the bourrelet, and a white band above the rotating band. Midway on shell a yellow band sometimes is used in place of the white and yellow bands.

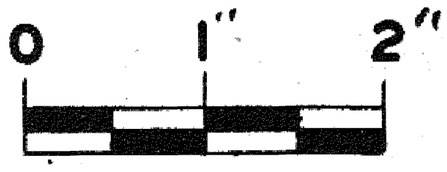
Data:

Gun Used In: Model 89 Grenade Discharger.
Fuze: Type 88 Small Instantaneous
Lt. of Projectile: 6 1/4 inches.
Wt. of Projectile: 1.6 lbs.

Type: 10th Year Type Incendiary Mortar Grenade.

Source: M.E.I.U. #4 specimen.





Description: The 10th Year Type incendiary mortar grenade has been recovered. The details of construction are similar to the Type 89 incendiary mortar grenade, but differ in the following respects:
(1) There are eight (8) sets of perforations covered with silver colored foil discs. They are arranged in two (2) circumferential rows on the main body.
(2) The body of the shell is made of brass.
(3) This shell weighs less and is shorter than the Type 89.

Color: Brass color overall. Black propellant assembly.

Data:

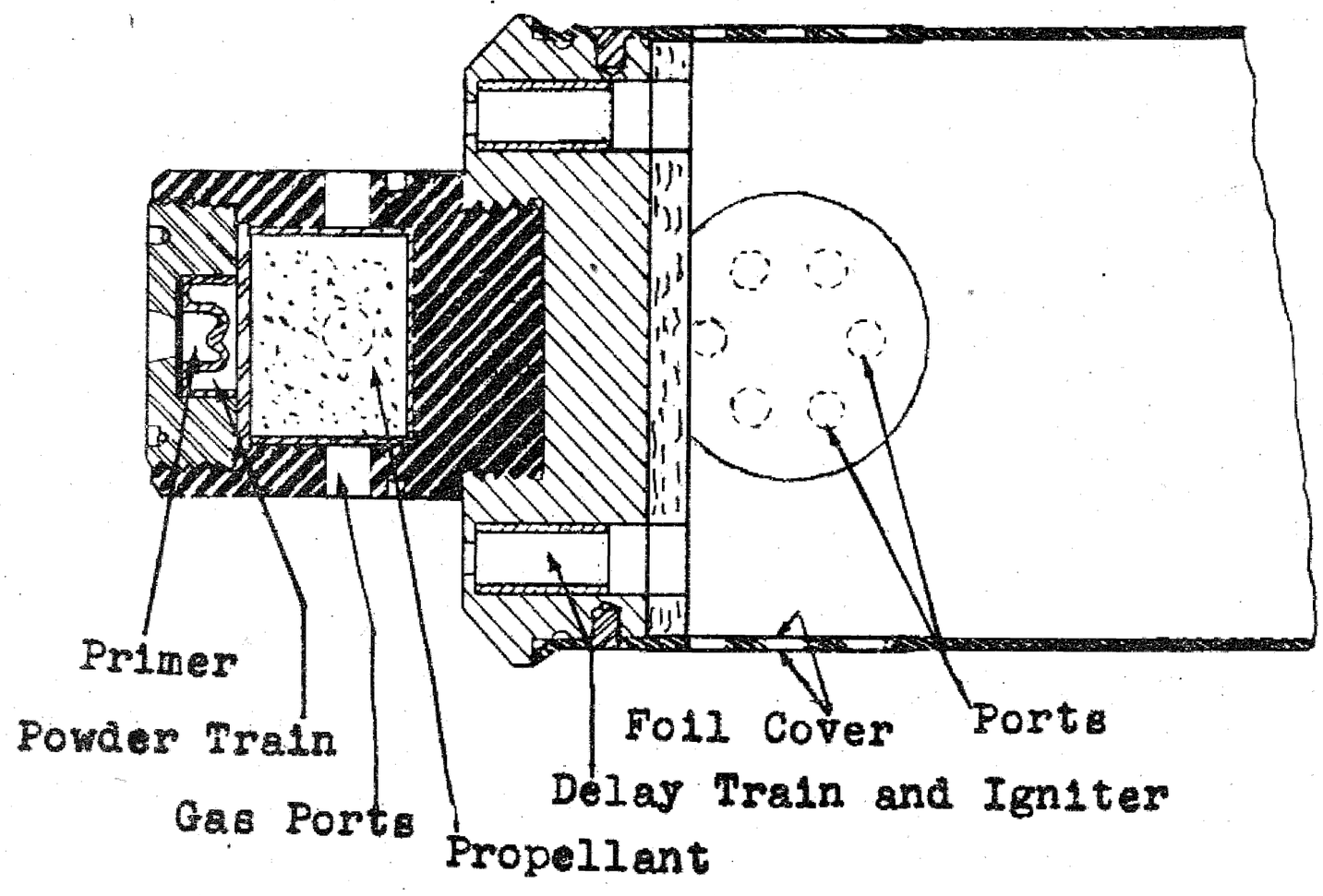
Gun Used In: 10th Year Type grenade discharger.
Overall Lt.: 5 7/8 inches.
Total Wt.: 1 lb. 2 1/4 oz.
Type of Filling: Potassium nitrate, aluminum, sulphur antimony trisulfide and wax.

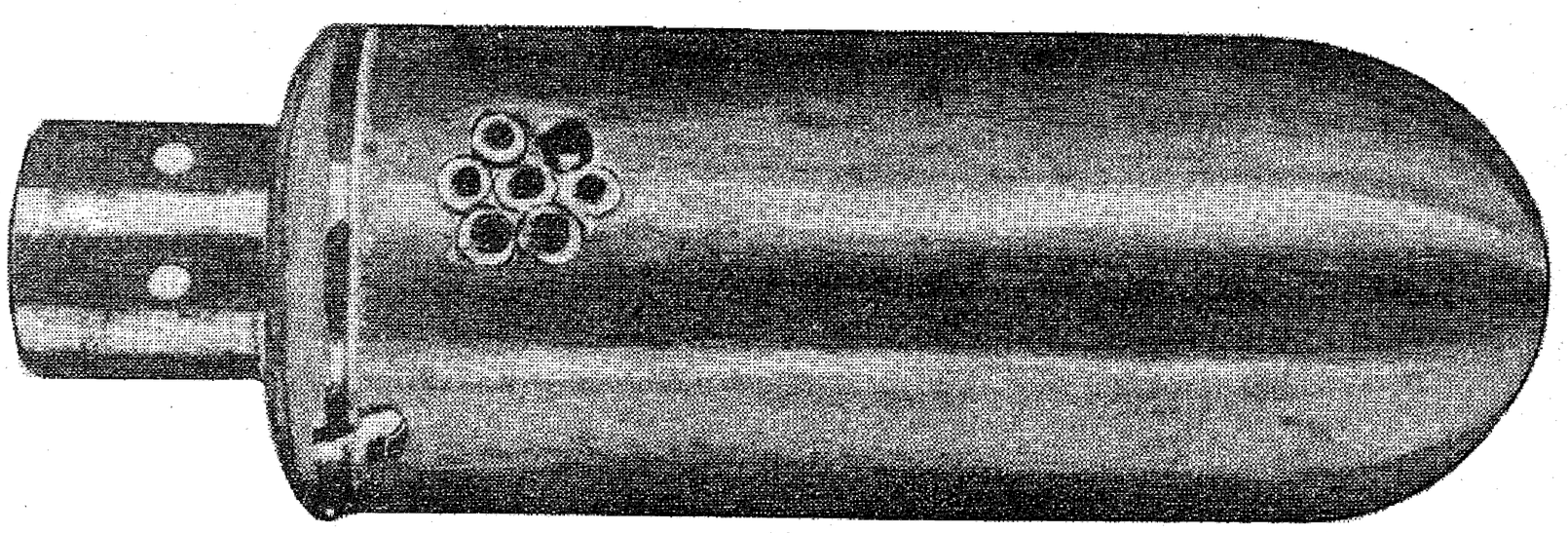
50 MM MORTAR PROJECTILE

Type: Mod. 89 Mortar Grenade Incendiary Shell.

Source: U.S.N. Bomb Disposal School publication "Japanese Hand, Rifle, and Mortar Grenades".

MODEL 89 MORTAR GRENADE INCENDIARY SHELL





Description: This shell is a cylindrical sheet steel tube with a hemispherical nose, and is covered with a clear lacquer. Around the side of the grenade are four (4) silver foil disc, each covering seven (7) ports in the grenade casing. The base is of light metal threaded to receive the propelling charge. The incendiary filling is ignited by two (2) black powder delay trains. These trains are actuated by the flash from the propellant.

Operation: When shell is dropped into discharger, the firing pin sets off the primer cap and propelling charge, driving the projectile out of the discharger and igniting the delay train in base of the shell. This in turn ignites the incendiary filling.

Color: Aluminum overall.

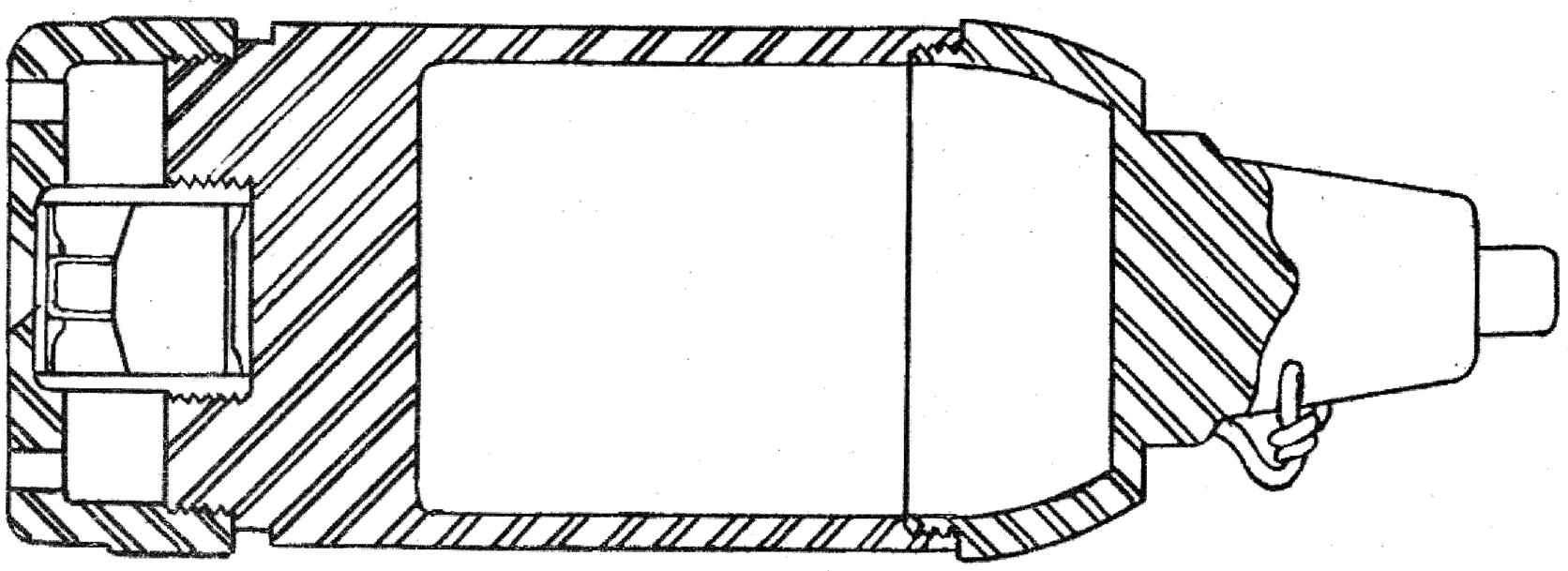
Data:

Gun Used In: Model 89 Grenade Discharger.
Overall Lt.: 6 1/4 inches.
Wt. of Projectile: 1.25 lb.
Type of filling: Potassium Nitrate, Aluminum, Sulphur, Antinony, trisulfide, and wax.

Type: Model 89 Mortar Grenade Practice Shell.

Source: U.S.N. Bomb Disposal publication "Japanese Hand, Rifle, and Mortar Grenades".

MODEL 89 PRACTICE SHELL



Description: The practice shell is of the same outward shape and dimensions as the H.E. Shell. It does not have the red band around the nose. The base of the practice shell is made in one part only. The propellant base housing is threaded directly to the main shell base.

Data:
Overall Lt.: 6 1/4 inches.
Weight: 1.6 lb.

Type: Spigot (stick) mortar.

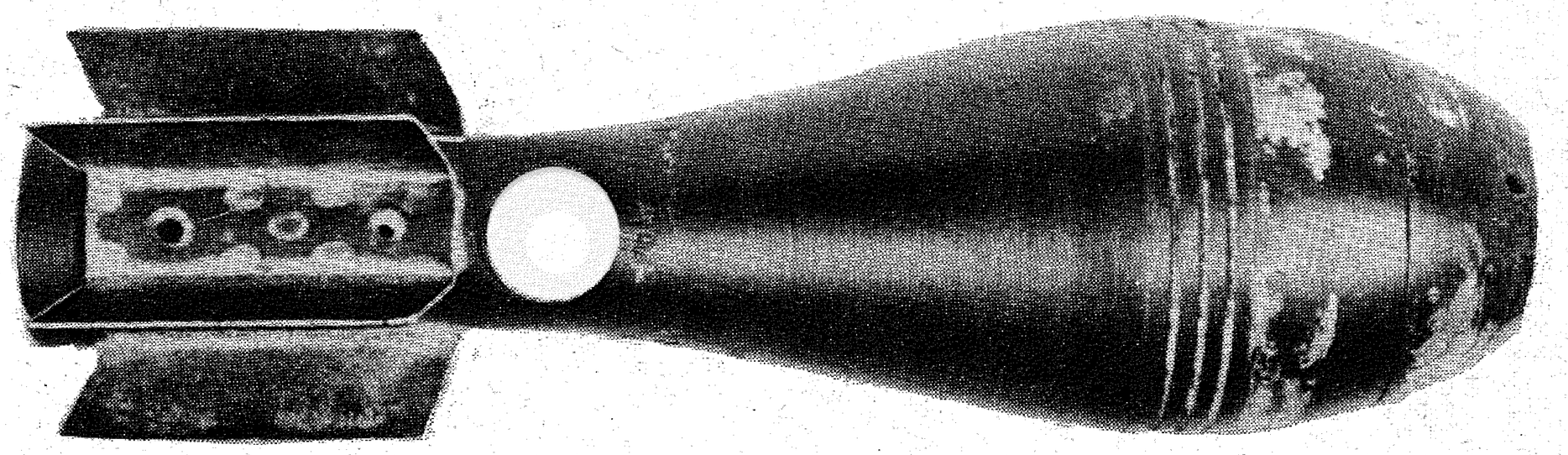
Source: Weekly Intelligence, Vol. 1, No. 14, and Japanese Inf. Weapons.

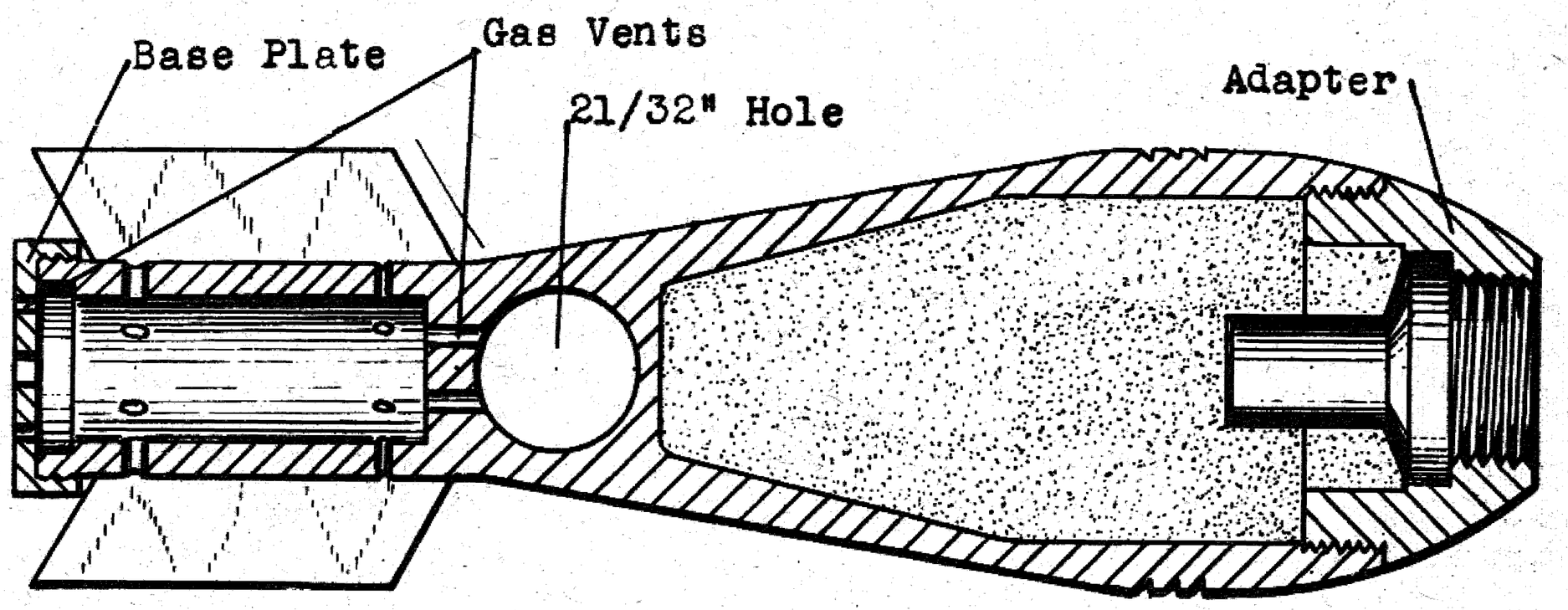
Description: Mortar projectile consist of a cast iron box (4 1/2 X 4 1/2 X 6 1/2 inches), containing picric acid blocks, mounted on a stick 50 mm in diameter and 21 inches long. When the mortar is to be fired, a propelling charge of black powder is placed in the barrel, followed by the stick of the projectile. Two (2) pull igniters are inserted in the two (2) apertures of the cast iron box. The lead wires of these pull igniters are tied to metal loops on each side of the mortar barrel. When the projectile is propelled from the mortar, the pull igniters start a delay train (7 seconds) in the bursting charge.

Remarks: It has been reported that a modified bangalore torpedo, with fins, may be fired from this mortar.

Type: 50 mm Streamline H.E. Mortar Shell.

Source: M.E.I.U. #4 Specimen.





Description: This shell resembles the 90 mm H.E. mortar in its streamline design. An adapter threads into the nose of the steel body. A hole 21/32 inches in diameter is drilled through the body just forward of the tail fins. Propellant gas escapes through this hole via two (2) gas vents leading forward from the cartridge cavity and from twelve (12) vents opening between the tail fins in the usual manner. A female metal base plate containing two (2) gas vents and a hole centered for the cartridge cap closes the cartridge cavity. There are no means presently known for attacking external propellant increments to the tail assembly.

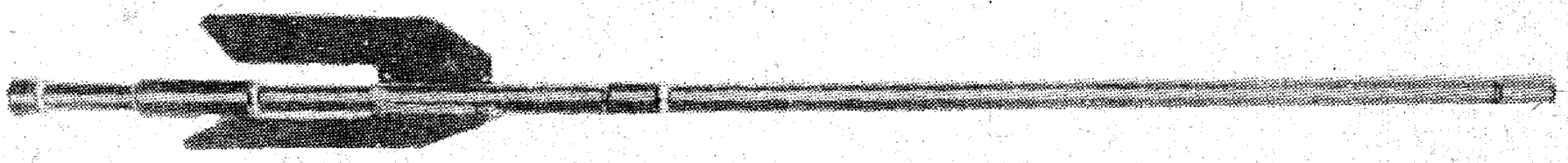
Color: Black overall with a 3/8 inch red nose band and a 3/8 inch yellow band just forward of the bourrelet.

Data:

Fuzes: Type 88 Small Instantaneous.
Overall Lt.: (unfuzed): 6 7/8 inches.
Weight of Proj. (empty & unfuzed): 1 1/2 lbs.
Type of Filling: Unknown.
Gun Used In: 10th Year Type or Type 89 Grenade Discharger.

Type: Finned Bangalore Projectile.

Source: M.E.I.U. #4 Report No. 69.



Description: The projectile is in two (2) sections. The nose section is a standard bangalore length, while the base section is a bangalore length cut off and modified to fit into the barrel of the Type 98 Projectile Discharger. This section also has three (3) spot welded brackets to which fins are attached. A cap 1 15/16 inches in diameter and 1 3/4 inches in length is welded around the after end of the base section. This piece has two (2) circumferential grooves which divide the surface into three (3) after bearing surfaces. A 6 3/8 inches length of 1 15/16 inches diameter tubing is welded to the bangalore length 6 3/8 inches from the base, and serves as a forward bearing surface for the projectile. A 3/4 inch square plate is welded to the bangalore base section 18 3/4 inches from the base to prevent the bangalore from sliding too far down into the launcher tube and damaging or bending the fins. The three (3) fins are made of sheet steel and each is attached to its bracket by two (2) bolts.

Color: The modified portion of the base section is painted black. The fins and the bangalore lengths are painted tan with a 1/4 inch red band at the top of each section.

Data:

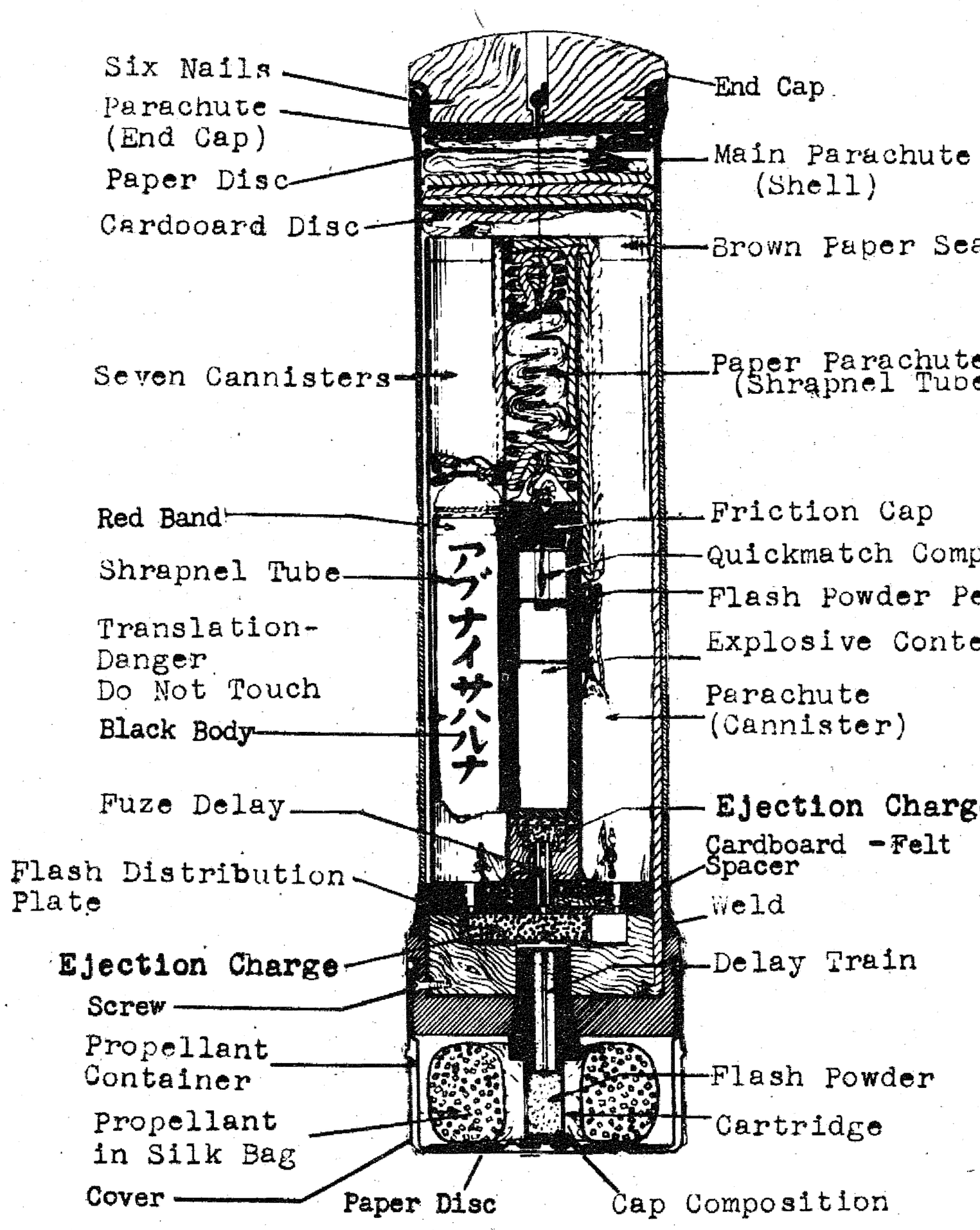
Overall length: (less fuze) 78 3/8 inches.
Base section length: 33 1/4 inches.
Fins: Length: 14 3/4 inches.
Maximum width: 3 1/2 inches.
Minimum width: 2 1/2 inches.
Total weight: 17 lbs. 14 1/4 oz.
Type of Filling: Picric Acid.
Weight of Filling: 6 lbs. 5 1/2 oz.
Fuze: Special Bangalore Fuze.

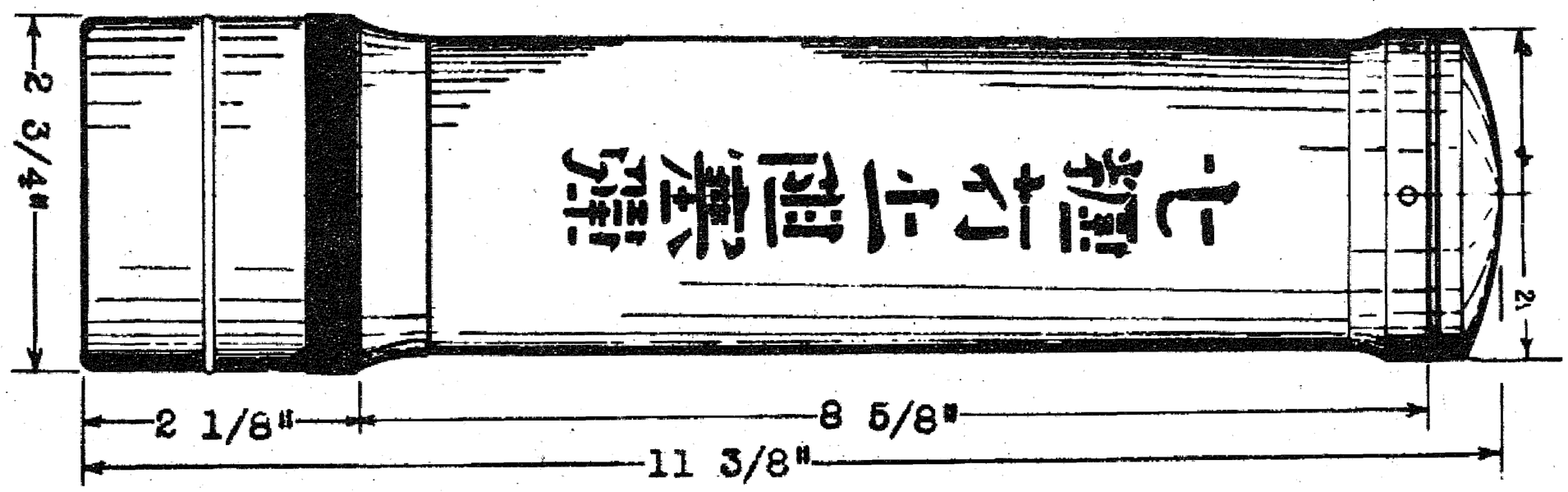
70 MM MORTAR PROJECTILE

Type: Army 70 mm Mortar Type Barrage Shell.

Source: M.E.I.U. #1 Report No. 24.

JAPANESE 70 MM MORTAR TYPE BARRAGE SHELL





JAPANESE 70 MM MORTAR TYPE BARRAGE SHELL (CONTINUED)

Description: Built up construction, body consisting 2 1/2" O.D. and 2 3/8" I.D. steel tube. A silk parachute 12 1/2" in diameter is attached to the shell per medium of a cord 55" long and 12 rigging lines, each 14" long. The parachute cord is secured under a wooden block in the base of the shell. This block is recessed for the reception of a flash distribution plate and the canisters propellant charge.

Operation: Upon firing the flash powder ignites both the shell propellant charge and the delay train. As the shell approaches its target area, the delay train ignites the canisters propellant charge which in turn ignites the seven (7) canister delay fuzes and ejects the main parachute and the seven (7) smaller canisters. As the main parachute is ejected and begins to open, the forward movement of the shell is arrested aiding the ejection of the seven (7) smaller canisters. As the canisters fall free, their parachutes open. By this time, the delay fuzes, which were ignited from the shell propellant, have ignited the shrapnel tube propellant charges. As the shrapnel tubes are ejected, their parachutes open, the pull of which cause the friction ignitor to initiate detonation.

Color: Black body. Red band on forward end.

Markings: Along the entire length of the projectile is written Japanese characters in white paint.

Data:

Gun Used in: 70 mm Mortar
Lt. of Projectile : 11 3/8".
Wt. of loaded Projectile: 5 lb.
Type of filling: Cyclonite.

Remarks: Translation on shrapnel tube "Danger. Do not touch".

Type: 70 mm 11th Year Type Mortar Shell.

Source: M.E.I.U. #1 Supplement to Japanese Explosive Ordnance.



Description: The projectile is identical to the Japanese Army Type 89 H.E. Mortar except for size. The operation is the same.

Color: Black overall with a yellow band aft of bourrelet and a white band forward of rotating band.

Data:

Fuze: Type 93 Mortar Fuze.
Lt. of Proj. (fuzed): 8 5/8 inches.
Gun Used In: 11th Year Type Mortar.

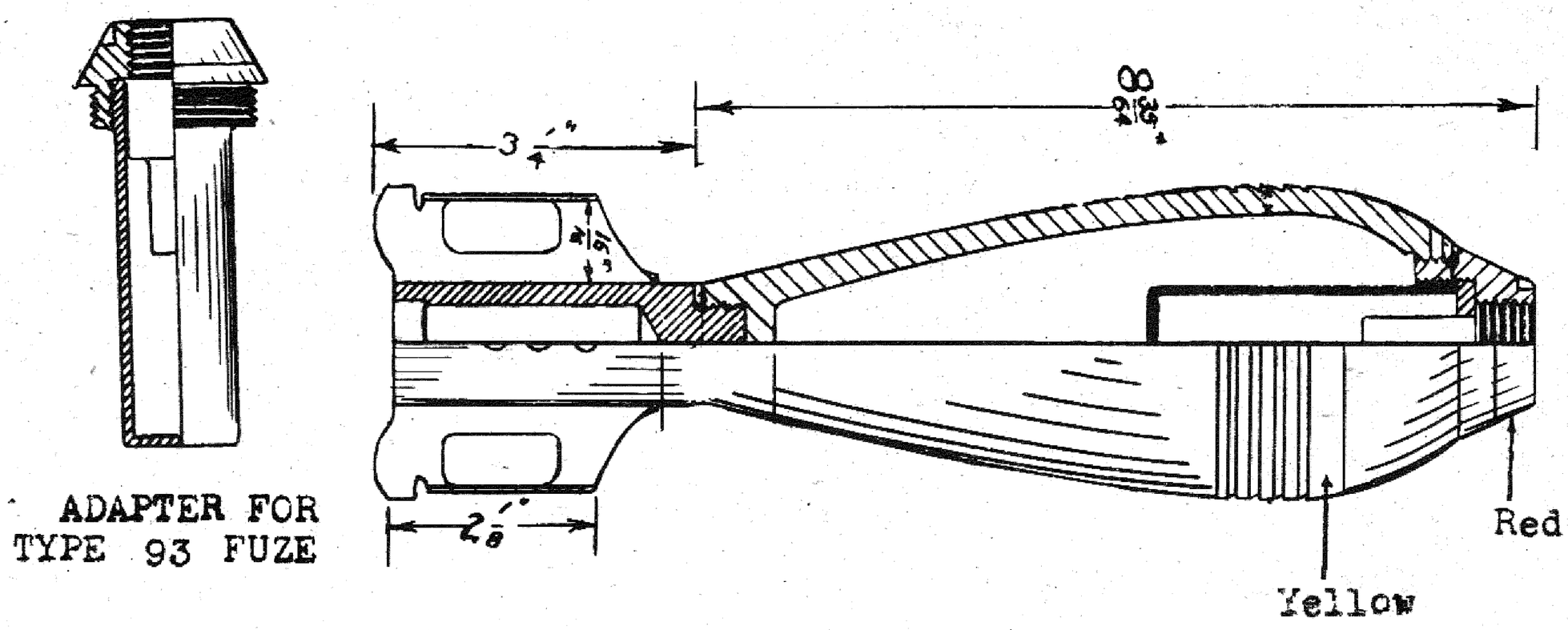
Remarks: No rounds are available for examination. Specimens are desired.

81 MM MORTAR PROJECTILE

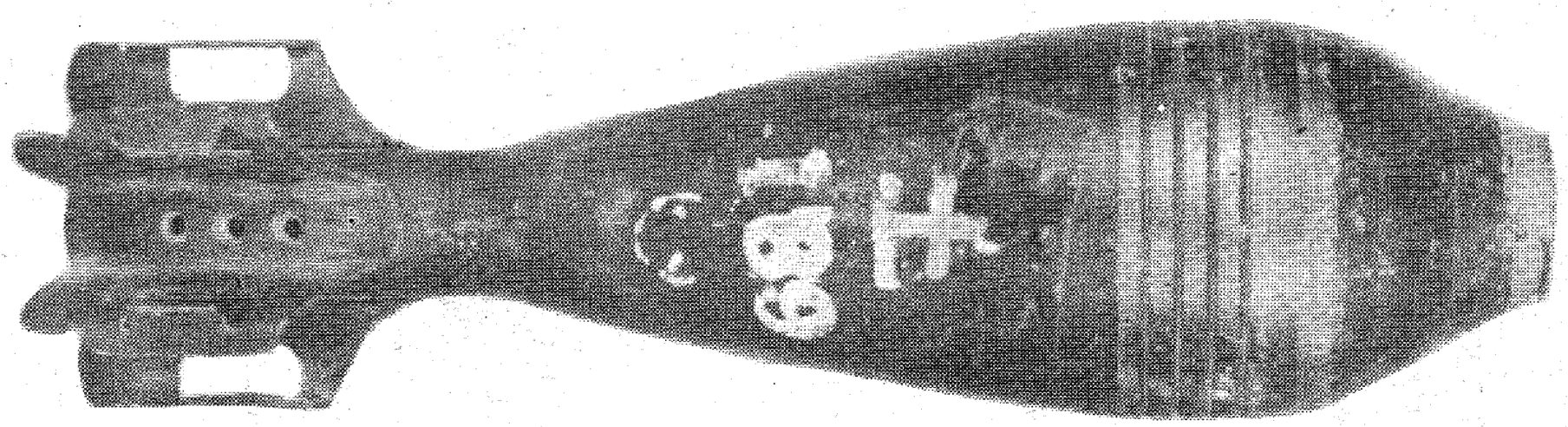
Type: Type 97.

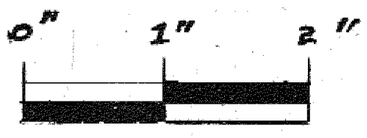
Source: Examination of recovered round.

81 mm. H.E. (ARMY)



ADAPTER FOR TYPE 93 FUZE





Description: Streamline shape. Propelling section of shell made up of three (3) brackets forming six (6) fins. Retaining clips are a part of the fins and take propelling increments. Yellow band is below bourrelet instead of above as in the Type 100. TNT is cast directly into the mortar projectile.

Color: Overall black, yellow band, red nose. Type of metal may be indicated by white band.

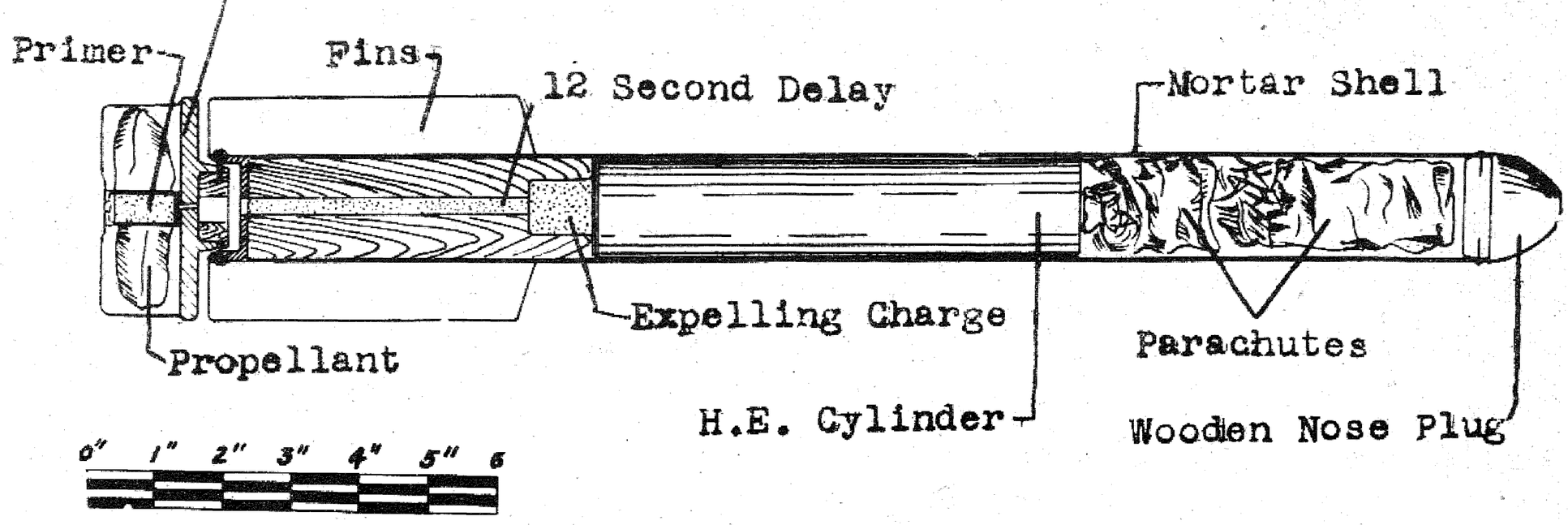
Data:

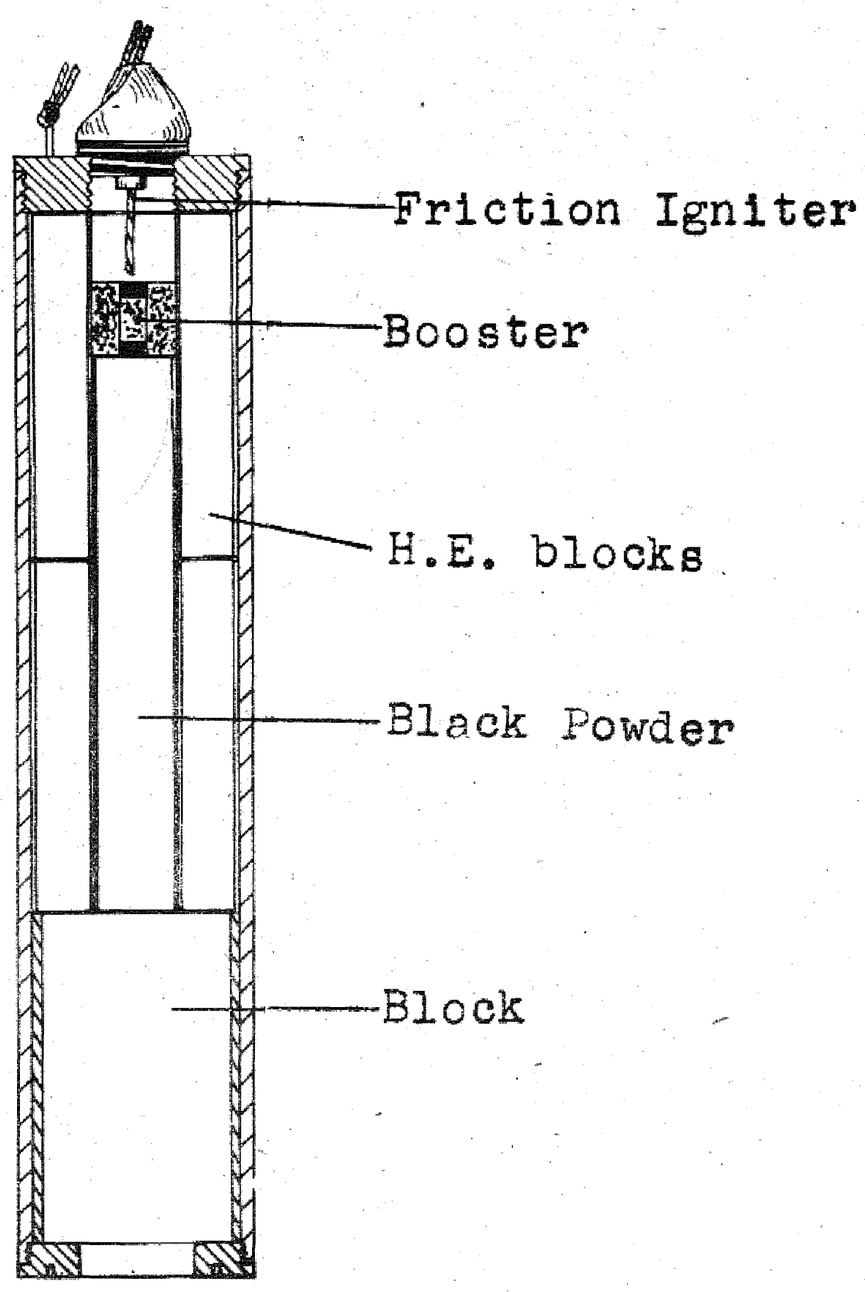
Mortar Used In: Type 97 or Type 99.
Fuzes: Type 100 or Type 93
Lt. of Projectile (unfuzed): 11 1/4 inches.
Wt. of loaded Projectile: 6 lbs. 14 oz.
Type of filling: TNT.

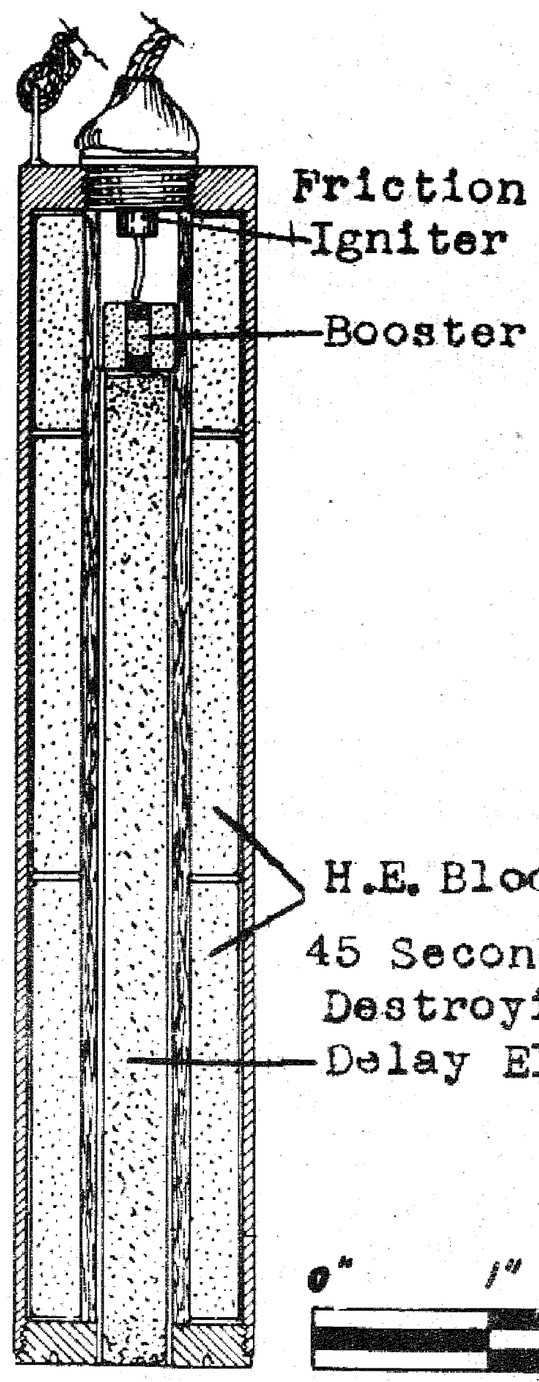
Type: 81 mm A.A. Parachute Mortar.

Source: M.E.I.U. #1 Preliminary Report 29 December 1944.

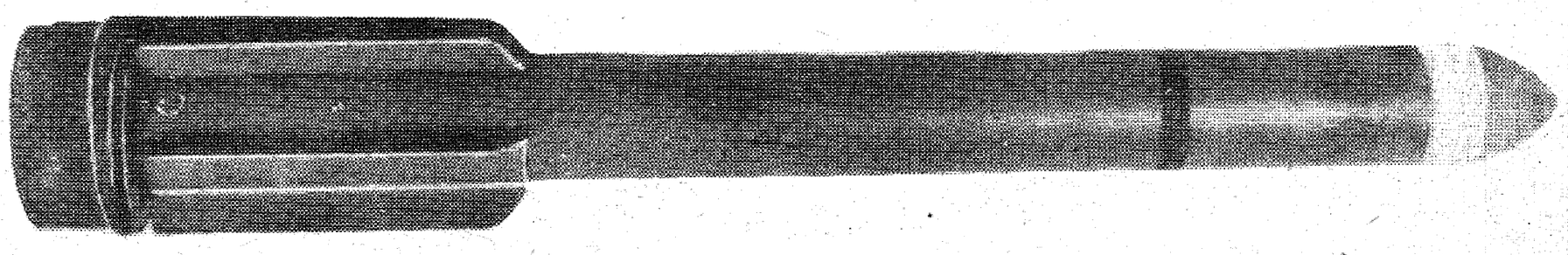
ARMY 81 mm A.A. MORTAR PROJECTILE







H.E. SMOKE ROUND H.E. CYLINDER



General: All three (3) rounds have the same external construction. The body is a sheet steel tube with six (6) fins attached to the after end and an ogival wooden nose piece in the forward end. Attached to the base of the tube is the propellant container which is designed to shear and fall free of the tube after the projectile has left the mortar. The flash from the propellant ignites a 12-second delay train leading to the expelling charge which ejects the cylinder and its parachutes.

H.E. ROUND

Description: This round has a steel cylinder containing three (3) HE pellets and a powder delay train running through the center of the pellets. The lower chute supports the cylinder while the upper chute rides about 32 feet above on the lead to the friction igniter. Fouling of this lead by aircraft will fire the igniter and thus the whole cylinder. If, after 45 seconds in the air, no contact is made, the delay train which is ignited by the expelling charge, burns out and explodes the cylinder.

Color: Black overall with plain wooden nose.

FLARE ROUND

Description: Replacing the HE cylinder of the HE round is a thin metal container filled with a barium nitrate, magnesium, rubber flare material. The entire lower end of the flare cylinder is open and is thus ignited by the expelling charge. Only one parachute supports this cylinder which has no friction igniter.

Color: Blue-grey overall with red wooden nose.

H.E. SMOKE ROUND

Description: The suspended cylinder in this round is similar to that of the HE round. The lower parachute supports the cylinder while the upper chute rides 32 feet above the cylinder on the lead to the friction igniter. Fouling of this lead fires the HE blocks as in the HE round. The expelling charge ignites the lower smoke-flare pellet which burns about 53 seconds and which then ignites the short delay train which burns 7 seconds. The total delay is thus 60 seconds before the HE (tetryl) pellets explode.

Color: Blue-grey overall, yellow wooden nose, green band on body.

Data:

Mortar Used In: 81 mm Barrage Mortar.
Overall Lt.: 21 7/8 inches.
Weight complete: 4 lb. 4 oz.

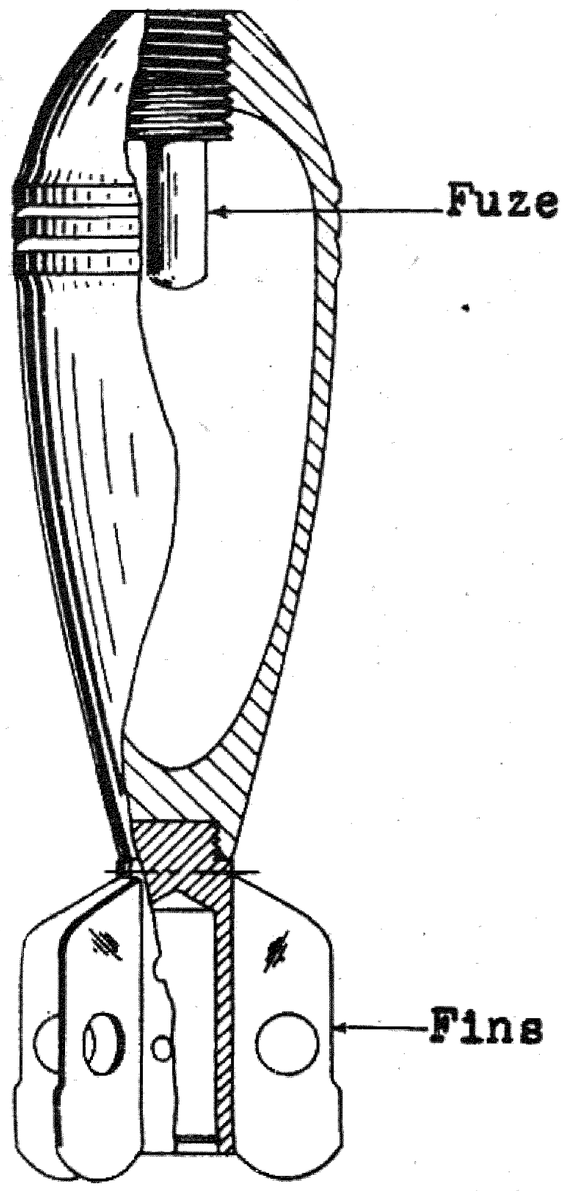
82 MM CHINESE MORTAR PROJECTILE

Type: 82 mm Chinese Mortar.

Source: M.E.I.U. #1 Report No. 77.

82 MM CHINESE MORTAR SHELL

Overall Length 11 5/8"



Description: The projectile is a standard tear-drop shaped mortar case with a maximum diameter near the nose and tapering to a minimum diameter at the tail fins. At the maximum diameter, there are two (2) gas-check rings. The nose of the projectile is threaded to receive a fuze seat liner and a point detonating fuze.

Color: Some have been found painted black and some painted light olive drab.

Markings: Each mortar is stamped with Chinese characters and either stamped or painted with left-handed swastikas (never used by Germans).

Data:

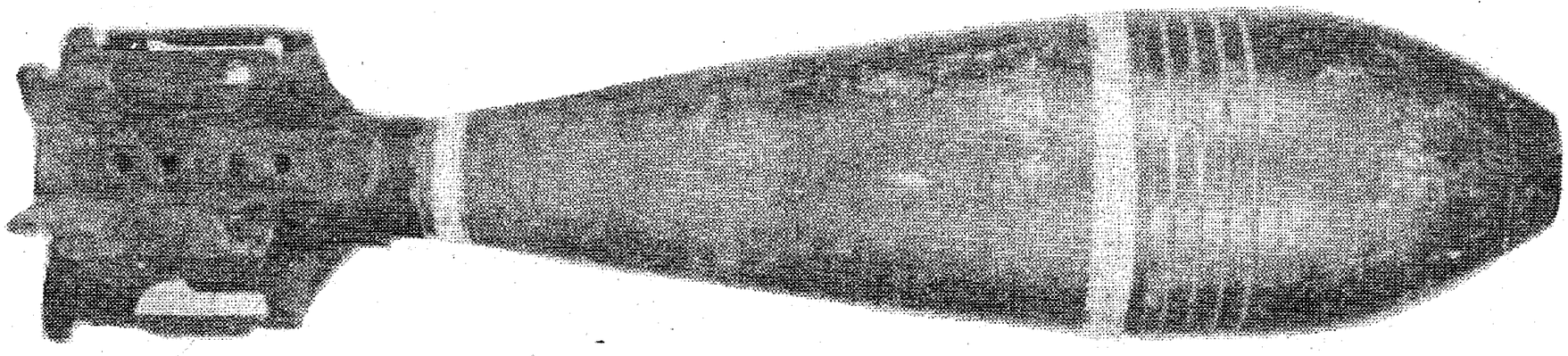
Gun Used In: 82 mm Mortar.
Fuzes: (1) Instantaneous or
(2) Combination (Instantaneous and Short Delay).
Lt. of Projectile (unfuzed): 11.6 inches.
Wt. of loaded Projectile: 7 lb. 13.5 oz.
Type of filling: 40/60 Potassium perchlorate and TNT.

Remarks: Fins strongly resemble British Design and British manufactured cartridges found in Specimen examined.

Source: Japanese Chemical Warfare Booklet, U.S. Army Services of Supply.

Description: Identical in shape and size to 90 mm H.E.

ARMY 90 MM CHEMICAL MORTAR PROJECTILE



Color: Black body, red and blue nose bands; may be yellow body band.

Date:

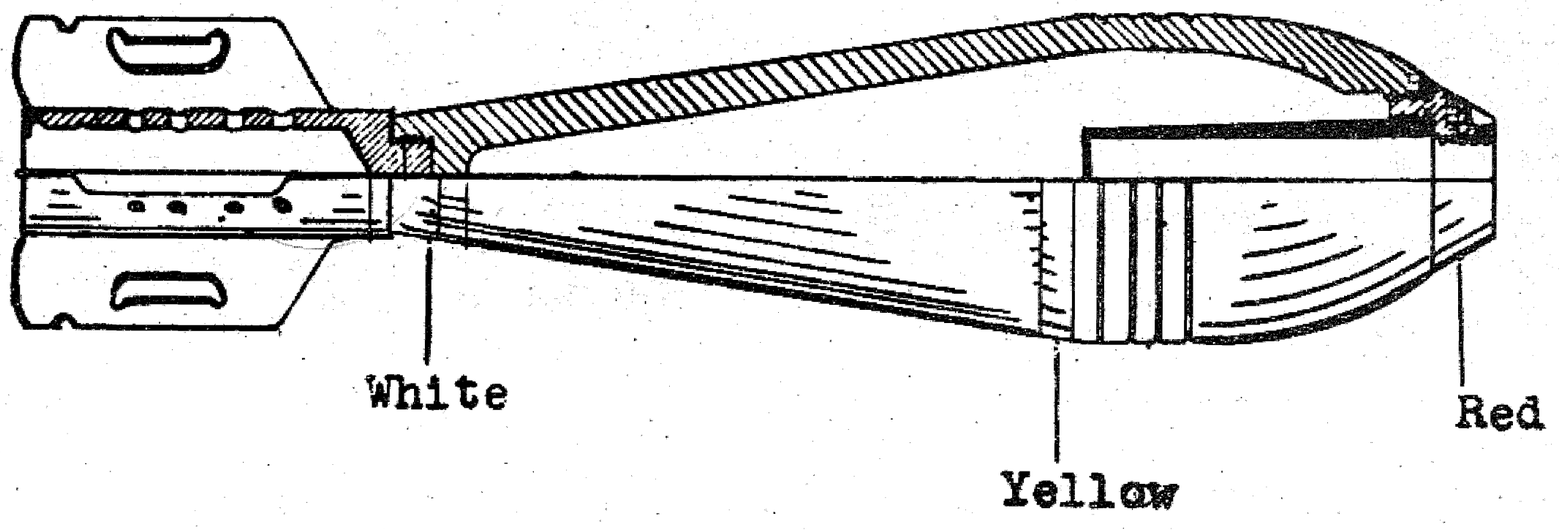
Gun Used in: Type 94 Mortar.
Fuzes: Type 93 or Type 100.
Lt. of Projectile (unfuzed): 16 inches.
Wt. of Projectile loaded: Varies with filling.
Filling: (1) White phosphorus and carbon disulphide.
(2) Blister or vomiting gas.
(3) DC.

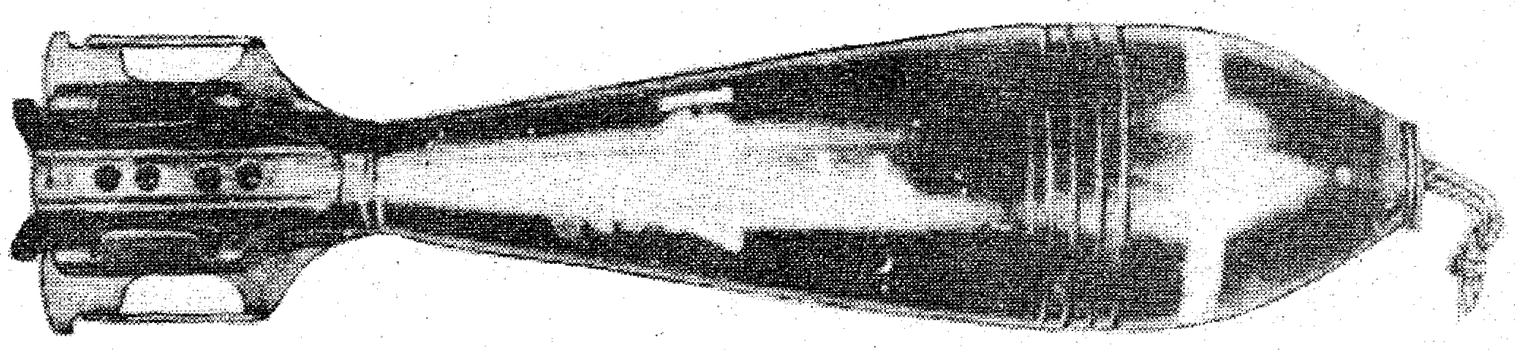
Remarks: This information is intended only as an aid in the identification of these shells. They have not as yet been recovered.

Type: 90 mm H.E. (Short & Long Types).

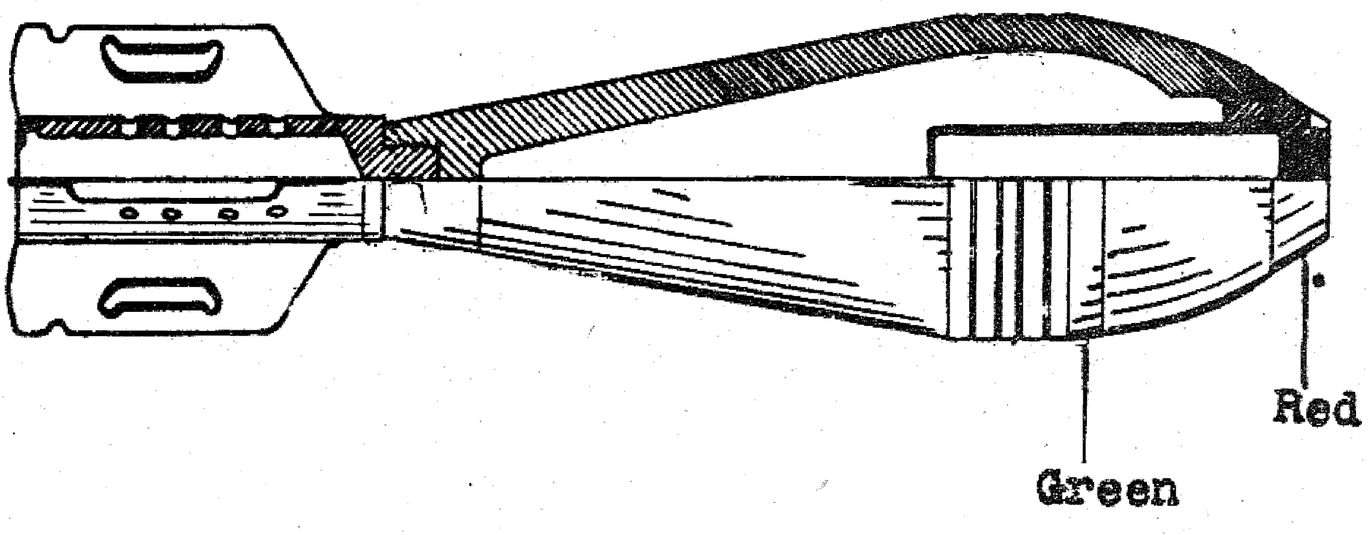
Source: Australian Tech. Intelligence Summary.

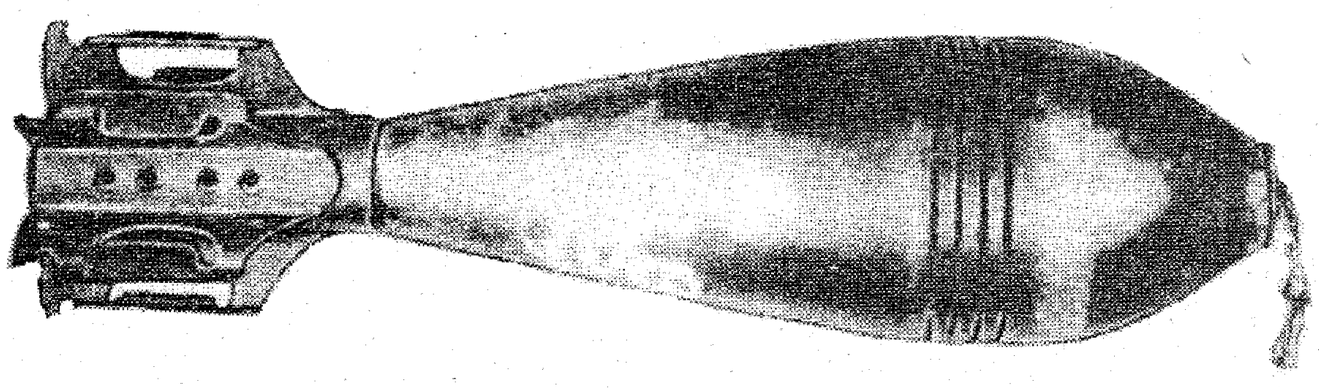
90 mm H.E. MORTAR PROJECTILE





90 mm SEMI-STEEL MORTAR PROJECTILE





90 mm H.E. Short and Long Types (Continued).

Description: Exploder tube screws internally into nose adapter which in turn screws into body. Maximum diameter of 89.7 mm. There are five (5) gas check rings. TNT is cast directly into the projectile. Tail unit threads on to the tail of the body and is retained by three (3) crimps. The tube of the tail unit contains twenty-four (24) holes arranged in six (6) vertical rows of four (4) holes each. Three (3) brackets forming six (6) tail fins are spot welded to the tube.

Color: Black overall, red band on nose. Green band immediately forward of bourrelet (short type). Yellow band in same position will replace green band on long type.

Data:

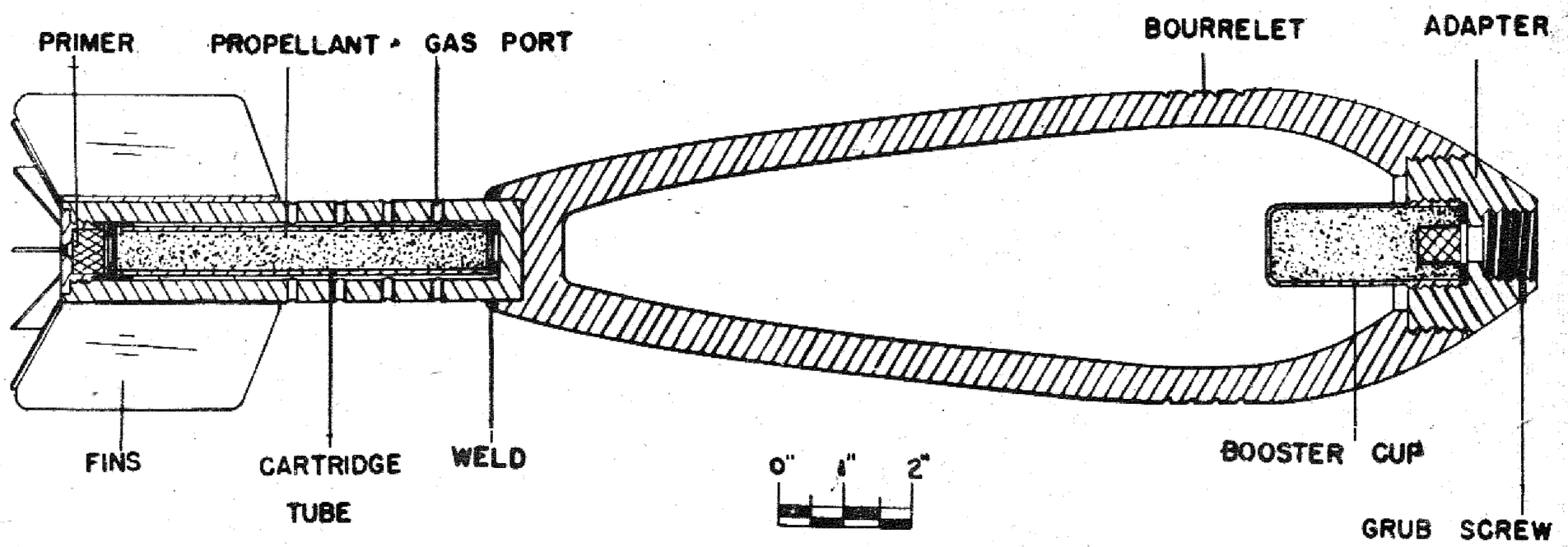
Mortar Used In: Type 94.
Fuzes: Type or Type 97.
Lt. of short type: 14.2 inches.
Lt. of long type: 15.9 inches.
Wt. of short type: 11 lbs. 7 1/2 oz.
Wt. of long type: 11 lbs. 2 3/4 oz.
Type of filling: TNT.

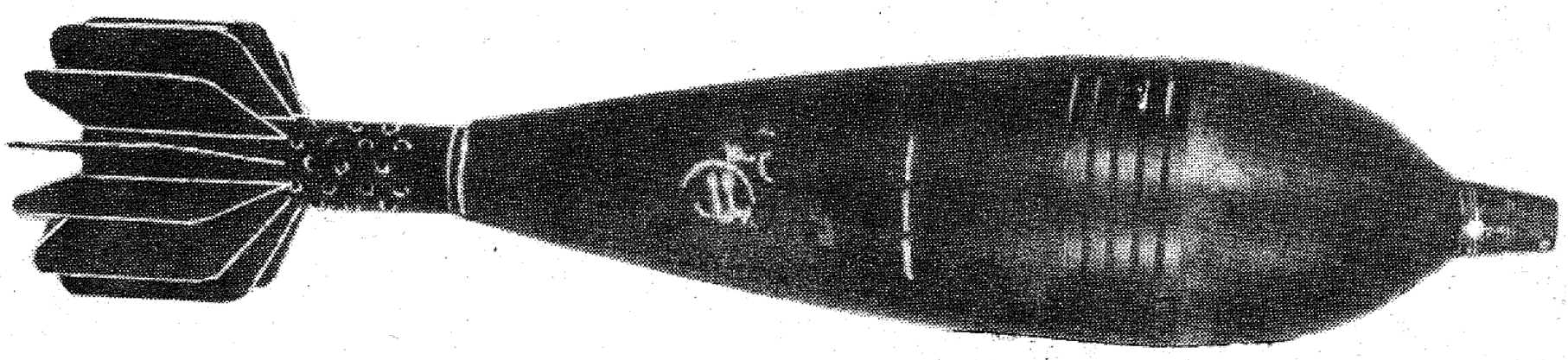
Remarks: The difference between these two (2) projectiles is in the length of the forward and after body sections. The forward section is measured from nose (excluding adapter) to the forward gas check ring. The after section is measured from the after gas check ring to the tail (excluding tail unit).

Short Type: Length of forward section: 51 mm.
Length of after section: 156 mm.
Long Type: Length of forward section: 57 mm.
Length of after section: 190 mm.

Type: H.E.

Source: M.E.I.U. #4 specimen.





Description: The fin assembly of this mortar closely resembles that of the Type 3 8 cm Navy mortar. The nose of the steel streamlined body is threaded internally (L/H) to receive the fuze adapter. The nose of the fuze adapter is threaded internally (L/H) to receive the fuze. The after end of the fuze adapter is threaded internally (L/H) to receive the booster cup. There are five (5) bearing surfaces at the widest diameter of the projectile. The propellant tube is welded to the after end of the projectile and contains 42 small transverse perforations arranged in nine (9) lines along the longitudinal axis. Each line contains, alternately, four (4) and five (5) perforations. Just aft of the transverse perforations are welded to the propellant tube six (6) pair of straight steel fins. The booster pellet is RDX and wax. The propellant increments are blue silk lacquered circular bags which fit around the propellant tube forward of the fins. The cartridge case which fits inside the propellant tube is made of cardboard and has a thin black plastic cap on its after end and closed on its forward end by a cardboard disc.

Color: Overall black, red nose tip and yellow band just above bourrelet.

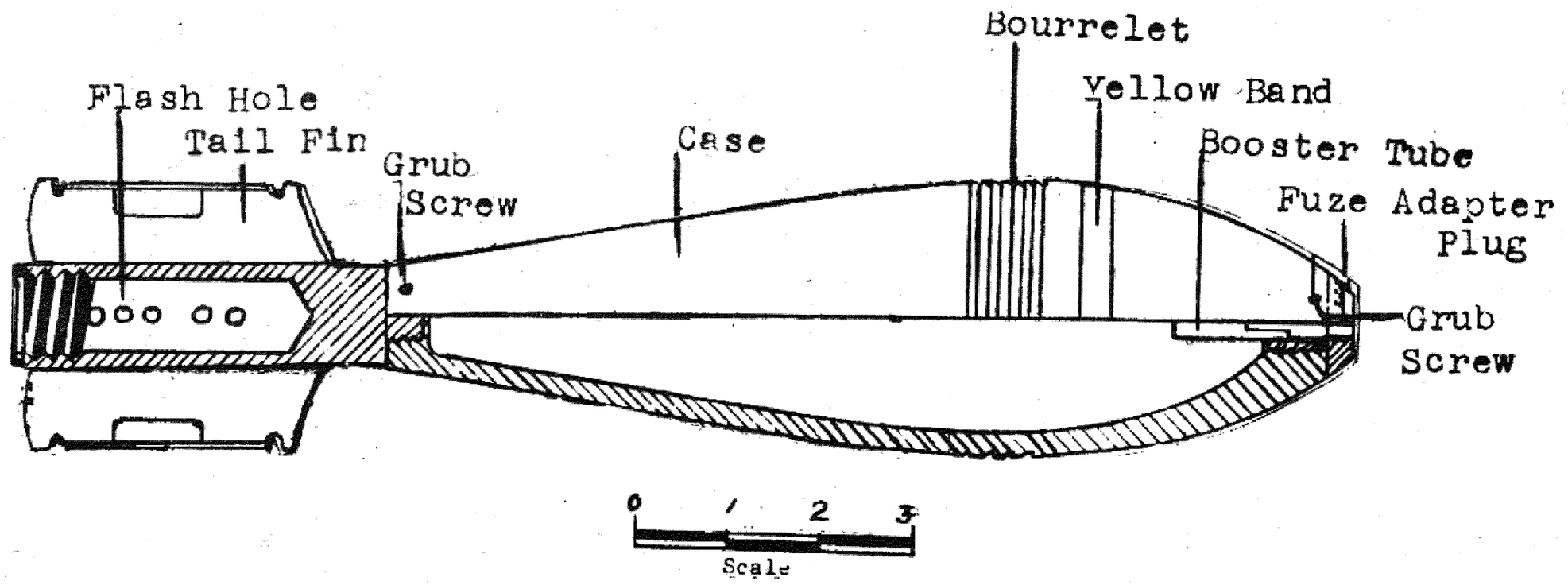
Data:

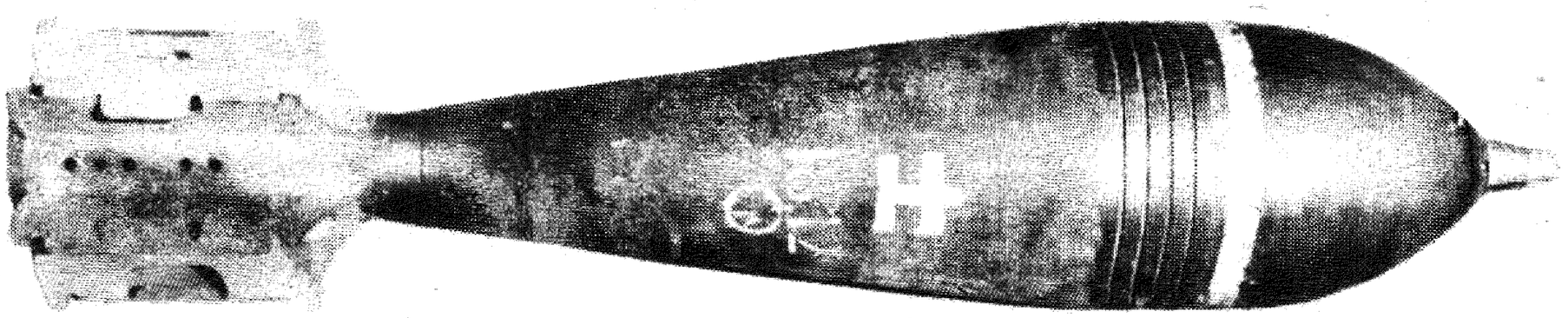
Gun Used In: Army 12 cm mortar.
Overall Lt.(unfuzed): 22.5 inches.
Length of shell body: 15.6 inches.
Dia. of Fins & Bourrelet: 4.7 inches.
Dia. of Propellant Tube: 1.5 inches.
Wt. of Filled Round: 26.5 lbs.
Type of Filling: TNT.
Fuze: Type 100 Mortar Fuze.

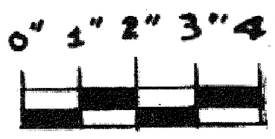
Type: Army 15 cm Mortar Projectile

Source: MEIU# 4 Report 24

JAPANESE ARMY 15 CM MORTAR PROJECTILE







Description: A tear-drop shaped projectile similar in design, construction, and filling, to both Japanese and U. S. 81 mm Mortar Projectile. The main body is a machined cast steel container. Bourrelet has 5 bearing surfaces seperated by shallow grooves. Six steel tail fins are welded to the propellant tube. Between the fins are thirty flash holes, six rows of five each.

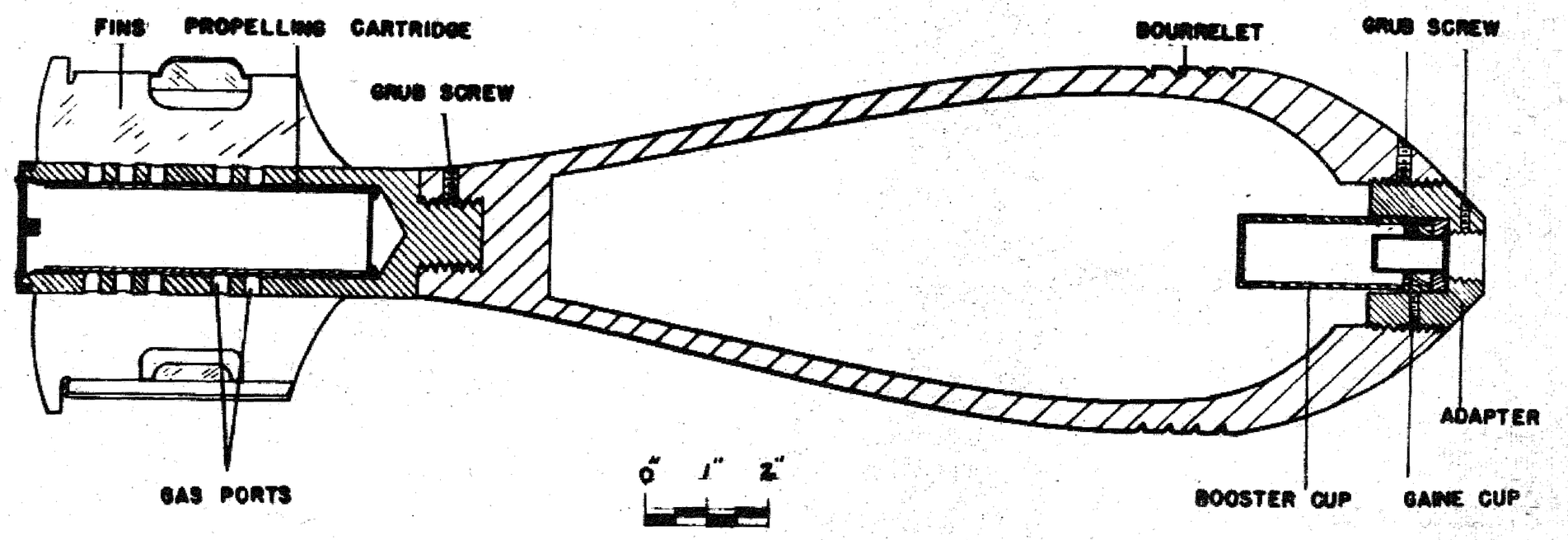
Color: Black body, red nose, yellow band forward of bourrelet.

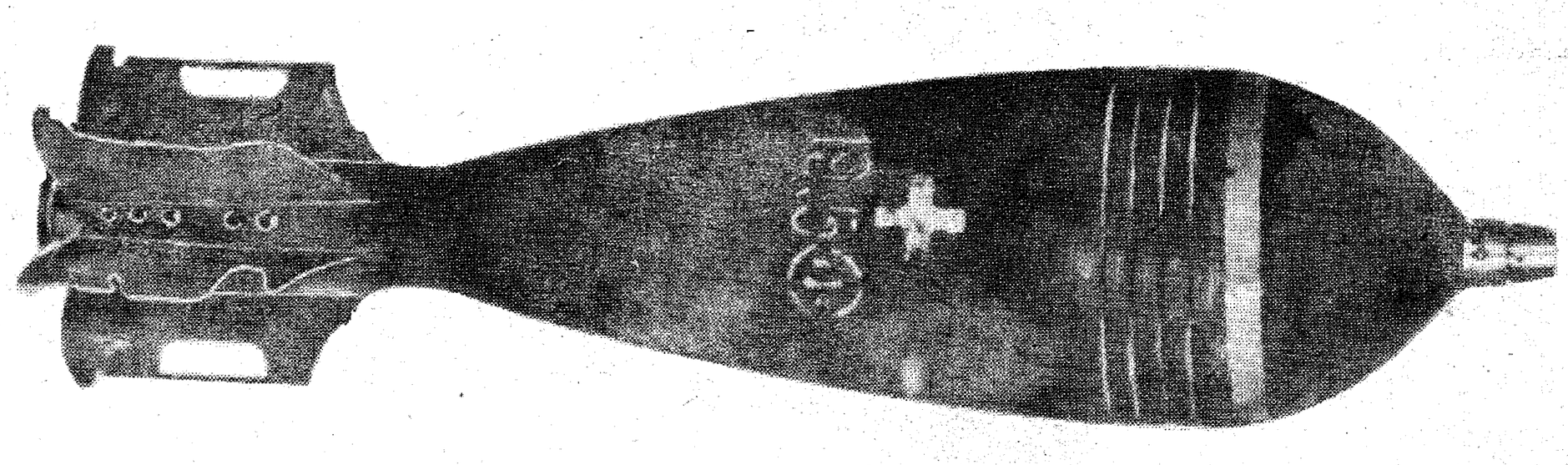
Data:

Gun used in: Type 93 Mortar, 150 mm
Fuze: Type 93 mortar fuze.
Length of projectile (unfuzed): 28¾ inches
Weight (loaded): 56½ lbs.
Filling: TNT (cast)

Type: Type 99 Short H.E.

Source: M.E.I.U. #4 specimen.





Description: This steel projectile is streamlined with the nose opening threaded (L/H) to receive the fuze adapter. Into the after end of the projectile is threaded and secured by a grub screw the steel propellant tube. The fuze adapter is straight-sided without the customary flange on the forward end. The nose of the adapter is threaded internally (L/H) to receive the fuze. The after end of the adapter is threaded internally (L/H) to receive the gaine well (whose flange is threaded externally) and the booster cup. There are five (5) bearing surfaces at the greatest diameter of the projectile. The steel propellant tube and fins resemble those of the Army 90 mm mortar except the six (6) fins of the 150 mm mortar are made of six (6) individual sheets of steel which are welded individually to the propellant tube. Between each two (2) fins are five (5) perforations making a total of 30 gas ports in the propellant tube. The cardboard cartridge is held in the propellant tube by a metal cap which threads onto the after end of the tube. The outside edge of the fins are bent and cut so that propelling increments may be attached.

Color: Overall black with a red nose tip, and a yellow band just forward of bourrelet.

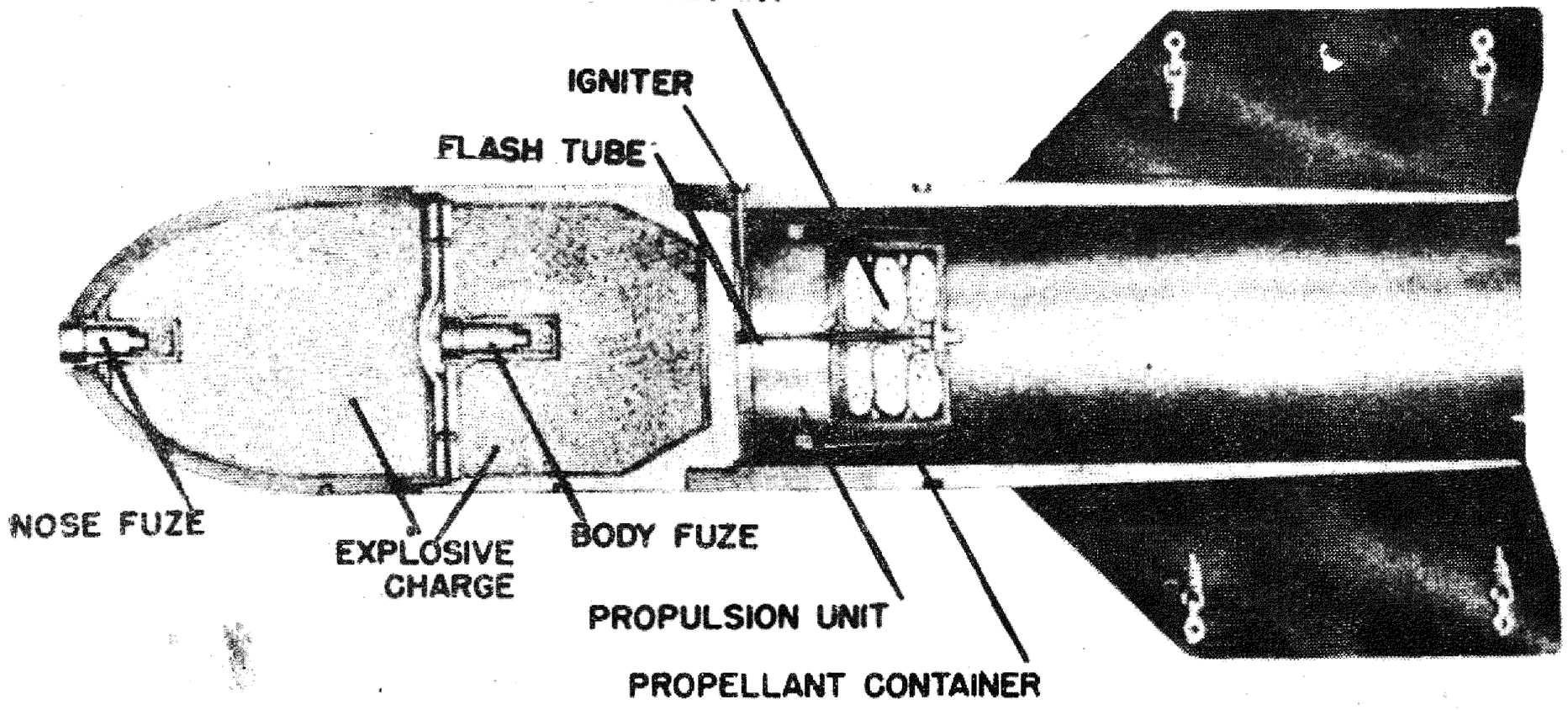
Data:

Gun Used In: 15 cm mortar.
Overall Lt.(unfuzed): 49.7 inches.
Weight filled: 43.5 lb.
Length of tail piece: 6.7 inches.
Diameter of Fins: 5.5 inches.
Type of Filling: TNT.
Fuze: Type 100 Mortar Fuze.

Type: 320 mm Spigot Mortar Projectile.

Source: Australian Tech. Intell. Summary #17.
U.S.A. Bomb Disposal Tech. Information #44.

320 MM SPIGOT MORTAR PROJECTILE



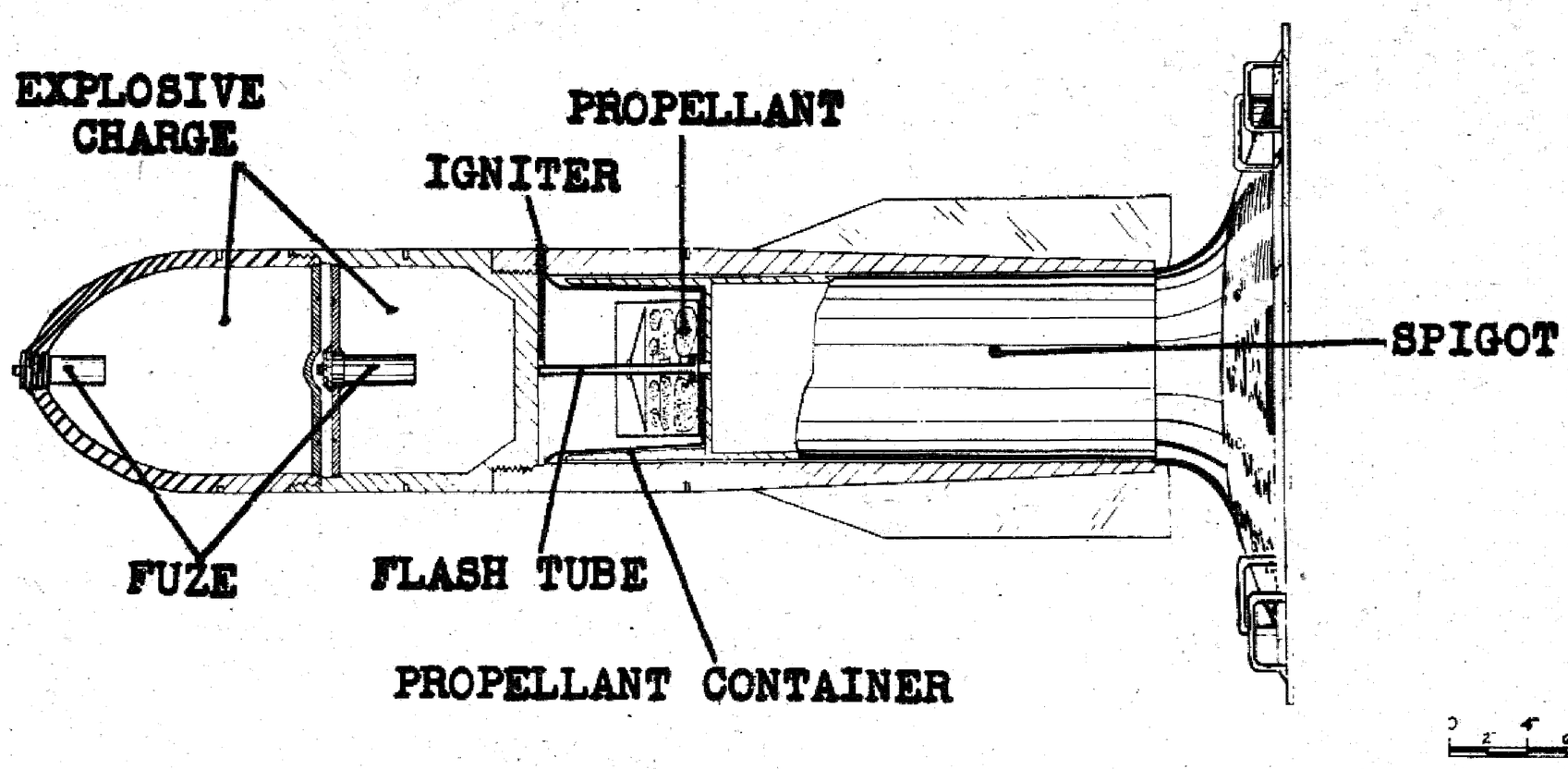
Description: Consists of three (3) sections; nose, middle section, and tail, which are threaded together as the projectile is "built up" when loading. Nose and middle section only contain picric acid and a fuze in a forward opening of each. The fuze in the middle section can be reached only after the nose section is removed. The tail section is a hollow cylinder with four (4) sheet steel fins welded to it and covers the propellant tube of the mortar when in place for firing. The propellant container is the upper part of the mortar tube. The propellant is carried in silk bags and is believed to be a black powder and nitro cellulose mixture. The electric or friction propellant igniter fits into a hole in the forward end of the tail section. The flash from the igniter ignites the flash tube and it in turn sets off the propellant. Carrying handles and brackets will be found on each section before assembly.

Color: Black overall, has a yellow band at the base of the nose section and a red nose tip.

Data:
Guns Used In: 320 mm Spigot Mortar.
Overall Lt.: 59.5 inches.
Total Wt.: 737 lbs.
Type of Filling: Picric Acid.
Fuzes: 32 cm Mortar Fuze.

Type: 320 mm Spigot Mortar Projectile.

Source: Australian Technical Intelligence Summary No. 17, U.S.A. Bomb Disposal Technical Information No. 44, and examination of a specimen.

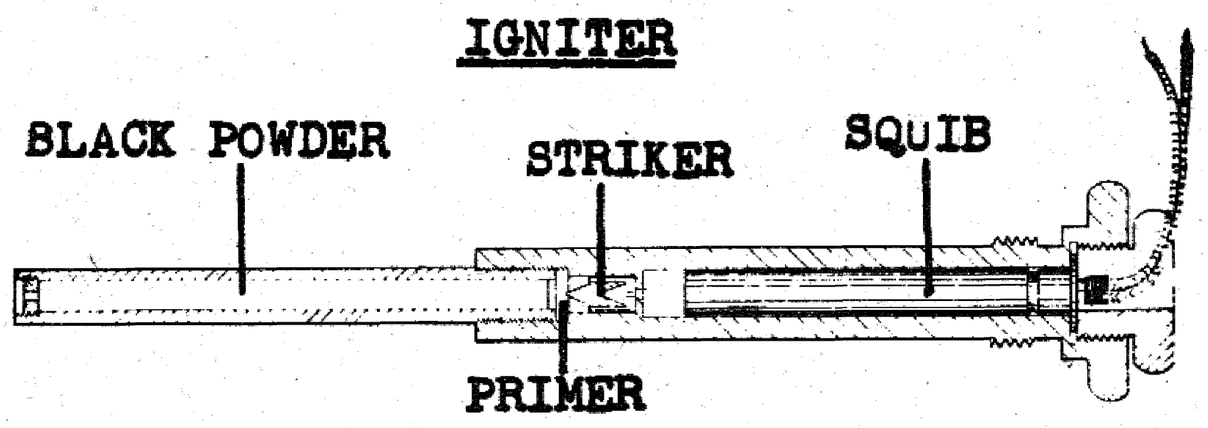


Description: Consists of three (3) sections; nose, middle section, and tail, which are threaded together as the projectile is assembled on the spigot. The nose and middle section are filled with picric acid and each has a fuze in a forward fuze pocket. The tail section is a hollow cylinder with four (4) sheet steel fins welded to it. Carrying handles will be found on each section before assembly. The propellant charge, 14 increments, is in a brass container which has a flash tube leading from its bottom center to the igniter tube. The propellant container serves as a gas seal ring as the projectile leaves the spigot.

Color: Black overall, red nose tip, and a yellow band at the base of the nose section.

Data:

Gun Used In: 320 mm Spigot Mortar.
Overall Length: 59.5 inches.
Total Weight: 737 pounds.
Type of Filling: Picric Acid.
Propellant: Nitrocellulose - 60.4%, Nitroglycerine - 37.3%, Stabilizer - 2.3%, total weight - 3.8 pounds.
Fuzes: Type 98 Interior Fuze.

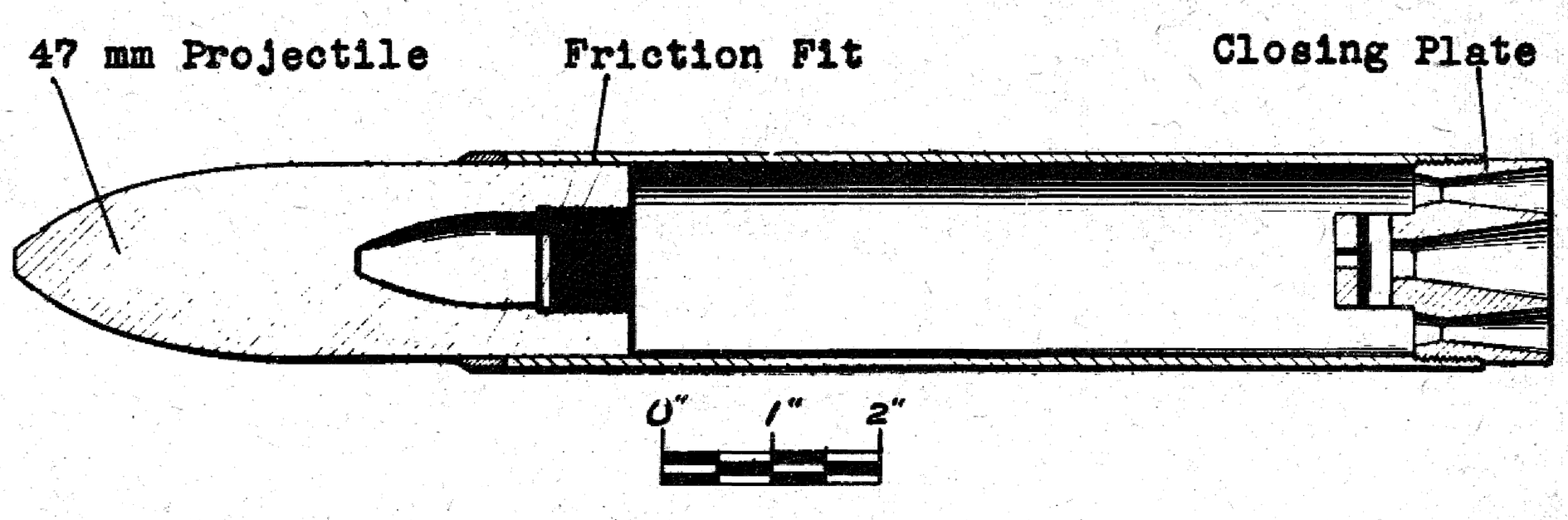


Igniter Operation: An electric or friction squib may be used. The gas generated by firing the squib forces the striker into the primer initiating the powder train. The flash from the igniter sets off the flash tube which in turn ignites the propellant through four (4) ports in the base of the tube. No delay is incorporated.

Type: 47 mm Rocket (Improvised).

Source: M.E.I.U. #4 Specimen.





Description: The body of this rocket is an Army 47 mm A.P. H.E.T. projectile, held in place in the round by a friction fit into the motor. The motor is a tube made from one-sixteenth inch (1/16") sheet metal with a continuous weld running the length of its side. It is threaded (R/H) at the after end to receive a closing plate in which there are five (5) venturi orfices, four (4) small ones arranged at 90° intervals about the larger center venturi opening. The rocket has no fins and is not spin stabilized.

Color: The round examined was in a rusty condition,but it appeared to have been painted black overall.

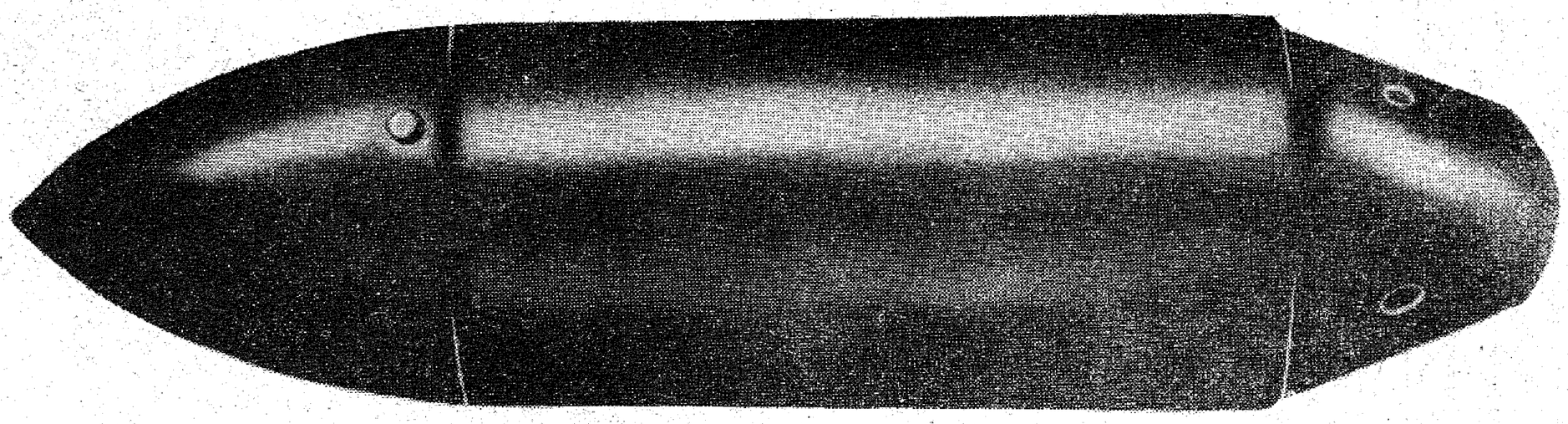
Data:

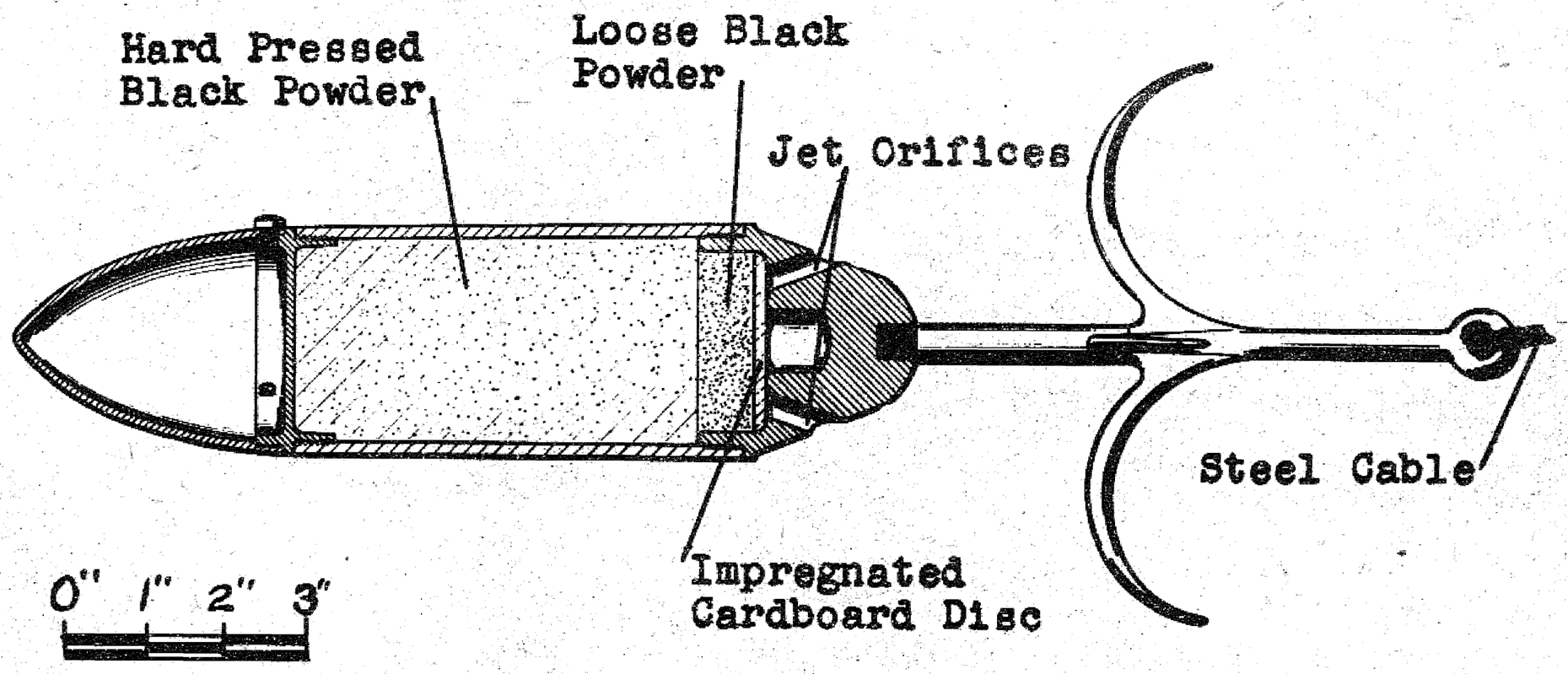
Overall Length: 14.2 inches.
Length of Motor: 9.7 inches.
Weight loaded: Unknown.
Weight empty: 4.6 pounds.

Remarks: This rocket was apparently improvised. It was found in a small machine shop where several had been made. The round was assembled with no explosive and no fuze in the projectile. Ordinary flake projectile propellant was used in the motor with a black powder primer.

Type: 68 mm Line Throwing Rocket.

Source: M.E.I.U. #4 specimen.





Description: A straight-sided cylinder closed on the forward end b a male threaded coupling and on the after end by a male threaded base plate forms the body of this rocket. An ogival nose cap is fastened to the forward coupling by three (3) large headed screws arranged at 120° intervals. These protruding screw heads act as keys fitting into the grooves in the guide rails of the launcher. The base plate contains four (4) jet orfices and an exterior screw fitting to receive a three-pronged grappling hook. A four foot length of 3/16 inch steel cable is fastened to the grappling hook and has an eye-splice on the end, to which, it is believed, the lin to be thrown is attached. The body is filled with hard-pressed black powder up to the threads for the base plate. A cardboard dis impregnated with potassium nitrate fits within the base plate preventing the loose black powder, which fills the remainder of the space in the base plate, from spilling out the jet orfices. No ignition method is known. This rocket is NOT spin-stabilized.

Color: Black overall.

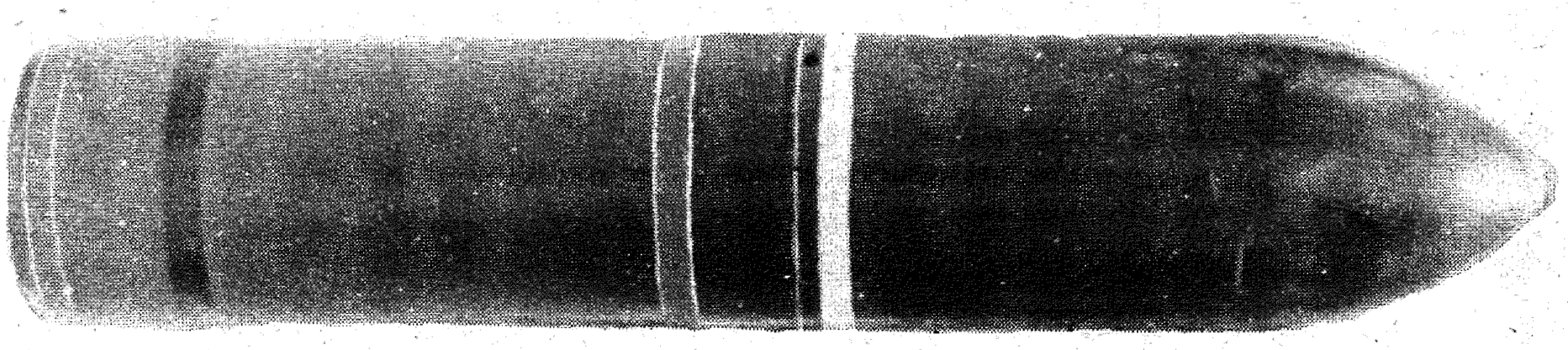
Data:

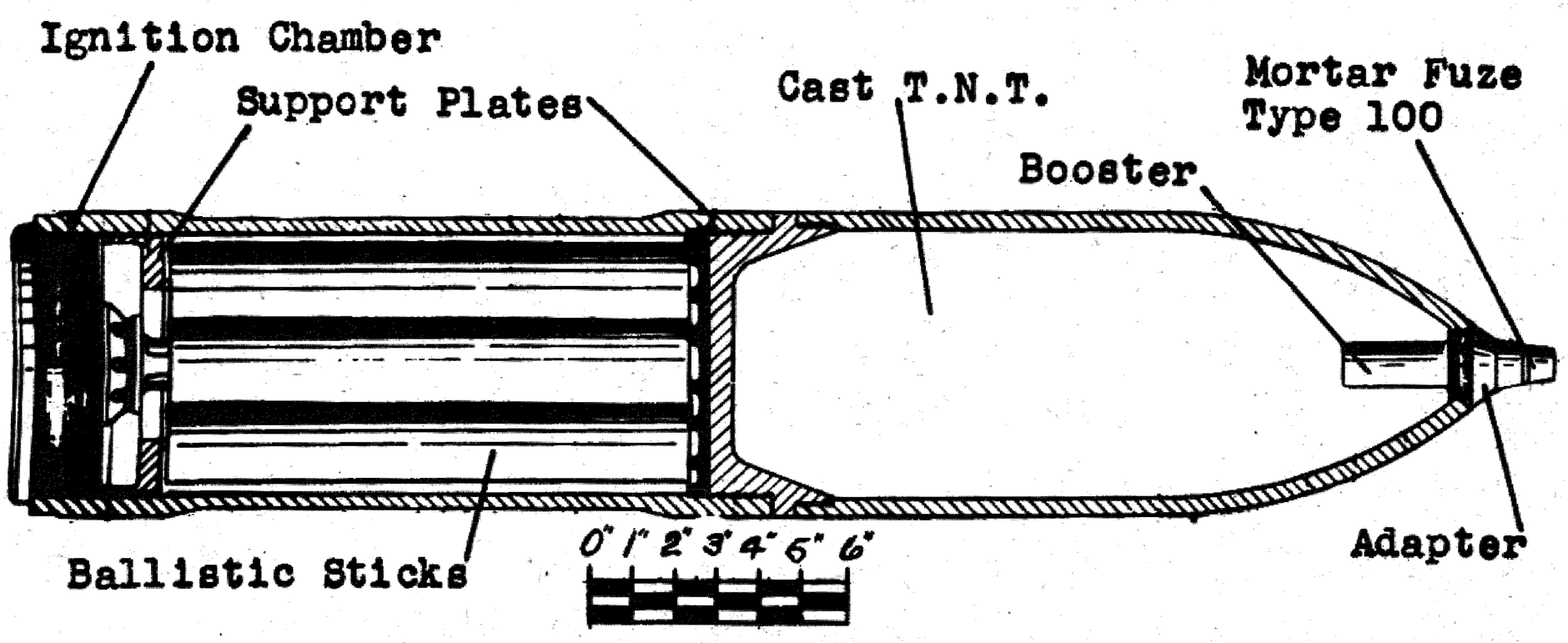
Gun Used In: 68 mm Rocket Launcher.
Overall Length of Rocket: 10 3/8 inches.
Overall Length of Hook: 7 1/8 inches.
Weight of Rocket Loaded: 5.2 pounds.
Weight of Propellant: 1.5 pounds.
Type of Propellant: Black Powder.

Remarks: This rocket is classified as Army only on the basis of its overall black color. The launcher consists of three (3) groove rails of metal mounted on a revolving carriage.

Type: Army 20 cm Spin-Stabilized Rocket.

Source: M.E.I.U. #1 Report No. 130 and M.E.I.U. #4 Specimen.





Description: The rocket is basically similar to the Navy 20 cm rocket. The projectile is a thin-walled tube with an ogival nose and is closed at the base by a male base plate, which, in turn, is male threaded on the after end to receive the motor body. A nose adapter seats the fuze and part of the booster. Forward and after support plates hold the eight (8) perforated cylindrical sticks of ballistite in place within the motor. Six (6) sticks of ballistite are arranged around two (2) short sticks placed end to end. The motor base plate threads into the base of the motor body. It contains six (6) nozzles offset 25° from the longitudinal axis to impart spin to the round. An ignition chamber plate and plug containing two (2) ignition wafers and a friction igniter thread into the motor base plate.

Color: Overall black with a red nose band, and a yellow body band on the projectile at the junction with the motor. Projectile weight, motor markings, and ignition wafer information are stenciled on the round.

Data:

Gun Used In: Type 4 20 cm Rocket Launcher. (Base loaded)
Overall Lt. (unfuzed): 38 5/8 inches.
Length of Motor: 19 11/16 inches.
Fuze: Type 100 Instantaneous-Short Delay Mortar Fuze.
Weight Loaded: 180 pounds.
Filling of Projectile: Cast T.N.T.

Remarks: Two (2) slightly different designs exist: In one the motor has two (2) pronounced bourrelets and in the other the sides of the motor are almost straight. The ballistite support, overall weight, and some thread sizes vary slightly in the two (2) designs.

JAP ARMY PROJECTILE FUZES

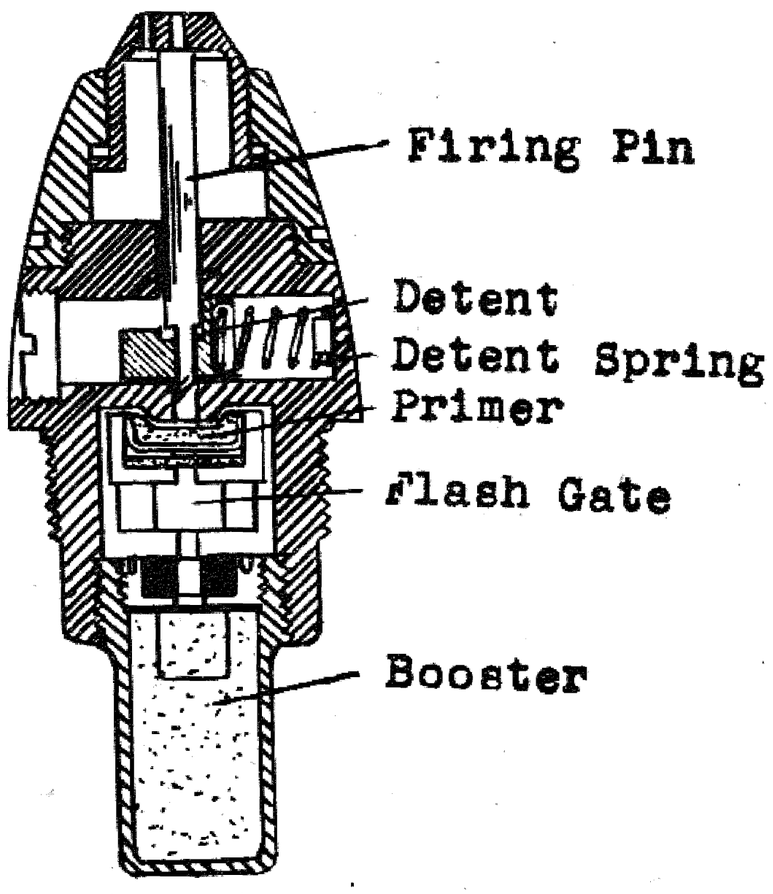
20 MM NOSE FUZE

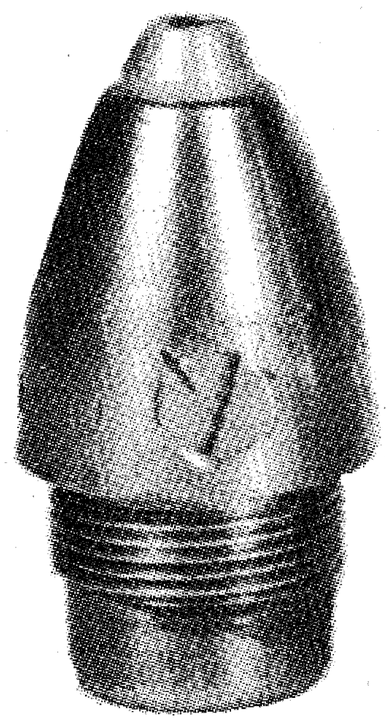
Type: Type 93 Small instantaneous fuze.

Source: M.E.I.U. #1 Report No. 103.

Use: This fuze is used in H.E. projectile for 20 mm aircraft, A.A. and A/T cannon, and 37 mm Tank and A/T guns.

TYPE 93 SMALL INSTANTANEOUS FUZE





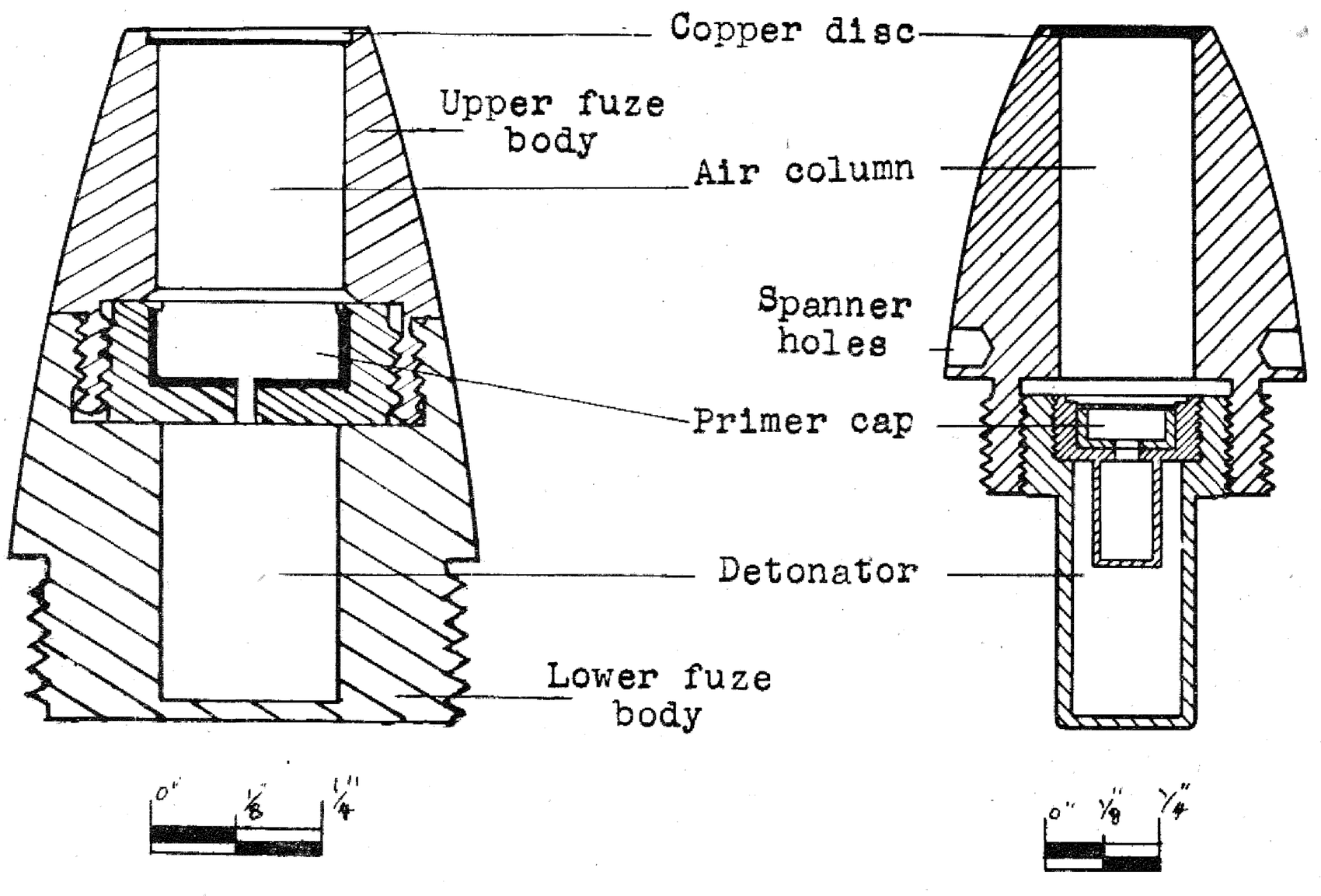
Description: Fuze is of two (2) piece brass construction with an aluminum nose cap. Has a finished assembly screw in side of fuze.

Operation: Supporting the firing pin is a forked detent through which the point of the firing pin protrudes. Beneath the primer is a centrifugal flash gate which provides for an interruption in the firing train. On setback, the firing pin will hold the detent in, but when the projectile decelerates, the firing pin will creep forward, and centrifugal force will cause the detent to move out. The flash gate will be swung out by centrifugal force opening the flash hole, and on impact the firing pin will be driven down.

Type: Air Column.

Source: M.E.I.U. #4 specimens.

Use: 20 mm H.E.I. HO-5 A/C.



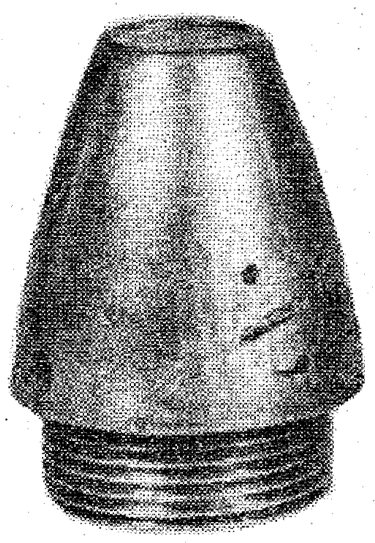
Description & Operation: 1. (One Piece Body) Fuze body is made of aluminum and has a standard Army (brass) 20 mm gaine threaded into the base. There are no arming features. (See Navy Air Column fuze, page 130.) 2. (Two Piece Body) This fuze is made of an upper and lower aluminum body. The lower fuze body contains the explosive detonator. The Air Column is built into the upper fuze body and leads to a primer cap housed in a small brass piece which threads into the base of the upper fuze body.

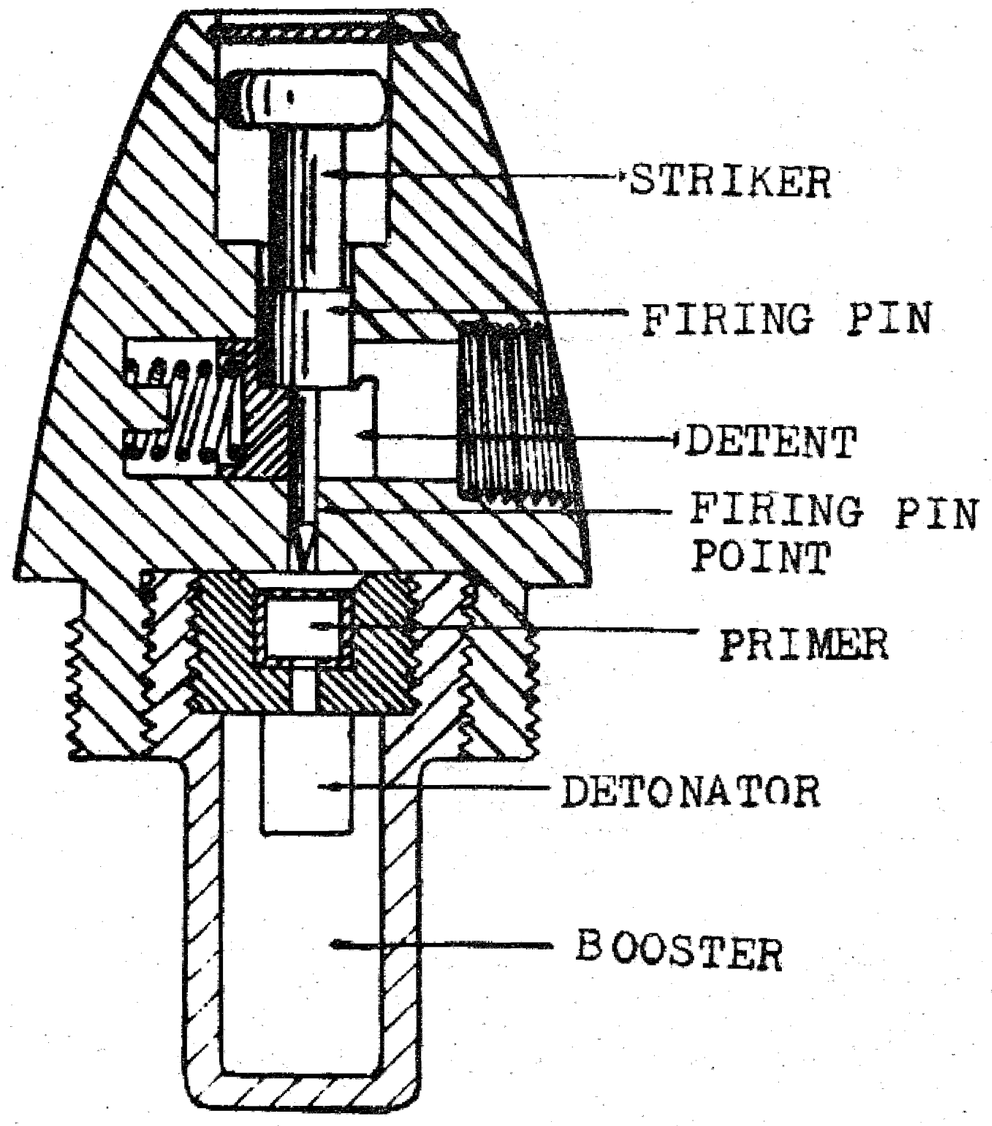
Type: Type 100 Small instantaneous nose fuze.

Source: M.E.I.U. #1 Report No. 103.

Use: This fuze is known to be used in H.E. projectiles for 20 mm Aircraft, Anti-Aircraft, and Anti-Tank Cannon, and 37 mm Tank, Anti-Tank, and Aircraft Guns.

TYPE 100 SMALL INSTANTANEOUS NOSE FUZE





Description: One (1) piece construction (brass). Assembly screw in side. Has a flat top.

Operation: This is a modification of the Type 93. It has been changed in that it does not have an external firing pin and the flash gate has been eliminated. It has the same type of detent and operates in the same manner except that there is no interrupted firing train.

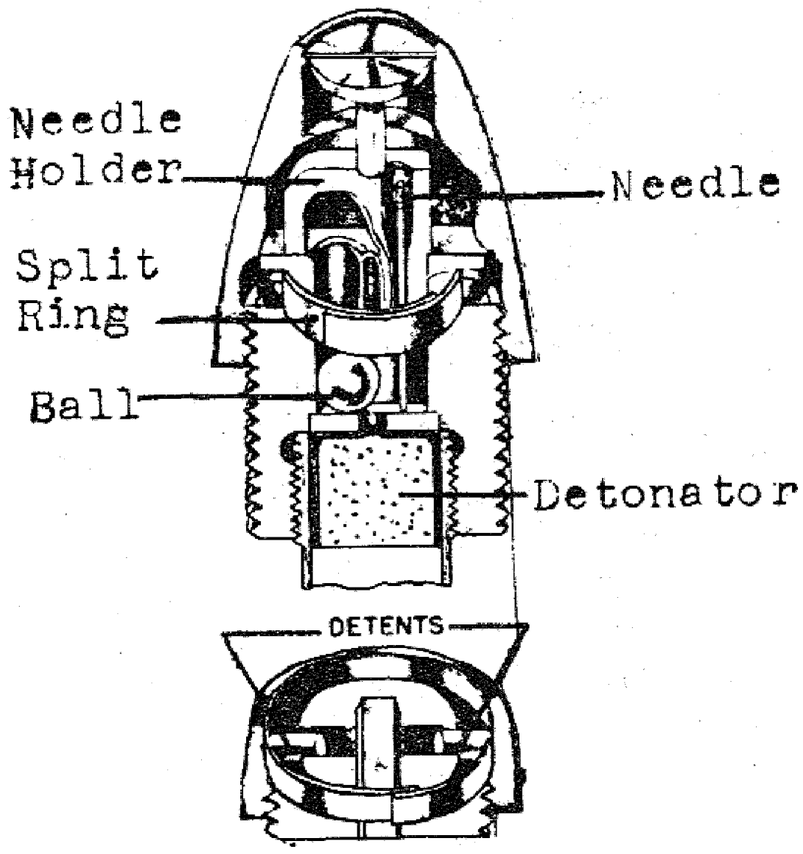
20 MM NOSE FUZE

Type: AZ 1504 (German).

Source: German Projectiles and Fuzes - B.D.S.

Use: This fuze is used in the German (Mauser) 20 mm H.E. projectile in army aircraft cannon.

NOSE FUZE AZ 1503 & AZ 1504





Description: The steel body has a closing disc in the nose and threads on the base of the fuze for engaging the projectile. A detonator screws into a recess in the base of the fuze body.

Inside the fuze body, a needle holder keeps the needle out of line with the detonator. This holder is kept from moving down by two (2) detents attached to a split ring which surrounds the holder.

A small steel ball rides in a slot below the needle holder and keeps it in the offset position.

Operation: Centrifugal force opens the split ring withdrawing the detents from the needle holder. During deceleration, the small ball creeps forward into a recess in the top of the needle holder. The holder is then free to move over bringing the needle in line with a central channel so that, on impact, it may pierce the detonator.

Remarks: The only difference between the A.Z. 1503 and the A.Z. 1504 is that the 1504 is made of aluminum, not steel.

20 MM NOSE FUZE

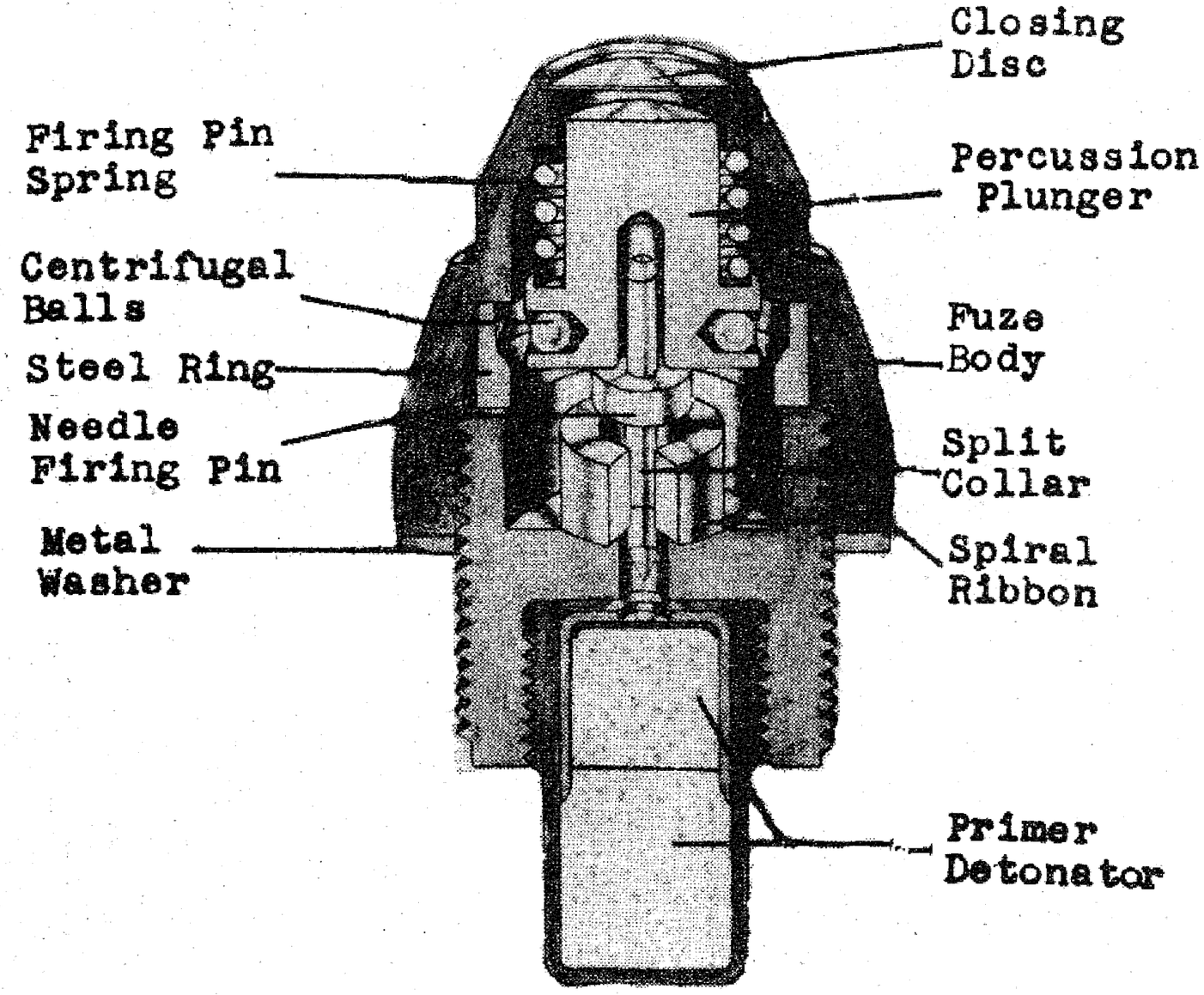
Type: Z.Z.1505 (German) Self-destroying.

Source: German Projectiles and Fuzes - B.D.S.

Use: This fuze is used in the German (Mauser) 20 mm H.E. projectile in army aircraft cannon.

SELF-DESTROYING NOSE FUZE Z.Z. 1505





Description: This fuze consists of a fuze body, percussion plunger, firing pin spring, 8 centrifugal balls, steel ring, needle firing pin, split collar and a spiral brass ribbon. The percussion plunger is spring loaded downwards and contains 8 centrifugal balls in a groove in its lower body. A ridged, needle firing pin is fitted under the percussion plunger and rests on a split collar. The split collar is held in place by a spiral brass ribbon.

Operation: Centrifugal force causes the spiral ribbon and split collar to move outward from under the firing pin shoulder. At the same time, centrifugal balls are moved out and held against the fuze body wall allowing the spring loaded percussion plunger to move down slightly and become wedged. The firing pin is now free to move down. The force of impact is sufficient to cam the centrifugal balls back into the percussion plunger and force the firing pin down upon the detonator.

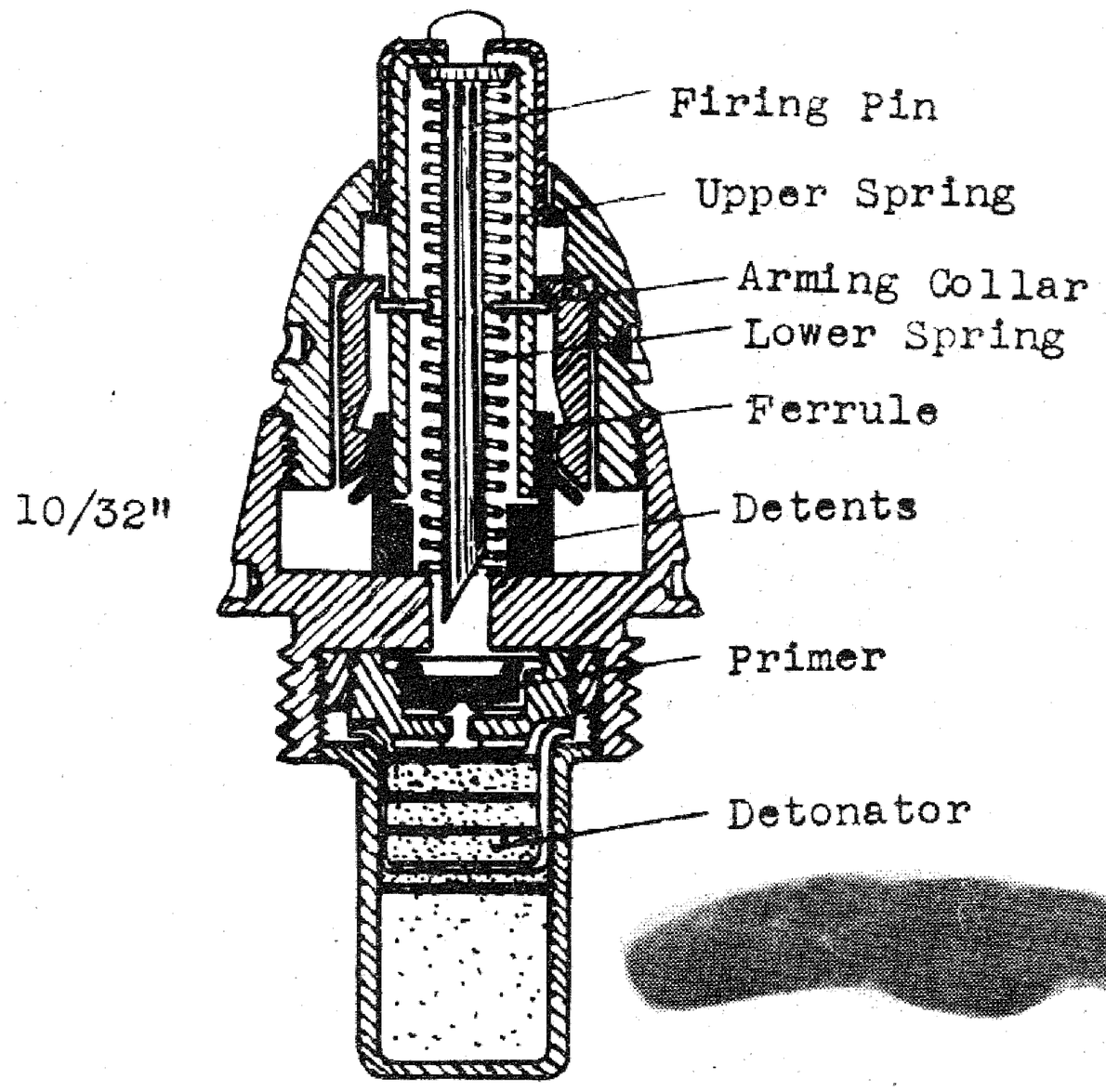
Self-Destroying Feature: When centrifugal force of the round has diminished to an amount insufficient to hold the centrifugal balls out against the pressure of the spring loaded percussion plunger, the force of spring pressure cams the balls into the plunger grooves and forces the striker upon the detonator.

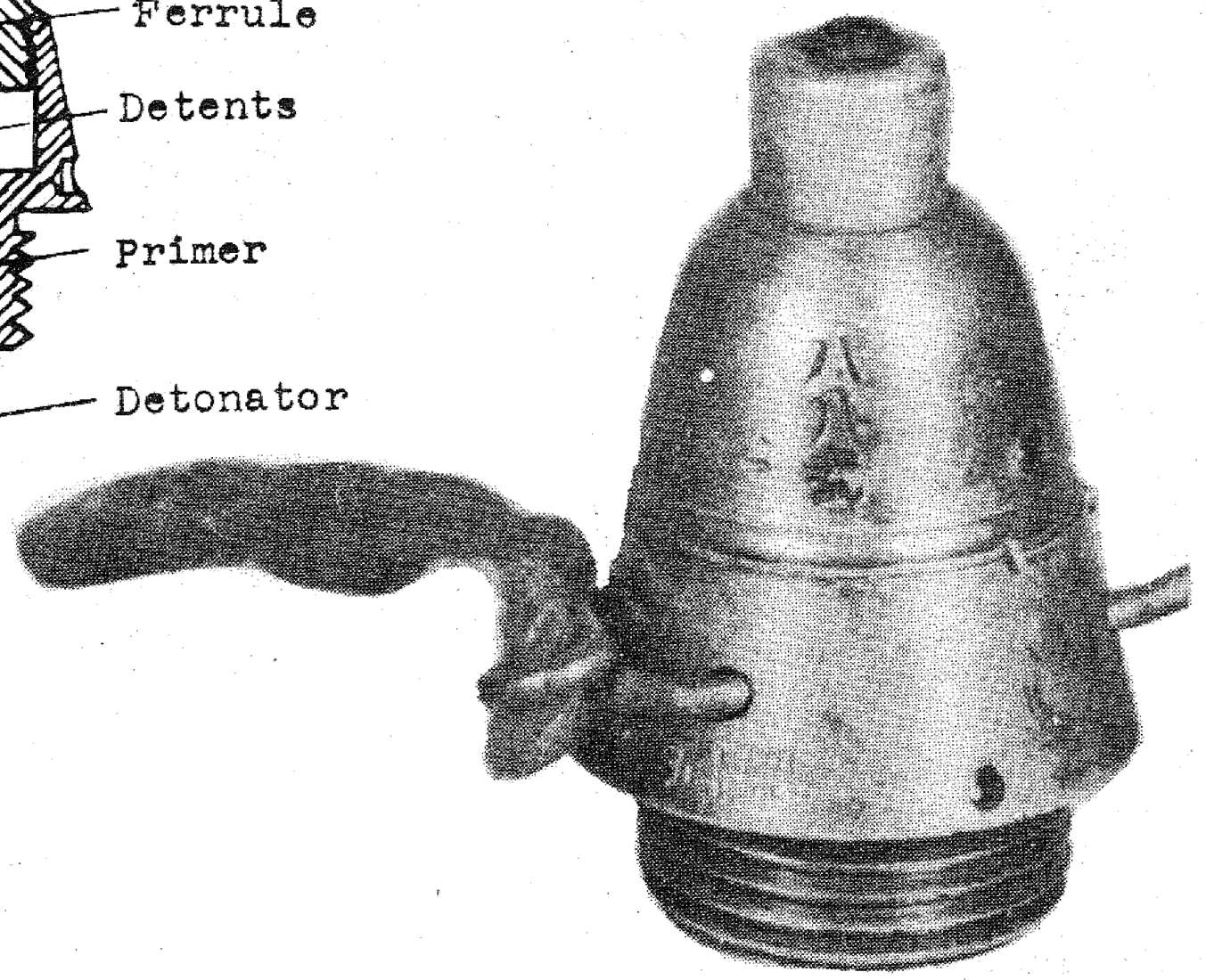
Type: Type 88 Small Instantaneous.

Source: M.E.I.U. #1 Report No. 103.

Use: H.E. projectiles for 50 mm Grenade Discharger.
70 mm Mortar Smoke Projectile (reported).

TYPE 88 SMALL INSTANTANEOUS FUZE





Description & Operation: When projectile is fired, setback forces the arming collar down until the notch on the inner side of the collar engages the four (4) stirrup springs of the ferrule. When the projectile begins to decelerate, the lower spring forces the arming collar up, thus pulling the ferrule up free of the detents. Centrifugal force moves the detents out, leaving the firing pin supported only by the upper spring. On impact the striker is driven down. Both brass and steel bodies have been recovered.

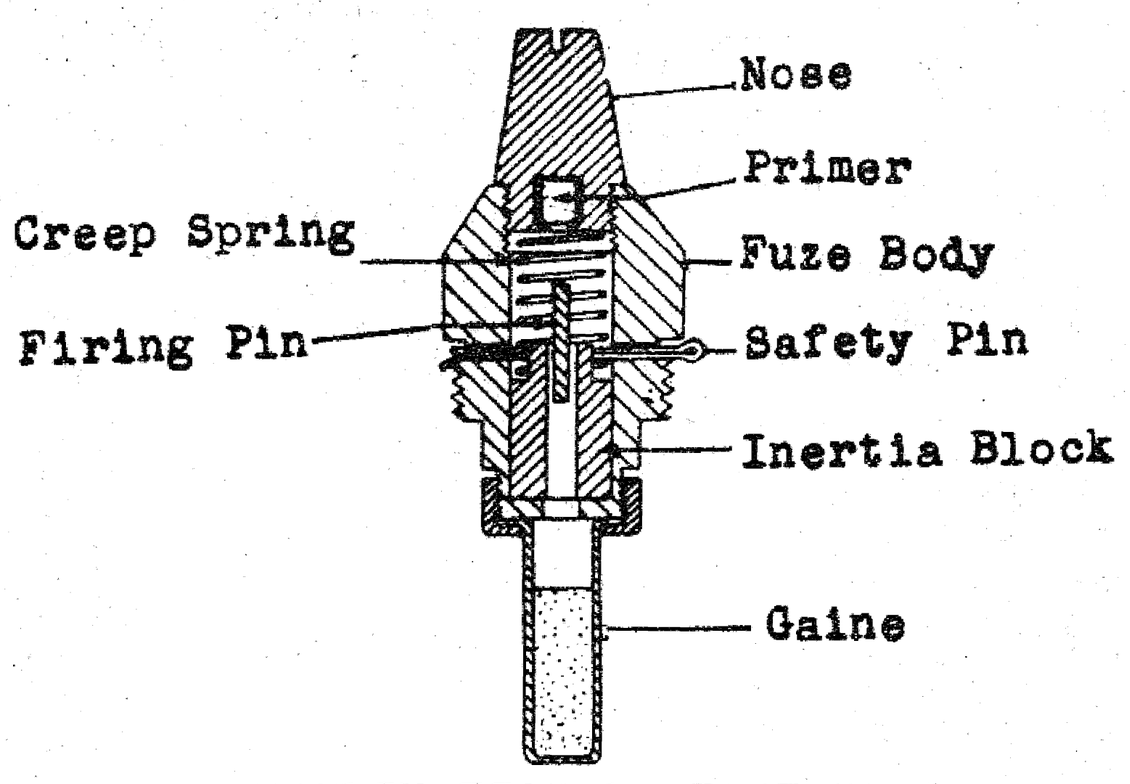
NOSE FUZE (IMPACT)

Type: (a) Instantaneous Fuze.
(b) Combination (Instantaneous & Short Delay) Fuze.

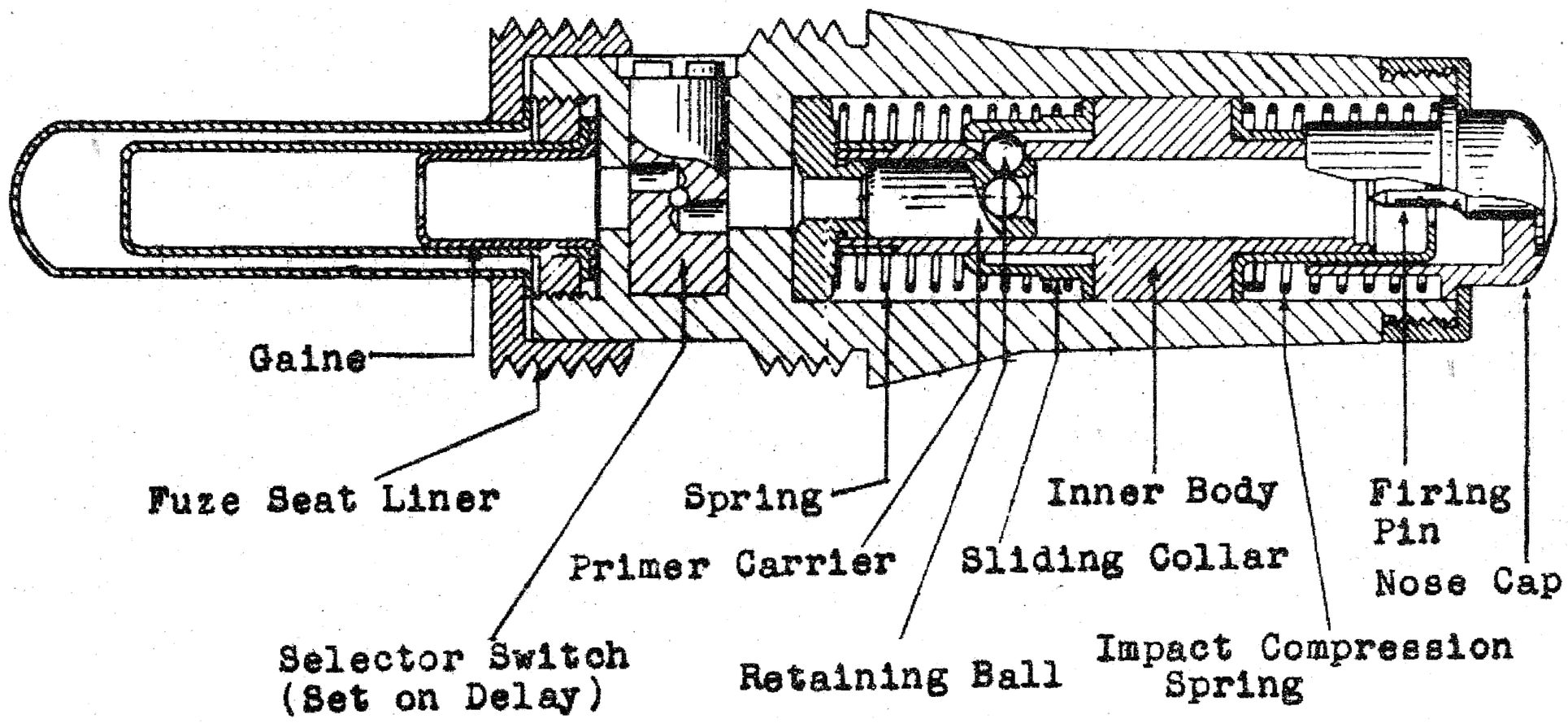
Source: M.E.I.U. #1 Report No. 77.

Use: 82 mm Chinese Mortar.

INSTANTANEOUS FUZE
Overall Length 3 3/4"



COMBINATION INSTANTANEOUS AND DELAY FUZE



Description & Operation:

(a) Instantaneous: Inertia block containing firing pin moves forward on impact compressing the creep spring and setting off the explosive train. Safety feature is the safety pin which is withdrawn prior to loading.

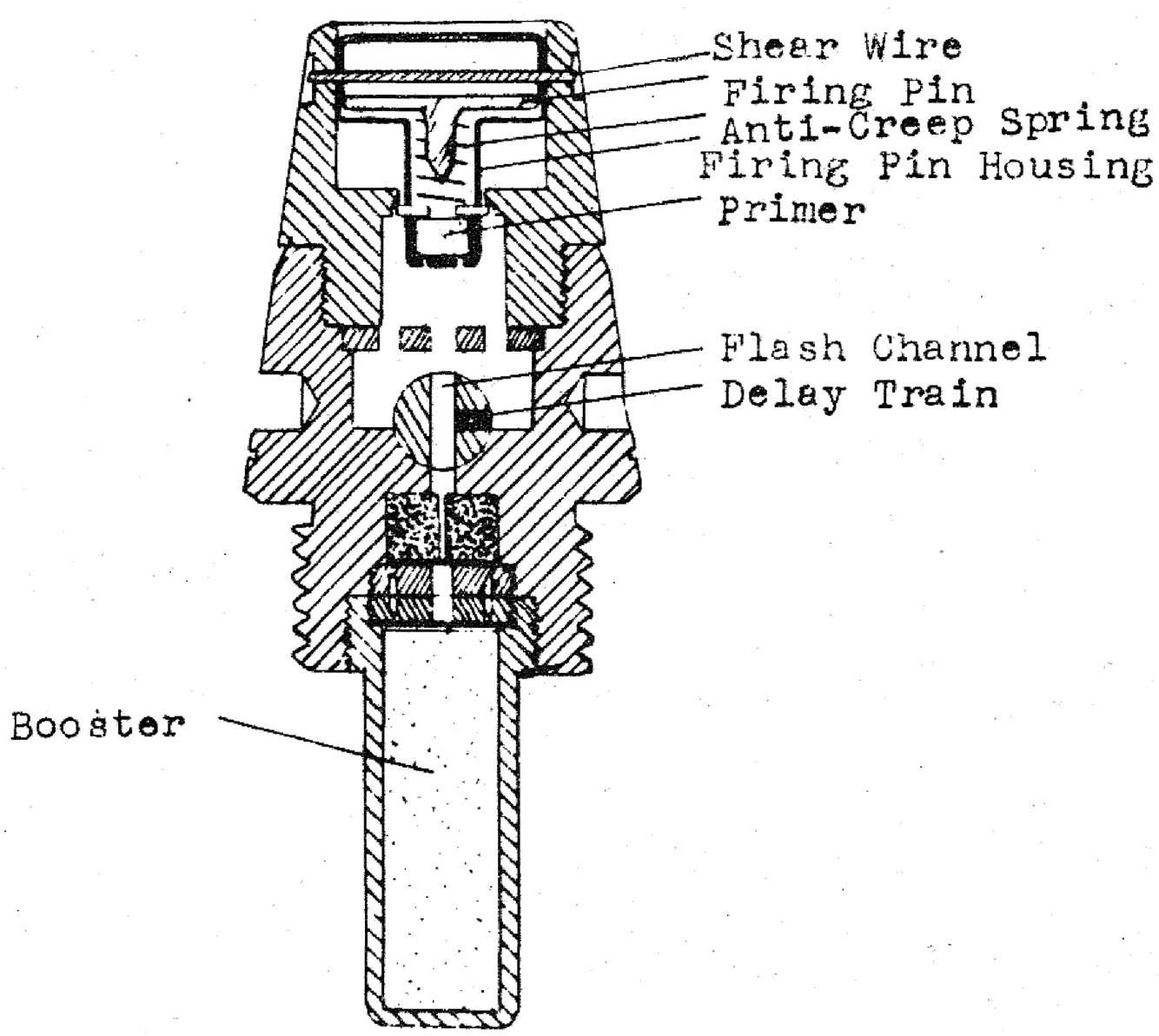
(b) Combination (Instantaneous & Short Delay): Setback causes sliding collar to move back against its spring, allowing the retaining ball to move out and thus freeing the primer carrier. On impact primer carrier moves forward onto striker carrying two (2) other locking balls. At mouth of inner body the two (2) balls carried forward in the primer carrier move out on centrifugal force and lock the primer forward. On impact the striker hits the detonator. If selector switch is set on instantaneous, the flash passes through a small opening in the switch. On short delay, the flash passes through a short delay pellet 90° to the open flash channel.

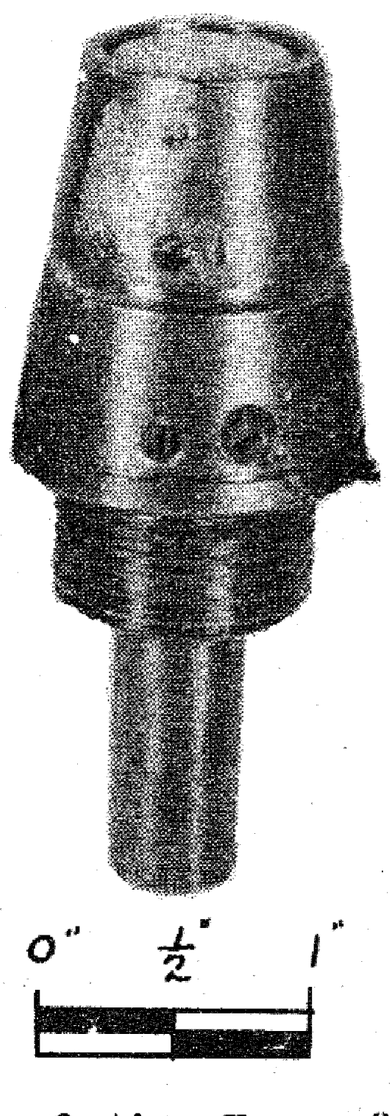
Type: Type 100 Instantaneous-Short Delay.

Source: M.E.I.U. #1 Report No. 103.

Use: 81 mm Mortar H.E.
90 mm Mortar H.E. modified (reported).
H.E. Mortars (reported).

TYPE 100 INSTANTANEOUS-SHORT DELAY FUZE

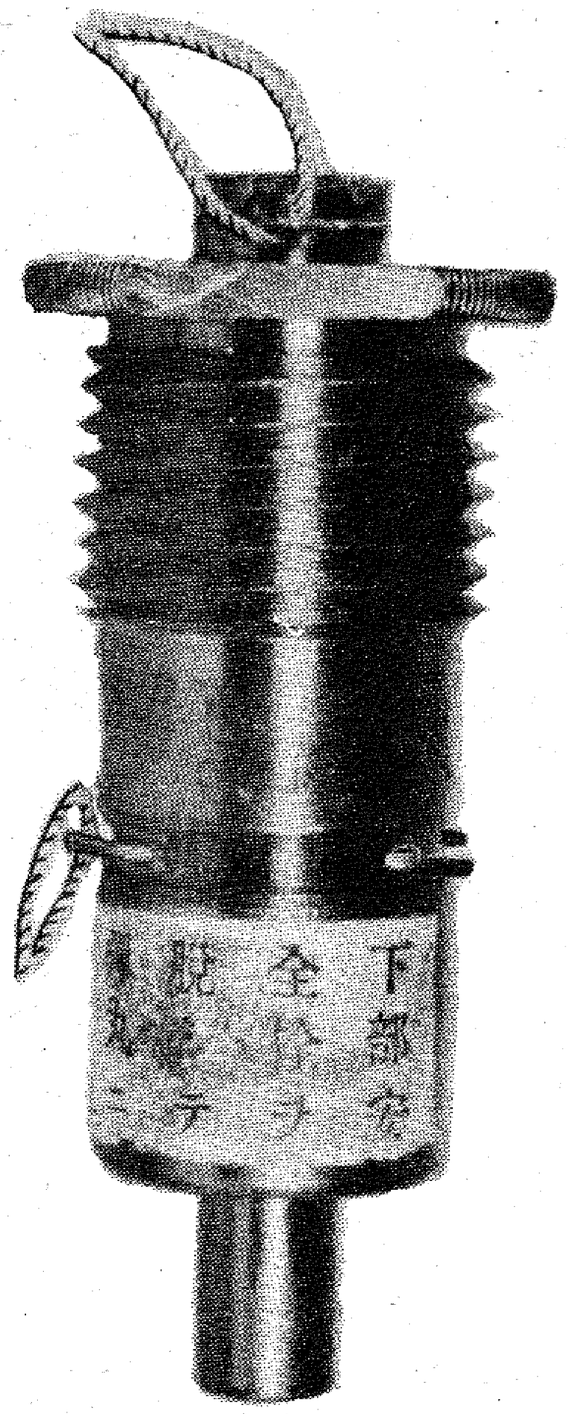


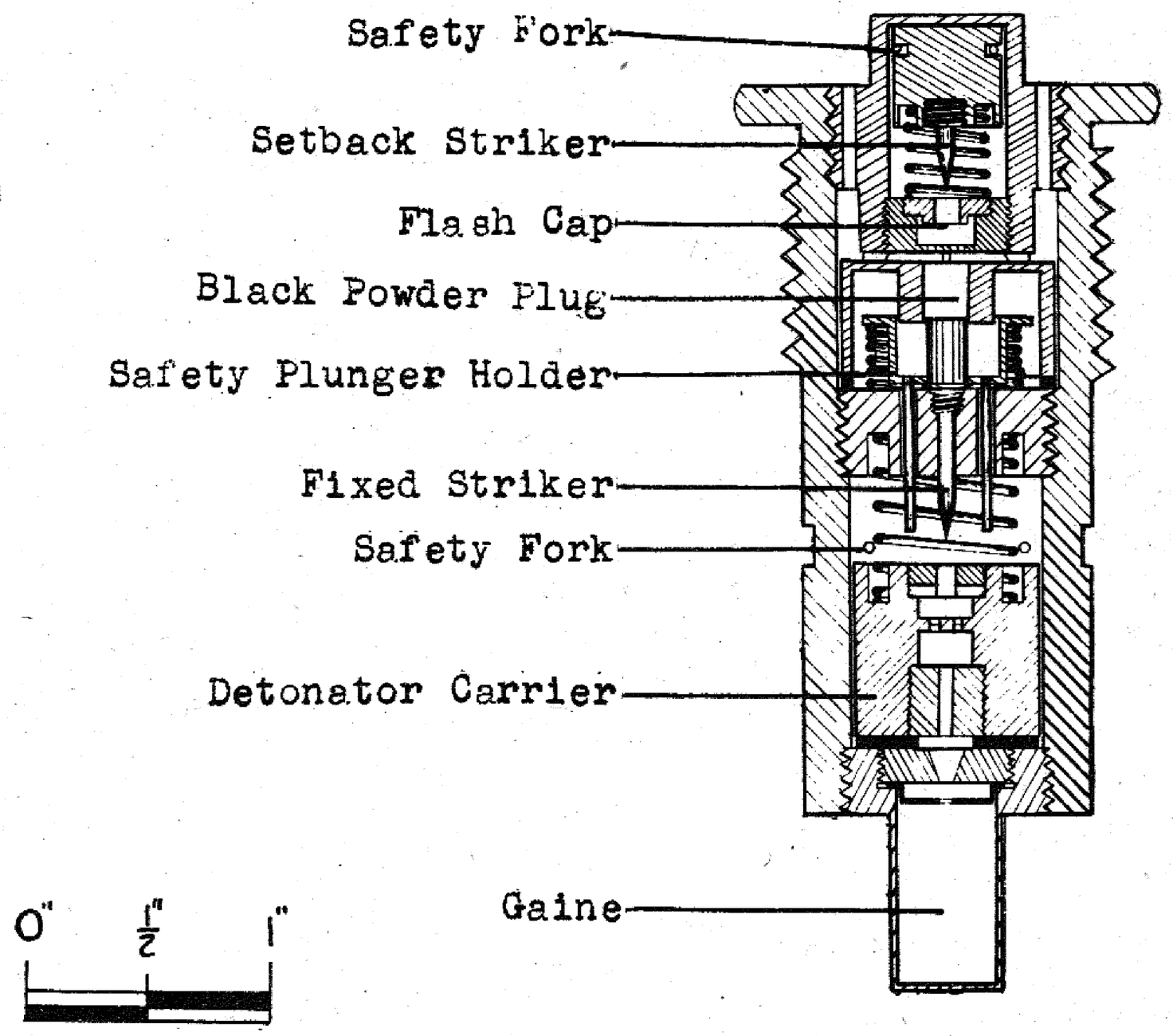


Description & Operation: This is an improvement of the Type 93. Same type firing pin and detonator assembly, but may be set for instantaneous or delay without disassembling the fuze. In the lower body is a cylindrical tube through which is drilled a flash hole. In the cylindrical tube and 90° removed from the flash hole is a delay pellet. Choice of delay (short delay or instantaneous) may be controlled by a setting slot on the outside of fuze body. Settings are marked on the body of the fuze. Action same as Type 93.

Type: Type 98 Interior Fuze.

Source: U.S.A. Bomb Disposal Technical Information #44, and examination of a specimen.





Description: The fuze consists of two (2) sections housed in a one piece body. The two (2) sections are separated by a fixed striker housing. The upper section consists of a flash cap and a setback striker and striker block separated by a safety spring and upper safety fork. Below the flash cap is a hard block of black powder. The safety plunger is spring loaded upward against the block by the safety plunger spring which also bears against the fixed striker housing. Two (2) safety plungers which are fixed to the safety plunger holder protrude through holes in the fixed firing pin. The fixed firing pin and inertia primer housing are separated by an anti-creep spring and lower safety fork.

Operation: The upper safety fork is removed from the fuze in the nose section, the other forks having been removed during assembly of the round. Upon setback the setback striker hits the flash cap. The flash from the cap burns the black powder plug and allows the safety plunger holder to move forward. This raises the two (2) safety plungers, exposing the fixed striker to the detonator carrier. On impact the detonator carrier moves forward against the anti-creep spring and hits the fixed firing pin. The flash from the primer fires the common Army projectile gaine.

Data:

Use: 320 mm Spigot Projectile.
Arming Time: 0.5 second.
Inherent Delay: 0.1 second.
Overall Length: 3 15/16 inches.

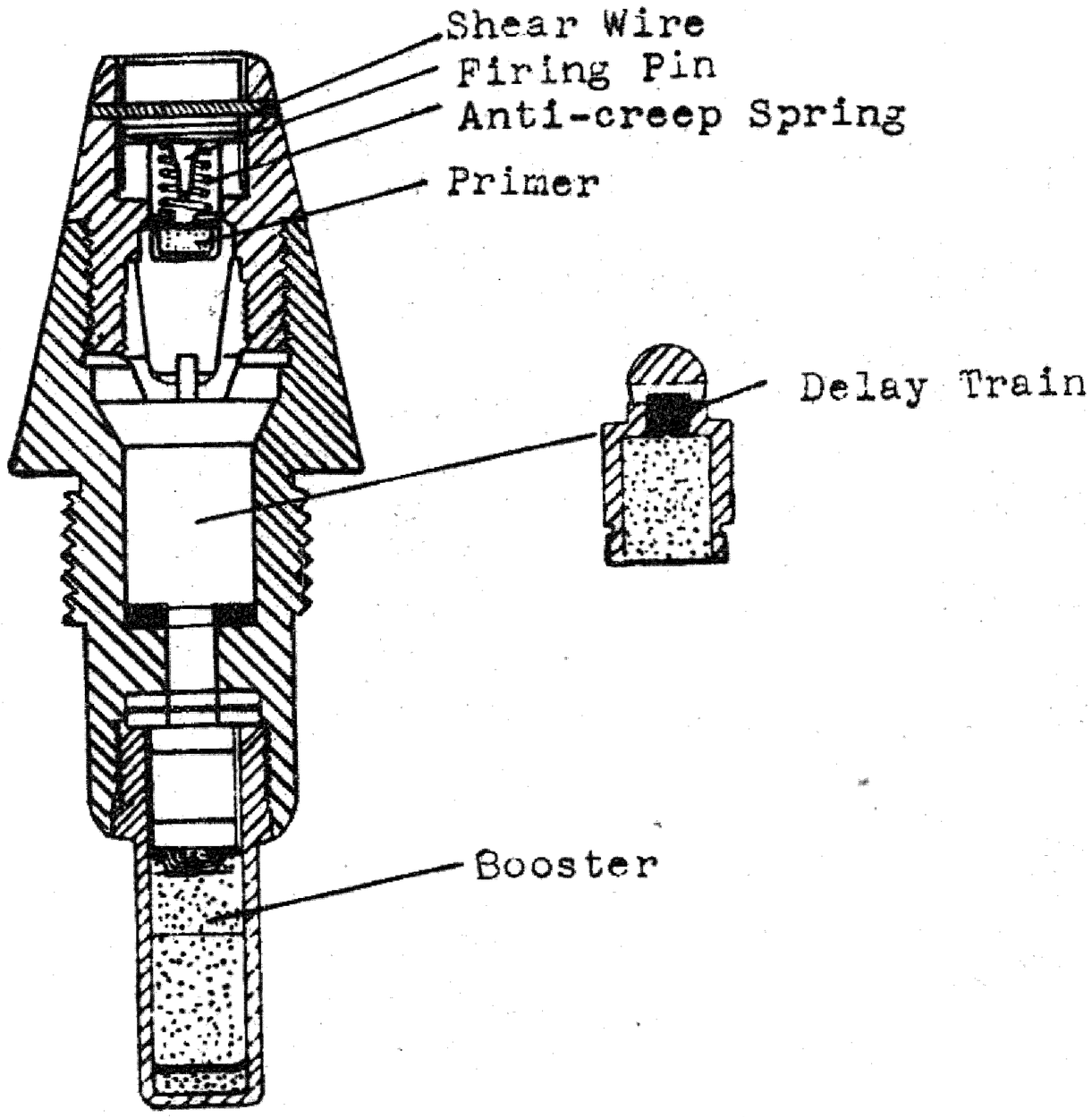
NOSE FUZE (IMPACT)

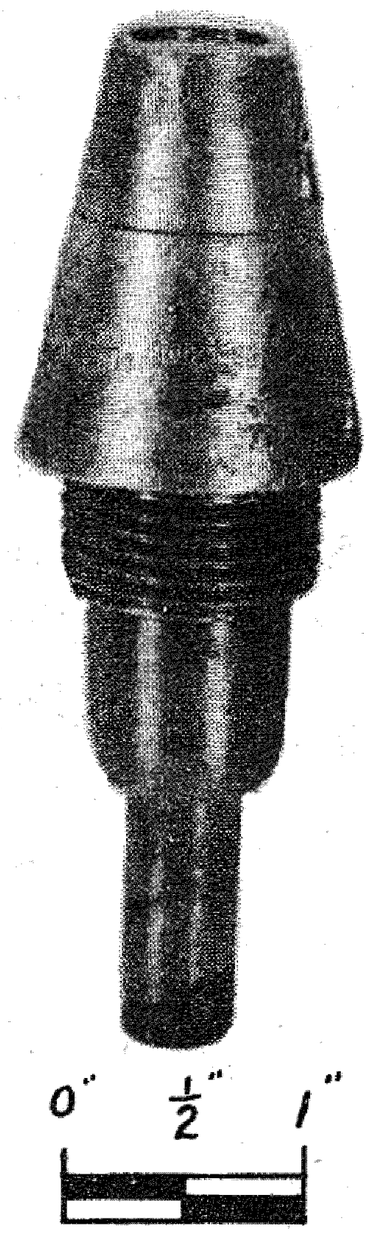
Type: Type 93 Instantaneous-Short Delay.

Source: M.E.I.U. #1 Report No. 103.

Use: 81, 90, and 150 mm Mortars H.E. 70 mm Mortars H.E. (reported).

TYPE 93 INSTANTANEOUS- SHORT DELAY FUZE





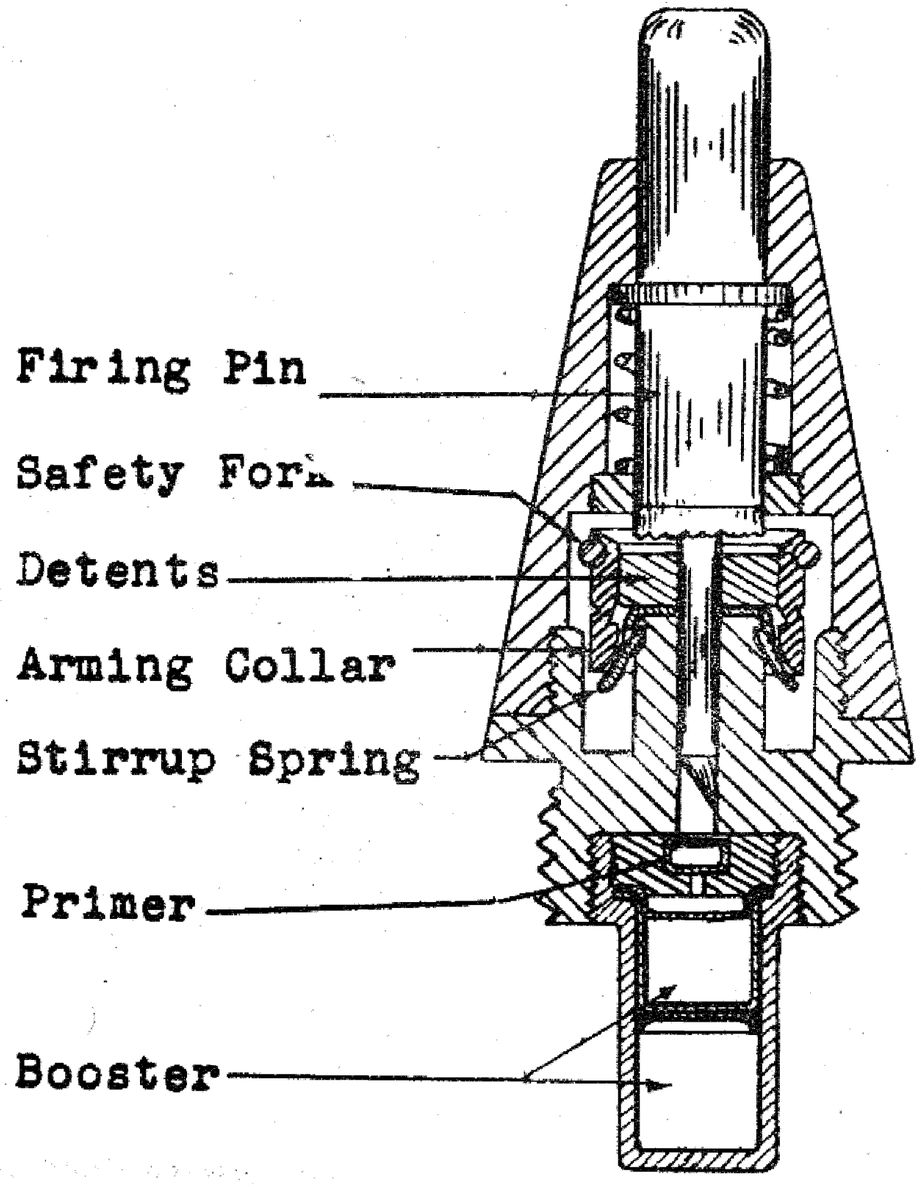
Description & Operation: This fuze has a fixed firing pin and a movable detonator within a movable striker housing. The firing pin housing is held to the upper body by a shear wire and there is a spring separating the detonator and the firing pin. On impact the firing pin housing is driven down, breaking the shear wire, and the detonator moves forward onto the firing pin. The choice of instantaneous or short delay is made by unscrewing the upper body and inserting or removing a delay pellet.

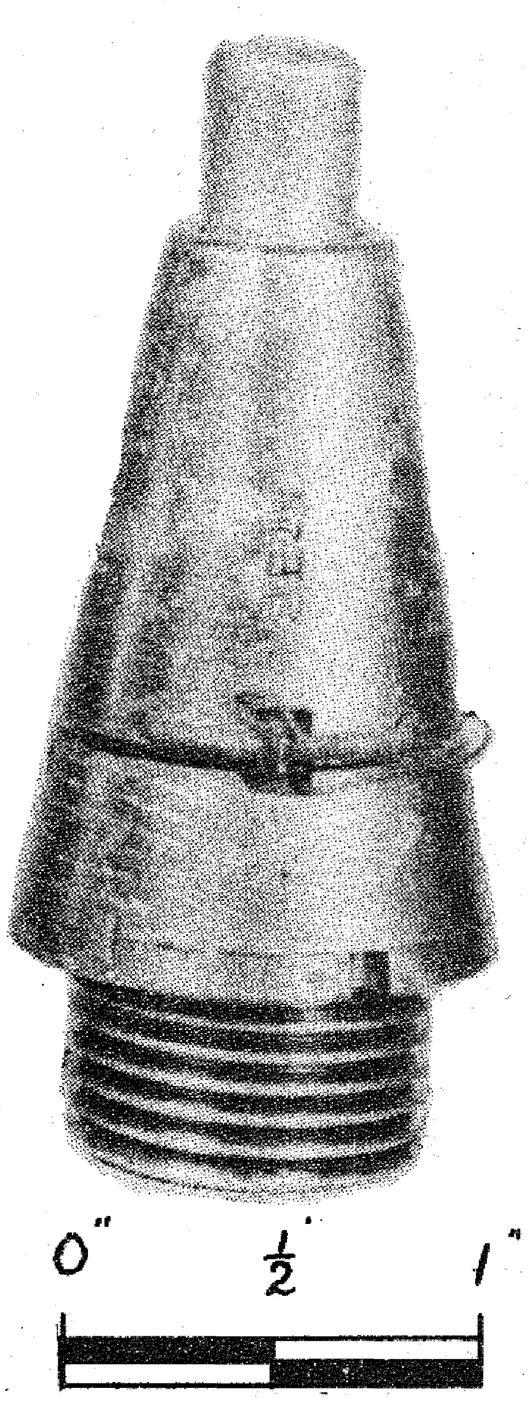
NOSE FUZE (IMPACT)

Type: Type 88 Instantaneous nose fuze (gun type).

Source: M.E.I.U. #1 Report No. 103.

TYPE 88 INSTANTANEOUS (GUN TYPE) FUZE





Use: 47 mm Anti-Tank gun H.E.
57 mm gun H.E.
75 mm gun H.E.
105 mm gun H.E.
75 mm gun Incendiary and Smoke.

Description: Brass body made of two (2) pieces. Aluminum nose cap.

Operation: The external firing pin of this fuze is supported by four (4) detents that are held in place by the ferrule. Surrounding the ferrule and supported on the stirrup springs of the ferrule is an arming collar. The force of setback causes the arming collar to move down until the notch on the inner side of the collar is engaged by the stirrup springs. The collar is held down by these stirrup springs, and centrifugal force moves the detents out. The firing pin is now supported only by the spring and on impact is driven down into the primer.

REMARKS: This fuze is also found with a black, steel body.

Type: Type 88 instantaneous nose fuze (Howitzer-Mortar type).

Source: M.E.I.U. #1 Report No. 103.

Use: 150 mm howitzer H.E.
105 mm howitzer H.E.
70 mm howitzer H.E.
105 mm gun H.E.

Description: Brass body made of two (2) pieces. Aluminum nose cap.

Operation: Because howitzers and mortars use a smaller amount of propellant and thus have a much smaller amount of setback, the gun model of the Type 88 fuze will not function in these weapons. To account for this, the stirrup springs and ferrule in this fuze are made of lighter gauge metal, thus allowing the fuze to function on a smaller amount of setback. Other than these differences, this fuze is identical and functions in the same way as the Type 88 instantaneous fuze (for gun).

REMARKS: For photographs and cross section, refer to the Type 88 Instantaneous (gun type) Fuze.

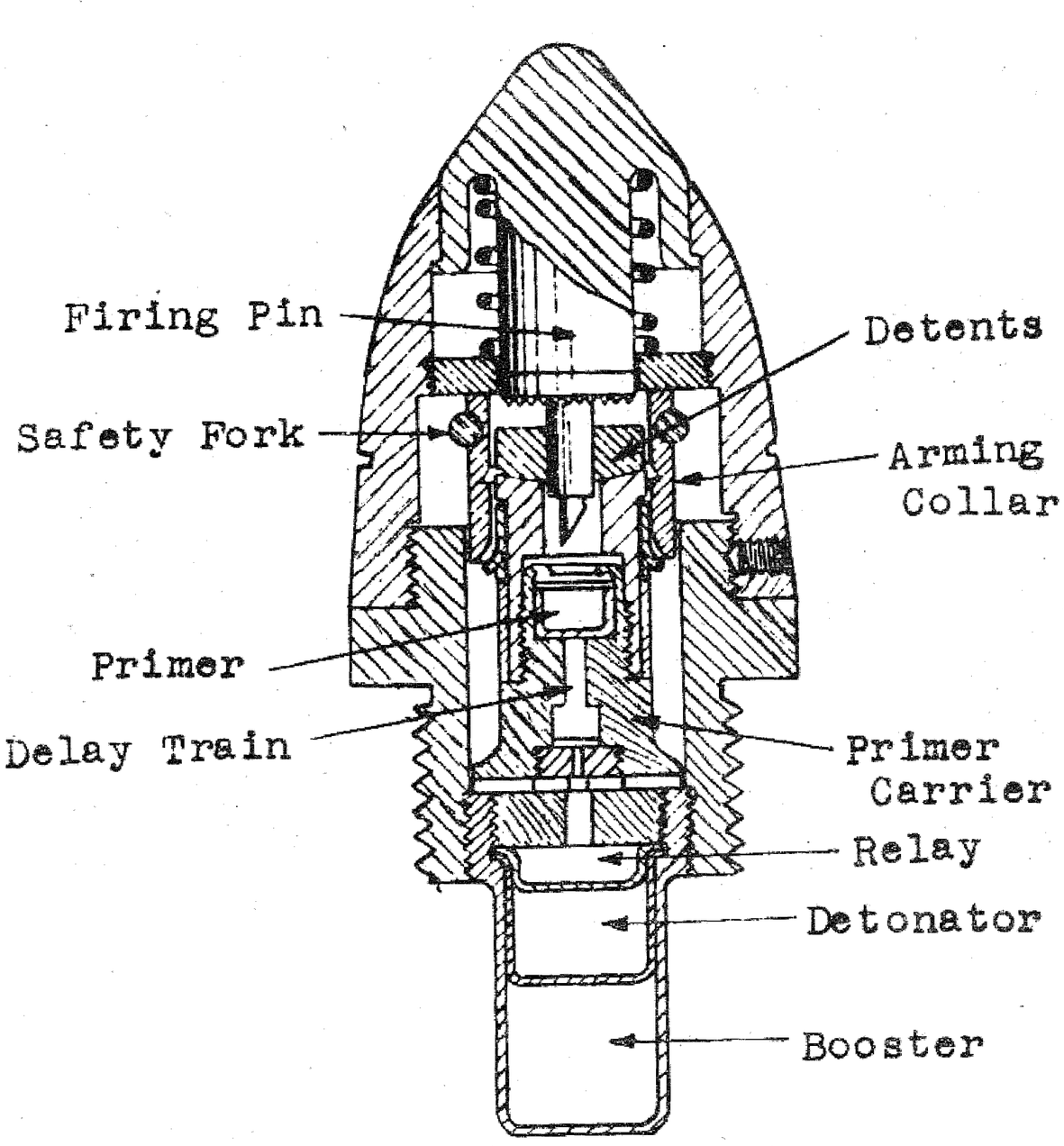
NOSE FUZE (IMPACT)

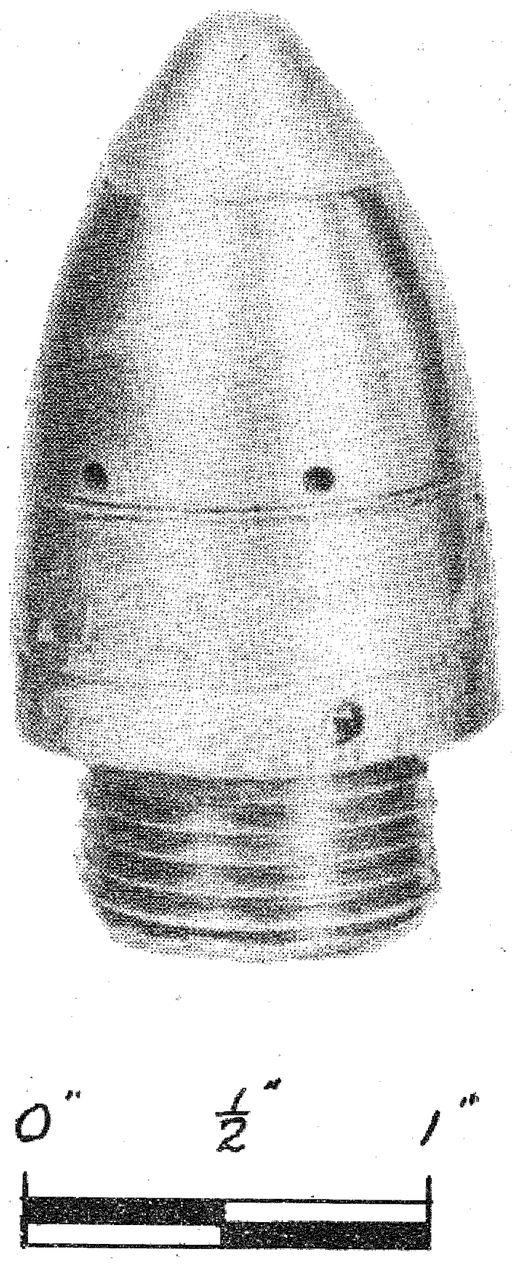
Type: Type 88 short delay fuze (gun type).

Source: M.E.I.U. #1 Report No. 103.

Use: Same as Type 88 Instantaneous Fuze.

TYPE 88 SHORT DELAY FUZE (GUN TYPE)





Description & Operation: The major differences between this fuze and the Type 88 instantaneous is in construction. It has the same parts and same operation, but is a two-way acting fuze. On impact, both the firing pin ahd the primer-delay carrier are free to move. This is to eliminate the possibility of an unexploded projectile due to a very low angle of impact. It also has an improved type of detents. On setback, they will remain in place and will not move out until deceleration has caused them to creep forward.

RESTRICTED NOSE FUZE

Type: Type 88 short delay fuze (Howitzer-Mortar Type).

Source: M.E.I.U. #1 Report No. 103.

Use: 150 mm Howitzer H.E.
105 mm " " ".
70 mm " " ".

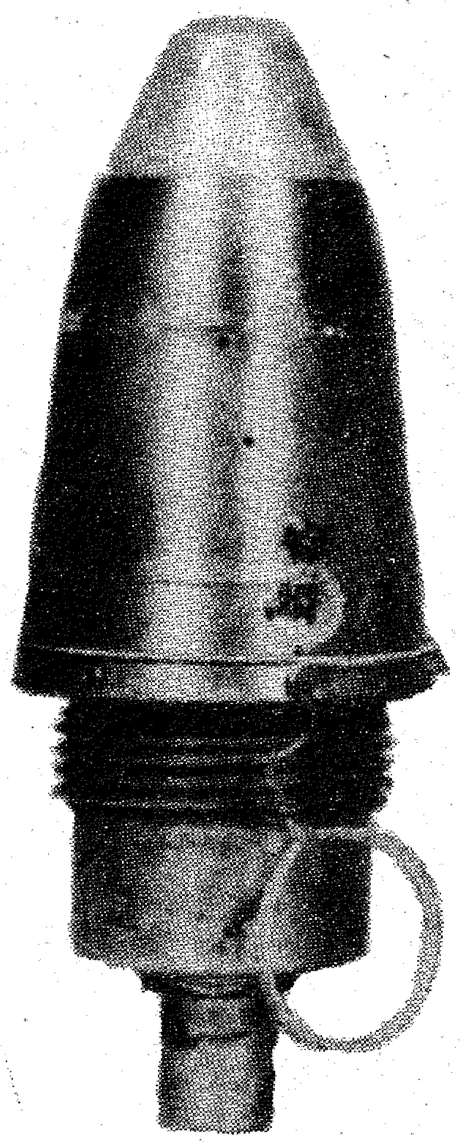
Description: Two (2) piece brass construction with aluminum nose cap.

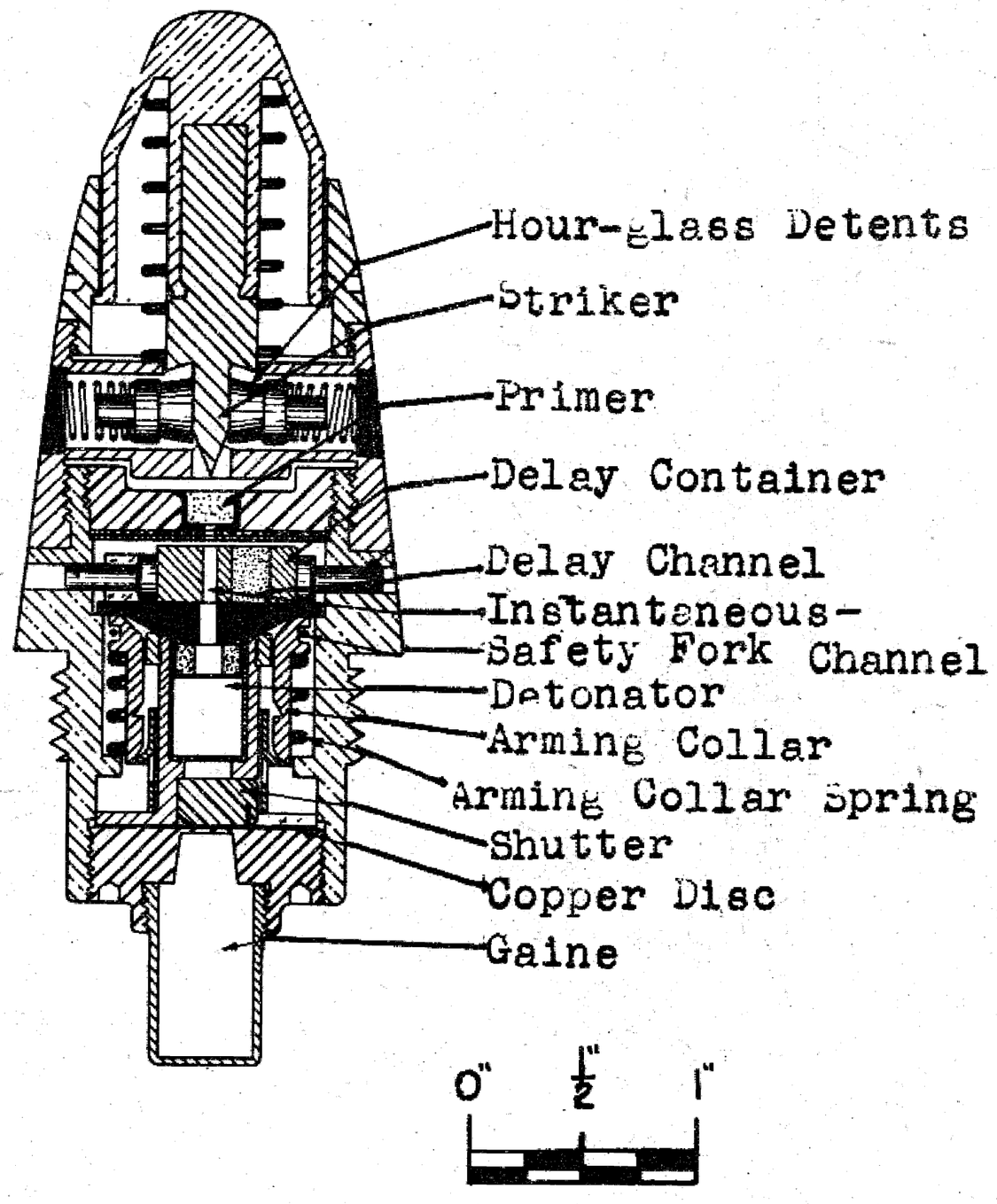
Operation: This fuze is similar in construction to the gun type, but differs in that only the firing pin can move, the primer carrier being threaded to the body. It also has smaller stirrup spring thus allowing it to function with a smaller amount of setback.

Type: Type 90 Instantaneous-Short Delay Fuze (Gun Type).

Source: M.E.I.U. #4 Report No. 68.

Use: Long Pointed 15 cm projectile.





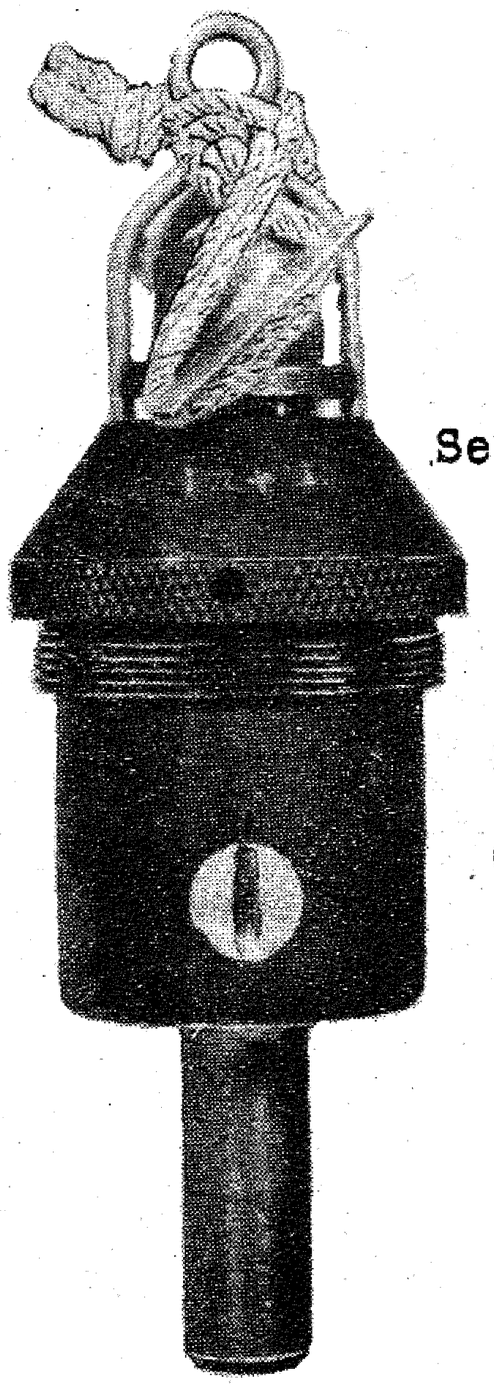
Description: The fuze has an aluminum striker head, a brass three (3) piece body, and a brass gaine. An instantaneous or short delay setting is made by moving the delay carrier in its housing so either the instantaneous or short delay channel is aligned with the firing train.

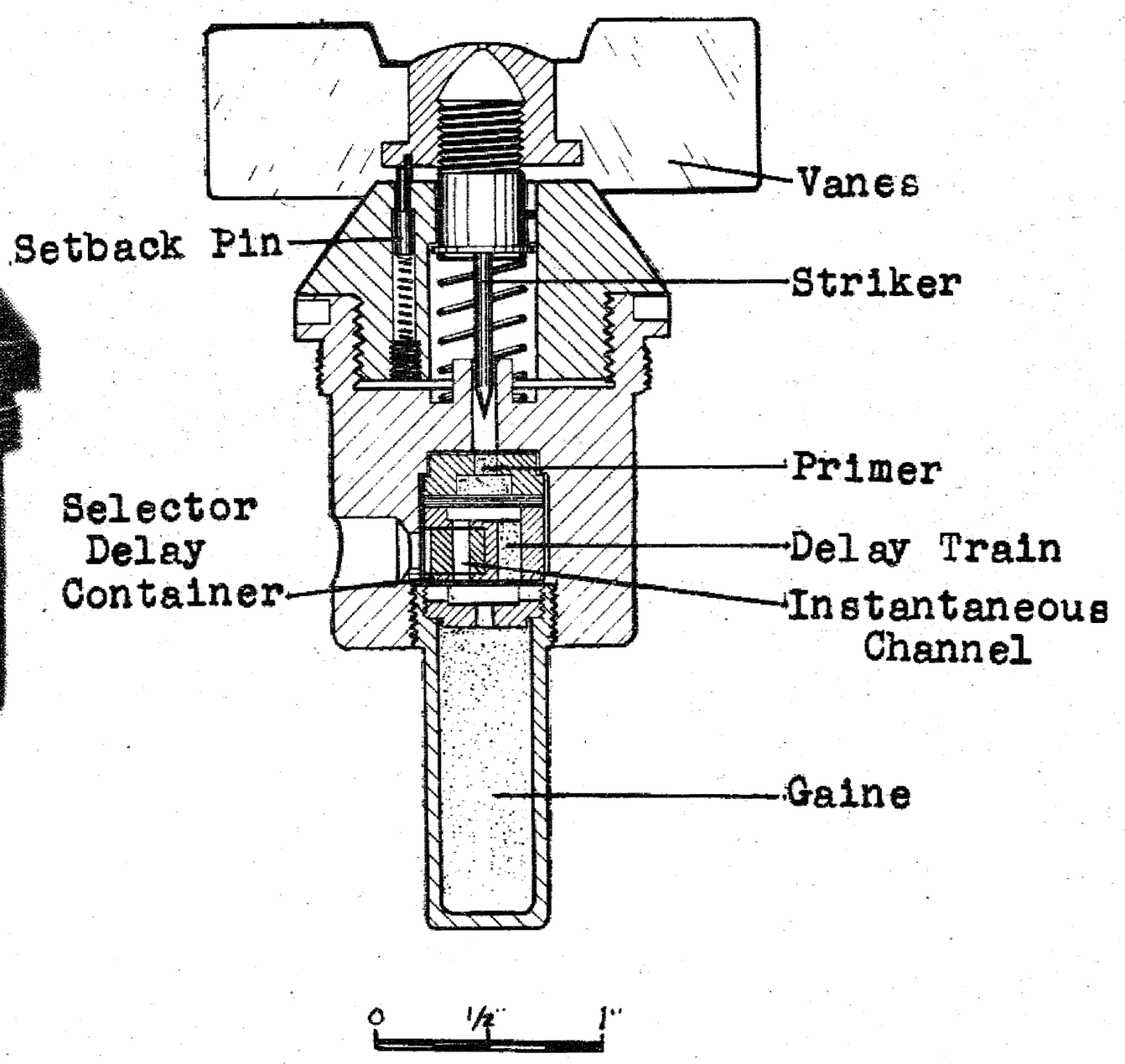
Operation: Setback forces the firing pin down on the hour-glass detents holding them in place and also forces the arming collar down, compressing its spring, so that the stirrup is engaged. During deceleration, the detents are released and the arming collar and stirrup are raised. Centrifugal force causes the detents and shutter to move out. On impact the striker is driven into the primer which flashes either into the delay element or the empty instantaneous channel, and from there to the detonator.

Type: Fuze for Finned Bangalore.

Source: M.E.I.U. #4 Report No. 69.

Use: Finned Bangalore Projectile.





Description: Steel body made of two (2) pieces. Brass vanes and vane cap. Either an instantaneous or short delay setting may be made by inserting a screwdriver into the slotted end of the cylinder and rotating the cylinder in the selector delay container so the instantaneous flash channel is open for instantaneous setting or closed for a delay setting.

Operation: Setback forces the setback pin down, allowing the vanes to rotate up and off leaving the striker supported only by its creep spring. On impact the striker is driven into the primer. The primer flash ignites the delay train and, if the instantaneous channel is open, also flashes directly into the gaine.

Data:

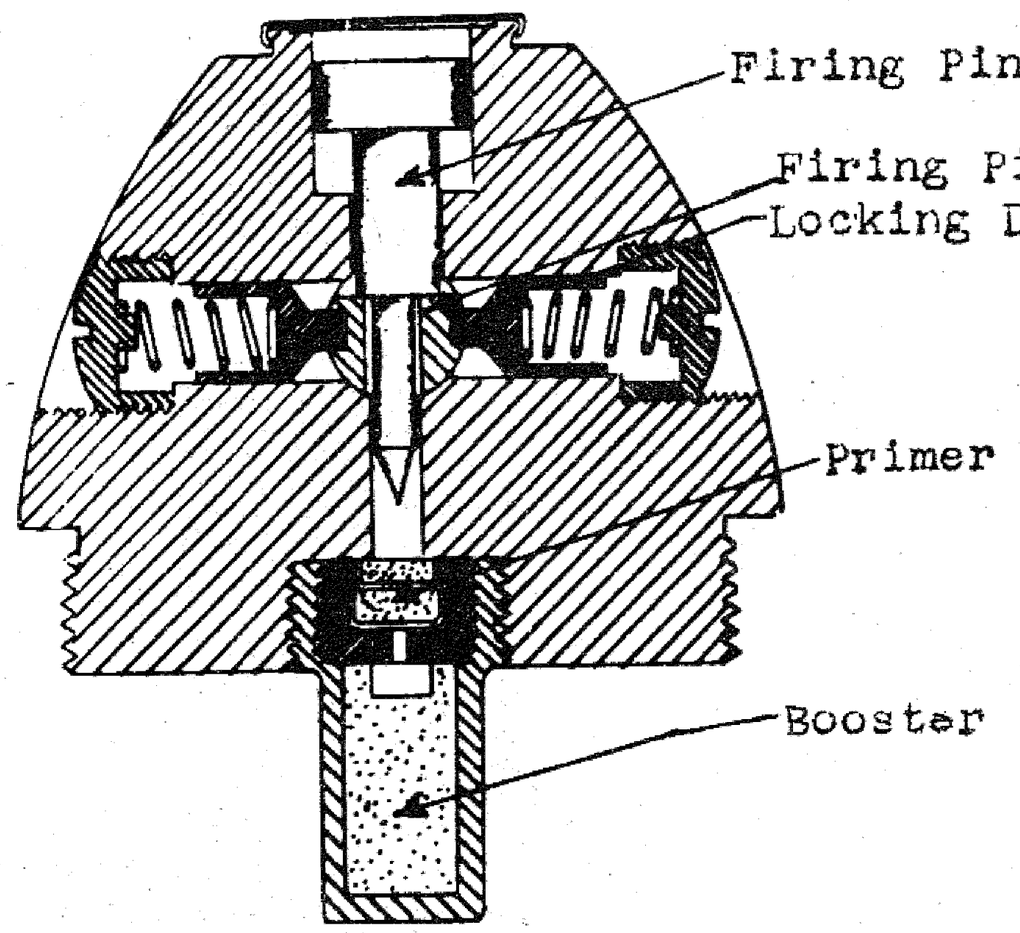
Overall length plus gaine: 3 15/16 inches.
Maximum diameter: 1 5/8 inches.

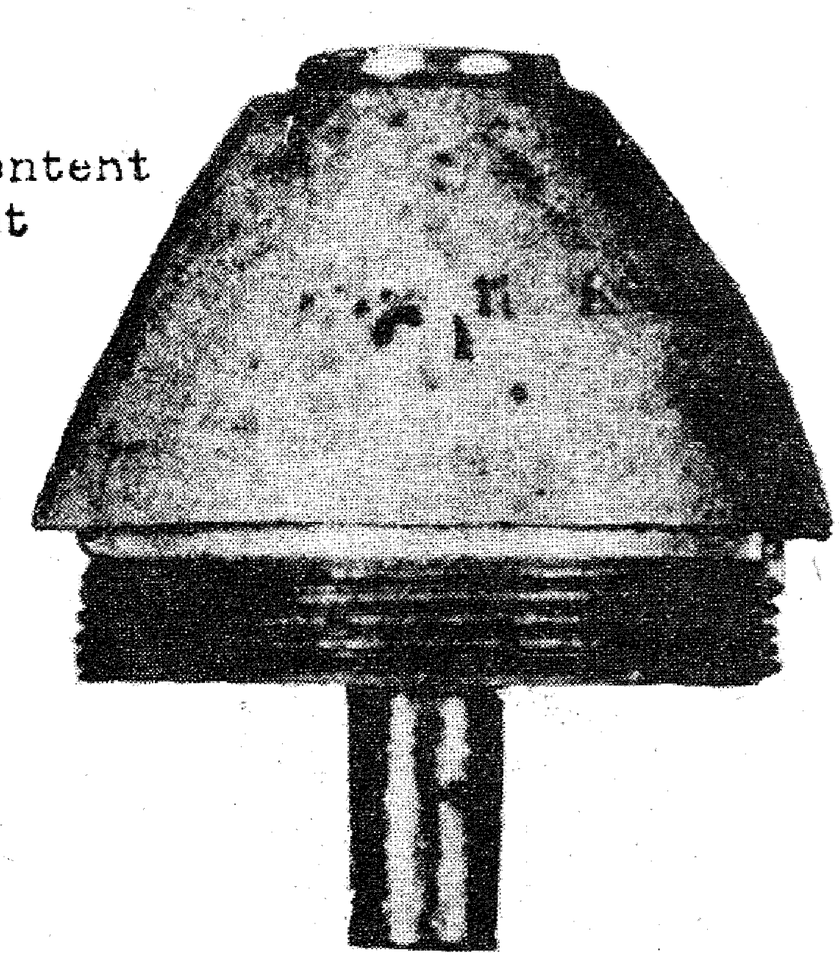
Type: Undesignated nose impact fuze.

Source: M.E.I.U. #1 Report No. 103.

Use: Not known.

UNDESIGNATED NOSE IMPACT FUZE





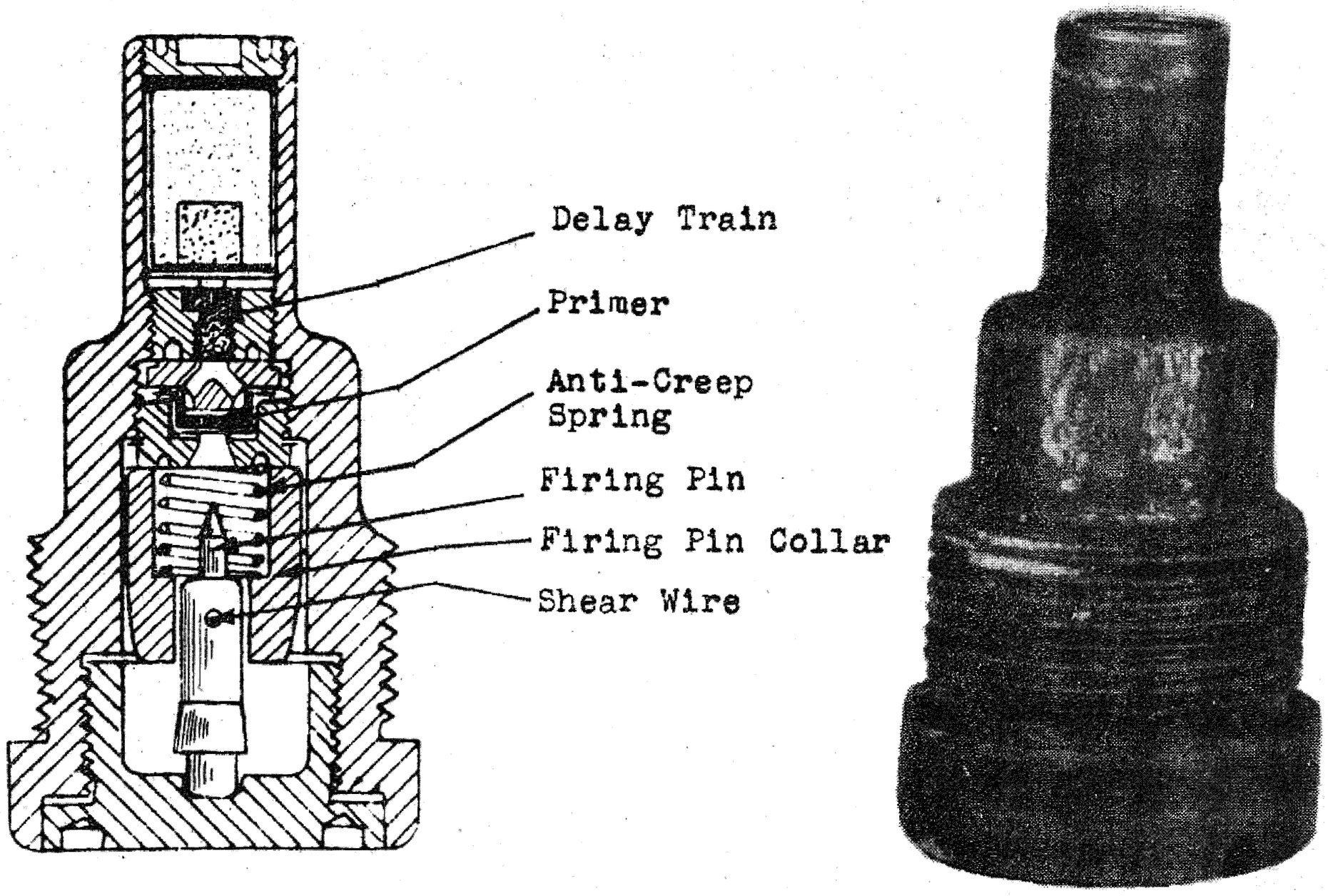
Description & Operation: The firing pin is supported by a single detent which is held in place by two (2) locking detents. When fired, centrifugal force causes the locking detents to move out, thus freeing the firing pin detent which moves out in turn. The firing pin is released and the fuze is armed. On impact the firing pin is driven into the primer.

Type: Type 94 Small Delay Base Fuze.

Source: M.E.I.U. #1 Report No. 103.

Use: This fuze is used in AP HE projectiles for the Type 97 A/T, Type 94 A/T and the Type 94 tank 37 mm gun.

TYPE 94 SMALL DELAY

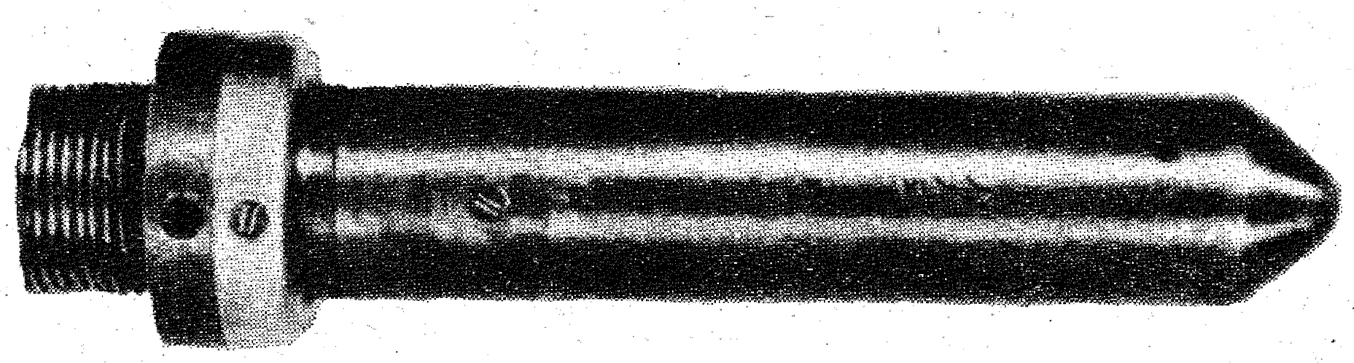


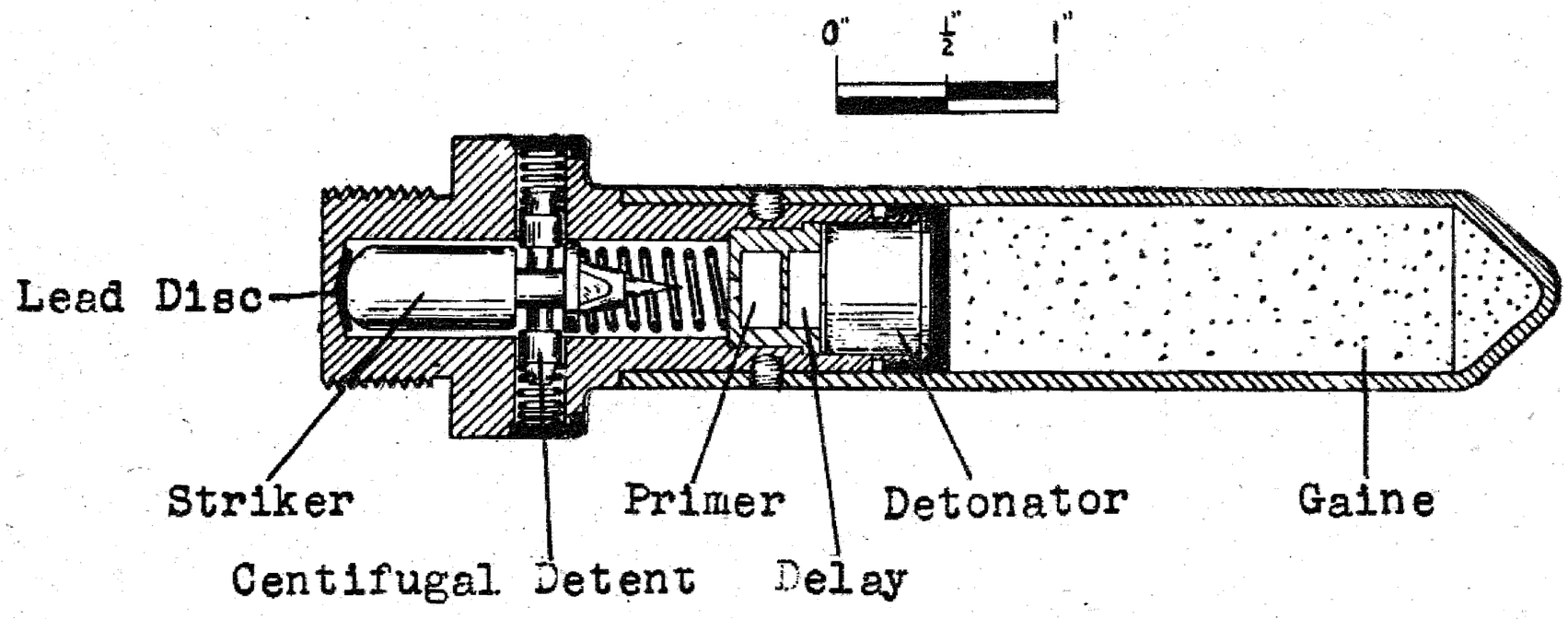
Operation: The firing pin of this fuze is resting against the base of the body and is rigidly secured to a firing pin collar by a shear wire. The collar is resting against the upper part of the cavity thus preventing movement of either the collar or the firing pin. On setback the collar moves down breaking the shear wire. The collar and firing pin rest against the anti-creep spring and on impact move forward onto the primer. According to captured documents, this fuze has a delay of 0.2 second.

Type: Type 88 Small Base Fuze (Howitzer).

Source: M.E.I.U. #4 Report No. 74.

Use: A.P. projectiles for 12 cm Model 38 Howitzer.





Description: The fuze consists of an after section which houses the striker, centrifugal detents, and delay train, and a forward section housing a picric acid gaine. The base of the after section is threaded externally to thread into a base fuze carrier.

Operation: The only safety features of this fuze are the centrifugal detents and the creep spring. Centrifugal force moves the detents out freeing the striker. On impact the striker overcomes the creep spring and impinges upon the primer cap. The primer cap ignites the pressed black powder delay, which in turn explodes the detonator. The detonator sets off the gaine.

Data:

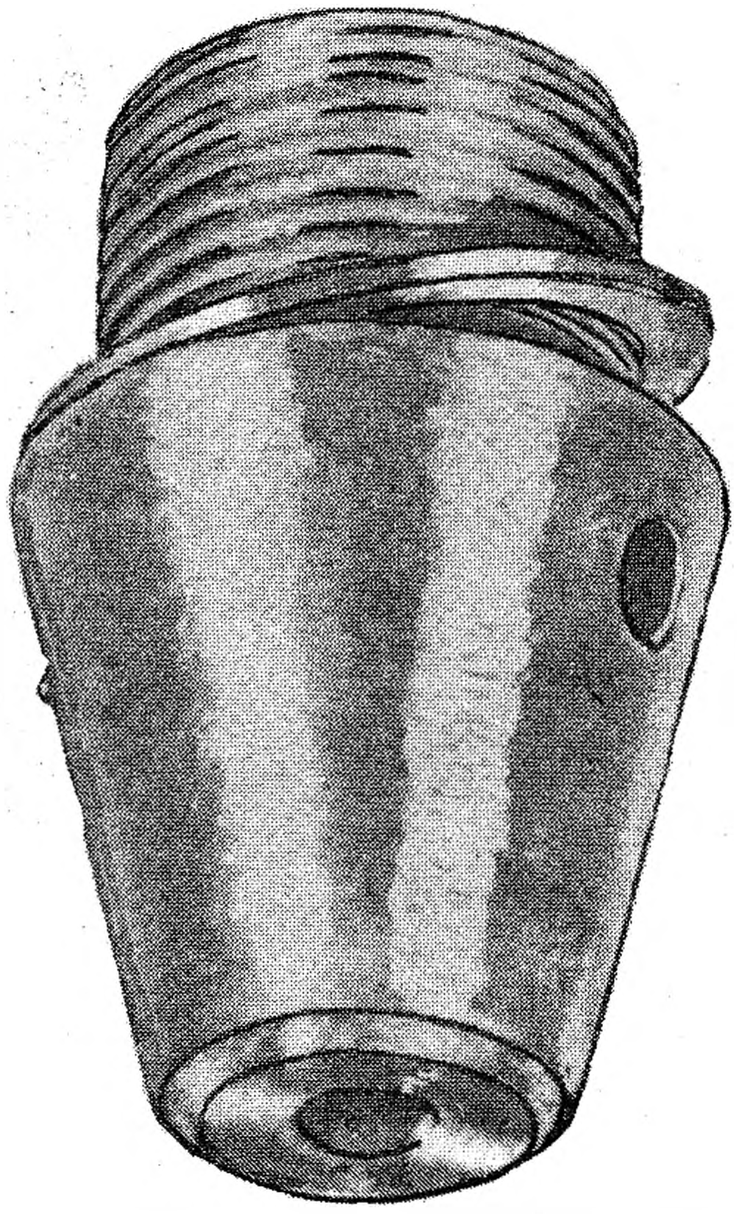
Overall length: 5 1/2 inches.
Maximum diameter: 1 3/8 inches.

Type: Small Mk. 1 base fuze.

Source: M.E.I.U. #4.

Use: This fuze is used in the AP HE projectile for the Type (?) long cased 37 mm gun.

SMALL MARK 1 BASE FUZE



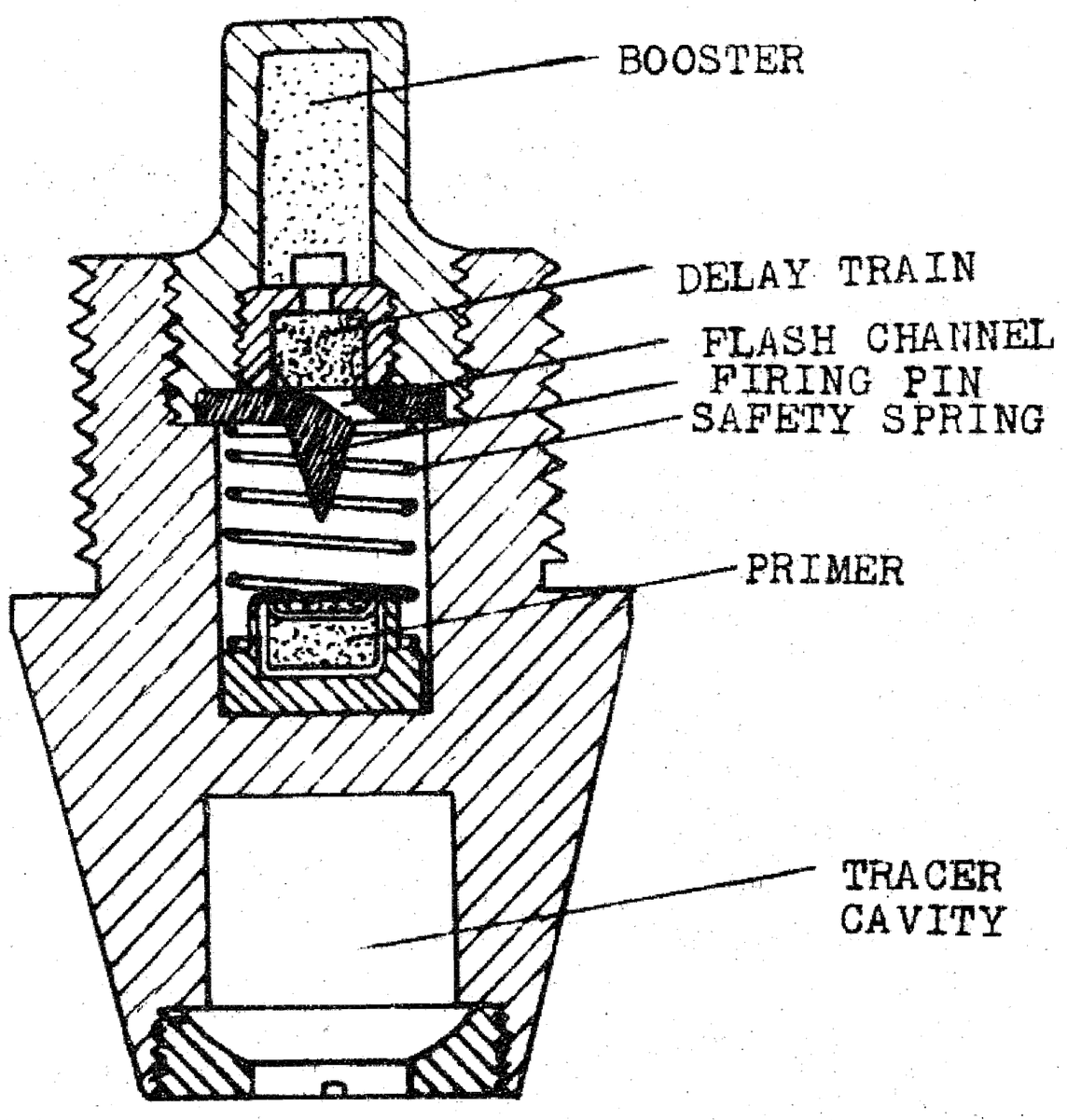
Description & Operation: This fuze is identical in form and operation to the Small Mk. 2 base fuzes used in the 47 mm AP HE projectile. It differs only in size.

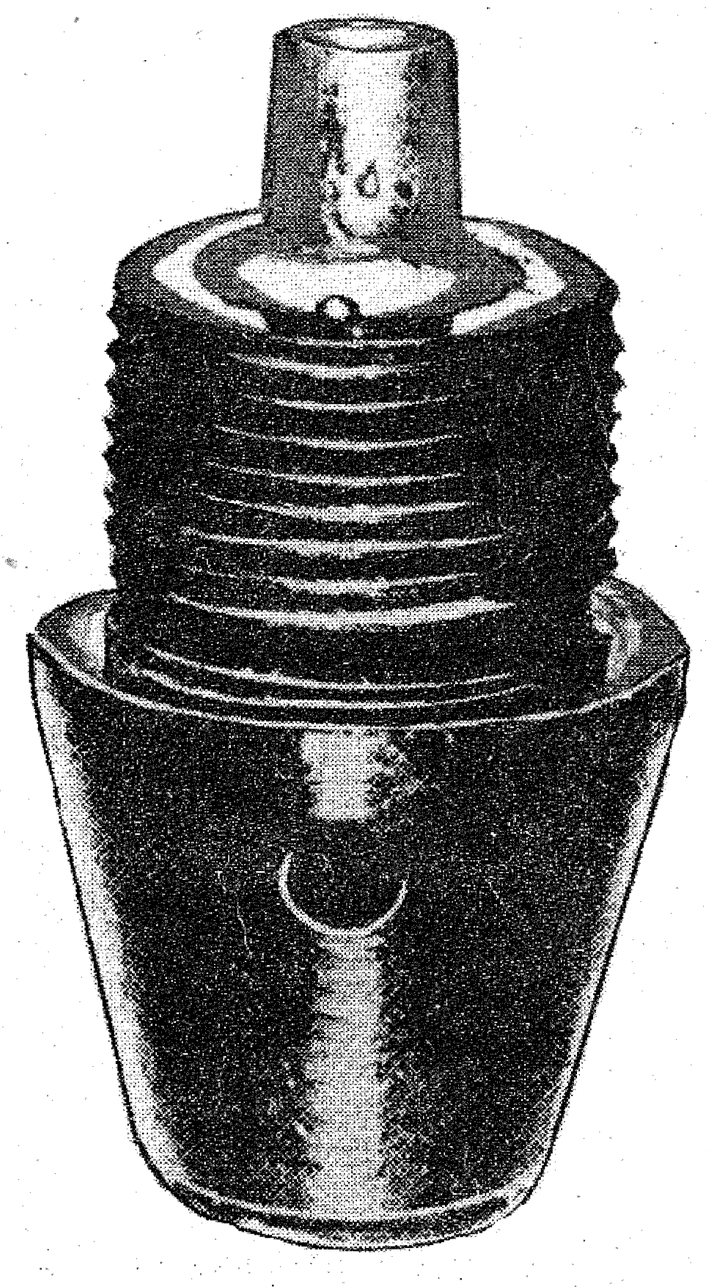
Remarks: Refer to Small Mk. 2 base fuze for the cross section. The internal mechanisms of the Small Mk. 1 and the Small Mk. 2 base fuze are the same.

BASE FUZE

Type: Small Mk. 2 base fuze.

Source: M.E.I.U. #1 Report No. 103.





Use: This fuze is used in A.P. projectiles for the 47 mm Anti-Tank Gun.

Description: The after portion of the fuze extends approximately one (1) inch aft of the fuze and projectile junction.

Operation: There are no arming features incorporated in this fuze. Separating the movable detonator carrier and the fixed firing pin, which is crimped into the forward part of the gaine, is an anti-creep (safety) spring. On impact, the detonator moves down and the flash passes through a small hole by the side of the firing pin into the gaine.

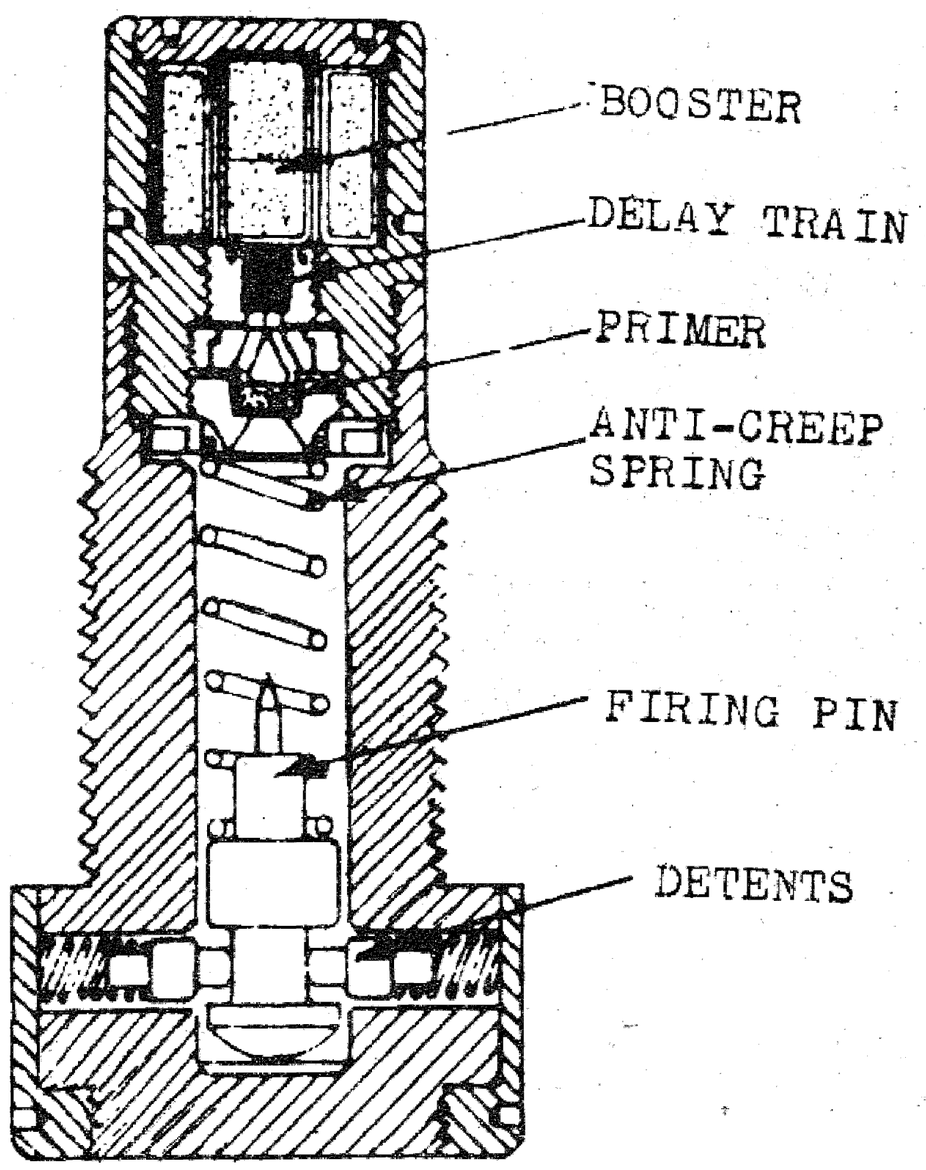
Remarks: This type of fuze has also been reported as being used in the Type 97 57 mm A.P. H.E. projectile.

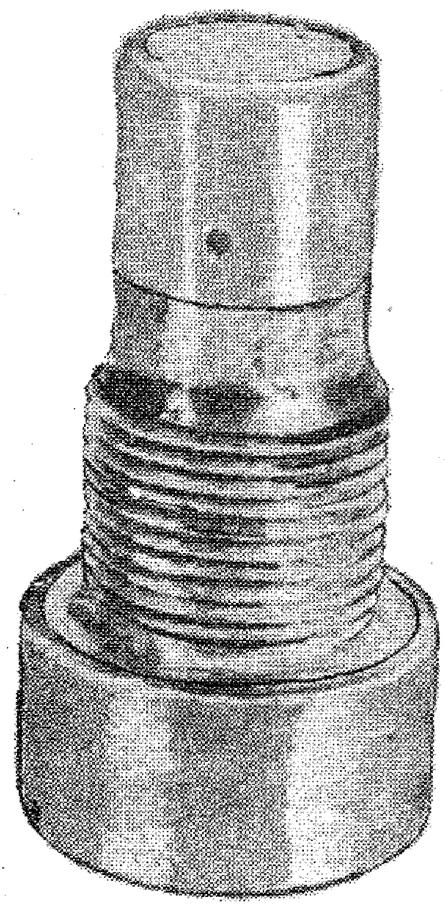
Type: Type 92 small short delay base fuze.

Source: M.E.I.U. #1 Report No. 103.

Use: This fuze is used in A.P. H.E. projectiles for the 57 mm Type 97 Tank Gun.

TYPE 92 SMALL SHORT DELAY BASE FUZE





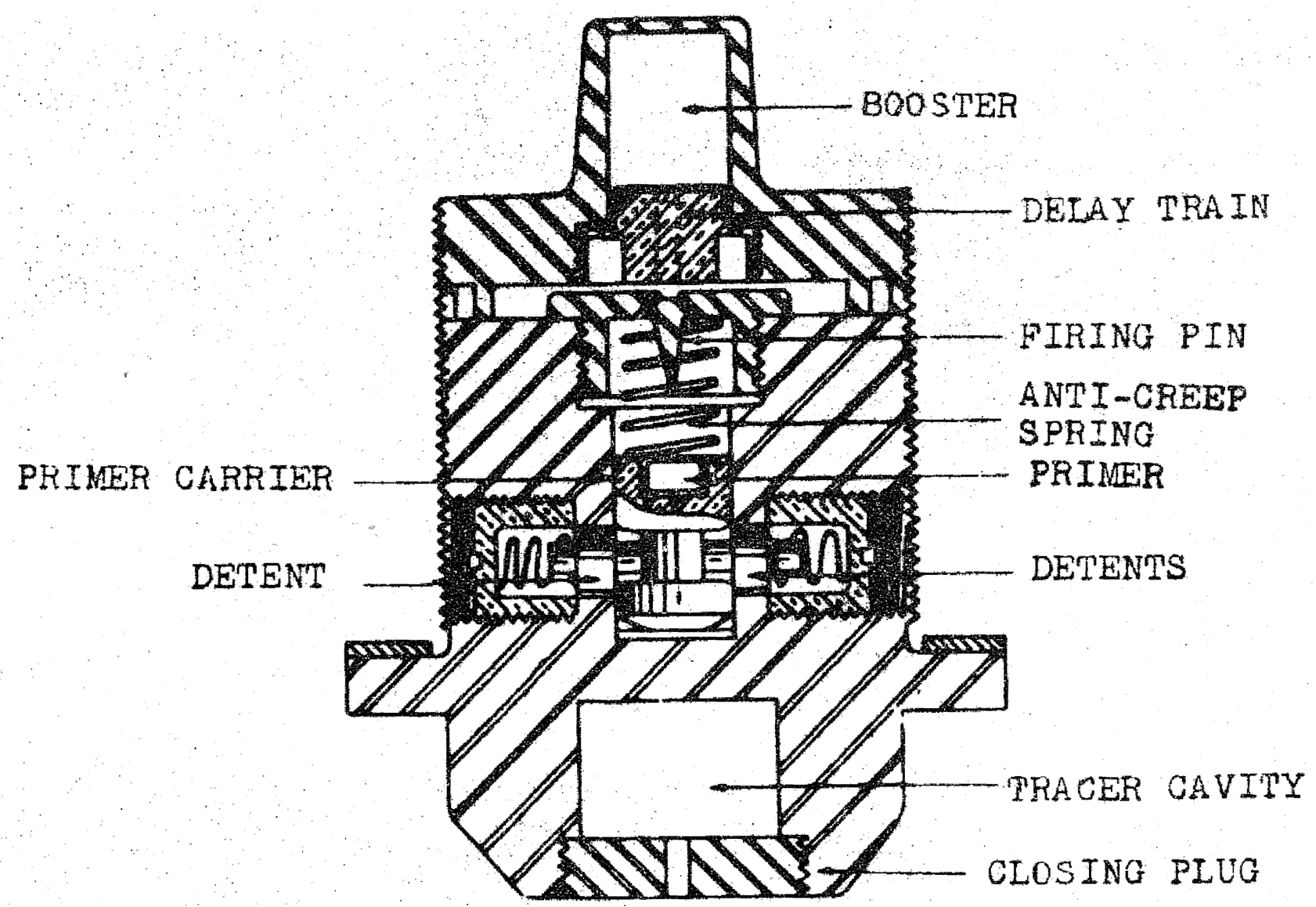
Operation: The only arming feature in this fuze consists of two (2) detents which prevent the firing pin from moving. Centrifugal force causes the detents to move out and leave the firing pin riding on the anti-creep spring. On impact, the firing pin overcomes the spring and moves down onto the primer. According to captured documents, this fuze has a delay of 0.1 second.

Type: Type 95 Delay Action A.P. Base Detonating Fuze.

Source: M.E.I.U. #1 Report Nos. 30 and 103.

Use: Type 95 - 75 mm AP HE for Type 41 and Type 94 Mountain Guns.

TYPE 75 DELAY ACTION A.P. BASE DETONATING FUZE



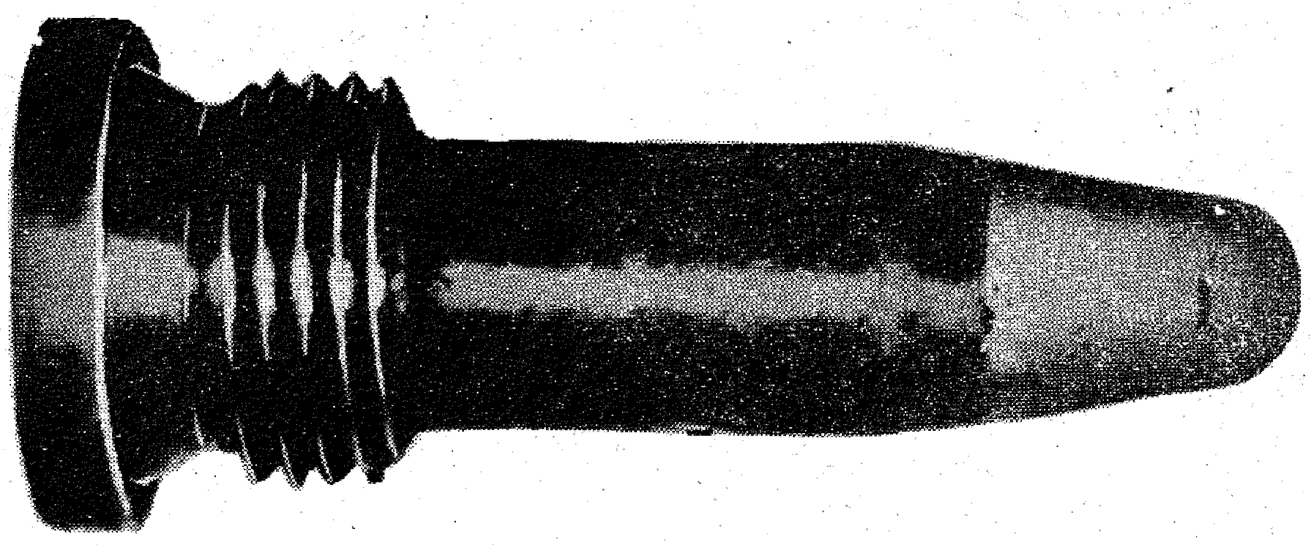
Description & Operation: This is a base detonating fuze which incorporates a tracer element in its base. The only safety feature in this fuze consists of two (2) detents which engage and hold the movable detonator carrier.

When the projectile is fired, centrifugal force causes the detents to move out against their springs, leaving the detonator carrier resting on an anti-creep spring. On impact the detonator moves forward and hits the fixed firing pin. The flash goes through a flash channel at the base of the firing pin into the gaine.

Type: Type 95 Howitzer Medium Base Fuze.

Source: M.E.I.U. #1 Report 139.

Use: 15 cm A.P. Howitzer Ammunition.



Description: The Type 95 medium base fuze is very similar to, but smaller than, the Type 95 Large Fuze described on page 82a. In the Type 95 Medium Base Fuze there is no threaded cap over the base and the firing pin sleeve construction differs from that of the Type 95 Large Fuze. The setting dial is graduated from .05 to 2 seconds. The firing pin sleeve can be rotated to select the desired delay.

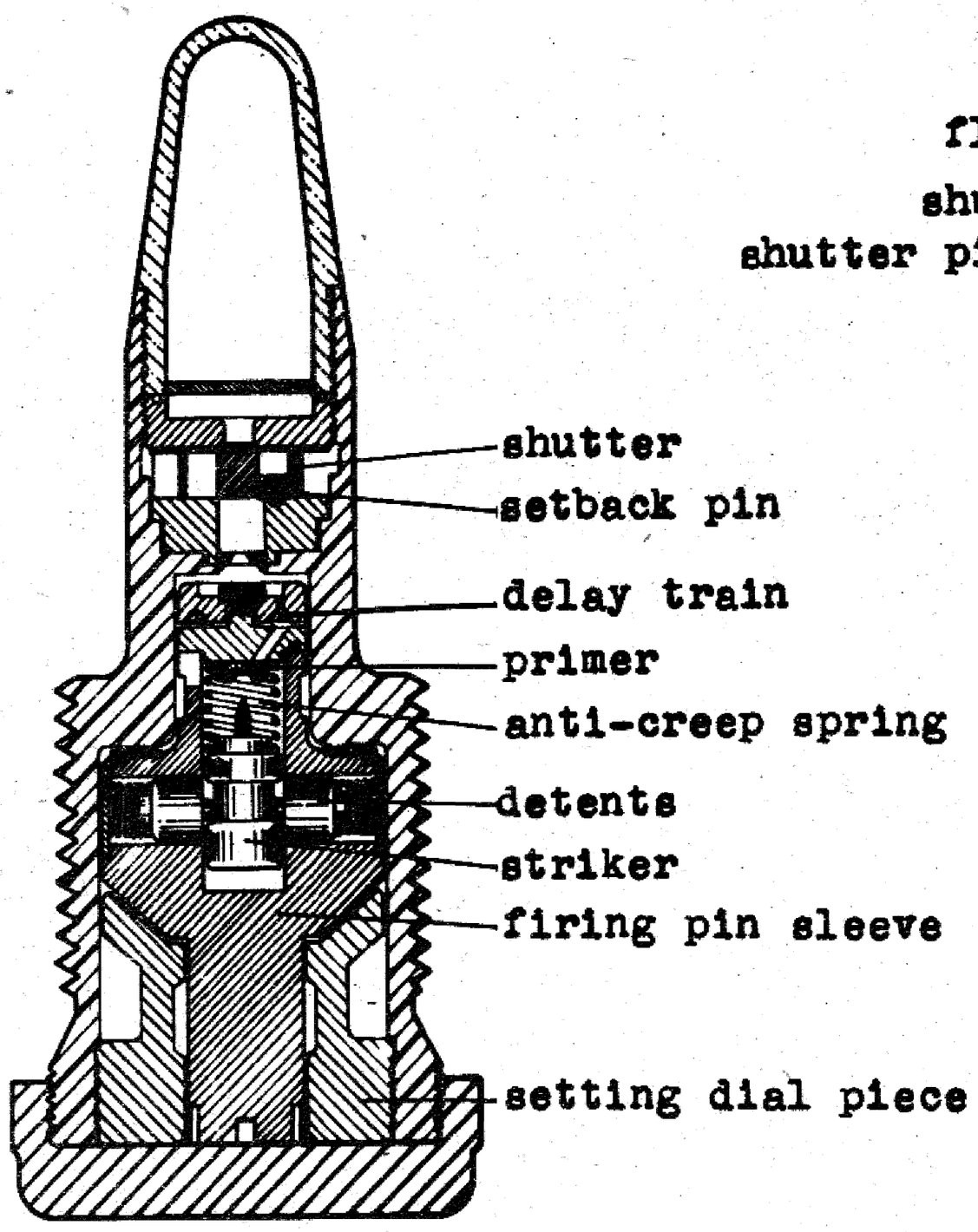
Operation: Identical to that of Type 95 Large Fuze.

Data:

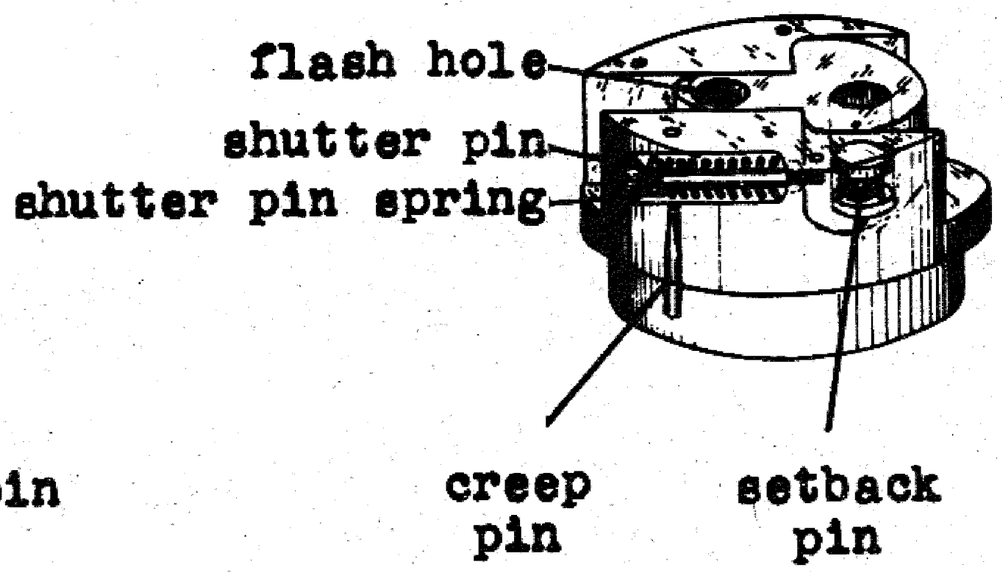
Overall Length: 5.55 inches.
Body Diameter: 1.33 inches.
Base Diameter: 2.36 inches.
Total Fuze Weight: 2.02 pounds.
Threads: 25/32 inch diameter, 7 TPI, U.S. Standard.

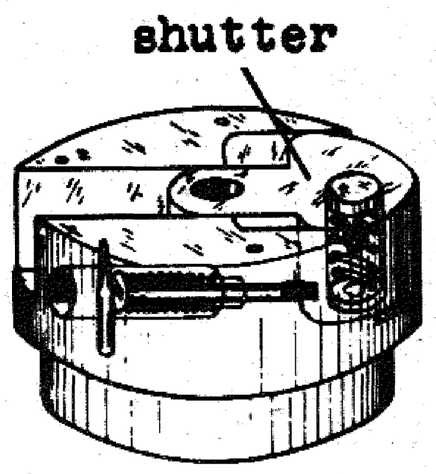
Type: Type 95 Large Mk. 2 Base Fuze.

Source: MEIU #1 Report No. 103.



DURING SETBACK





FULLY ARMED

Description: The fuze appears to be about 6 or 7 inches in over-all length including the gaine. The shutter housing is held in the forward part by the gaine. The firing pin sleeve houses the detents, firing pin, anti-creep spring, and primer. The delay train container is keyed to the fuze body and held in the fuze body by the firing pin sleeve which is in turn secured by the setting dial piece. The setting dial is graduated from 5 to 200 and it is believed to represent from .05 to 2 seconds delay. The firing pin sleeve can be rotated to select the desired delay. This selects the point at which the flash from the primer may ignite the delay train.

Operation: On setback the setback pin in the shutter moves down against its spring and locks the shutter in the unarmed position until the force of setback is no longer strong enough to hold the pin down. Then the setback pin is forced forward by its spring, unlocking the shutter so it can move out upon centrifugal force. The two (2) creep detents fall forward in front of the shutter pins when the shutter is in the armed position. Centrifugal force also causes the detents to free the striker.

Use: 30cm. APHE Projectile.

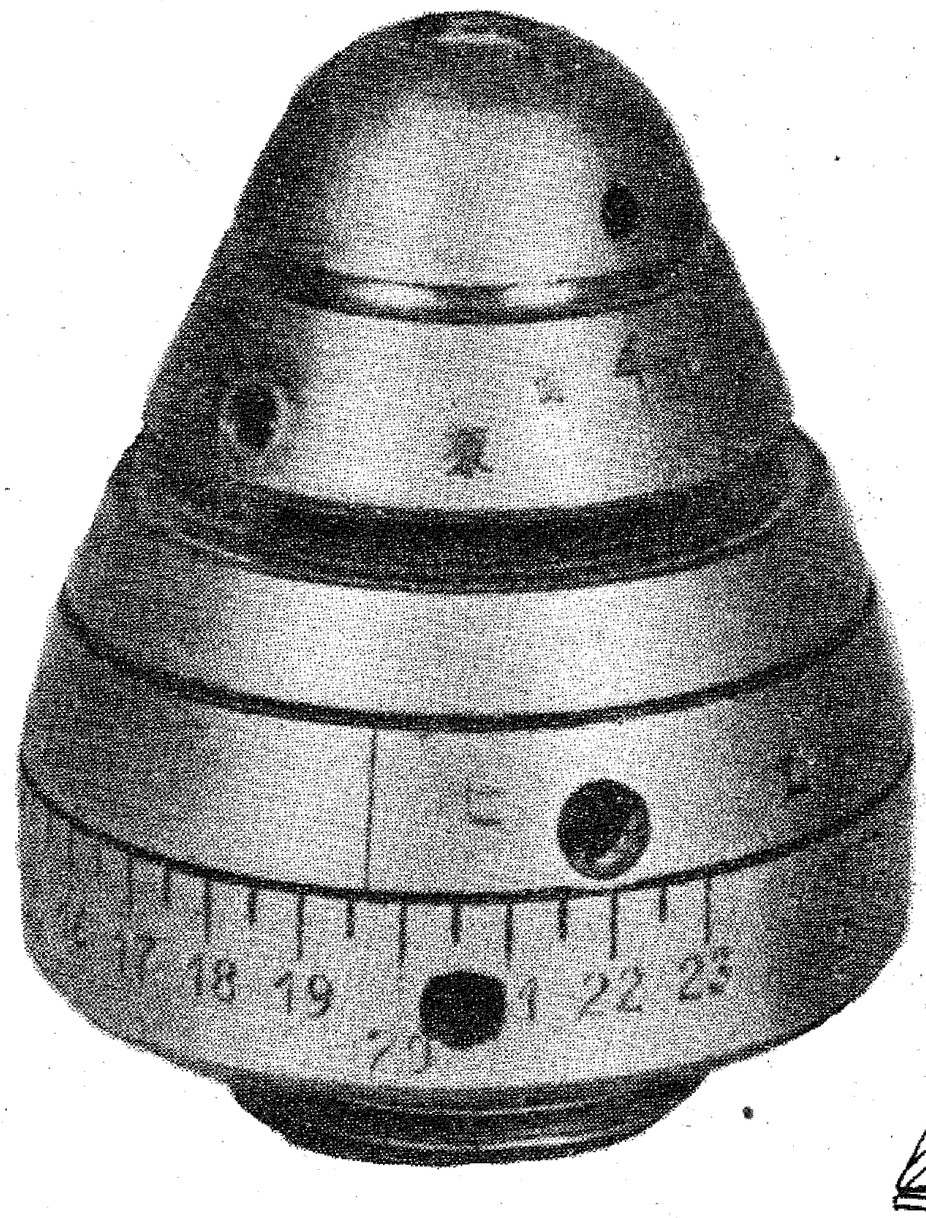
NOSE FUZE (TIME)

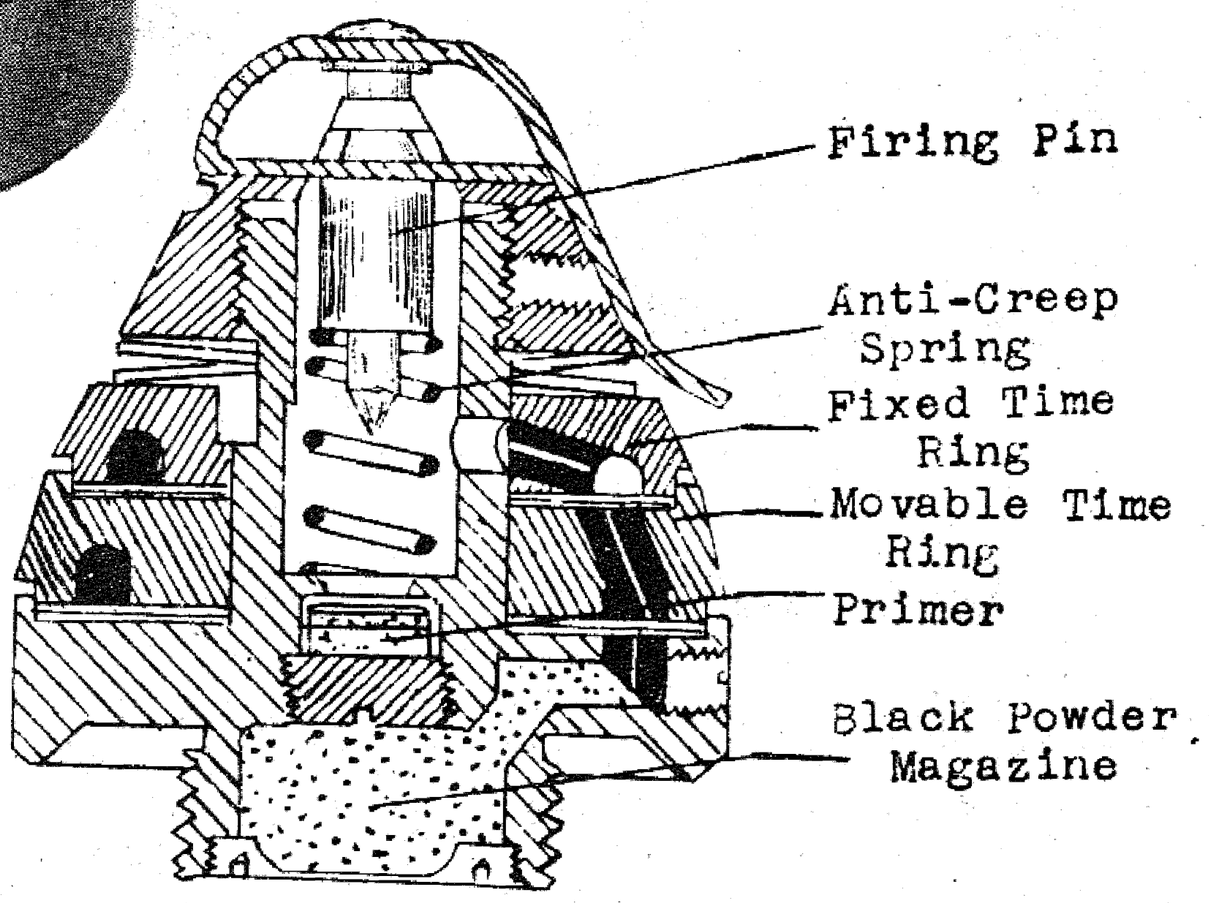
Type: Type 89 Small Time Fuze.

Source: M.E.I.U. #1 Report No. 103.

Use: 50 mm Grenade discharger smoke projectile.
Illuminating projectiles for 70 mm Mortar & 70 mm Howitzer.

TYPE 89 SMALL TIME FUZE





Description & Operation: Powder-train fuze with two (2) time rings, the lower one being movable and the upper fixed. The setting dial is graduated from 0 to 20 seconds in increments of one-half (½) seconds.

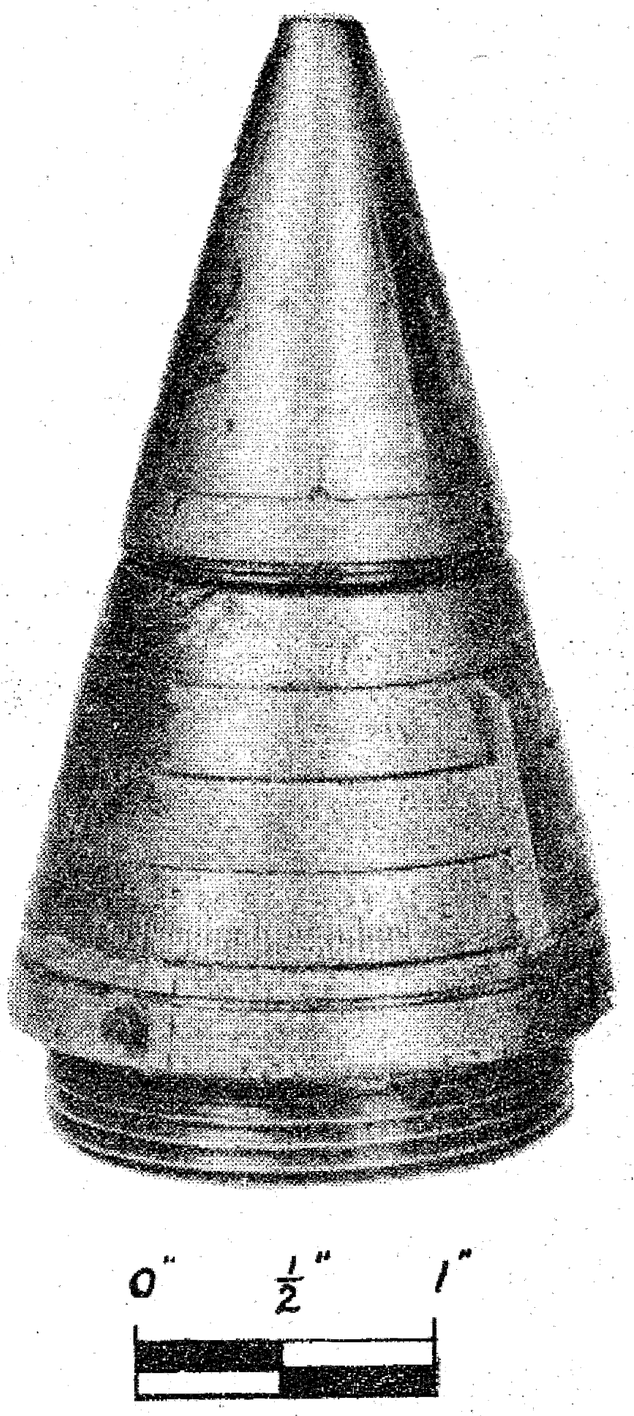
Safety wire holds firing pin and is pulled out before the projectile is fired. On setback the striker will move down against the spring resting under it and impinge on the primer. Flash from this ignites powder train and burns through the two (2) time rings into the magazine at the base of the fuze when setting time has elapsed.

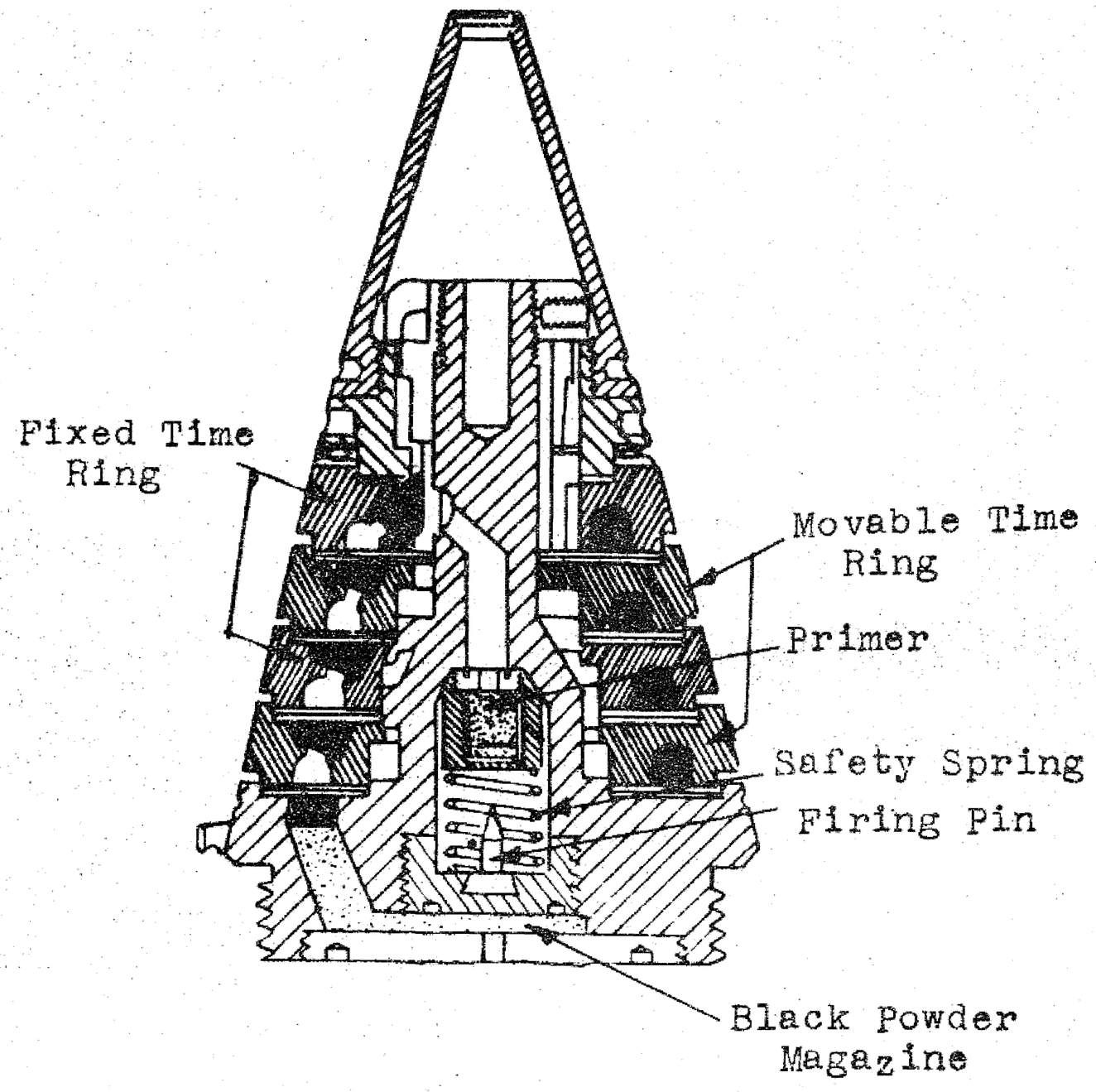
Type: Type 89 Long Pointed A.A. Time Fuze.

Source: M.E.I.U. #1 Report No. 103.

Use: In the 75 mm Type 90 long pointed A.A. projectile; the 105 mm Type 91 long pointed A.A. projectile; the Type 91 substitue long pointed projectile.

TYPE 89 LONG POINTED A.A. FUZE





Description & Operation: This is a brass-bodied powder train, time fuze with four (4) time rings. The first and third rings are fixed. The second and fourth are movable and are keyed so that they move together. The setting dial is graduated from 0 to 30 seconds in increments of 1/5 of a second. A spring separates the movable primer from the fixed firing pin.

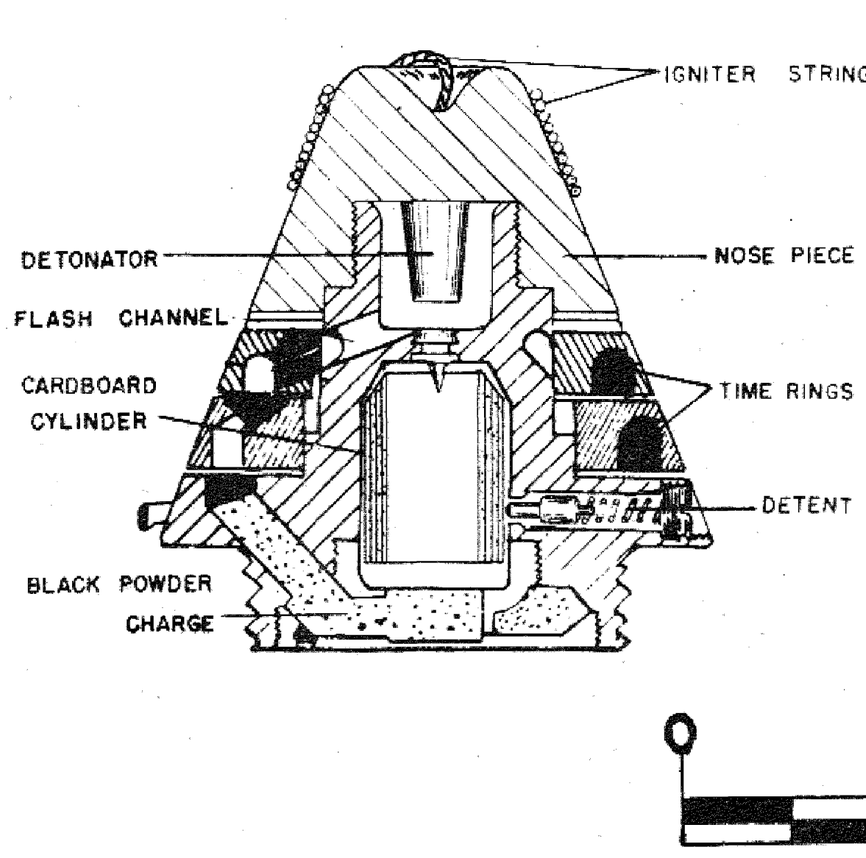
On setback, the primer compresses the spring and impinges upon the fixed firing pin. The resultant flash ignites the powder train in the top time ring. After burning through the successive rings, the powder train flashes into the black powder magazine which in turn flashes into the auxiliary detonator which actually detonates the projectile.

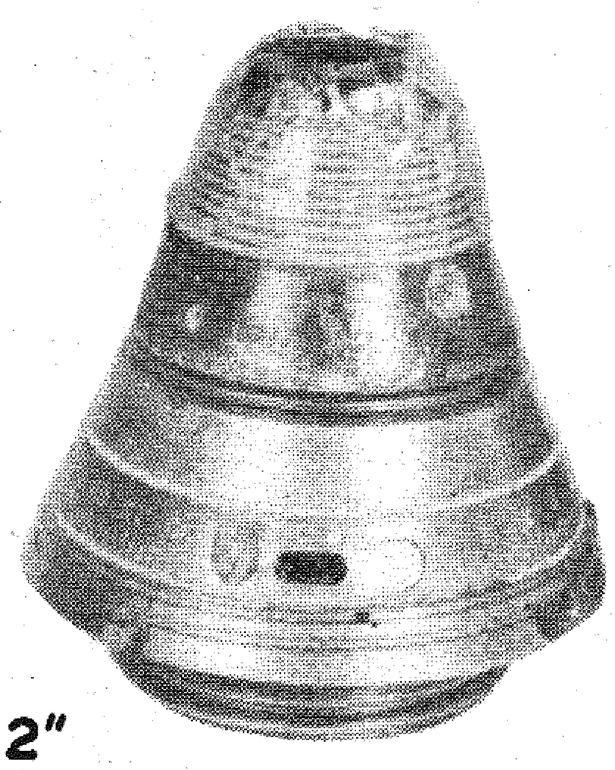
Remarks: This fuze is always used with an auxiliary detonator.

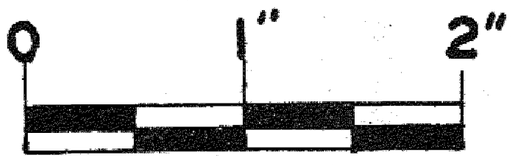
Type: Experimental Manufacture Time Fuze.

Source: M.E.I.U. #4 specimen.

Use: Propaganda bombs dropped from planes.







Description: This fuze is a modified form of the Type 3rd Year Time-Impact (see page 85), modified in the following details: The impact and setback firing features have been removed. The impact firing element has been replaced by a cardboard cylinder. The setback firing element and fuze body above time rings has been replaced by a plastic composition nose piece. Through the center and top of the nose piece is an igniter string the fuze end of which is attached to a pull igniter leading to a detonator. The detonator occupies the space formerly occupied by the setback primer.

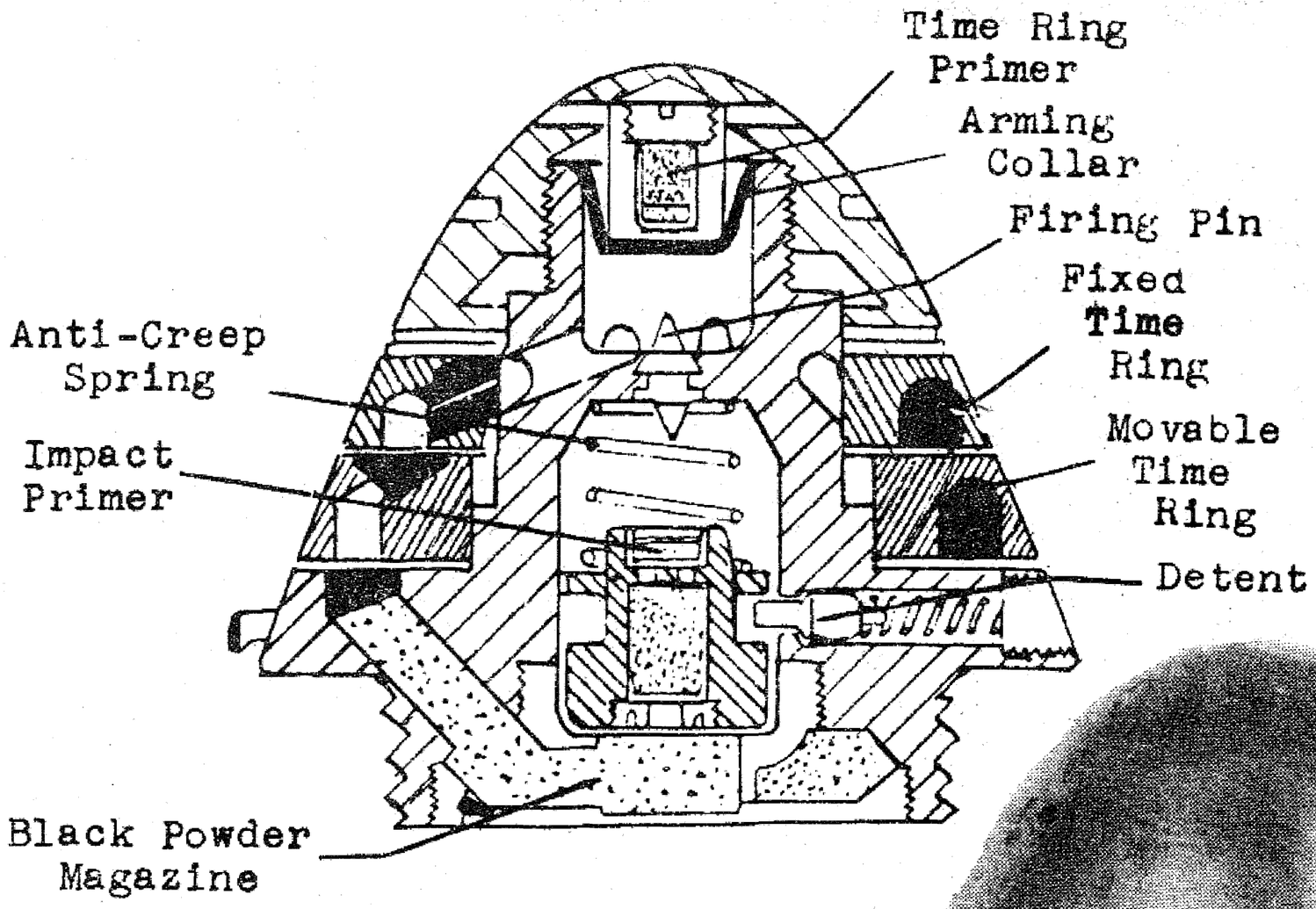
Operation: The time rings are set and the free end of the igniter string is attached to the plane. When bombs are dropped the pull igniter functions, exploding the detonator which flashes into the time rings.

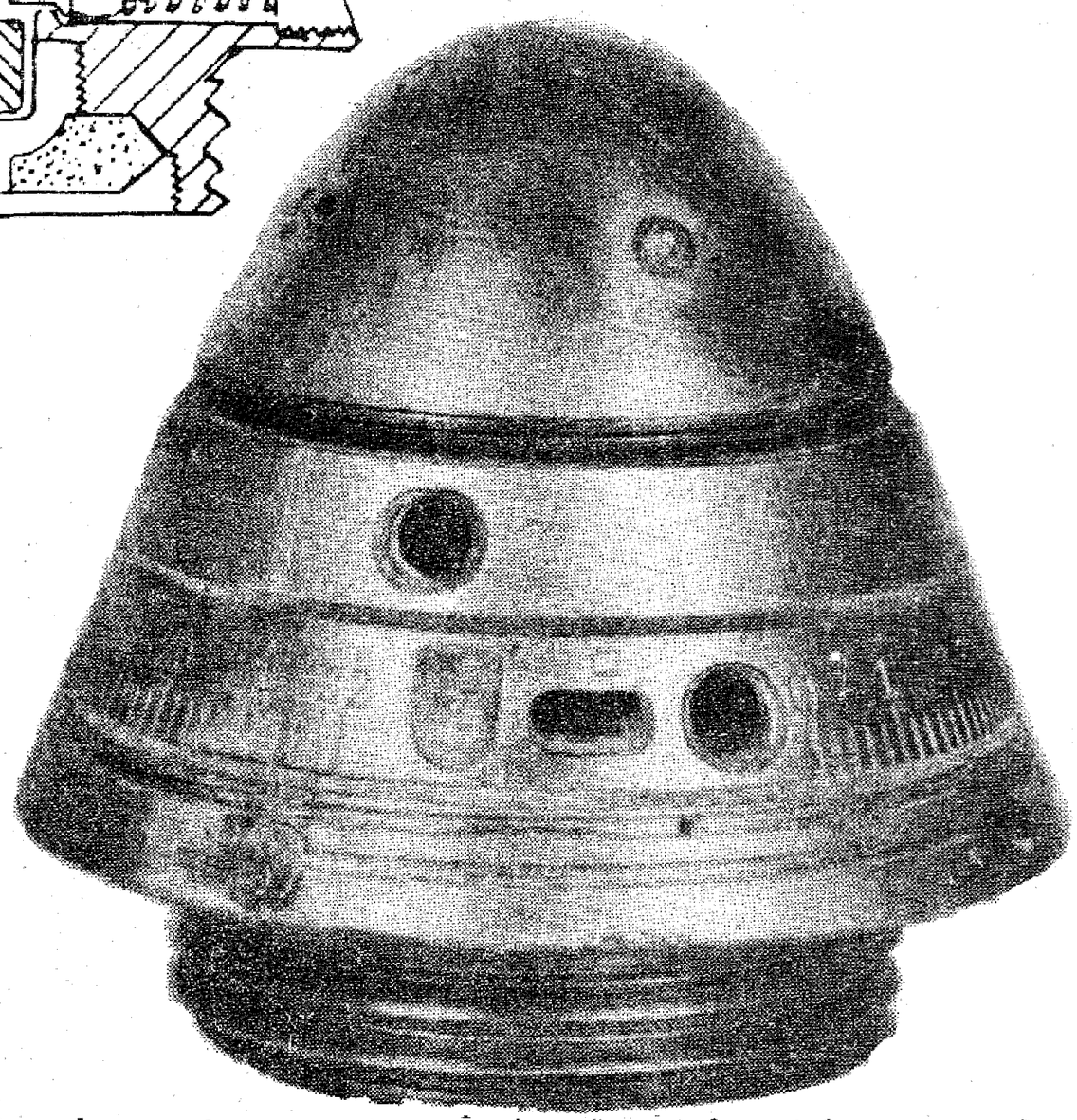
Type: Type 3rd Year Time-Impact Fuze (modified).

Source: M.E.I.U. #1 Report No. 103.

Use: H.E. (A) projectile, Type 38 shrapnel projectile, Type 90 substitute projectile and Type 38 substitute projectile for Type 38 field gun, Type 41 Cavalry Cannon, Type 41 Mountain gun and Type 95 field gun.

TYPE 3RD YEAR COMBINATION FUZE





Description & Operation: This is a brass bodied, combination powder time and impact fuze. It has two (2) time rings; the upper one fixed, and the lower one movable. The setting dial is graduated from 0 to 22 seconds in increments of 1/5 of a second. The fuze contains a single, double-ended firing pin and two (2) movable primer carriers. The upper primer is held in place by an arming sleeve and a safety pin which is removed before firing. The lower primer carrier is held by two (2) detents and an anti-creep spring.

Time: On setback, the upper primer carrier overcomes the arming sleeve and moves downward, hitting the firing pin. The flash ignites the upper powder train which burns around the upper time ring and flashes to the lower time ring. The lower time train burns and flashes into the black powder magazine in the base.

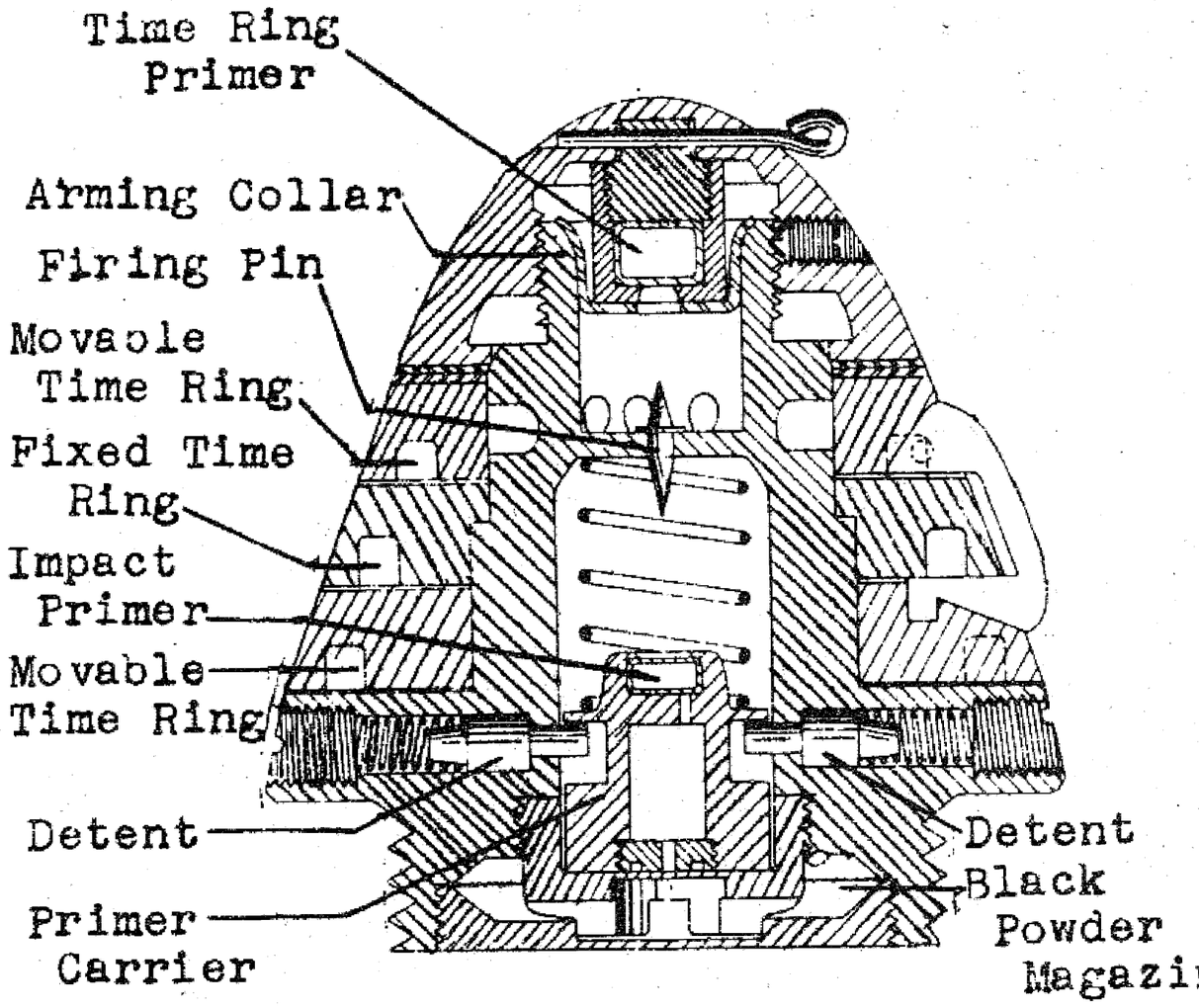
Impact: The lower primer carrier detents are moved out by centrifugal force. If the projectile hits before the set time has elapsed, the lower primer carrier overcomes the anti-creep spring, hits the firing pin, and initiates the fuze.

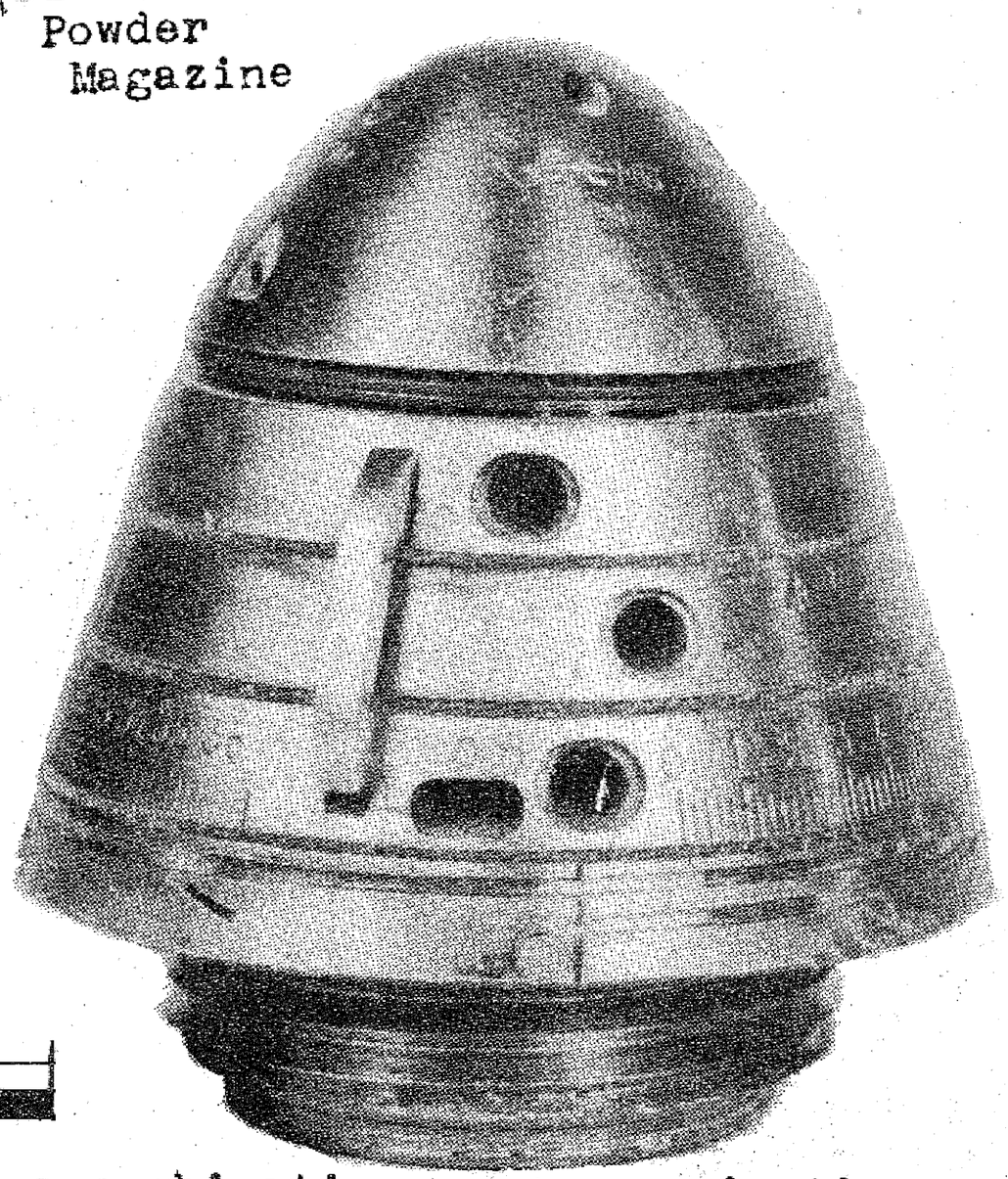
Type: Type 5th Year Combination Time and Impact Fuze (modified).

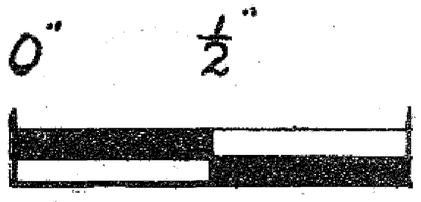
Source: M.E.I.U. #1 Report No. 103.

Use: Type 90,94,38,95, and 14th Year Shrapnel projectile; Type 90 and 89 Ill. projectile; Type 14th Year Smoke projectile; Type 89 Ill. Substitute projectile; Type 14th Year,95,88, and 96 Substitute projectiles.

TYPE 5TH YEAR COMBINATION FUZE







Description & Operation: This is a combination powder train time and impact fuze with a brass body. It has three (3) time rings, one fixed and two (2) movable rings connected by a key so that they will move together. The setting dial is graduated from 0 to 36.6 seconds in increments of 1/5 of a second.

Both time and impact operations are the same as for the Type 3rd Year Fuze.

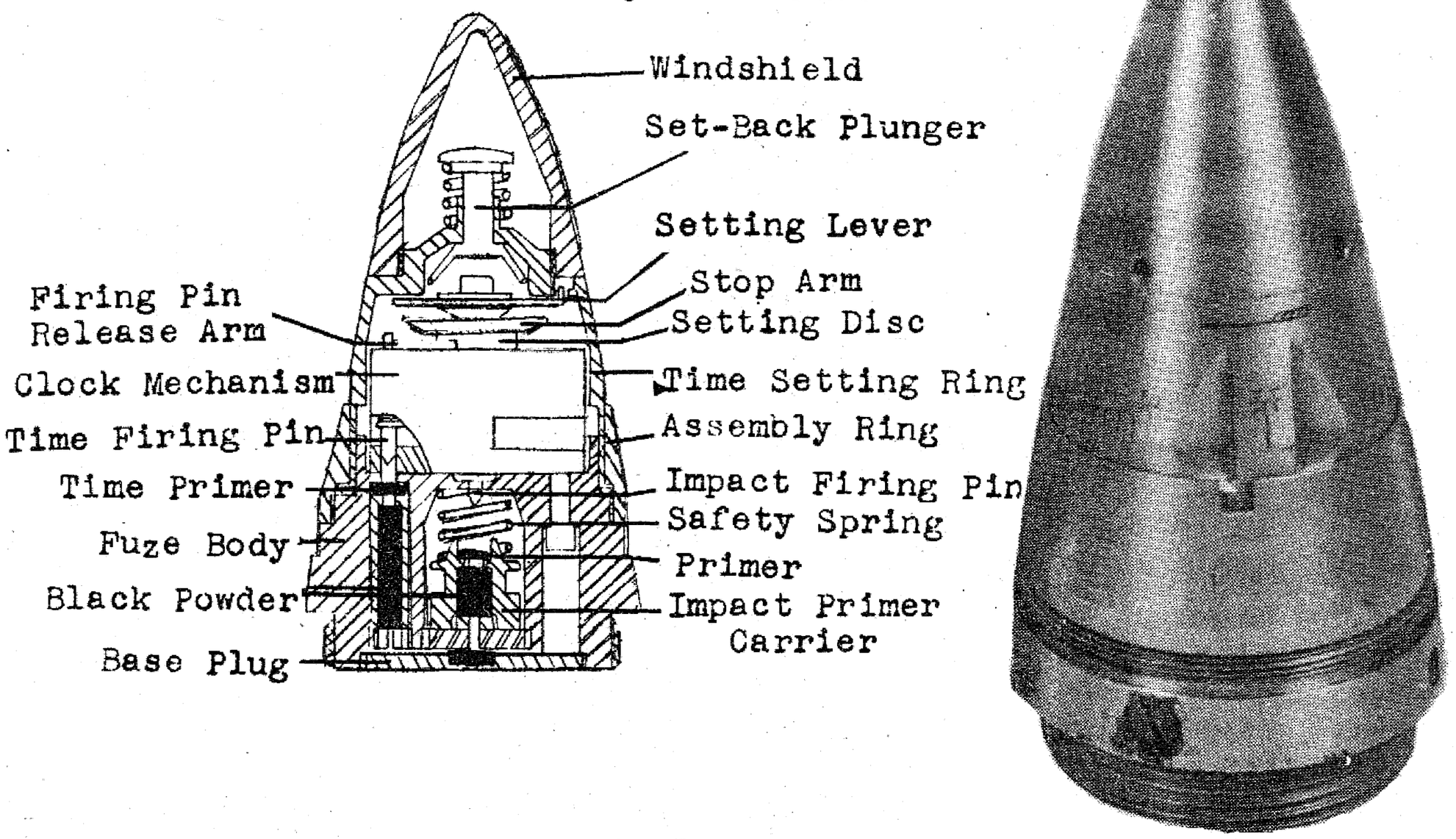
Remarks: Differs from the Type 3rd Year Fuze by having an extra time ring and a longer setting time.

Type: Type 100 Mechanical Time-Impact Fuze.

Source: M.E.I.U. #4. Report No. 32

Use: Type 100 long pointed A.A. projectile for Type 14th Year 105 mm A.A. Gun.
Type 100 long pointed AA projectile for Type 99 88 mm AA Gun.

JAPANESE
Type 100 Combination
Projectile Fuze



Description & Operation: This is a long tapered fuze. Its component parts: windshield, time settting ring, assembly ring, fuze body, and base plug are made of aluminum alloy while the clock mechanism is mostly steel. The clock mechanism is the same as that used in the Navy Type 91 mechanical time fuze. The time setting ring is marked in one-second intervals from 0 to 50. The spring leaf set stop on the Type 91 is replaced in the Type 100 by a projection from the fuze body which engages a brass stop lug on the time setting ring. The Type 100 also has a stud on the underside of the stop arm which catches on the setting disc end of the firing pin release lever when the fuze is set on safe. This keeps the setting lever, setting disc, and clockwork from moving if the projectile is fired on this setting. This feature replaces the external safety pin used in the Type 91.

Time Action: Same as Navy Type 91 mechanical time fuze.

Impact Action: Centrifugal force causes the spring loaded detent to disengage the slot in the impact primer carrier. On impact the primer carrier compresses the anti-creep spring and hits the fixed firing pin. The resultant flash ignites the black powder magazine in the fuze base and the black powder in turn initiates the auxiliary detonating fuze.

Markings: Type, Date, and Place of manufacture stencilled on windshield in purple paint.

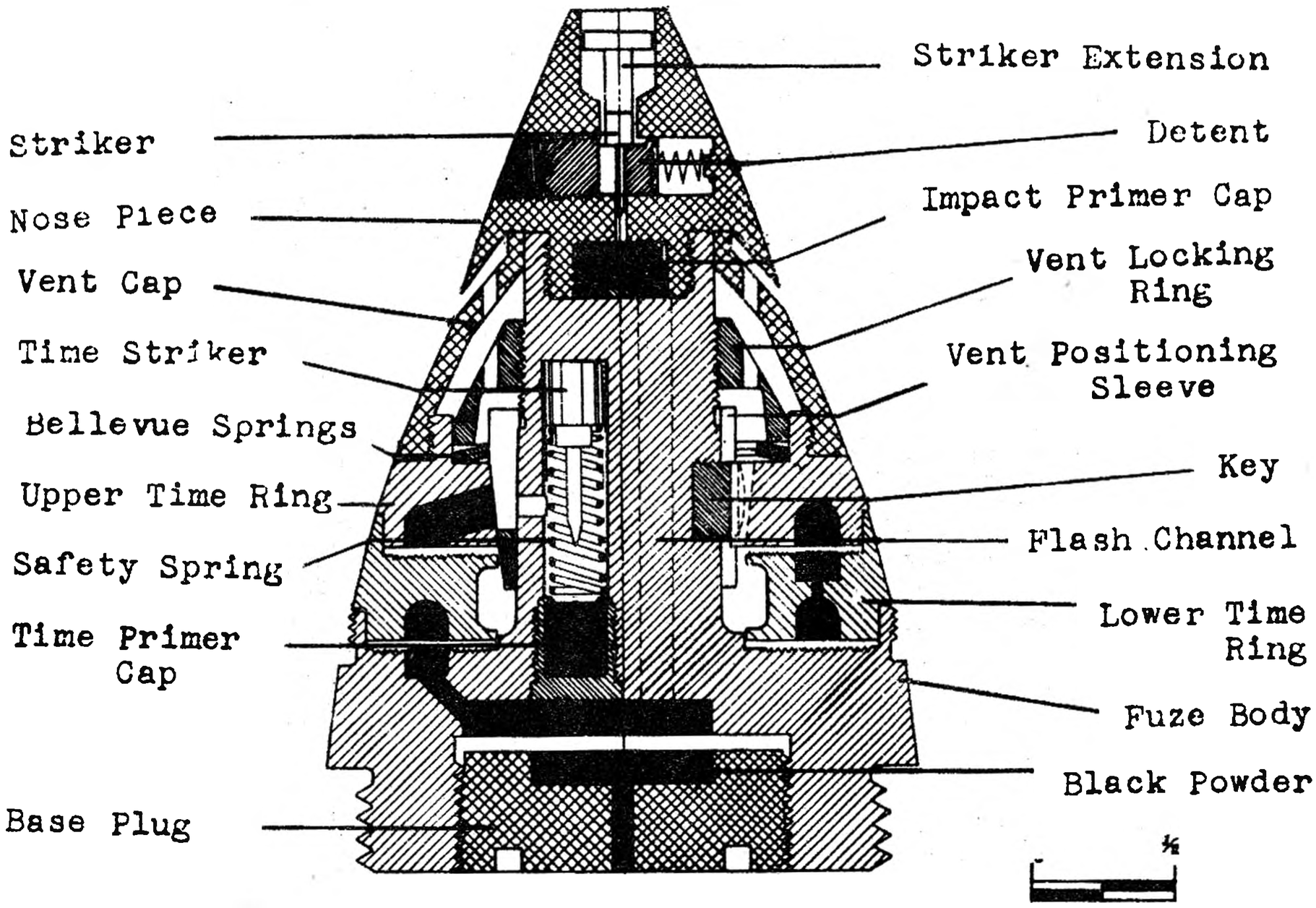
Remarks: It is interesting to note that the Japanese Army has essentially adopted a Japanese Navy projectile fuze. The auxiliary detonating fuze used with the Type 100 is the only known Army auxiliary detonating fuze and is the same as that found in the Japanese Army 75 mm Auxiliary detonating fuze.

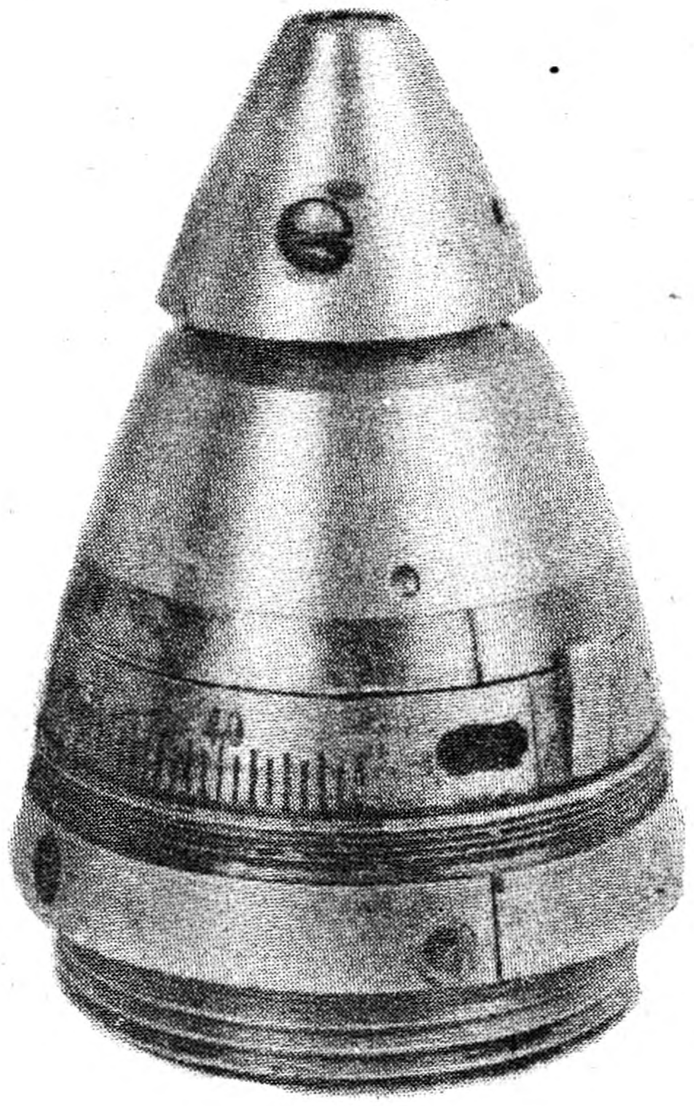
Type: 44-Second Combination Time and Impact Fuze.

Source: M.E.I.U. #4 Report No. 28.

Use: Not certain. Probably used in same projectiles as Type 89 Long Pointed A.A. Fuze.

44 SECOND TIME-IMPACT PROJECTILE FUZE





Type 44 Combination Time-Impact Fuze (Continued)

Description & Operation: The body and time rings of this fuze are brass, while the nose piece, vent caps and base plug are aluminum. The movable delay time has setting markings from 0 to 44 seconds in 1/2 second increments. The nose piece contains a complete impact firing device and the main body contains the time mechanism and powder trains.

Time Action: When fired, setback causes the time striker to overcome the resistance of the safety spring and hit the time primer cap. The flash escapes past the striker through four (4) grooves in its side, and then through a hole in the fuze body, to ignite the upper time train. This burns around the time ring, flashes to the lower time ring and then to the black powder magazine.

Impact Action: Centrifugal force causes the single detent to compress the detent spring and move out from under the striker. On impact the nose is crushed forcing the wooden striker extension onto the striker which is driven into the impact primer cap. The cap flashes through a channel in the central fuze body to ignite the black powder magazine in the base.

Remarks: The fuze has a protective metal storage cap which screws onto a set of external threads on the fuze body located beneath the time rings.

Two (2) designations were present on the label of the fuze can:

Type 89 Point A.A. Fuze.
Type 2 A.A. Instantaneous-Time Fuze.

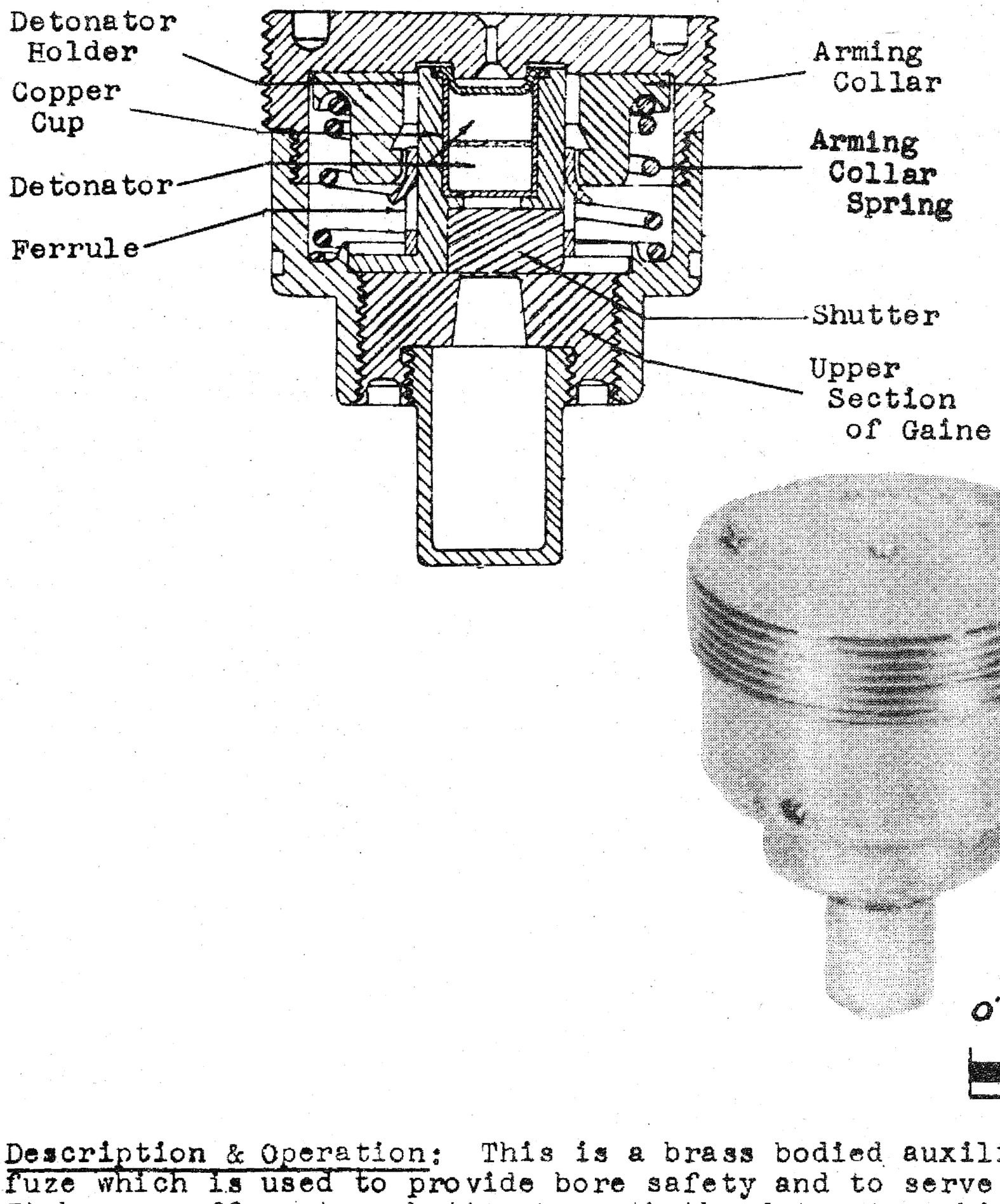
Type: 75 mm Auxiliary Detonating Fuze.

Source: M.E.I.U. #1 Report No. 103.

Use:

Type 90 - Long pointed 75 mm A.A. projectile, with Type 89 long pointed A.A. fuze.
Type 100 - Long pointed 88 mm A.A. projectile, with Type 100 mechanical time-impact fuze.

75 MM AUXILIARY DETONATING FUZE



Description & Operation: This is a brass bodied auxiliarydetonating fuze which is used to provide bore safety and to serve as a booster. It has an off center shutter beneath the detonator which is held in place by a ferrule with four (4) stirrup springs projecting from its sides. An arming collar rides on the arming collar spring.

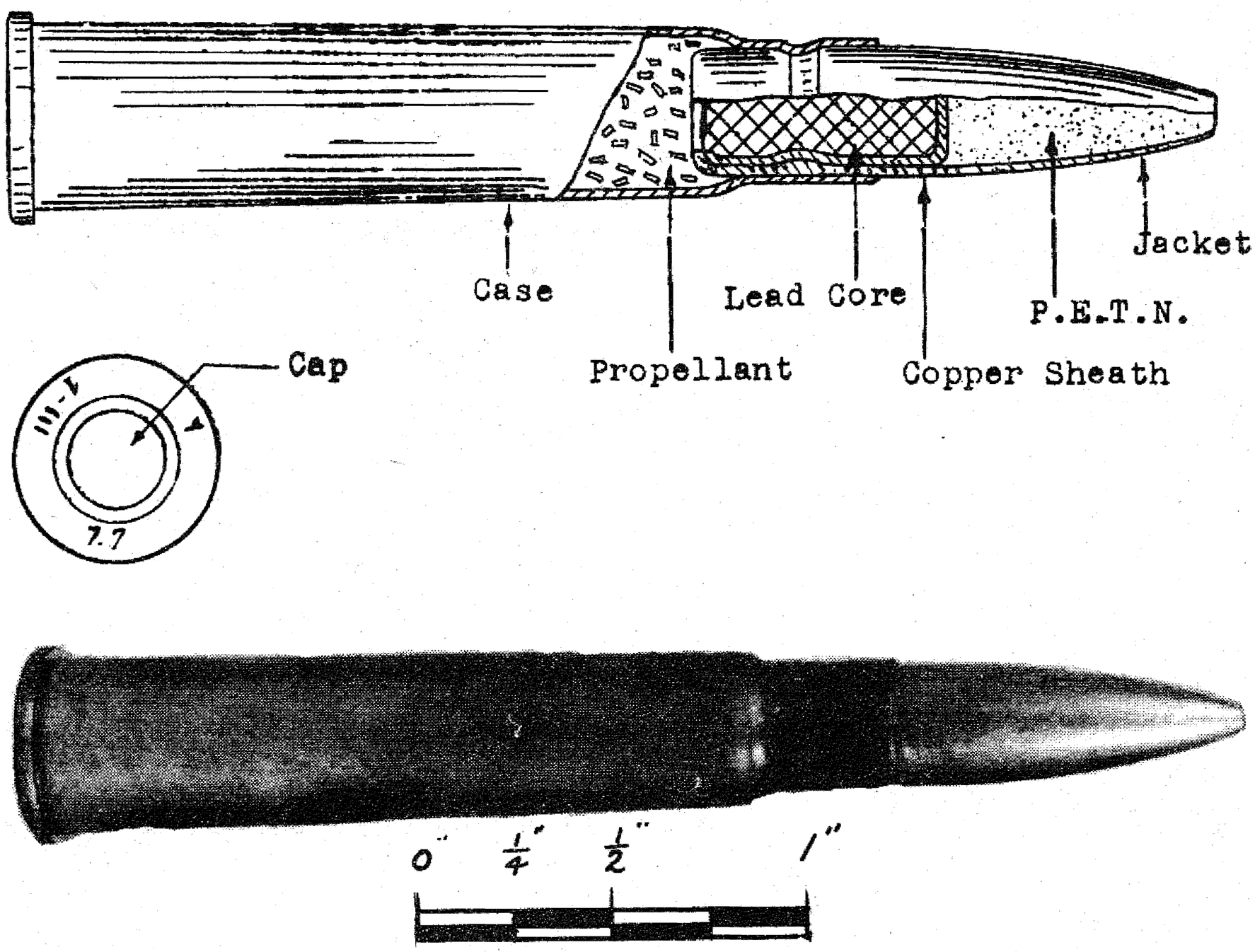
When fired, setback causes the arming collar to move back until the groove on the inner side of the collar is engaged by the stirrup springs of the ferrule. On deceleration, the spring under the arming collar moves the collar up, pulling the ferrule off the shutter. Centrifugal force then moves the shutter out, clearing the flash channel. The flash from the nose time fuze is transmitted by the detonator to the gaine which detonates the projectile.

JAP NAVY PROJECTILES

Source: MEIU #1, Report #54.

JAPANESE 7.7 MM.

EXPLOSIVE ROUND



Description: There are five types of 7.7 mm Navy ammunition. All the rounds are rimmed. The colored primer indicates the type of the round.

Black - Ball
White - A.P.
Red - Tracer
Green - Incendiary (W.P.)
Purple- H.E. (PETN) - Blunt Nose

Remarks: This ammunition is used in Japanese Navy Aircraft. There is no sequence of loading. There is reported from documentary evidence the existence of a H.E.I. (W.P. & PETN) with a maroon colored primer.

SOURCE: MEIU 1

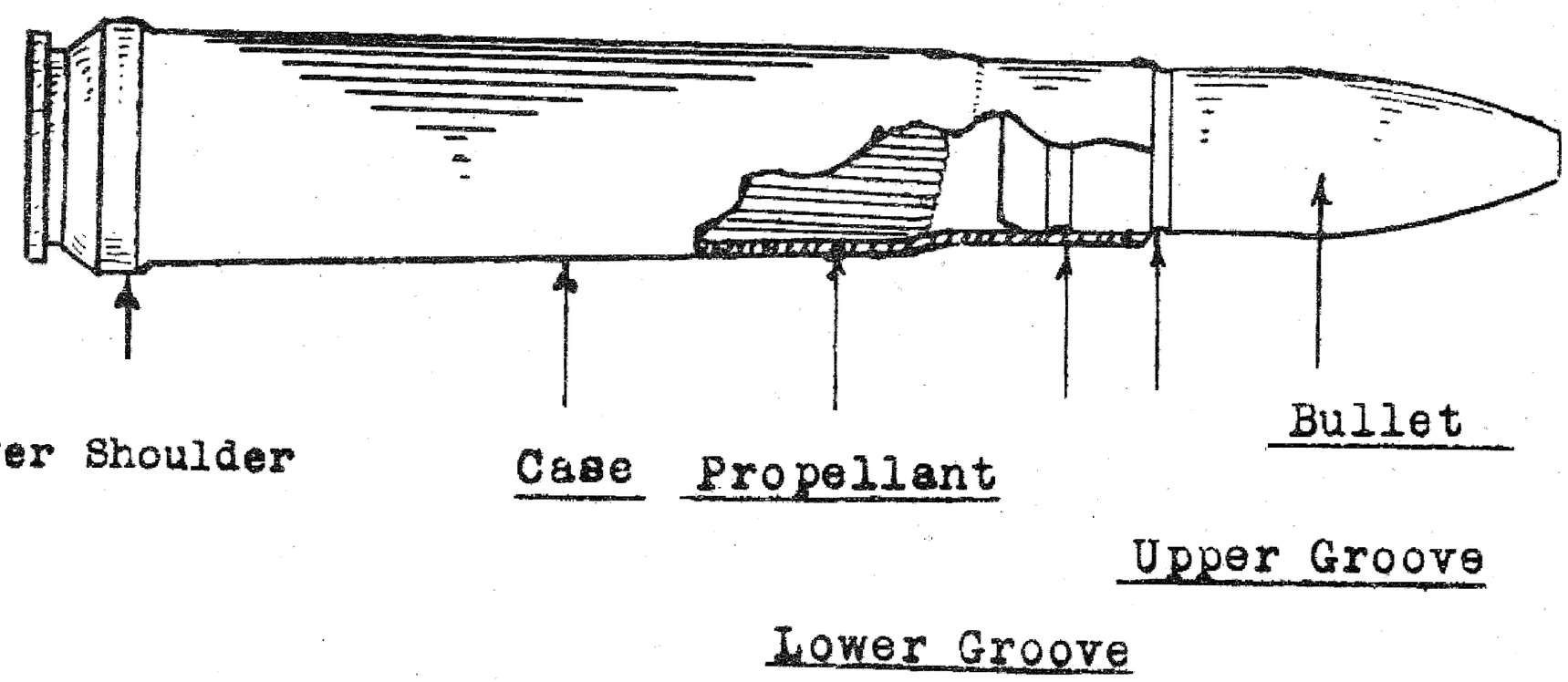
DESCRIPTION: Rimless brass bottle-necked case. Copper-jacketed bullet. The identifying colors around the case primer are as follows:

(a) Ball-------Black
(b) A.P.-------White
(c) Tracer-----Red

14 MM M.G. AMMUNITION

Source: MEIU #1, Report #3.

14 MM AMMUNITION



Description: The bullet is nickel jacketed, not boattailed and slightly over 14 mm in diameter. The after end has two circular grooves. The round recovered is armor piercing. Just forward of the deep extractor recess on the case is a pronounced shoulder.

Color: The primer cap is painted green.

Markings: On the base of the case is stamped "K-47, W11".

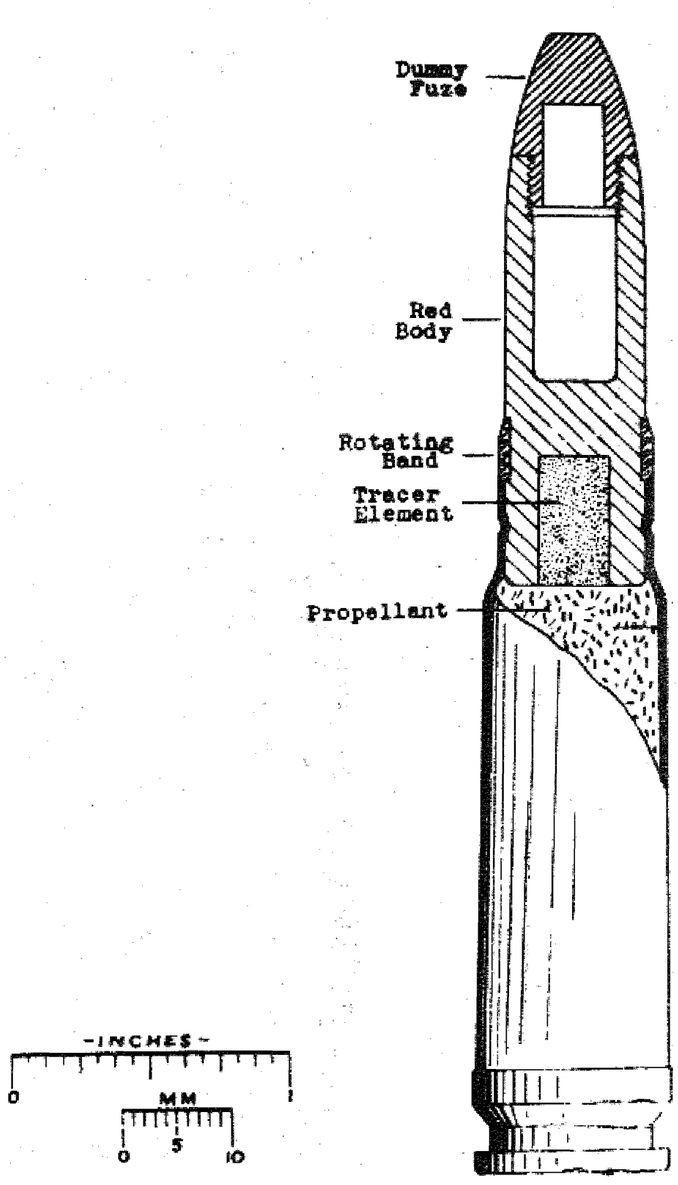
Data:

Length of Projectile (unfuzed): 49.4 mm.
Weight of Projectile: 48 gms.

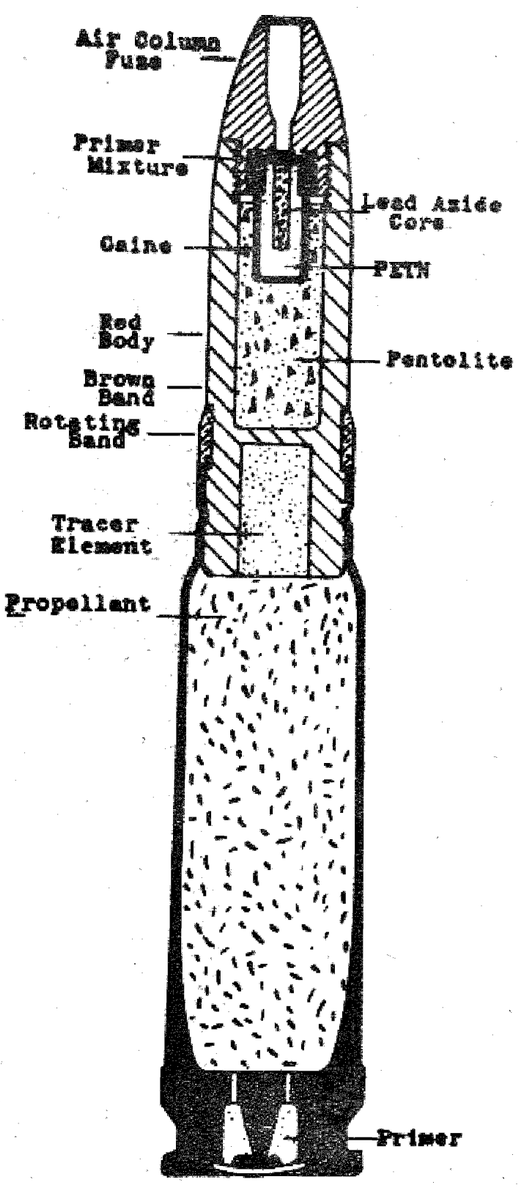
Remarks: This round is believed to be Dutch but used by Japanese aircraft.

Type: For Type 2 Gun.

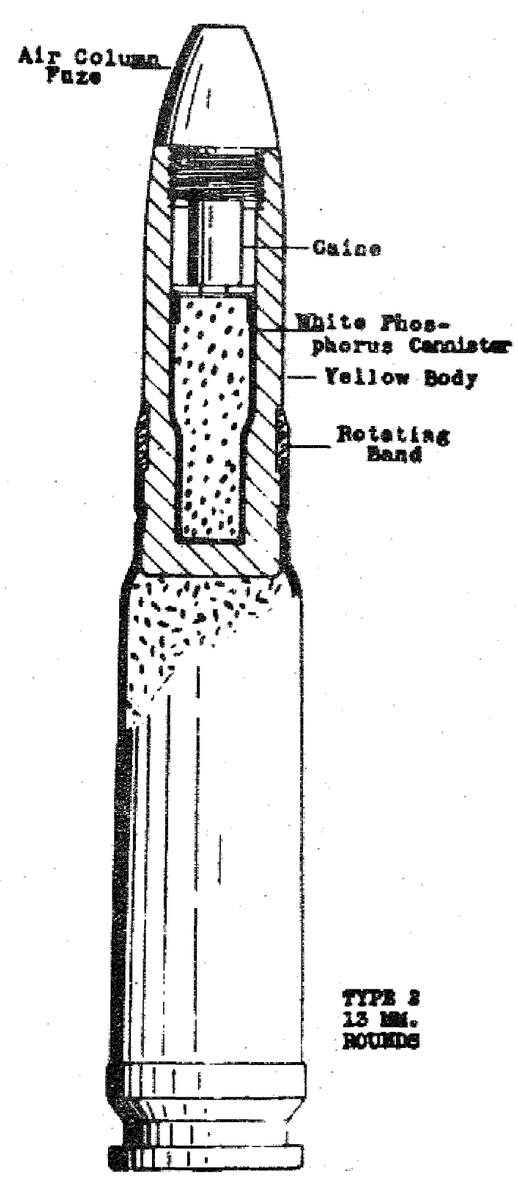
Source: M.E.I.U. #1 R-137.



TRACER



H.E. TRACER



TYPE 2 13 MM. ROUNDS

INCENDIARY

Description:
Tracer Projectile. Has a dummy hollow fuze and empty forward cavity. Base cavity has yellow tracer which has burning time of 4 1/2 seconds.
H.E.T. Projectile. Has air column type fuze and cavity filled with PETN. Base cavity contains yellow tracer.
Incendiary Projectile. Has air column type fuze. Entire cavity is filled with cannister of white phosphorus similar to 25 mm phosphorus cannister.

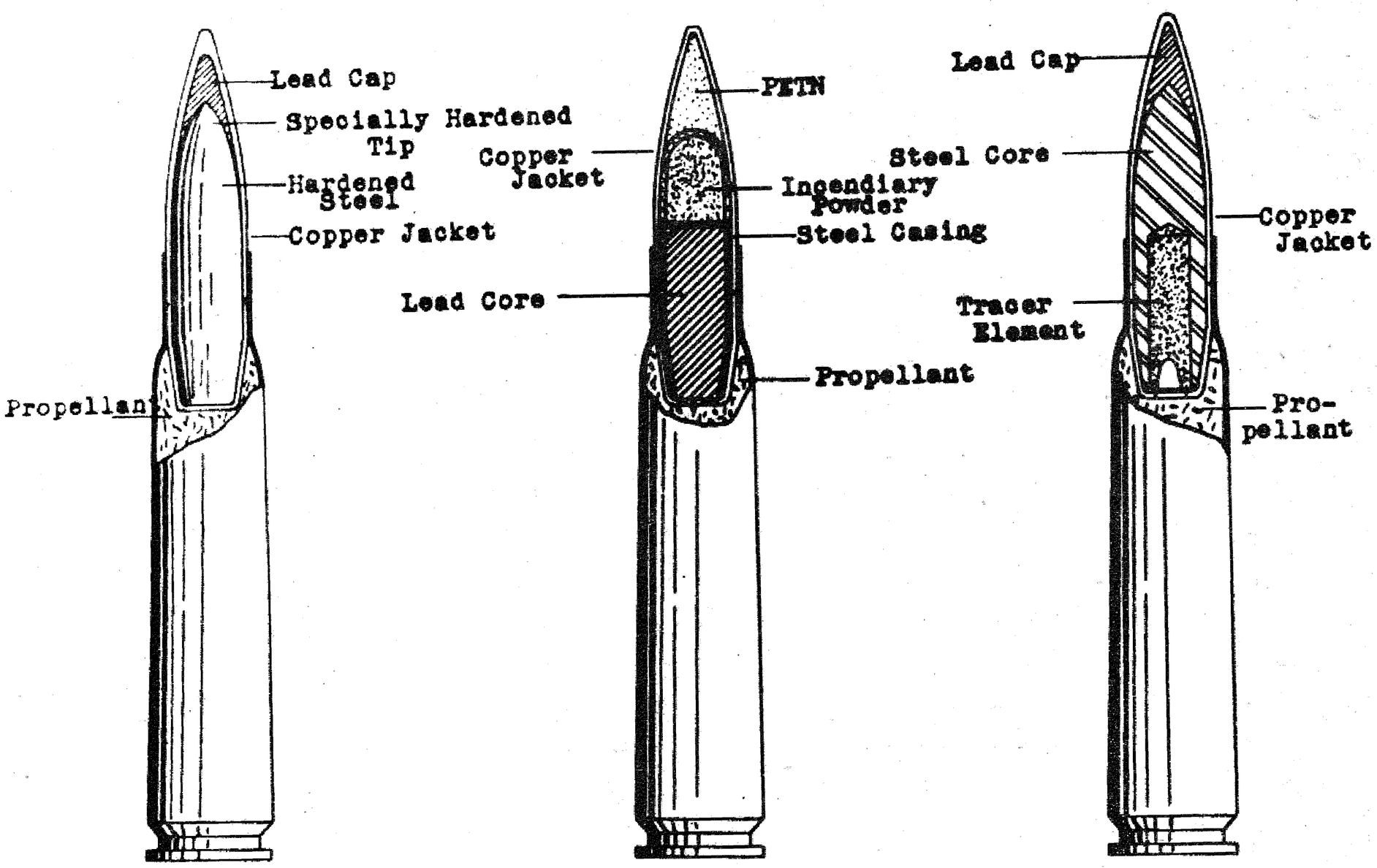
Color: Follows Type 99 20 mm system. Tracer round is red, HET round red with brown band adjacent to and forward of rotating band, incendiary is yellow.

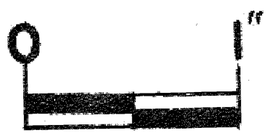
Data:

Lt. of Projectile (unfuzed): 1.6 inches.
Lt. of Case: 2.5 inches.
Guns Used In: Type 2 ACMG.
Wt. of Loaded Projectile: Incendiary 24.3. g
HET 24.6 g Tracer 27.2 g.
Width of Rotating Band: .2 inches.

Type: For Type 3 Gun.

Source: M.E.I.U. #1 R-137.





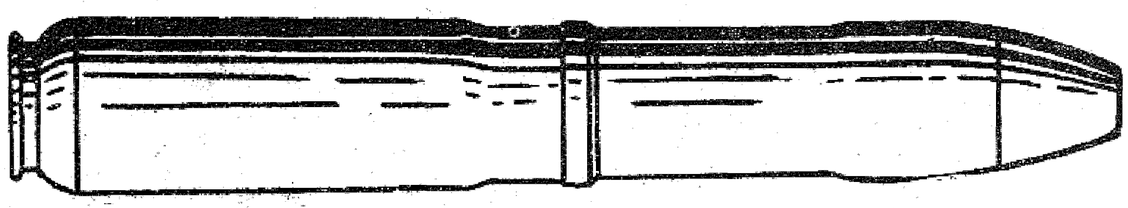
Description: Copper jacketed projectiles with long ogive, shallow single cannelure, and boat-tailed base. They are secured to the case by three (3) short crimps.
Ball Tracer: Has a mild steel case drilled in the base to take an 8-second orange tracer.
A.P.: Hardened steel case with specially hardened point and lead cap.
H.E.I.: Has a slightly flattened tip aft of which is a charge of PETN. A copper section separates the PETN from the grey metalic incendiary mixture. The base is mild steel filled with lead.

Color: Follows 7.7 rimmed system. (Color on primer.) Ball Tracer is red, A.P. is white, and H.E.I. is yellow.

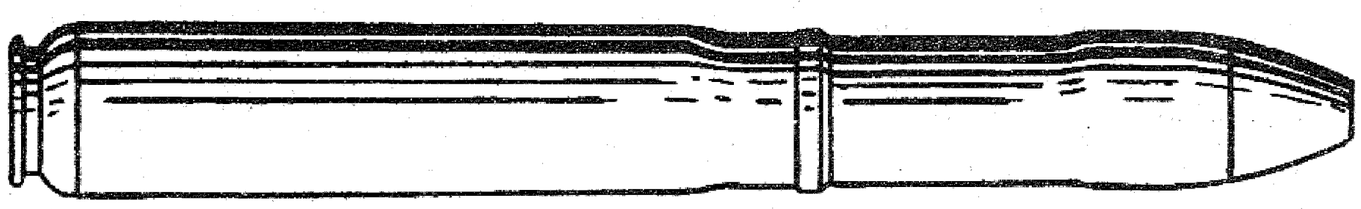
Data:

Guns Used In:	Type 3 ACMG, and Type 93 AAMG.
Lt. of Proj:	AP-23 in., Ball Tracer - 2.4 in, HEI - 2.4 in.
Lt. of Case:	3.9 inches.
Wt. of Proj.:	AP - 51.8 g., Ball Tracer 45 g., HEI - 45.9 g.

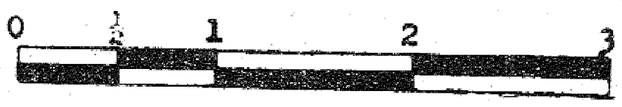
General Description: Two (2) major types of Type 99 ammunition.
Mk. I - Small cartridge case.
Mk. II - Large cartridge case.
Both sizes use same projectiles and fuzes. In Mk. I size there are three (3) Swiss oerlikon manufactured rounds used by Japs. All projectiles are fixed.



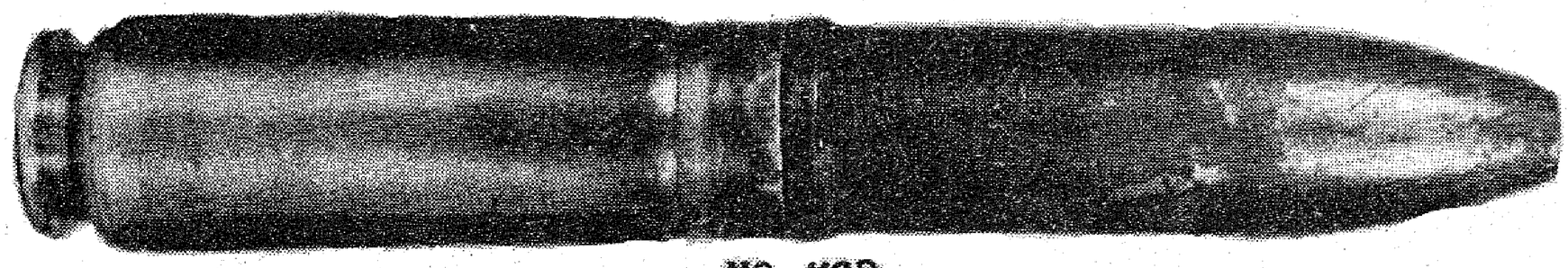
Mark I



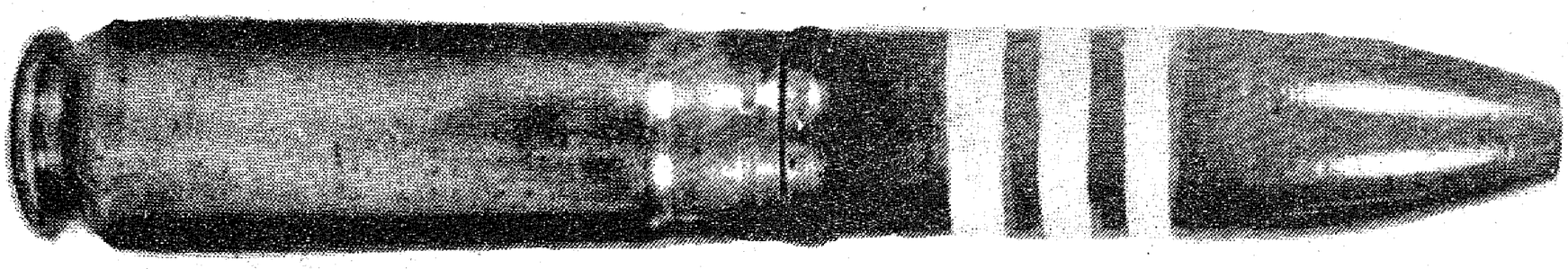
Mark II



Color Scheme: Projectile body painted solid color to indicate type. Modifications are indicated by one, two, or three white bands 5 mm wide or in case of Mod 4, one white band 10 mm in width.



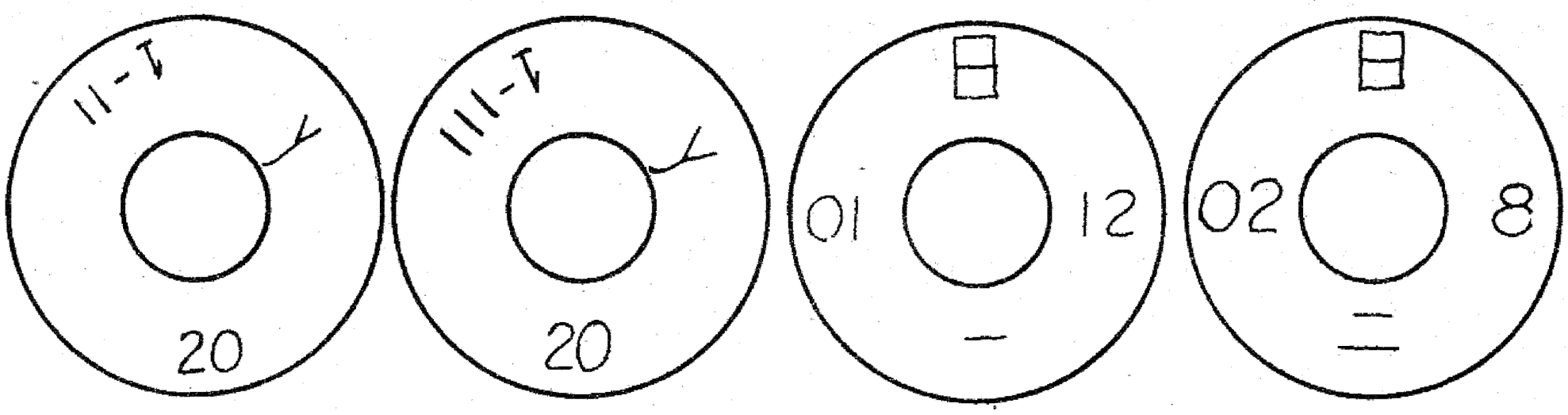
NO MOD.



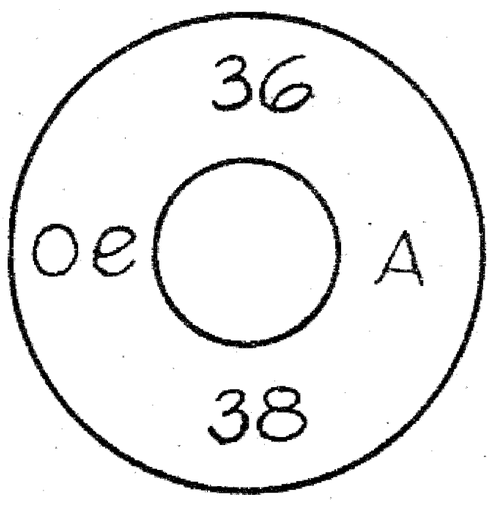
MOD. 3

Case & Propellant: Cases are of drawn brass. Brass precussion caps are pressed in. Markings on cartridge case are stamped into base. These markings distuiguish between Jap and Swiss manufactured rounds.

One of four type markings on Jap Rounds.



On Swiss Rounds only-this type marking



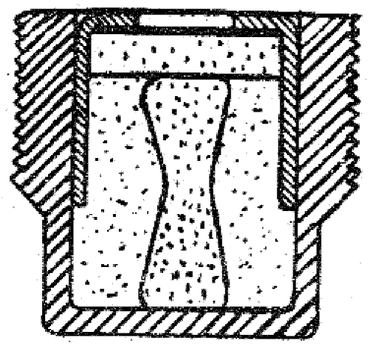
Case Data:

	MK. I	MK. II
Wt. of case	57.0 grams	71.0 grams.
Lt. of case	71.0 mm	101.0 mm.

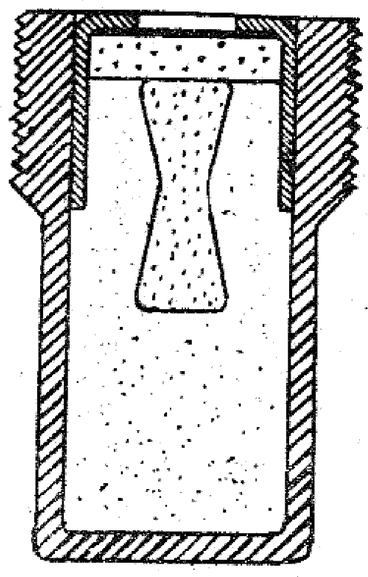
Remarks: Propellant in Jap rounds is cylinderical, single perforated nitrocellulose grains. In swiss rounds the propellant is in form of nitrocellulose flakes.

There are three (3) types of Navy 20 mm Gaines recovered thus far.

A. Explosive Gaines (Type I(a) and I(b))



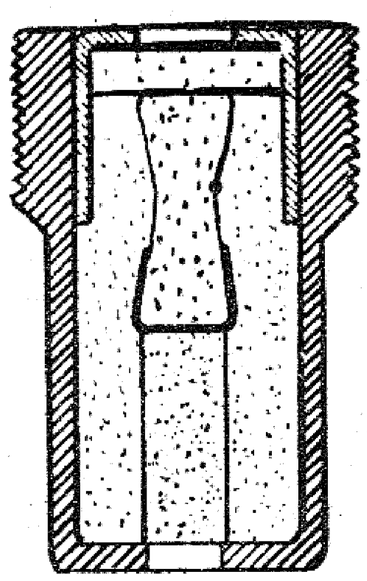
Type IA



Type IB

Main filling PETN with lead azide pellet in center. Above lead azide is primer composition cup pressed into gaine body.

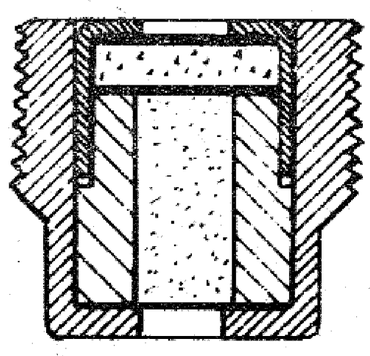
B. Explosive Self-destroying Gaine (Type II)



Type II (SD)

Filling same as Type I. Gaine has flash hole in bottom filled with black powder pellet leading up to lead azide pellet. Lead azide pellet also coated with thin coat of black powder.

C. Incendiary Gaine (Type III)



Type III (Inc.)

Gaine filled with black powder over which is primer cap. Flash hole in bottom of gaine.

Type: Type 99 H.E.

Source: M.E.I.U. #1 Report No. 96.

Description: Steel body. Nose fuzed. Swiss rounds contain slightly more explosive filler than Jap Rounds.

Color: Jap: Brown overall.

Swiss: (a) Yellow overall
(b) Dark brown overall.

Data:

Fuzes: Jap: Type II. Swiss: Type I(b).
Gaines: Jap: Type I(a) Swiss: Type I(b).
Lt. of Projectile (unfuzed): Jap: 82 mm Swiss 82 mm.
Wt. of loaded Projectile: Jap: 126.9 gms. Swiss 124.9 gms.
Type of filling: Penetalite.
Width of Rotating Band: 4.0 mm.

Remarks: Two (2) Jap rounds recovered (no Mod & Mod 2).
Two (2) Swiss rounds recovered (no known difference).
Reported HE Jap round painted overall blue.

Type: Type 99 HET (S.D.)

Source: M.E.I.U. #1 Report No. 96.

Description: Similar to HET. Septum has one perforation which is filled with black powder and connects with 3 black powder pellets leading through the high explosive to hole in bottom of gaine. Gaine has B.P. pellet leading to lead azide pellet.
Two (2) rounds in use. Similar in construction and fuzing.

Color: Jap: Red overall.
Swiss: Black overall.

Data:

Fuzes: Type I(a).
Gaine: Type II.
Lt. of Projectile (unfuzed): Jap: 78.5 mm Swiss - 80 mm.
Wt. of loaded Projectile: Jap: 127.4 gms. Swiss - 126.7 gms.
Type of filling: Pentalite.
Width of Rotating Band: 4.0 mm.

Type: Type 99 HET.

Source: M.E.I.U. #1 Report No. 96.

Description: Steel body. Two (2) cavities separated by steel septum. Upper cavity H.E. Lower cavity Tracer. Solid red usually self-destroying (in one round examined, it was not) in which case septum is perforated. (See HET S.D.).

Color: Overall red with 3 mods.

Data:

Fuzes: Type I(a), I(b) and II.
Gaine: Type I(b)
Type II (for S.D.).
Lt. of Projectile (unfuzed): No Mod & Mod 1 - 78.5 mm.
Mod 2 - 83 mm Mod 3 - 83 mm.
Wt. of loaded Projectile: No Mod & Mod 1 - 127.4 gms.
Mod 2 - 129.2 gms.
Mod 3 - 128.0 gms.
Type of filling: Pentalite.
Width of Rotating Band: 4 mm.

Remarks: Four (4) projectiles known to be in use - Mod 1, Mods 2 and 3 differ from no mod and mod 1 in that they have more explosive and less tracer.

Type: Type 99 HEI.

Source: M.E.I.U. #1 Report No. 96.

Description: Steel body with one cavity. In base of cavity is 5-grams of cast TNT. Directly above TNT is aluminum canister containing 3-grams of W.P. Canister is surrounded by incendiary mixture. Nose fuze has incendiary gaine. Three (3) rounds are known to be in use.
Only slight difference in fuzing and construction.

Color: Overall greenish-yellow.

Data:

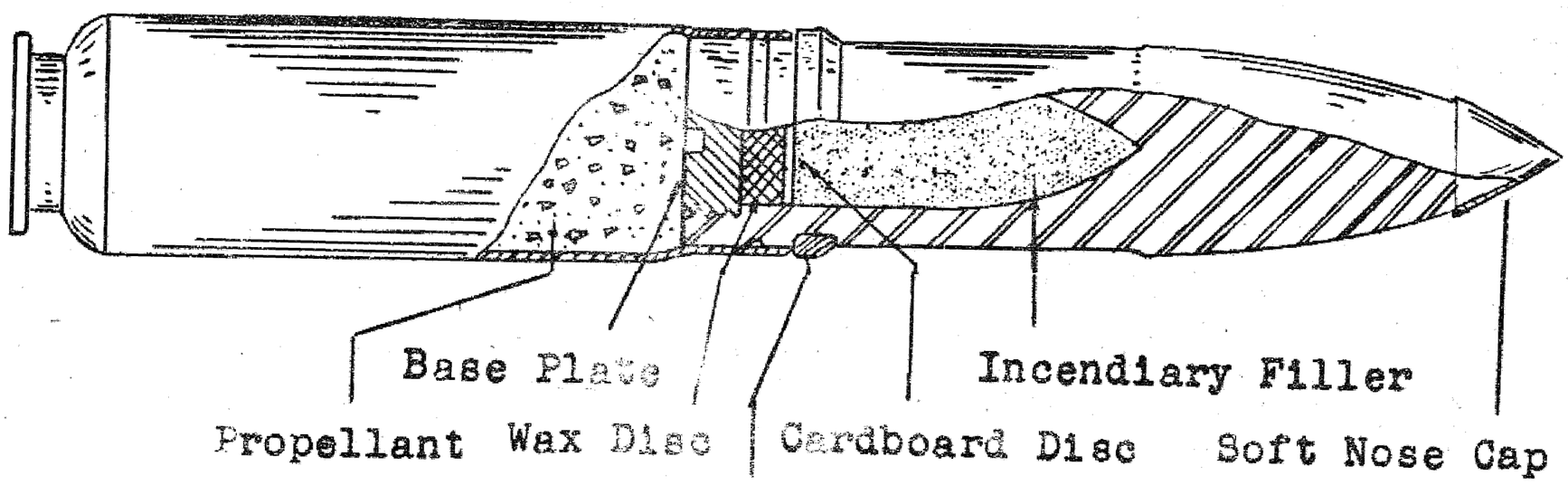
Fuzes: no Mod-Type I(b)
Mod 1 – Type I(b)
Mod 2 - Type III(a) or III(b).
Gaine: Type III.
Lt. of Projectile (unfuzed): 82 mm.
Wt. of loaded Projectile: No Mod - 128.1
Mod 1 - 127.8
Mod 2 - 127.1.
Type of filling: TNT, W.P. and Incendiary mix.
Width of Rotating Band: 4.0

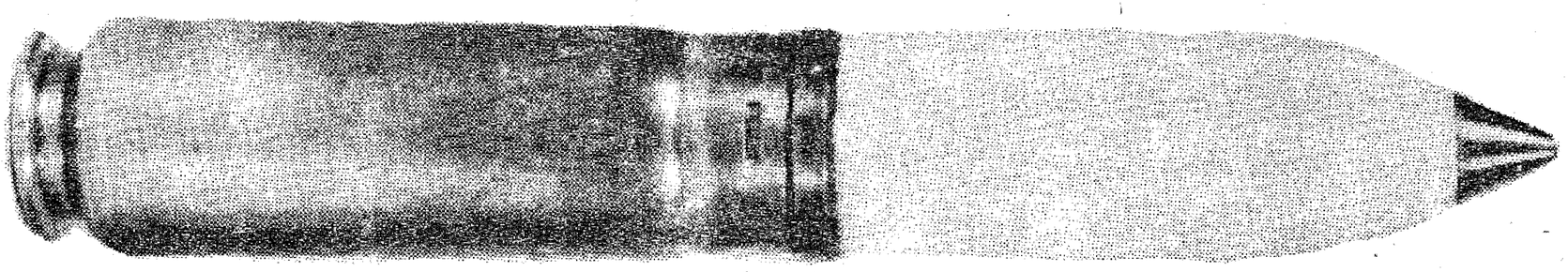
20 MM AIRCRAFT PROJECTILE

Type: Type 91 API.

Source: M.E.I.U. #1 Report No. 96.

20 MM AIRCRAFT ARMOR PIERCING ROUND





Description: Soft copper pointed nose. Loaded through base. Cavity follows external shape of projectile. Between incendiary and base plug is wax plug and cardboard spacer 3/16" in thickness. Incendiary filler is green and silver colored powder.

Color: Overall white.

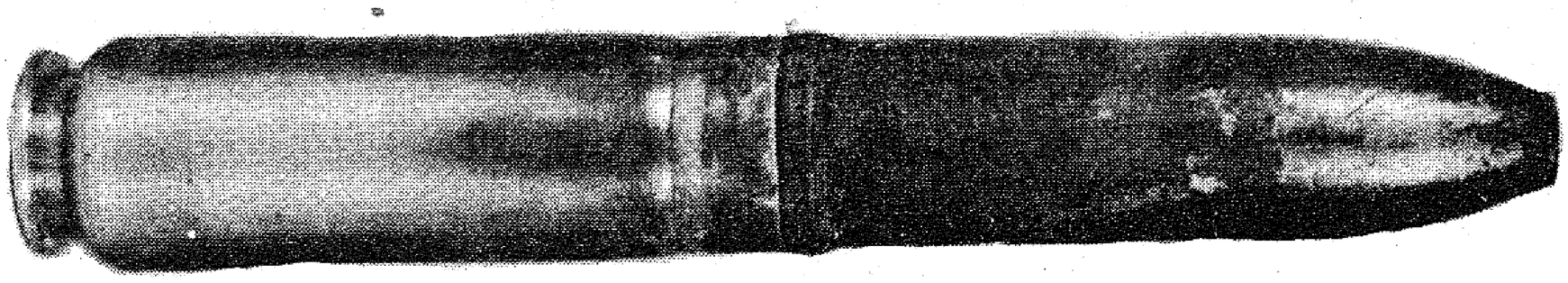
Data:

Lt. of Projectile (unfuzed): 80 mm.
Wt. of loaded Projectile: 131.5 gms.
Width of Rotating Band: 3.0 mm.

Remarks: There is no incendiary ignitor part or fuze in the base. The presence of a soft after end substantiates theory that after section is designed to shear off on passage, through generating sufficient heat to initiate incendiary filling.

Type: Type 99 Tracer.

Source: M.E.I.U. #1 Report No. 96.



Description: Ball type, hollow projectile with long tracer. Blunt nose. Last round loaded in magazine and first fired from gun to break muzzle cover. Two (2) Jap rounds recovered. No mod with 16 second tracer. Mod 2 with 7 second tracer and remainder of cavity being packed with red clay.

Color: Overall red.

Data:

Fuzes: fuzeless.
Lt. of Projectile (unfuzed): 82.0 mm.
Wt. of loaded Projectile: No Mod - 125.9 gms.
Mod 2 - 129.1 gms.
Width of Rotating Band: 4.0 mm.

Remarks: One Swiss round was reported recovered painted overall green.

Type: Type 99 Practice.

Source: M.E.I.U. #1 Report No. 96.

Description: Hollow steel projectile. Approximately same size and weight as fuzed rounds. Cavity closed by base plug.

Color: Black overall.

Data:

Fuzes: fuzeless.
Wt. of loaded Projectile: 123.8 gms.
Width of Rotating Band: 4.0 mm.

General Description: There are two general types of projectiles differing principally in length and the presence (Type 1) or the absence (Type II) of a tracer element. Type 1(unfuzed) is 85 mm long; Type II(unfuzed) is 90 mm long. All projectiles have two rotating bands, the case being crimped over the after band.

The armor piercing round recently recovered is an exception to the above classification.

Projectile Filling: The projectiles are generally filled with standard size cast T.N.T.-Aluminum powder pellets. There are seven types of pellets. Pellets 1,4 & 5 have holes cast in them to receive the gaine of the nose fuze. Pellet 6 has a core of black powder for use in the self-destroying round. Pellet 7 is a metal container of white phosphorous. Pellets 2 and 3 are solid cylindrical blocks.

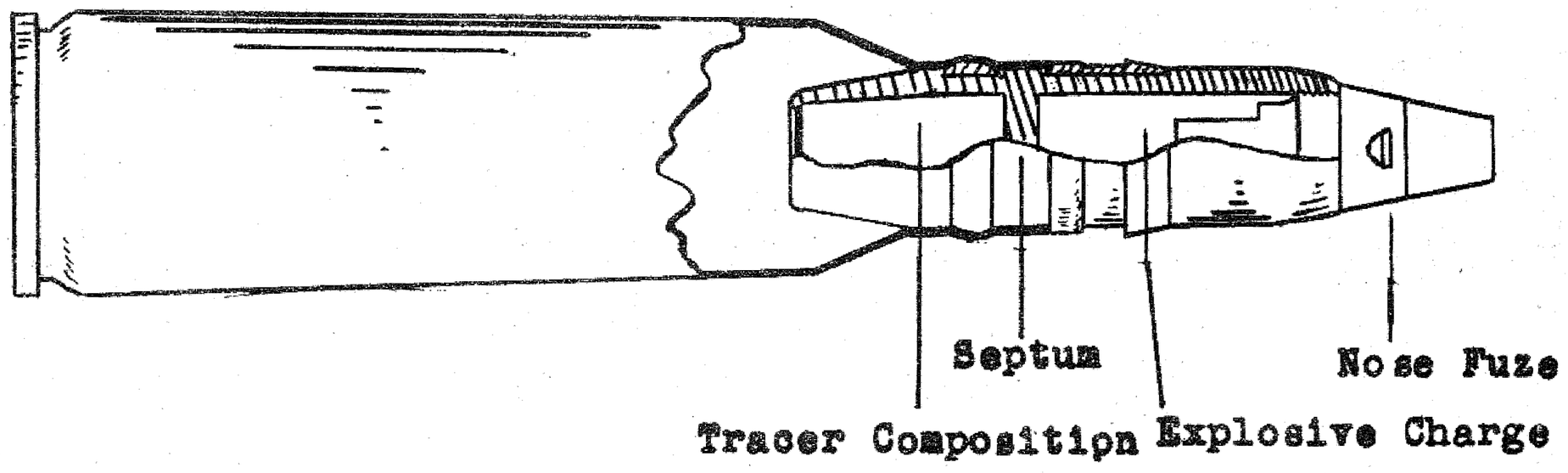
Case: The case may be made of steel or brass and will be bottle-necked with deep extractor grooves.

The length of the case is 161 mm.

Type: Type I, Tracer, ordinary (HET)

Source: MEIU #1, Report 74.

25 MM H.E. PROJECTILE



Description: The filling consists of pellets 1, 2, or 3. This round may also be a self-destroying round in which case the filling will consist of pellets 5 and 6. The septum between the H.E. and the tracer will have one perforation in the self-destroying round.

Color: Red overall with possibly a green band around the nose.

Fuzes: Model 1 or Model 4.

Data:

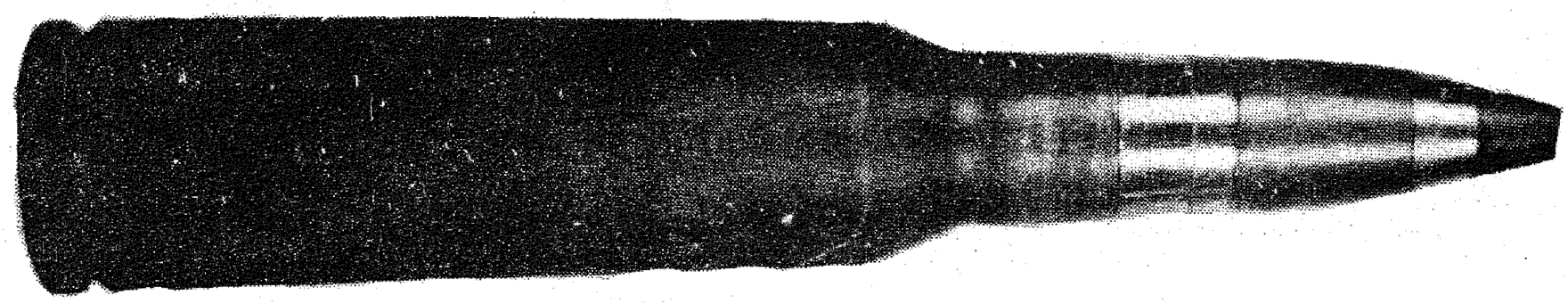
Length of Projectile:	110 mm (fuzed)
Weight of Projectile:	Model I (fuzed) 243 gms.
	Model 4 (fuzed) 240.6 gms.
Type of filling:	T.N.T.-Aluminum.

Remarks: There is no external evidence to indicate the self-destroying round.

Type: Type I, Tracer, ordinary (HET).

Source: MEIU #1, Report #74.

25 MM H. E. PROJECTILE



Description: The high explosive and the tracer are separated by the septum. The H.E. consists of pellets 1,2, and 3. A few rounds have been found with a cast tetryl filling.

Color : Orange overall with possibly a green band.

Fuzes: Model 1 or Model 4.

Data:

Length of Projectile:	110 mm (fuzed).
Weight of Projectile:	Model 1 (fuzed) 246.0 gms.
	Model 4 (fuzed) 243.6 gms.
Type of Filling:	T.N.T.-Aluminum powder.

Remarks: The only discernible difference between the two types of HET is the weight of the projectile.

RESTRICTED 25 MM ANTI-AIRCRAFT PROJECTILE

Type: Type II, projectile, ordinary (H.E.)

Source: MEIU #1, Report #74.

Description: Conventional type II projectile with cast filling.

Color: Maroon overall with possibly a green nose band.

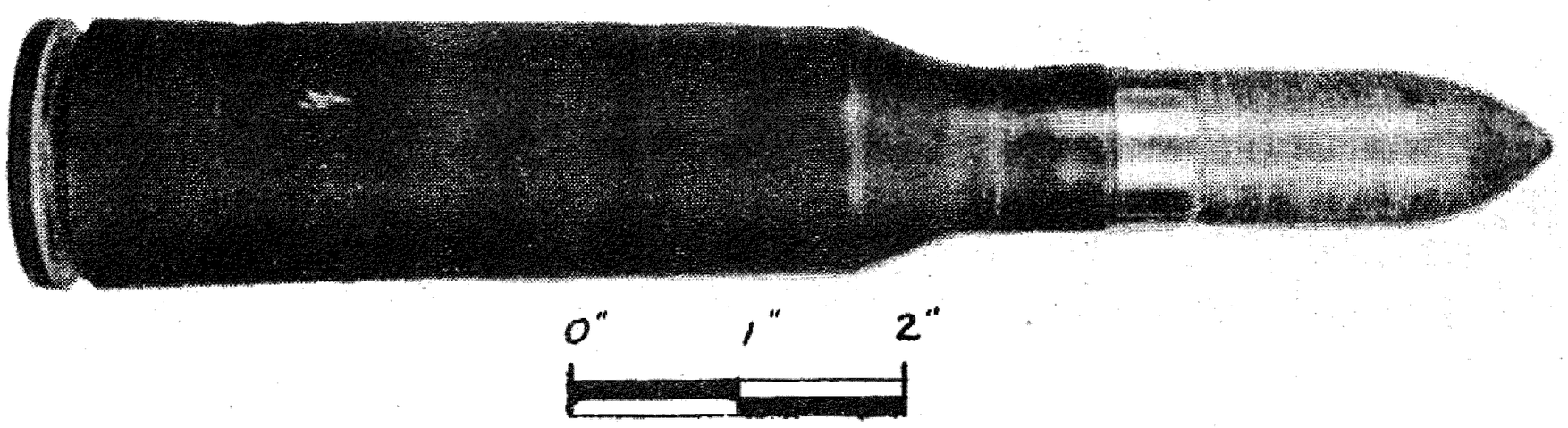
Fuzes: Model 1 or Model 2.

Data:

Length of Projectile:	114 mm (fuzed)
Weight of Projectile:	Model 1 (fuzed) 252 gms.
	Model 2 (fuzed) 249.5 gms.
Type of filling:	T.N.T.-Aluminum powder, T.N.T. or Tetryl.

Type: APT

Source: MEIU #1, Report #74.



Description: The projectile has a sharp ogival nose and is fitted into a standard case. The rotating band is one wide copper band having a forward and after bearing surface. The groove between the bearing surfaces affords anchorage for the case crimp. All other known 25mm projectiles have two separate rotating bands. A cavity in the base of the projectile contains an inert filling behind which is a tracer element.

Color: Overall black with a white nose tip and a white band painted forward of the rotating band.

Data:

Weight of projectile:	284 grams
Length of projectile:	100 mm.
Type of filling:	Inert.

Type: Type II, Incendiary, ordinary (HEI)

Source: MEIU #1, Report #74.

Description: The projectile is loaded with pellets 4 and 7.The explosive cavity is shaped to fit the white phosphorous container. The nose fuze explodes pellet 4 which scatters the phosphorous over a large area.

Color: Green overall.

Data:

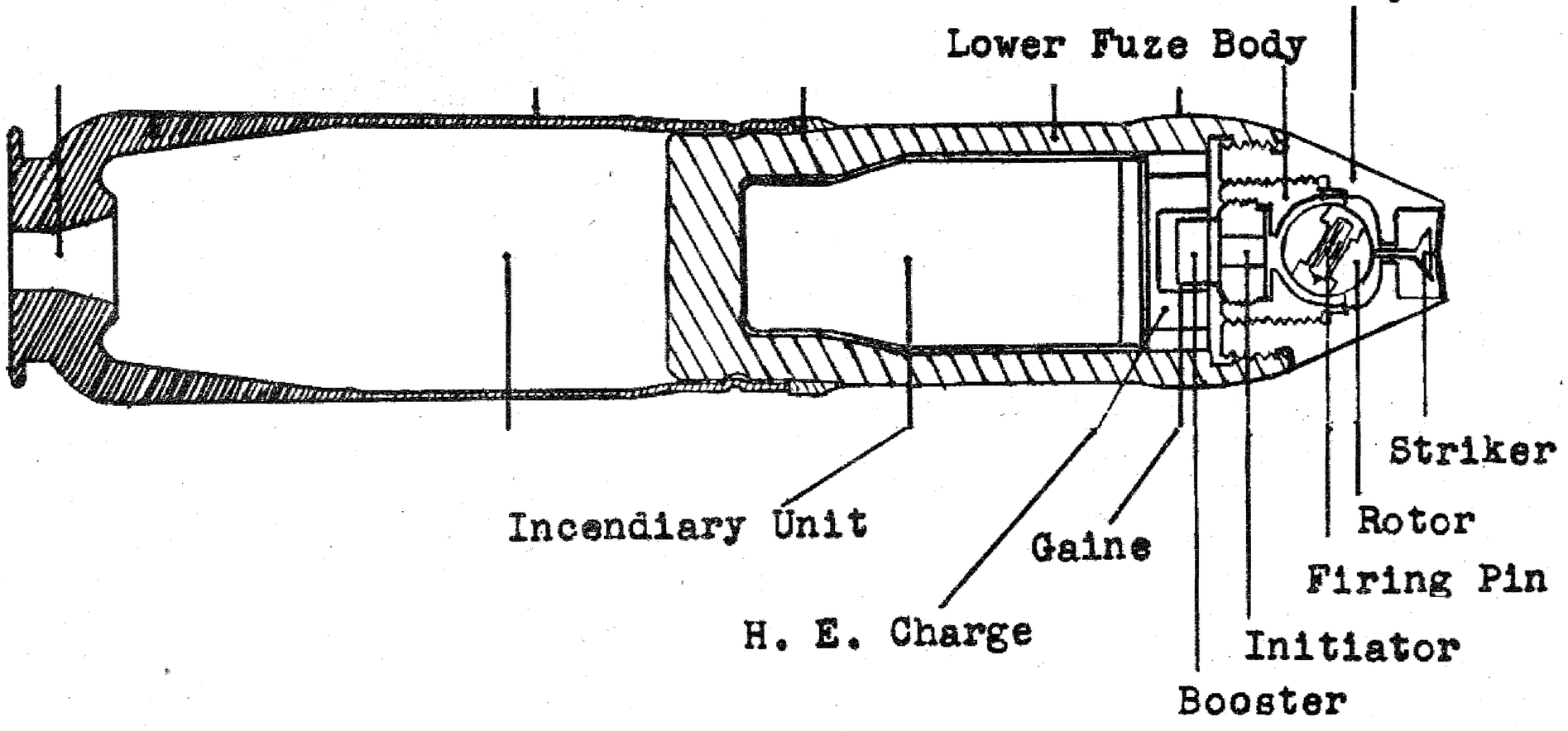
Fuzes:	Model 1 or Model 4
Weight of Projectile:	Model 1 - 254.5 gms. Model 4 - 252.0 gms.
Type of filling:	T.N.T.-Aluminum powder and W.P.
Length of Projectile:	114 mm (fuzed).

30 MM AIRCRAFT PROJECTILE

Type: H.E. Incendiary.

Source: M.E.I.U. #4 Report No. 7.

NAVY 30MM AIRCRAFT CANNON PROJECTILE



Description: Fixed ammunition. Follows Oerlikon design of Japanese Navy 20 mm A.C. Short brass case slightly necked. The one-piece projectile contains only one cavity. The H.E. is surrounded by cardboard below which is contained the W.P. in a metal container.

Color: Greenish-yellow overall. Apparently follows same marking code as Japanese Navy 20 A.C.

Data:

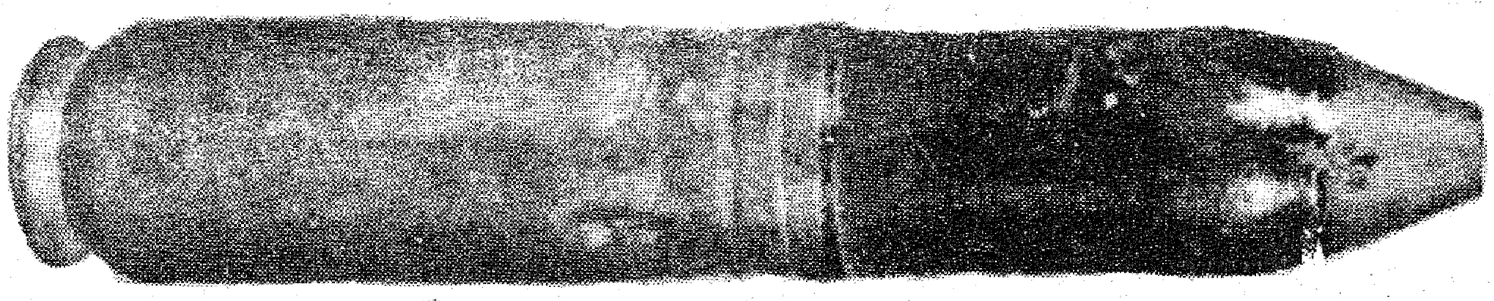
Gun Used in: 30 mm A.C.
Overall Lt.: (fuzed) 167 mm.
Lt. of Case: 91 mm.
Fuzes: Similar to Navy 20 mm Type II.
Lt. of Projectile (unfuzed): 72 mm.
Type of Filling: Pentalite (?) and W.P.
Wt. of Rotating Band: 6 mm.

Remarks: Red projectile (H.E. tracer) reported from Saipan.

30 MM AIRCRAFT PROJECTILE

Type: Blind loaded.

Source: M.E.I.U. #4.



Description: Projectile body and case same in appearances as HEI. Replacing and resembling the fuze, in contour, is a hollow steel piece which threads into projectile.

Color: Projectile black. Nose piece red.

Data:

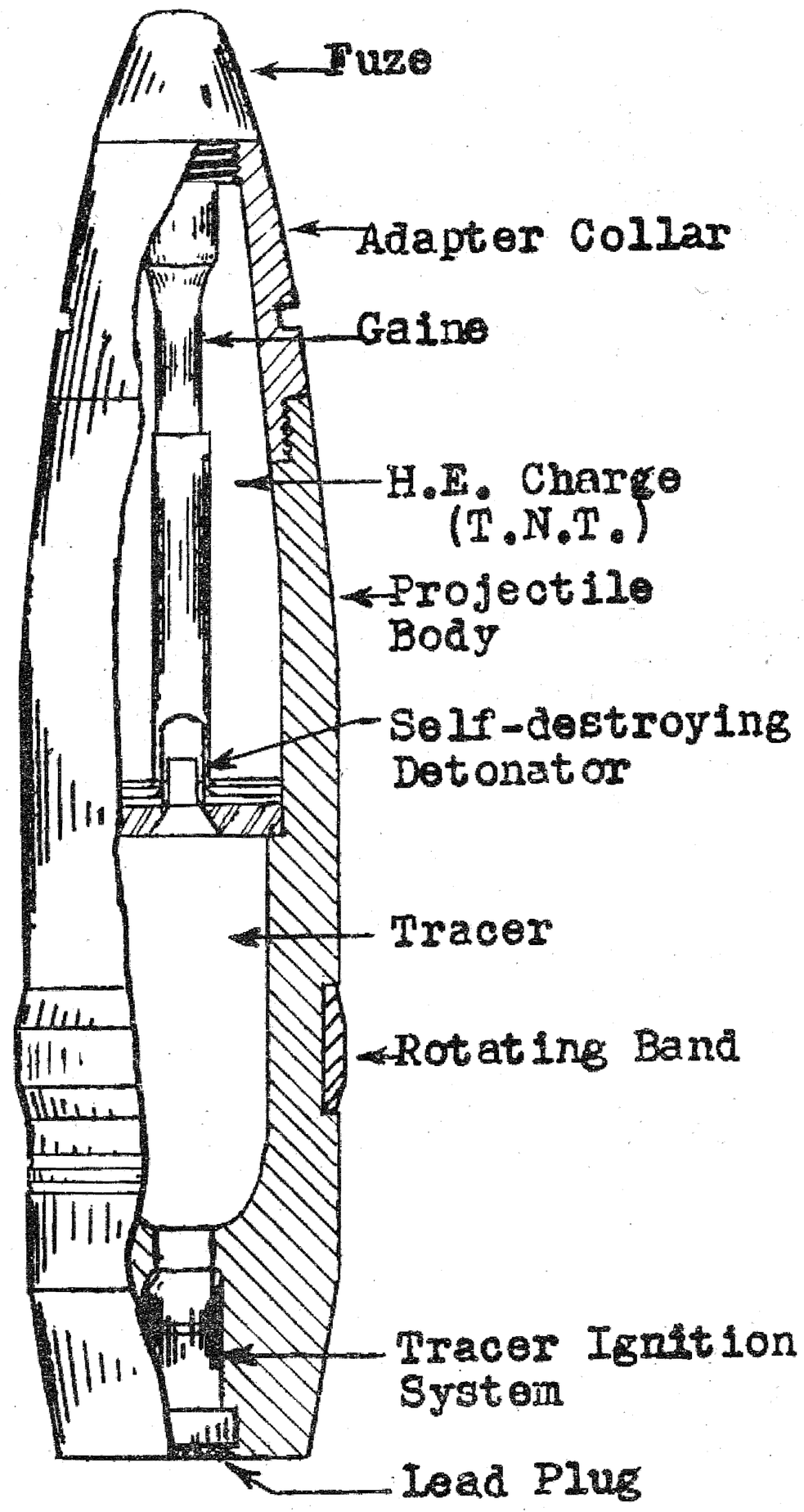
Gun Used in: Same as HEI.
Lt. of Projectile (unfuzed): Same as HEI.
Wt. of Rotating Band: Same as HEI.

Remarks: Believed to be used as first round in magazine to clear gun bore, in event muzzle covering was not removed.

Type: 40 mm Dutch Bofor Self-Destroying.

Source: M.E.I.U. #1 Report No. 59.

40 M.M. DUTCH BOFOR SELF-DESTROYING PROJECTILE



Description: Similar to U.S. Navy 40 mm projectile. Copper rotating band slants forward and aft. Two (2) grooves aft of rotating band to receive crimp. Base of projectile boat-tailed H.E. and Tracer charge separated by thin disc which carries primer for self-destroying feature. The projectile carries an adapter ring.

Color: Yellow from rotating band to nose fuze.

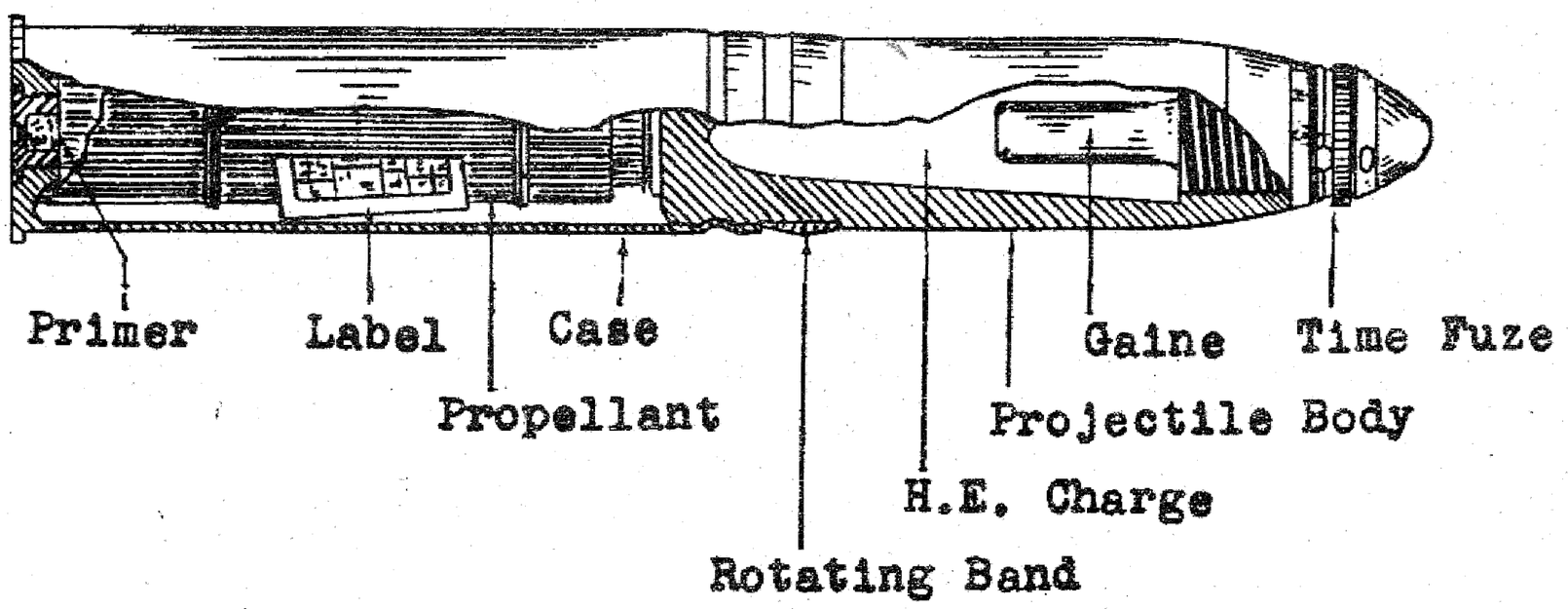
Data:

Gun Used In: 40 mm Bofor.
Overall Lt.: 178.5 mm.
Lt. of Case: 310.0 mm.
Fuzes: 40 mm Point Detonating.
Lt. of Projectile (unfuzed): 164 mm.
Wt. of loaded Projectile: 1004.5 grams.
Type of filling: Pressed TNT.
Width of Rotating Band: 16 mm.

Type: H.E. A.A.

Source: M.E.I.U. #1 Report No. 37.

JAPANESE 40 MM - A.A. H.E. ROUND



Description: One piece steel construction. Solid base integral with projectile. Has a deep cannelure around after end for case crimp. Has wide rotating band, which slopes off tangent to projectile wall both fore and aft.

Color: Maroon with 12 mm green band around ogive.

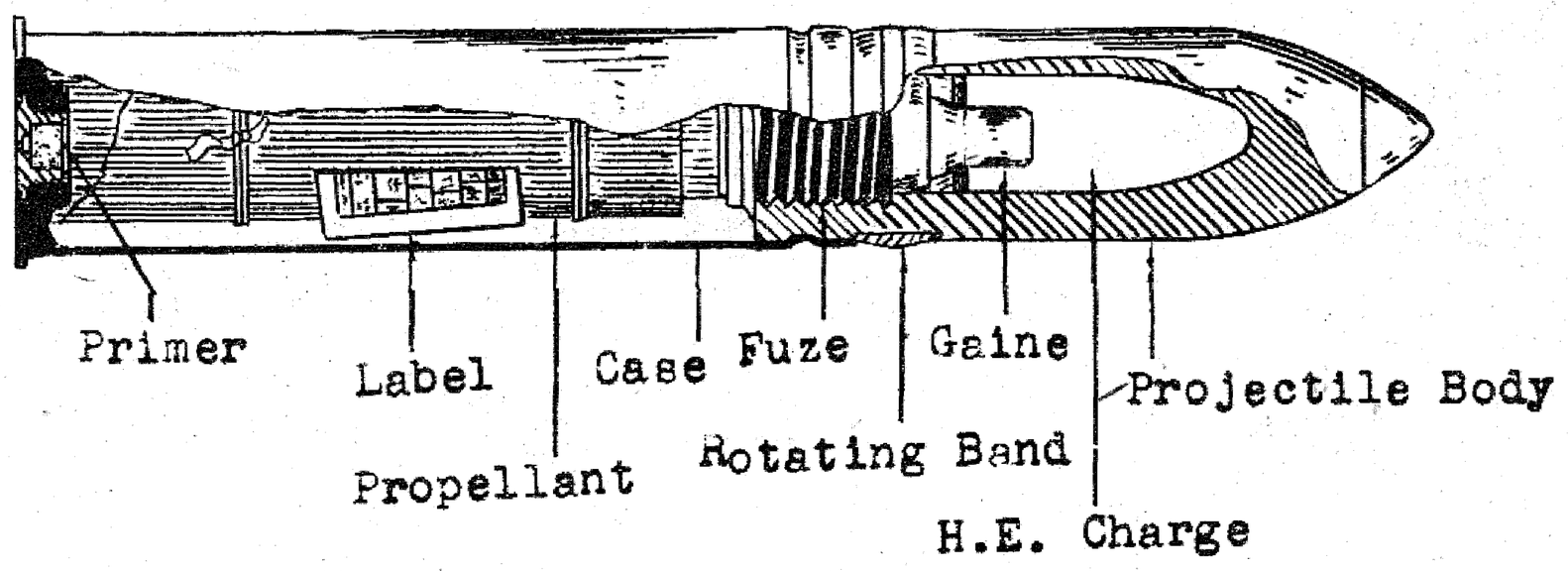
Data:

Gun Used In: Vickers-Armstrong.
Overall Lt.: 160 mm.
Lt. of Case: 116.5 mm.
Fuzes: Time fuze (only).
Lt. of Projectile (unfuzed): 130 mm.
Wt. of loaded Projectile: 1279.3 grams.
Type of Filling: Cast TNT.
Width of Rotating Band: 16 mm.

Type: A.P.

Source: M.E.I.U. #1 Report No. 37.

JAPANESE 40 MM - A.P. ROUND COMPLETE



Description: The projectile is of forged steel having a small H.E. cavity and a pointed nose. Very small difference in diameter of bourrelet and remainder of projectile.

Color: White with green tip.

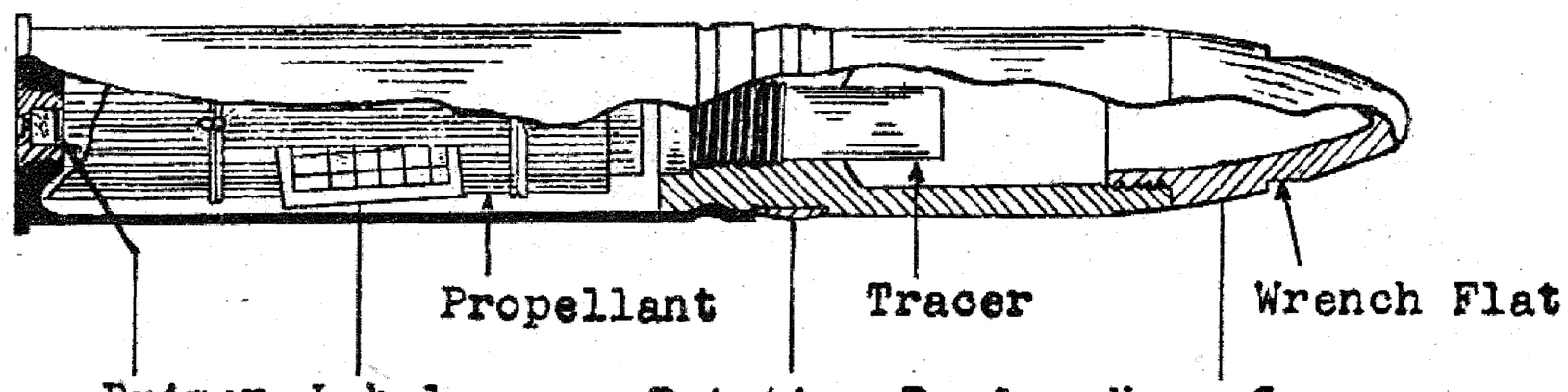
Data:

Gun Used In: Vickers-Armstrong 40 mm.
Overall Lt.: 133.0 mm.
Lt. of Case: 156.5 mm.
Fuzes: Base detonating.
Lt. of Projectile (unfuzed): 105.5 mm.
Wt. of loaded Projectile: 898 grams.
Type of filling: Cast TNT.
Width of Rotating Band: 16 mm.

Type: Empty Round (With Tracer).

Source: M.E.I.U. #1 Report No. 37.

JAPANESE 40 M.M. ROUND EMPTY



Description: Similar in shape to 40 mm A.A. type. The nose, of solid construction with 2 large wrench flats, screws into the projectile body just forward of bourrelet with right hand thread. The inside is lacquered. Tracer element screwed into base with left hand thread.

Color: Orange overall.

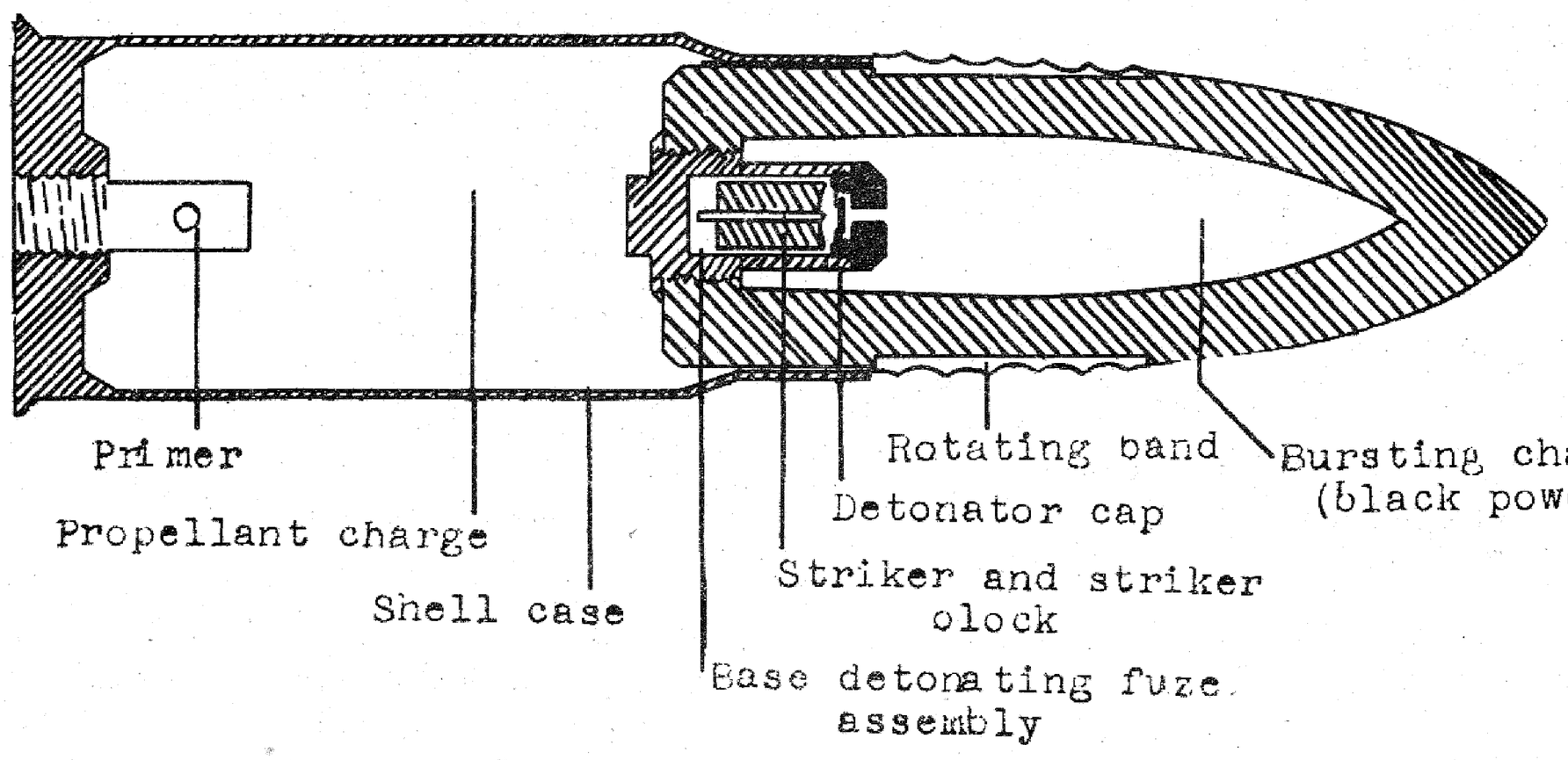
Data:

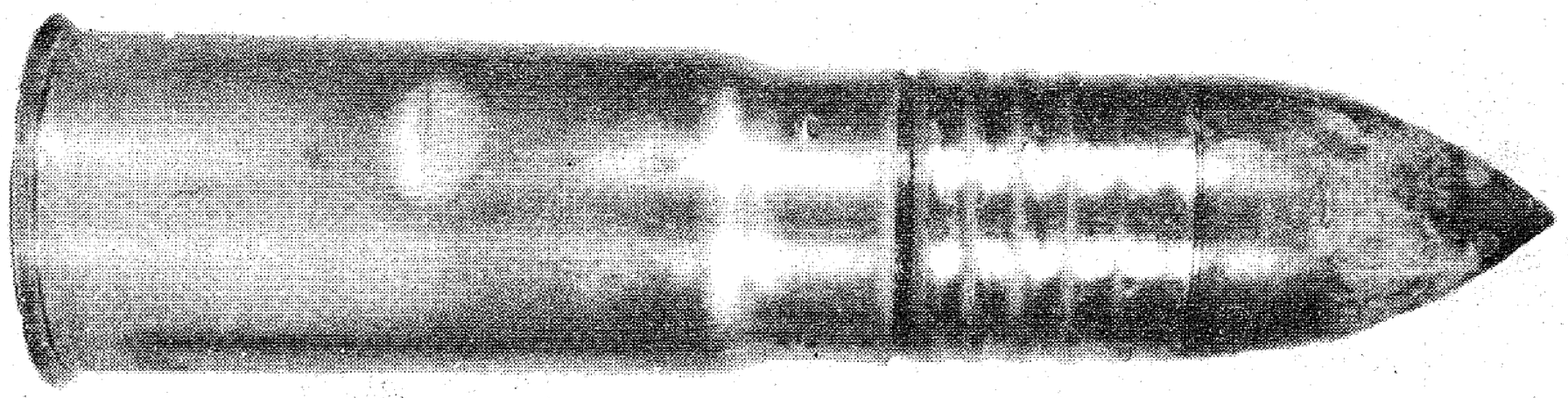
Gun Used In: Vickers-Armstrong.
Overall Lt.: 168.0 mm.
Lt. of Case: 156.5 mm.
Lt. of Projectile (unfuzed): 103 mm.
Wt. of loaded Projectile: 1111.5 grams.
Type of filling: ? Possibly C.W. or Incendiary.
Width of Rotating Band: 16 mm.

5 CM COMMON PROJECTILE

Source: M.E.I.U. #4 Report No. 9.

JAPANESE 50mm NAVY HE PROJECTILE







Description: Of one piece construction with one large bursting cavity. Has wide rotating band. Case is short rimmed, natural brass.

Color: Red forward of rotating band with a 2.5 cm green band around nose if H.E. filled.

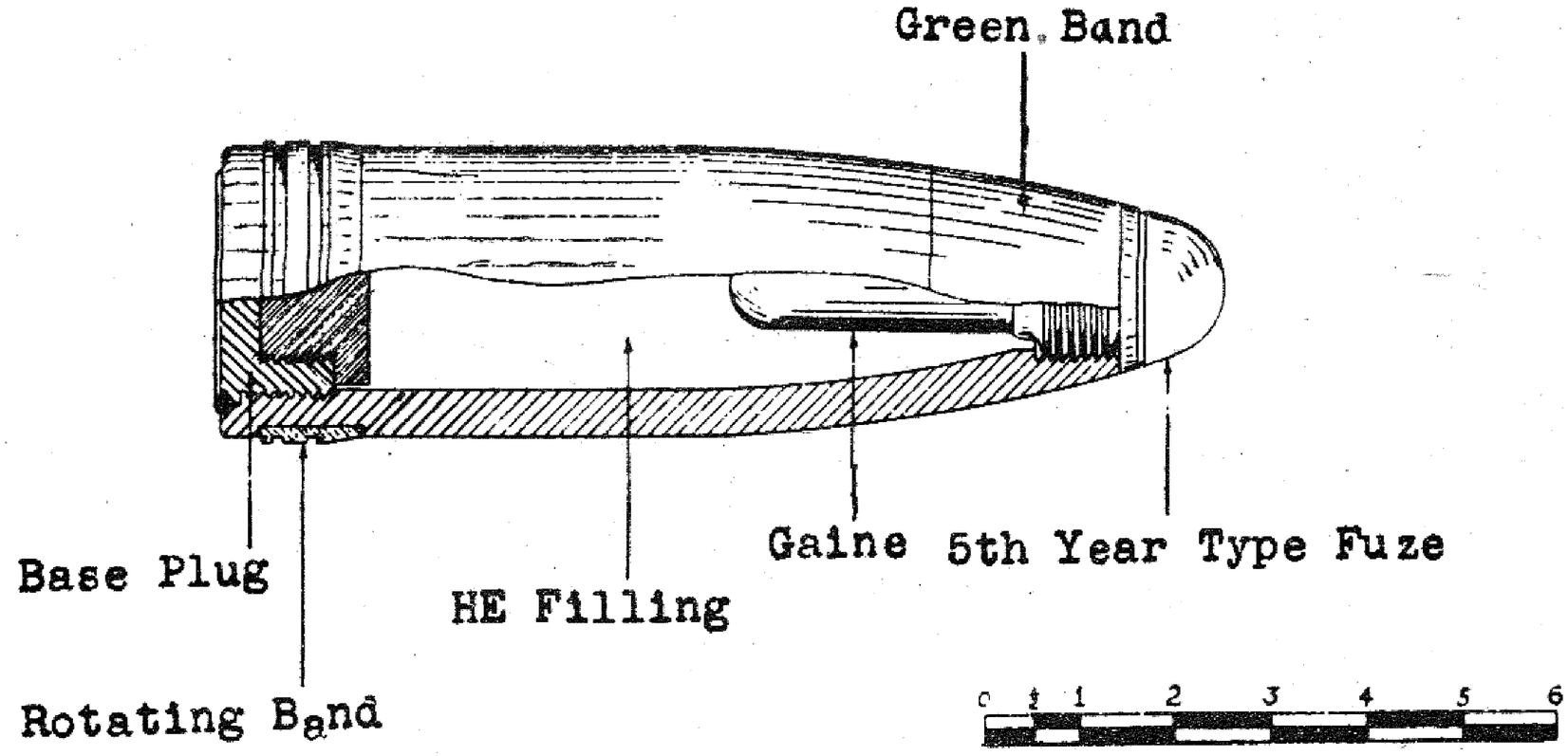
Data:

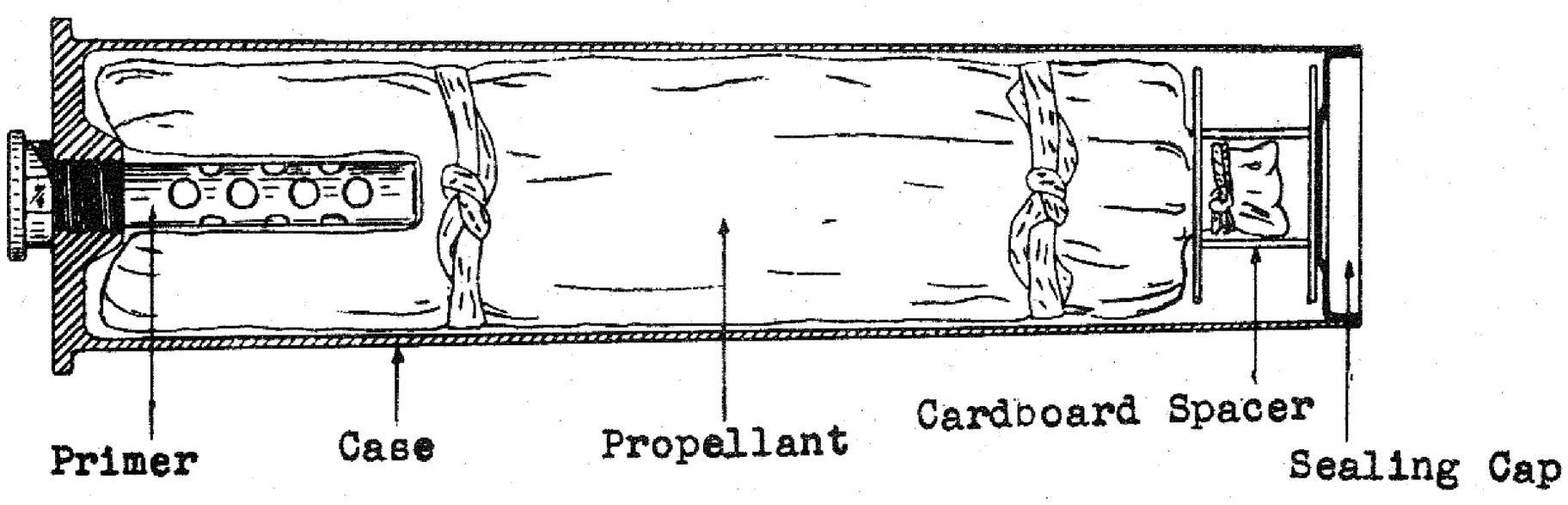
Gun Used In: Short 5 cm.gun.
Overall Lt.: 23.5 cm.
Lt. of Cast: 13.1 cm.
Fuzes: Base Detonating, armed on set-back.
Width of Rotating Band: 4.3 cm.

Type: 8 cm Semi-fixed.

Source: M.E.I.U. #1 Report No. 102.

JAPANESE NAVAL 8 CM. SEMI-FIXED AMMUNITION





Description: Of usual design, but bourrelet difficult to observe. Slightly increased width fore and aft of rotating band. Copper rotating band has grooves, but lacks high lip of 12 cm. round. Soft copper gas check in between internally threaded base plug and projectile wall.

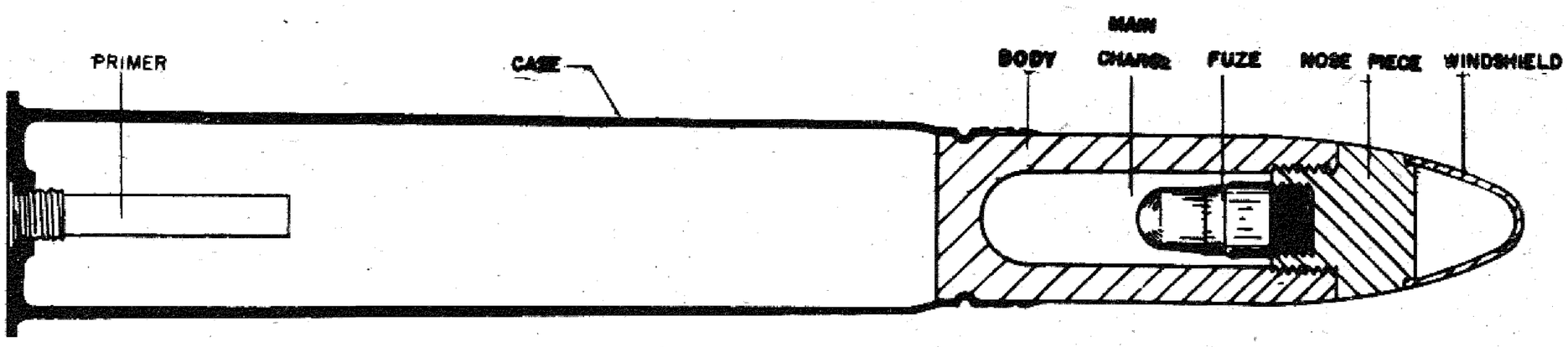
Color: Maroon Overall with a 52 mm wide green band painted around nose at ogive denoting H.E. filled. No center of gravity band.

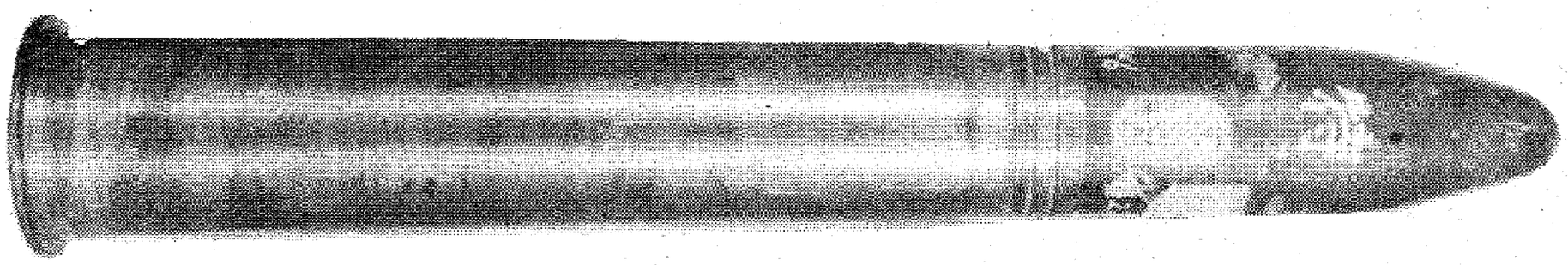
Data:

Gun Used In: 40 Cal., 8 cm Mk. 2.
Overall Lt.: 370 mm.
Lt. of Case: 381. mm.
Fuzes: 5th Year Nose Impact Fuze.
Lt. of Projectile (unfuzed): 240 mm.
Wt. of loaded Projectile: 5.21 kg.
Type of Filling: Cast Picric Acid.
Width of Rotating Band: 78.5 mm.

Type: Special Common Projectile.

Source: M.E.I.U. #4 R-62.





Description: This projectile in charge weight-ratio resembles the U.S. Navy special common projectile, but it is called A.P. by the Japanese. There are three (3) parts: (1) The nose cap or windshield is a light, hollow, dome-shaped metal piece. (2) The nose piece is a solid piece of high grade steel. The after end of which is threaded externally (R/H) to fit into the projectile body and internally (L/H) to receive the fuze. The fuze is thus entirely enclosed within the projectile body. The forward end of the nose piece is flat. The after or main projectile body is made of high grade steel and houses the H.E. charge. The rotating band is the same as that found on page 110. Into the projectile body aft of the rotating band is machined a crimp groove. This is a fixed round.

Color: Maroon overall above rotating band and unpainted below the rotating band. 1 3/4" of nose tip is painted green.

Data:

Gun Used In: 10th Year Type 40 cal 8 cm Dual Purpose.
Lt. of Case: 16 1/16 inches.
Lt. of Proj: 9 7/8 inches.
Wt. of Proj. (filled & fuzed): 12 lb. 11 1/8 oz.
Width of Rotating Band: 1 inch.
Type of Filling: TNA.
Fuze: Type 1 Short Delay Impact.

Remarks: Designated 8 cm by Japanese but actually measures 3 inches.

Type: Navy 8 cm Practice Projectiles.

Source: M.E.I.U. #1 Japanese Explosive Ordnance Supplement.



Figure a



Figure b

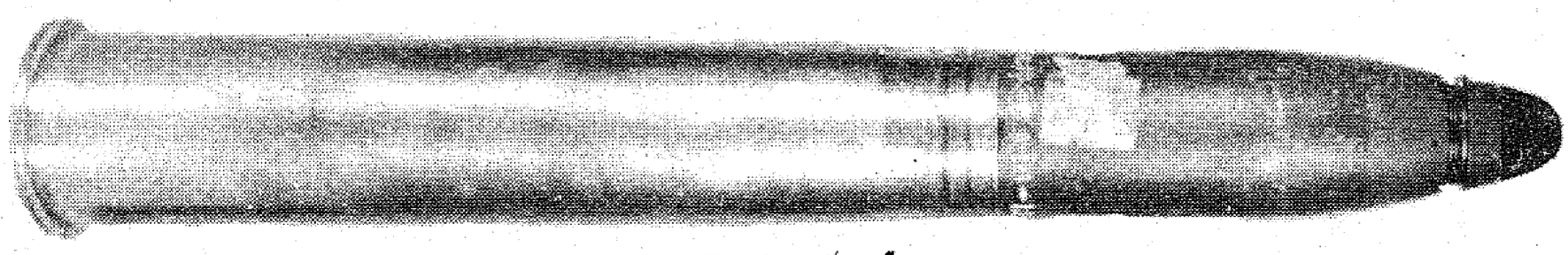
Description: Both the pointed nose type projectile (Figure a) and the blunt nose type projectile (Figure b) are painted black overall and are filled with sawdust. The complete rounds are semi-fixed.

Data:

Fuzes: None.
Lt. of Propellant Case: 15 1/8 inches.
Gun Used In: Navy 8 cm 40 Cal. Mk. 2 Gun.

Type: 8 cm Fixed Ammunition.

Source: Examination of Specimen.



Description: Same description as for 8 cm Semi-fixed, except the fixed round incorporates an adaptor ring. With the adaptor ring, the projectile will take the 5th Year Type nose impact fuze. Without the ring, the Army Type 89 powder time nose fuze may be used.

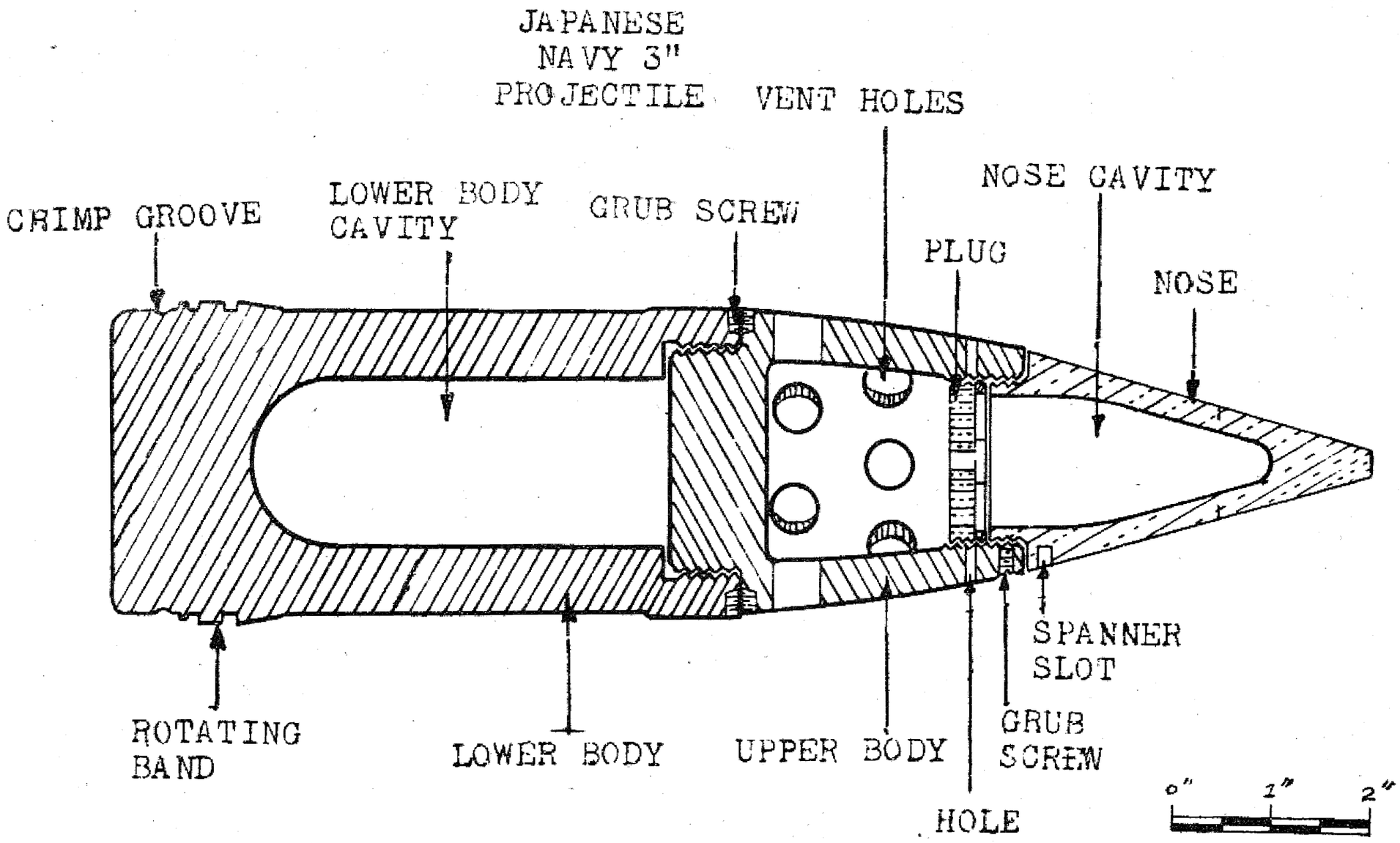
Color: Maroon overall with green band around ogive.

Data:

Fuzes: Army Type 89 powder time fuze or 5th Year Impact Fuze.
Lt. of Projectile (unfuzed): Same as for 8 cm Semi-fixed.
Wt. of loaded Projectile: " " " " " " " .
Type of filling: " " " " " " " .
Width of Rotating Band: " " " " " " " .

Type: Smoke, Practice (Probably).

Source: M.E.I.U. #4 Report No. 33; M.E.I.U. #1 Japanese Navy Proj.



Description & Operation: The projectile is constructed in three (3) pieces.

Lower Body: A steel casing with a heavy wall, a small cavity, a bourrelet forward and a rotating band at the aft section. It is threaded internally to receive the upper body.

Upper Body: A steel ogival unit, threaded to the lower body and held in place by two (2) grub screws. The wall of the upper body is pierced by twelve (12) holes each 12 mm in diameter and four (4) smaller holes. The nose is threaded to receive a steel closing disc and a nose piece.

Nose Piece: A brass cone, threaded externally to fit into the upper body and secured by a grub screw.

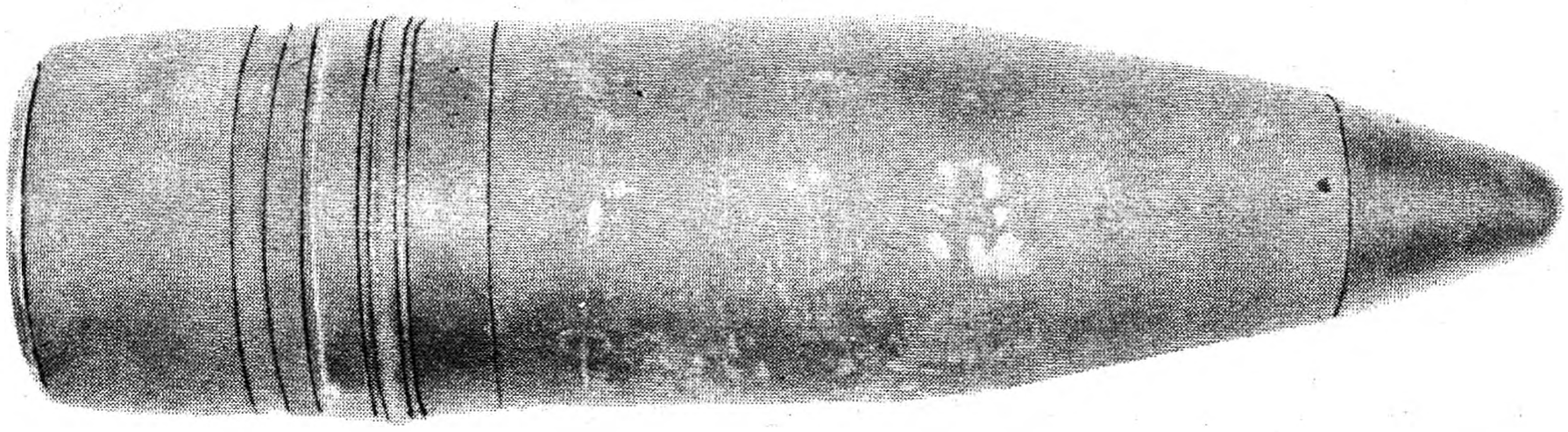
Color: Black overall (probably), except for the nose which is unpainted.

Data:

Gun Used In: 3-Inch Navy.
Overall length: 12 11/16 inches.
Wt. of Projectile: (empty) 12 lbs. 6 1/4 oz.

Type: Type 98 10 cm (D.P.). H.E.

Source: M.E.I.U. #4.



Description: This projectile is an H.E. round made of steel, slightly boat-tailed, and a relatively long conical nose. It is a fixed round with the case crimped on a groove aft of the rotating band. The nose has right-hand threads and a grub screw to secure the gaine and fuze. The base has left-hand threads to secure the base plate. The base plate is sealed with an internal copper washer and an external gas check ring.

Color: The projectile is maroon overall with white markings.

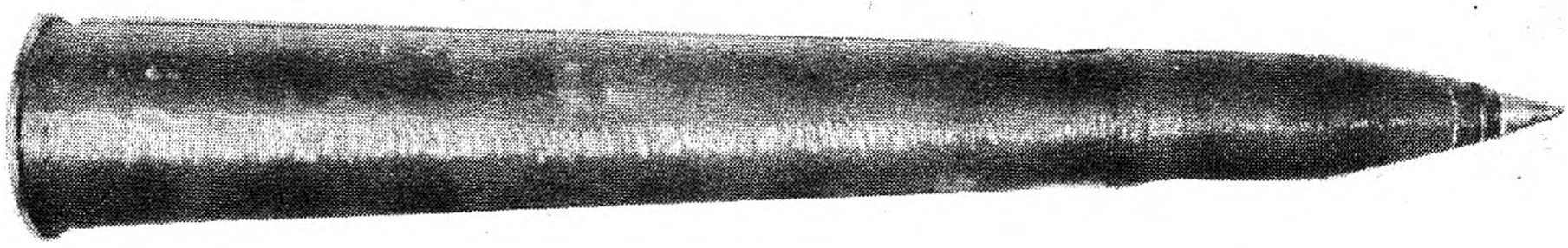
Data:

Gun Used In: Probably Type 98 D.P. gun.
Fuzes: Variation of Type 91 and type 91 gaine.
Lt. of Projectile (unfuzed): 12 5/8 inches.
Wt. of Projectile (empty): 25 lbs.
Width of Rotating Band: 1 3/4 inch.
Type of filling: Type 92 powder (Cast TNT).
Case Length: 32 1/4 inches. Bottle necked, rimmed case.

Remarks: Case dimensions are from a dummy round.

Type: Type 98 10 cm (DP) Practice Round.

Source: M.E.I.U. #4.



Description: This round used for loading drill is made completely of iron with the exception of a dummy brass fuze. The projectile and case are cast in one (1) piece. However, the base of the case is joined to the upper case by threads 3/8 inch above the rim.

Color: The round was apparently black overall.

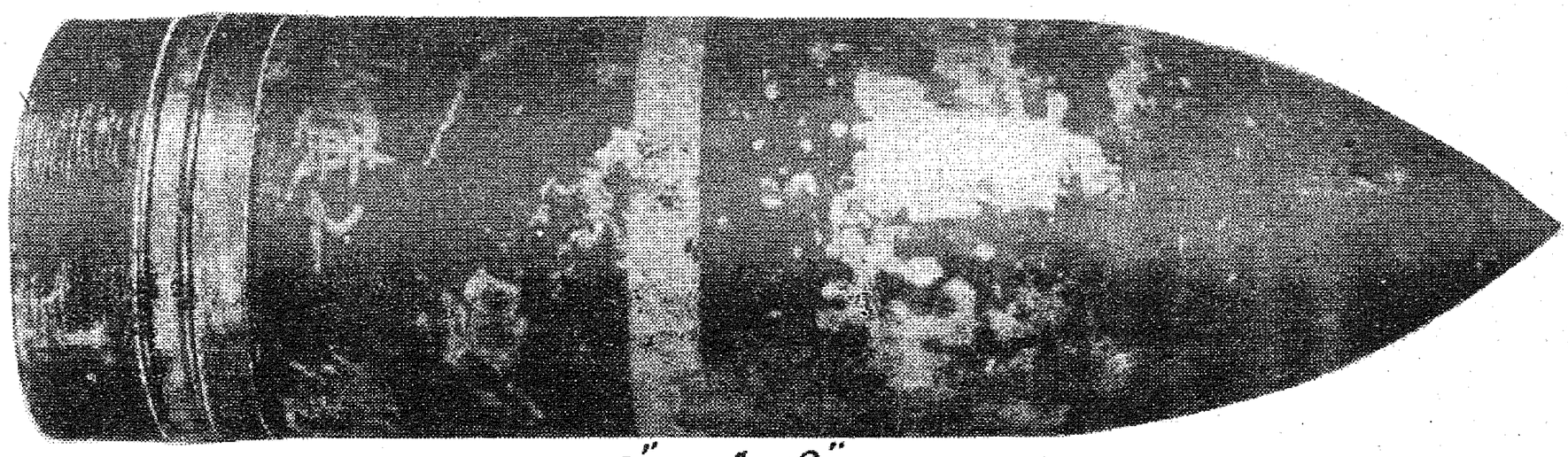
Data:

Overall length: 46 inches.
Weight: 62 3/4 lbs.

Type: 12 cm (4.7 inches) Common.

Source: M.E.I.U. #4.

12 cm. COMMON PROJECTILE



Description: This projectile is the standard navy common round fitted with a base plate 3 7/8 inches in diameter with left-hand threads. The base plate is threaded to receive the fuze plug with "Buttress" type threads, 5 threads per inch. This is an unusual thread type and out of 3 round examined was found only in this round. The fuze plug is 2 3/4 inches in diameter with 2 spanner holes. The explosive charge is contained in a cloth bag. No explosive could be obtained for analysis.

Color: The projectile is painted maroon overall, even aft of the rotating band, which indicates it is semi-fixed ammunition. 3" of the nose is painted green and tipped with red. The Mk.I rotating band is 1 1/4" wide. There is a yellow band at the center of gravity.

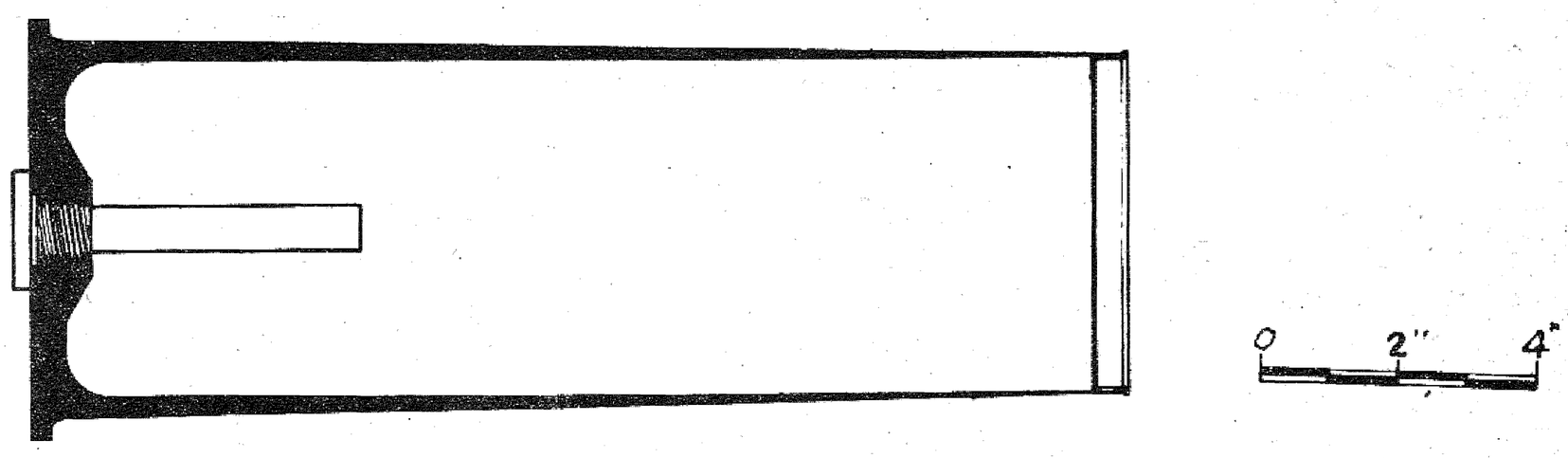
Data:

Diameter: 4.7 inches.
Overall Lt.: 16 ½ inches.
Weight (empty): 40 lbs.
Fuzes: 3rd Year Type Mk. 1 Base Detonating Fuze.
Width of Rotating Band: 1 1/4 inch.
Gun used in: 12 cm C.D.

RESTRICTED 12 CM 40 CAL CASE NAVY

Source: Specimen.

Use: 12 cm 40 Cal. Ship-Borne Gun.

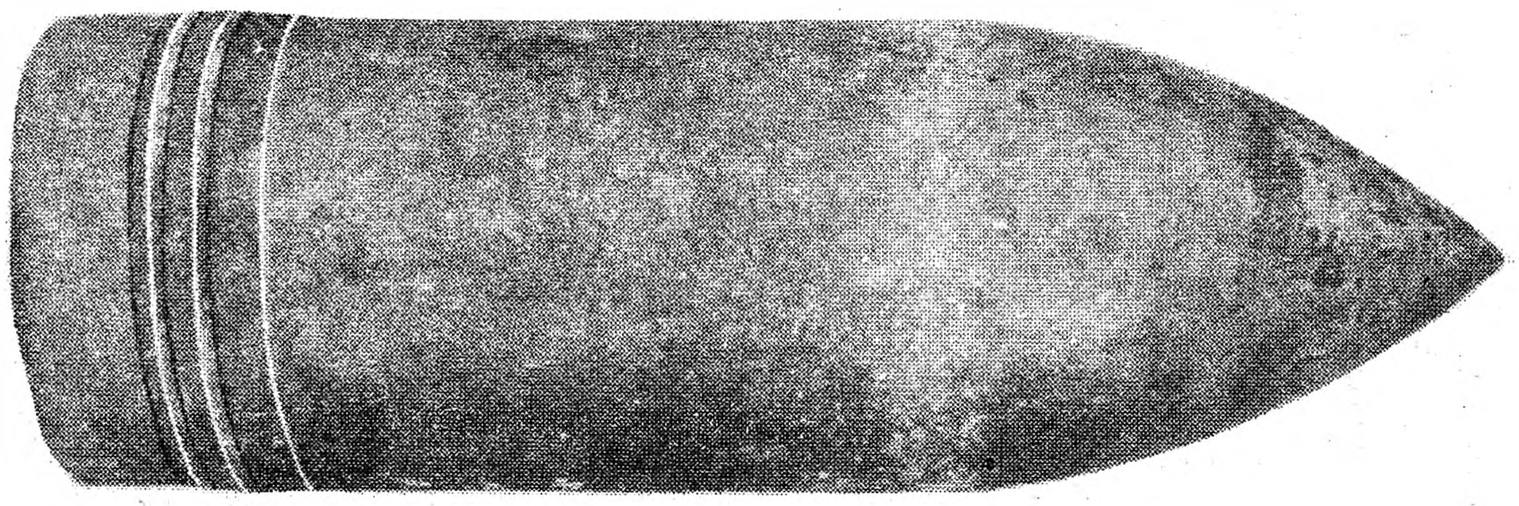


Description: Made of drawn brass, it has no bottle-neck and is slightly tapered. The primer does not fit flush with the base of the case. The powder is contained within a silk bag. It is semi-fixed ammunition, and may use same projectiles as used in 12 cm 40 cal coast defense gun.

Type: 12 cm (4.7 inches) Practice.

Source: M.E.I.U. #4.

12 cm. PRACTICE PROJECTILE



Description: This round was found filled with iron fillings and a brass base plug in place. It has no base plate. The plug had a slot in it in place of spanner holes.

Color: Black overall with white characters on the side.

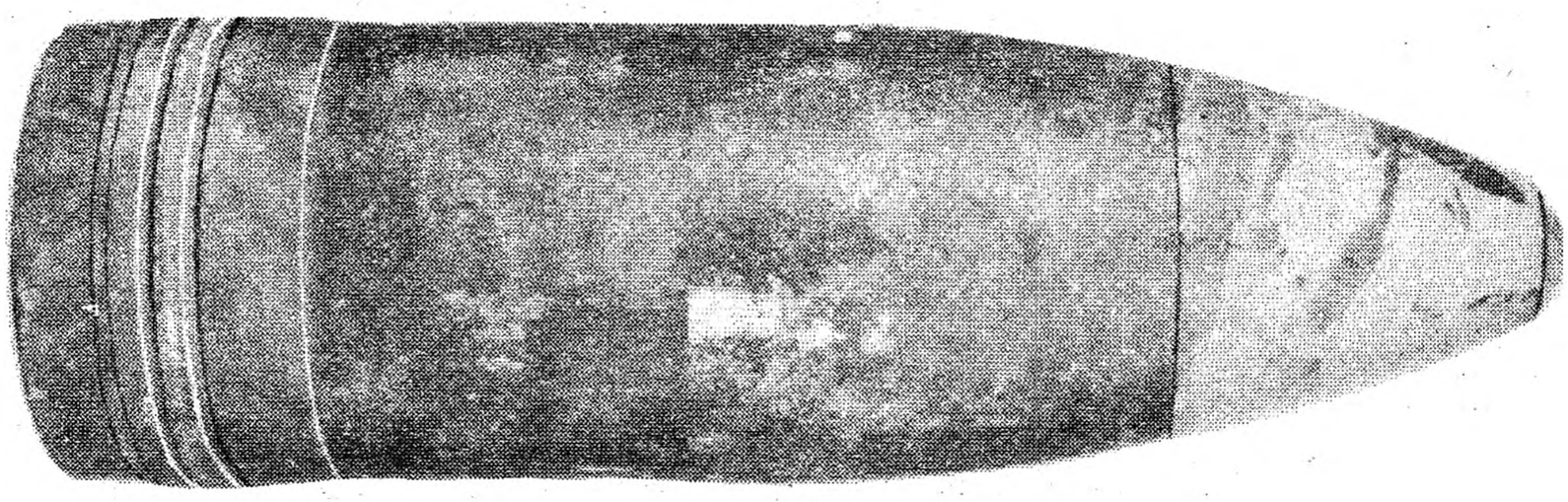
Data: Gun used in: 12 cm 45 cal C.D.
Diameter: 4.7 inches.
Length: 16 ½ inches.
Weight (empty): 42 1/2 lbs.
Rotating Band: 1 1/4 inches copper Mk. 1.

RESTRICTED 12 CM PROJECTILE

Type: 12 cm (4.7") Navy Converted Practice.

Source: M.E.I.U. #4.

12 cm. CONVERTED PRACTICE PROJECTILE



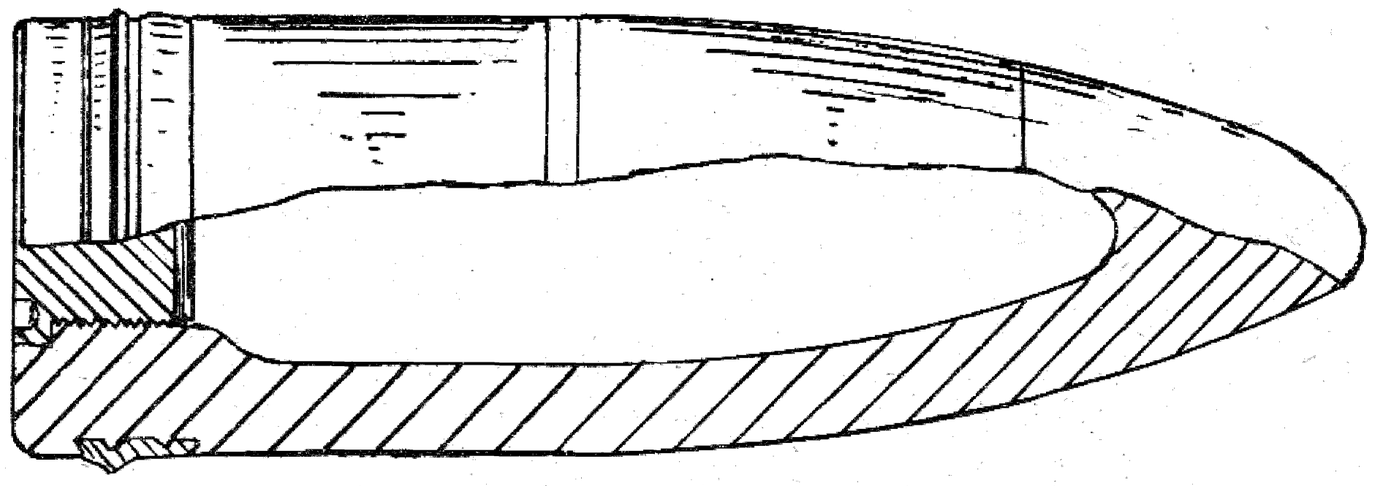
Description: This projectile was found filled with iron fillings with a base plug in place of a base fuze. It is a converted service round with a blunt nose and pronounced bourrelet.

Color: A 4" yellow band is painted on the nose. No other markings or color could be distinguished.

Data: Gun used in: 12 cm 45 cal C.D.
Diameter: 4.7 inches.
Length: 15 inches.
Width of Rotating Band: 2 inches.
Type of Rotating Band: Mk. 3B.
Weight (empty): 43 lbs
Base Plug: (2 3/8" dia. 8 threads per inch) 2 11/16" max. diameter

Type: Practice Projectile.

Source: M.E.I.U. #1 Report No. 72 and Examination of Specimen.



Description: The projectile is of solid construction having a blunt nose and cavity partially filled with sand. The cavity is closed by a base plug.

Color: Overall black with white band 10 mm in diameter at bourrelet and yellow band 100 mm in diameter around nose.

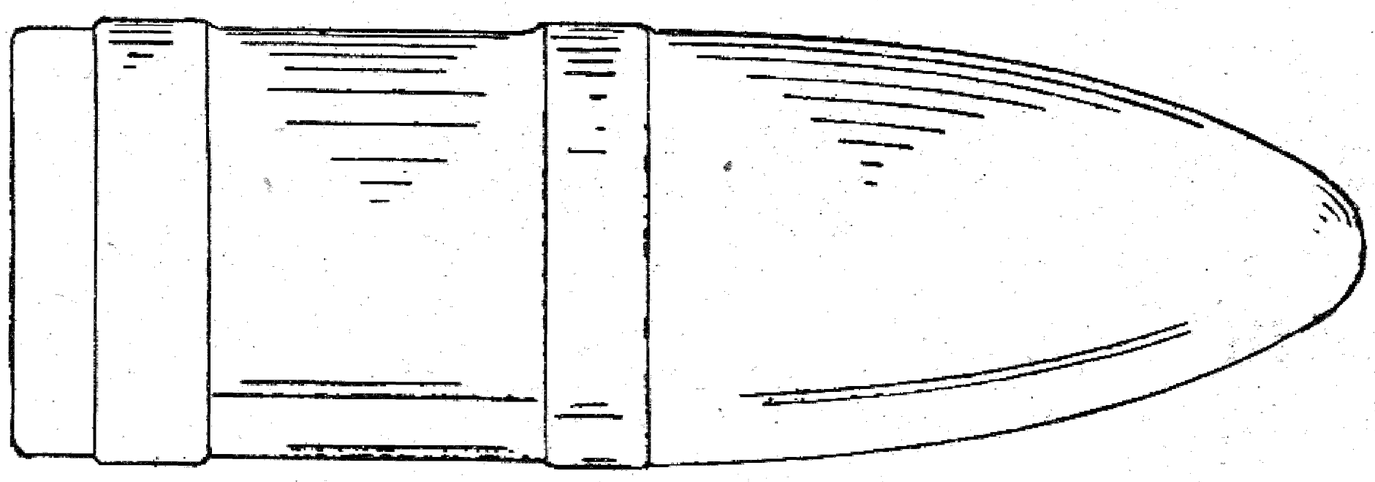
Data:

Gun Used In:	Overall Lt.:	Lt. of Case:
12 cm 45 Cal.	383 mm.	547 mm.

Wt. of Projectile: 19.40 kg.
Width of Rotating Band: 29.5 mm.

Type: Drill Projectile.

Source: M.E.I.U. #1 Report No. 72.



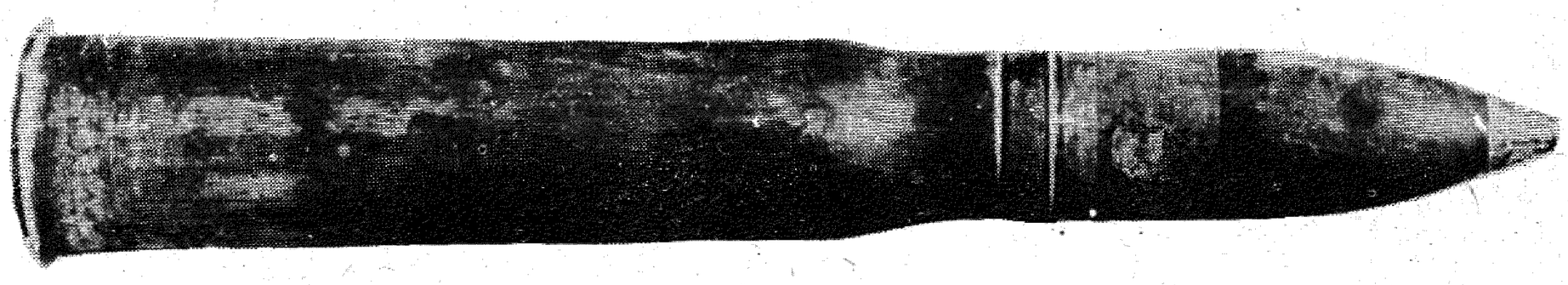
Description: Projectile is constructed of steel having a solid rounded nose. There are two (2) heavy brass bands around the projectile, one at bourrelet, and other at rotating band position. Same base plug design as that in practice round, but could not be removed from specimen examined. Cavity partially filled with sand.

Color: Overall black. No other color bands present.

Lt. of Projectile: (unfuzed) 376.5 mm.
Wt. of loaded Projectile: 20.45 kg.

Type: 12 cm Practice Round, Navy.

Source: Intelligence Notes #3 MEIU #1.



Description: This is a fixed round converted for practice use from a service projectile. The nose is solid.

Color: Maroon overall with a yellow tipped nose and a black band at the center of gravity.

Data:

Fuze: None.
Overall Lt.: 41 3/4 inches.
Case Length: 27 7/8 inches.
Projectile Lt.: 16 inches.
Filling: Not known.
Gun Used In: Navy 12 cm 45 Cal. D.P. Gun.

Type: 12 cm A.A. Spotting Round.

Source: Intelligence Notes #3 MEIU #1.



Description: This is a fixed round. Twelve (12) holes in two (2) rows around the ogival nose provide exits for the spotting gas given off by detonation of the small nose spotting charge.

Color: Black overall.

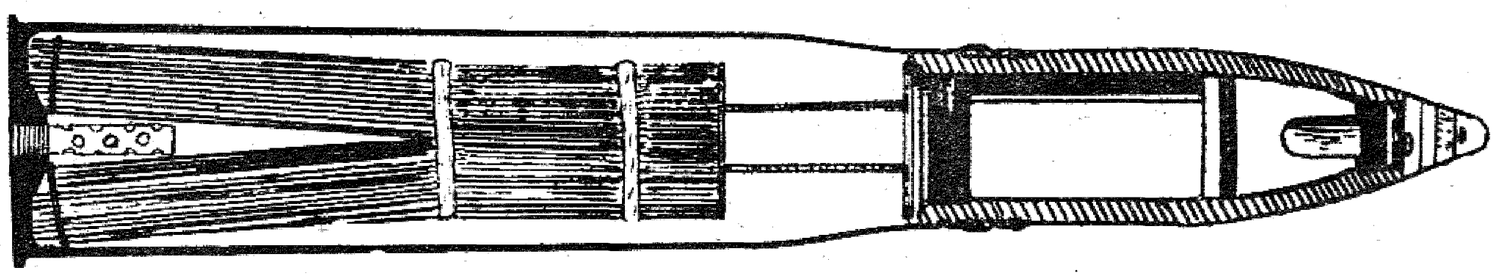
Data:

Fuze: Type 91 Mod. 1 Time Fuze.
Overall Lt.: 42 1/8 inches.
Case Lt.: 27 7/8 inches.
Projectile Lt.(unfuzed): 14 inches.
Filling: Not known.
Gun Used In: Navy 12 cm 45 Cal. D.P. Gun.

Type: Incendiary Shrapnel Round.

Source: M.E.I.U. #1 Report No. 115.

12 CM INCENDIARY-SHRAPNEL ROUND



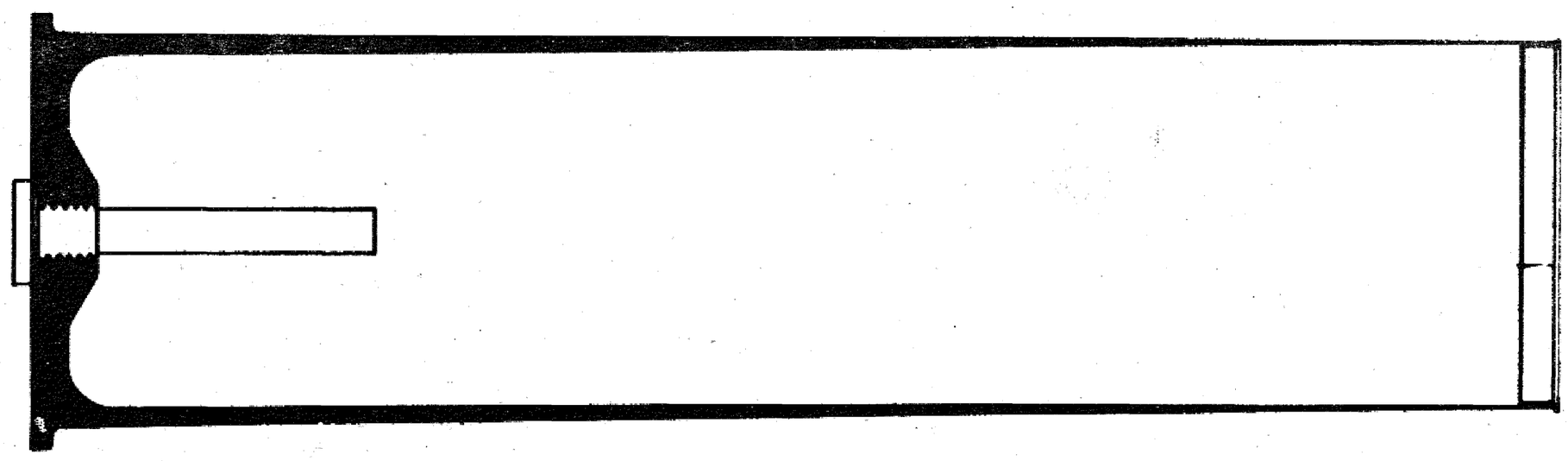
Description: One piece copper rotating band with forward sloping surface and middle lip. A soft copper gas check ring fills space between base plug and projectile wall. Interior lacquered. Picric acid charge fitted in forward section of projectile and is contained in a flannel bag. Aft of the H.E. charge is contained within a cannister 48 phosphorus packed steel pellets. In each pellet is a 5 mm hole.

Color: Overall red. Bourrelet painted.

Data:

Gun used in: 12 cm 45 cal. A.A.
Overall Lt.: 40.5 inches.
Lt. of Case: 27.9 inches.
Lt. of proj(unfuzed): 14 inches.
Fuzes: Type 91 clockwork with type 91 gaine or Type 88 PDF.
Wt. of loaded proj: 20.44 kgs.
Type of filling: Picric Acid and Phosphorus.
Width of Rotating Band: 1.93 inches.

Source: Specimen.



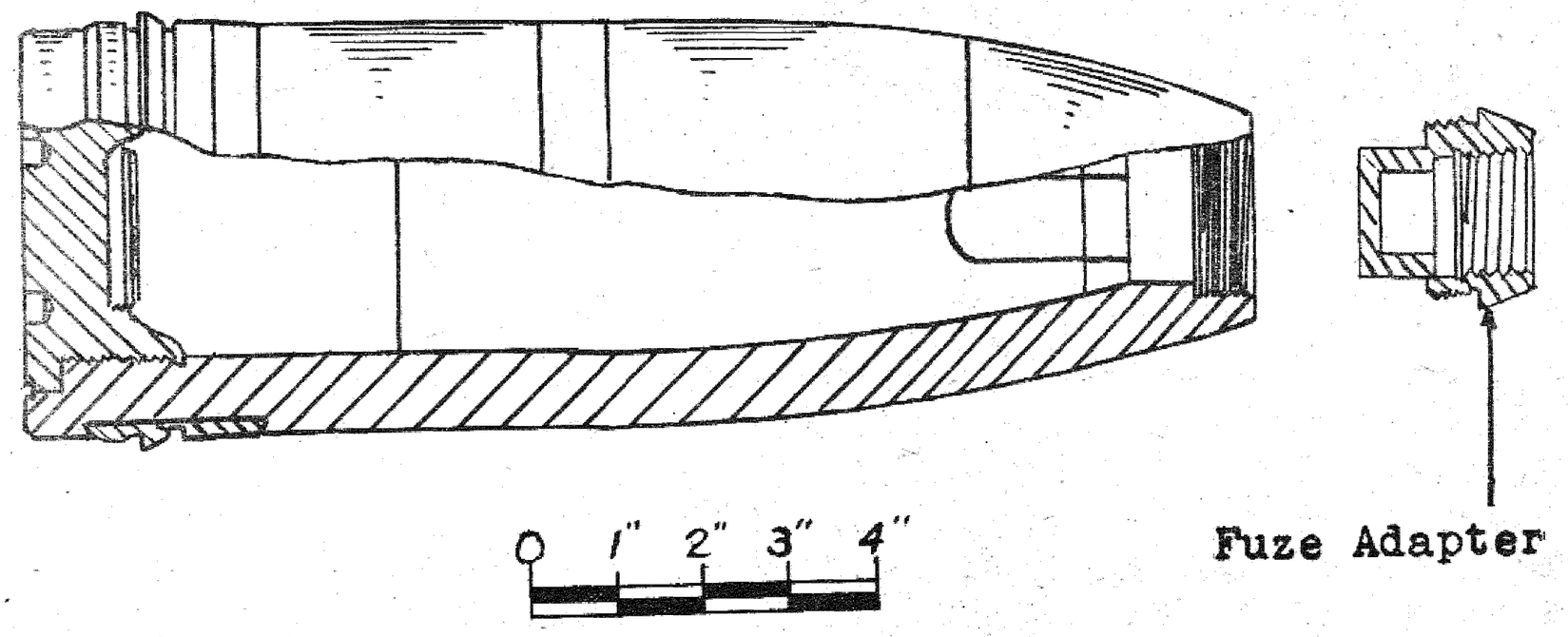
Use: 12 cm 45 Cal. Coast Defense Gun.

Description: This case is made of drawn brass, has no bottle-neck and is slightly tapered. The primer does not fit flush with the base of the case. The powder is contained within a silk bag. It is semi-fixed ammunition.

Type: H.E. Projectile.

Source: M.E.I.U. #1 Report No. 72.

12 CM H.E. COMMON



Description: The projectile is of conventional design with an easily observed bourrelet. The rotating band has a high lip with two (2) wiping grooves provided to prevent skirting. The explosive charge consists of two (2) blocks of cast picric wrapped in paper and waxed. The adaptor ring is brass and the projectile is fuzed with the 5 th. year type Impact Fuze with the adaptor in place or the Type 88 PDF without the adaptor.

A similar round in dimension and color markings but without the adaptor ring has been recovered. This round takes only the 5th. year type Impact Fuze.

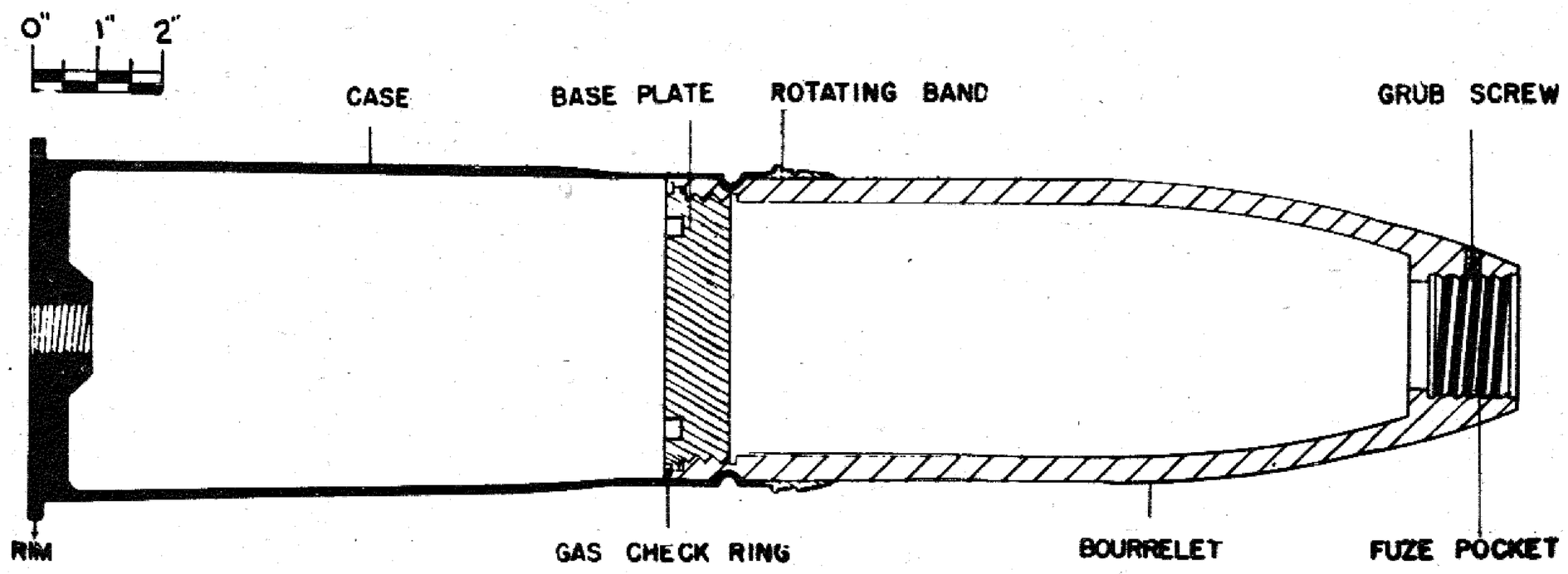
Color: Maroon overall with a 3 15/16" green band at the nose around the ojive indicating H.E. filled and a 25/32" yellow band at the line of balance.

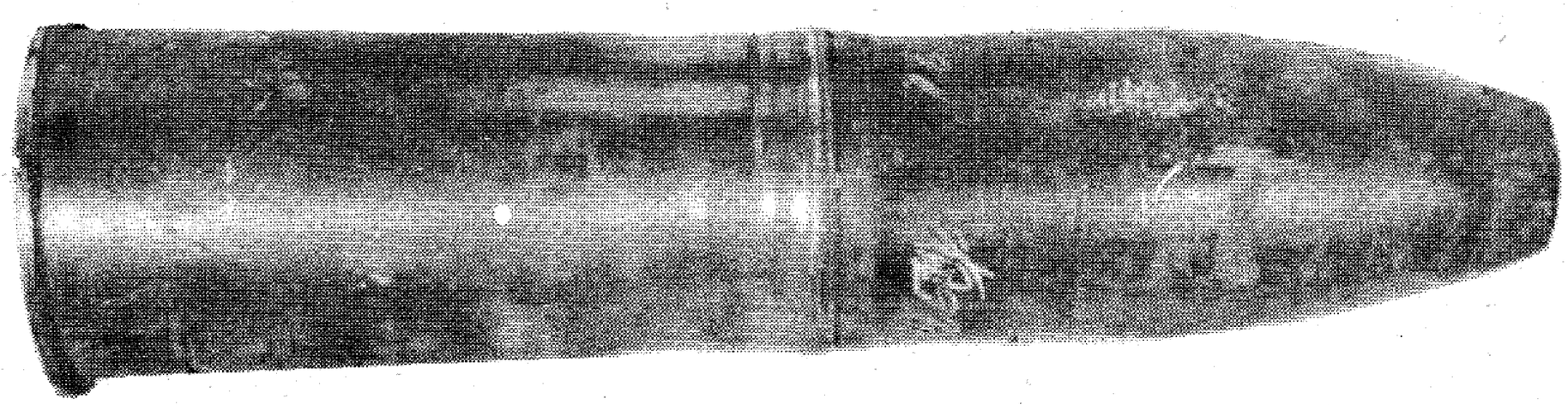
Data:

Gun used in: 12 cm 45 cal. C.D. (semi-fixed).
Lt. of proj: with adaptor 14.8"
w/o adaptor 14.1"
Lt. of case: 21.1"
Wt. of loaded proj: 20.34 kg.
Type of filling: Picric
Width of rotating band: 1.95"
Fuzes: 5th. year type Impact or (Type 88 PDF).

Type: H.E. Short Round.

Source: M.E.I.U. #4 specimen.





Description: The steel projectile has a long ogive. The forward end is threaded internally (R/H) to receive the nose fuze which is secured by a grub screw. The after end is threaded internally (L/H) to receive the base plate. The copper rotating band has one groove and one lip. Just aft of the rotating band is one deep circumferential crimp groove. A copper gas check ring is fitted into a circular groove on the base of the projectile at the exterior junction of the base plate and projectile body. There are spanner holes in the exterior surface of the base plate.

This ammunition is used in a gun which was originally designed as an AA, A/S weapon for merchant ships under 5000 tons and thus may be considered a counterpart of the 20 cm short round. Both guns have been used as shore batteries.

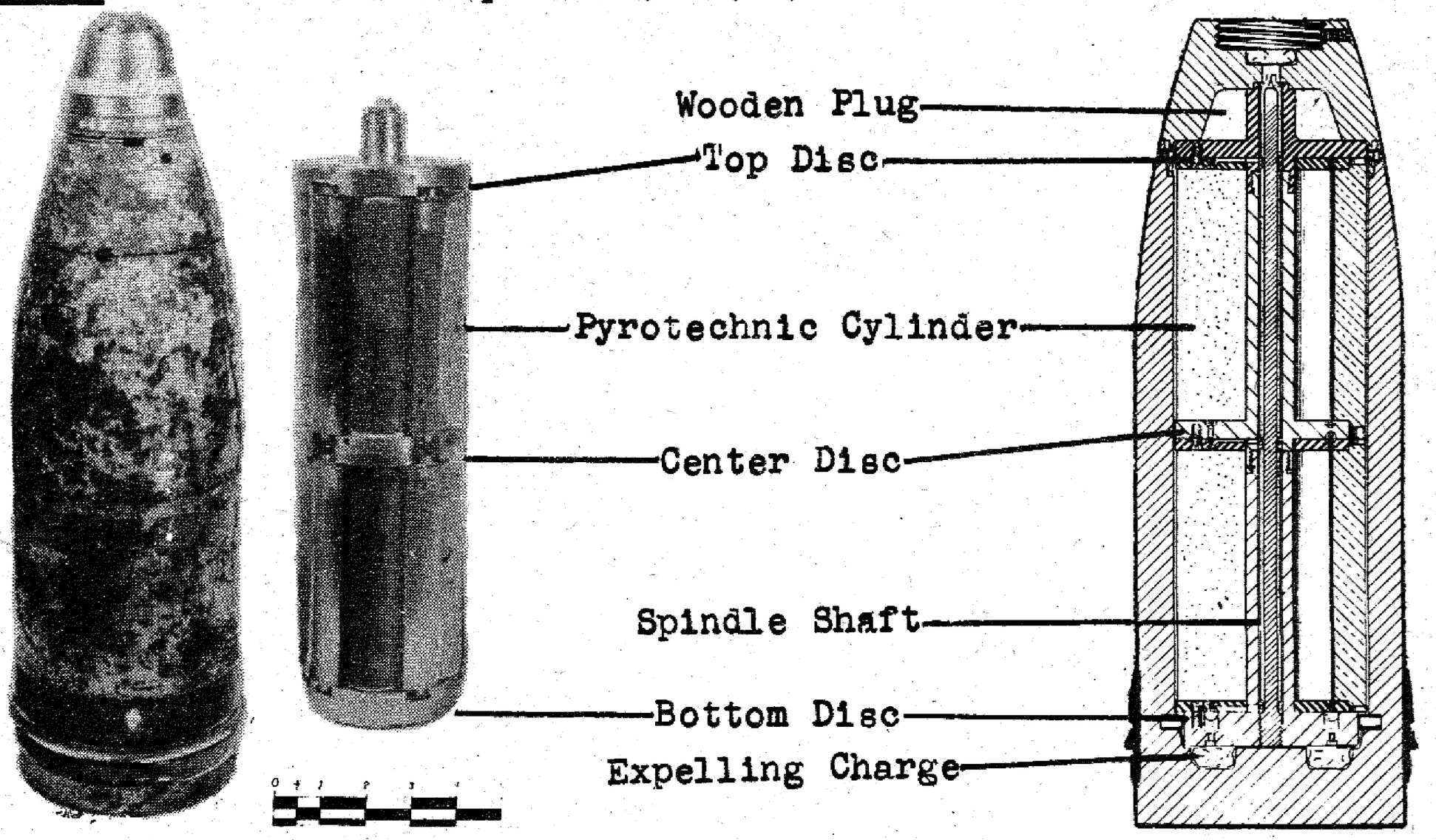
Color: Painted maroon overall above rotating band and unpainted below rotating band. There is a 1.1" green band at the nose tip.

Data:

Gun Used In: Short 12 cm D.P. AA, A/S Gun.
Lt. of Case: 11.2 inches.
Lt. of Proj. (unfuzed): 12.6 inches.
Wt. of Filled Projectile: 26 pounds.
Width of Rotating Band: 1.0 inch.
Dia. of Base Plate: 4.3 inches.
Fuze: Type O Time Fuze and Anti-Submarine Impact Fuze.
Type Filling: TNA.

Type: Illuminating Projectile.

Source: M.E.I.U. #4 Repcrt No. 73.



Description: The projectile body and nose piece are made of steel and are held together by four small screws spaced 90 degrees apart. The body contains an inner cylinder made of a steel frame which supports and provides a method of igniting ten (10) pyrotechnic cylinders arranged in two (2) circular layers of five (5) cylinders each. The metal supporting frame is made of a spindle sleeve and three (3) discs through the center of which passes a spindle shaft. Each disc consists of a forward and after plate. There are two (2) layers of five (5) triangular steel wedges arranged around the upper and lower circumference of the inner cylinder which serve to space and support the pyrotechnic cylinders. In the base of the projectile cavity are four (4) 1/4" studs, spaced 90 degrees apart which fit into recesses on the base of the inner cylinder and prevent the rotation of the inner cylinder in flight. Just below the inner cylinder is a small recess containing a black powder expelling charge. Around the circumference of the spindle shaft are four (4) longitudinal powder trains which are ignited by a small black powder charge located just beneath the nose fuze and in turn ignite the pyrotechnic cylinders and the expelling charge. The nose piece houses a wooden plug containing a centrally located opening which positions the spindle shaft directly below the ignition charge.

This ammunition is semi-fixed and believed to be an illuminating round for the 12 cm Navy Coast Defense Gun. The data for the case is given on page 117.

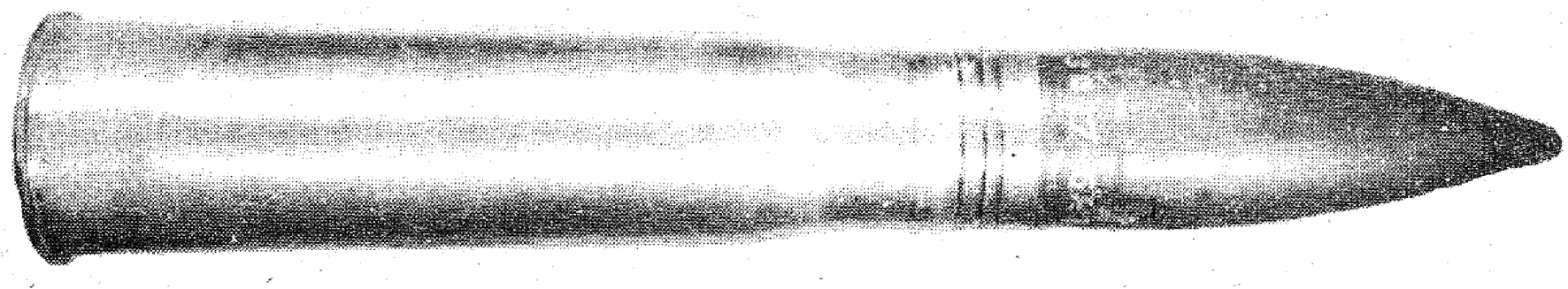
Color: Blue overall, 3/4" yellow band below bourrelet.

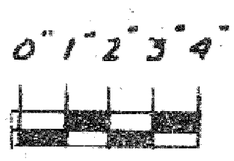
Data:

Diameter	4 11/16 in. (119 mm).
Length (unfuzed)	13 13/16 in.
Weight (complete)	44 lbs.
Fuze	30-second time fuze.
Filling	pyrotechnic mixture.

Source: M.E.I.U. #1 Report No. 100.

12.7 CM A.A. PROJECTILE





Description: Fixed ammunition, has long ogive, short body (only 2 1/8 inches from bourrelet to rotating band). The band is one-piece, has forward sloping surface, middle lip, and both fore and aft wiping grooves.

Color: Maroon body. 4-inch green ogive band.

Data:

Gun Used In: Navy 12.7 cm A.A.
Overall Lt.: 32.1 inches.
Lt. of Case: 22 inches.
Fuzes: Type 91 or 4.7-inch impact fuze.
Lt. of Projectile (unfuzed): 15.1 inches.
Wt. of loaded Projectile: 48.42 lbs.
Type of filling: Picric Acid.
Width of Rotating Band: 2.02 inches.

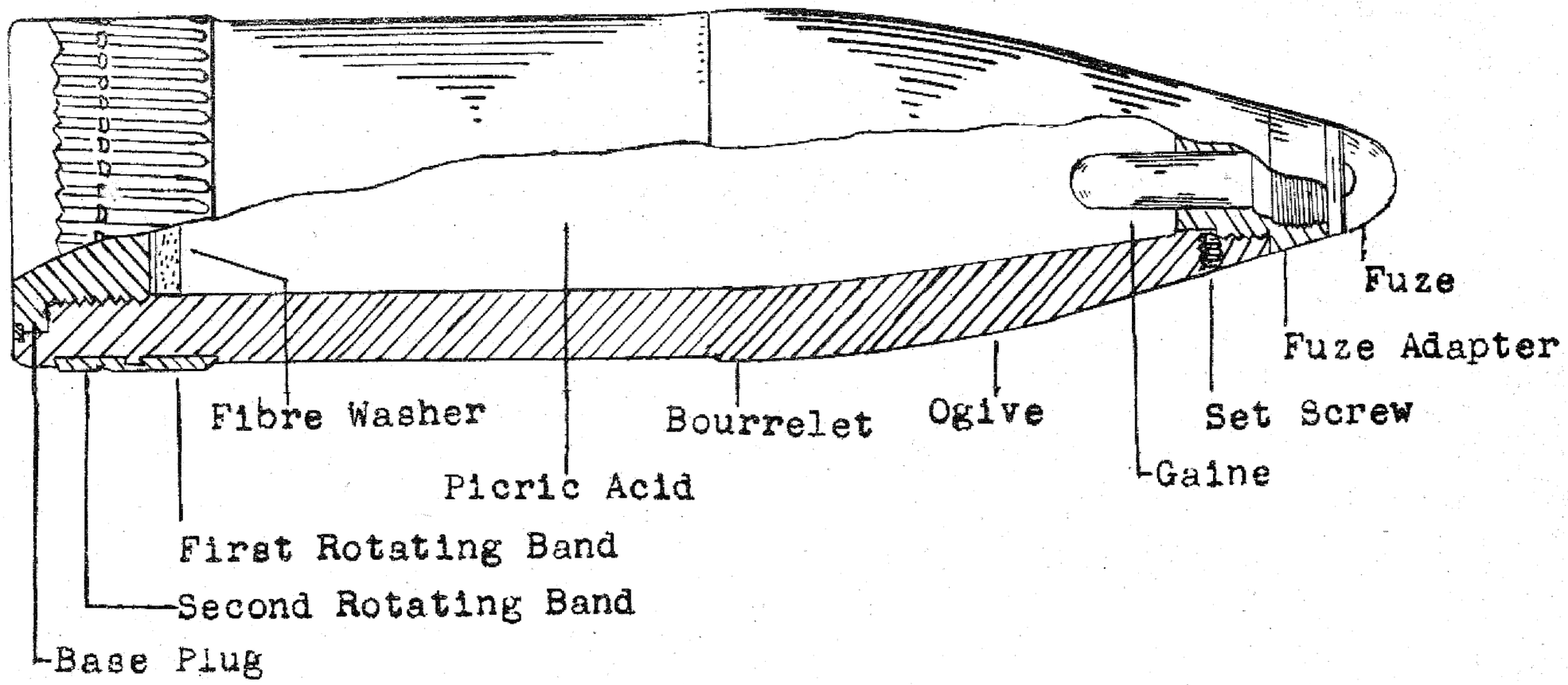
Remarks: This is the largest round of Japanese Navy fixed ammunition known.

Type: High Capacity.

Source: M.E.I.U. #1 Report No. 49.

140 MM PROJECTILE - H.C. - IMPACT FUZED

Appearance of
Rotating Band
After Firing



Description: Nose time fuze is used without nose adapter, but in conjunction with auxiliary fuze. Base plug is solid and threads in with left-hand threads.

The H.C. fuzed with nose impact is similar to the nose time fuzed H.E., except that former is used for bombardment.

Color: Maroon with a green band around nose. The nose impact fuzed H.E. has same colors except that in addition it has a yellow band at the center of gravity.

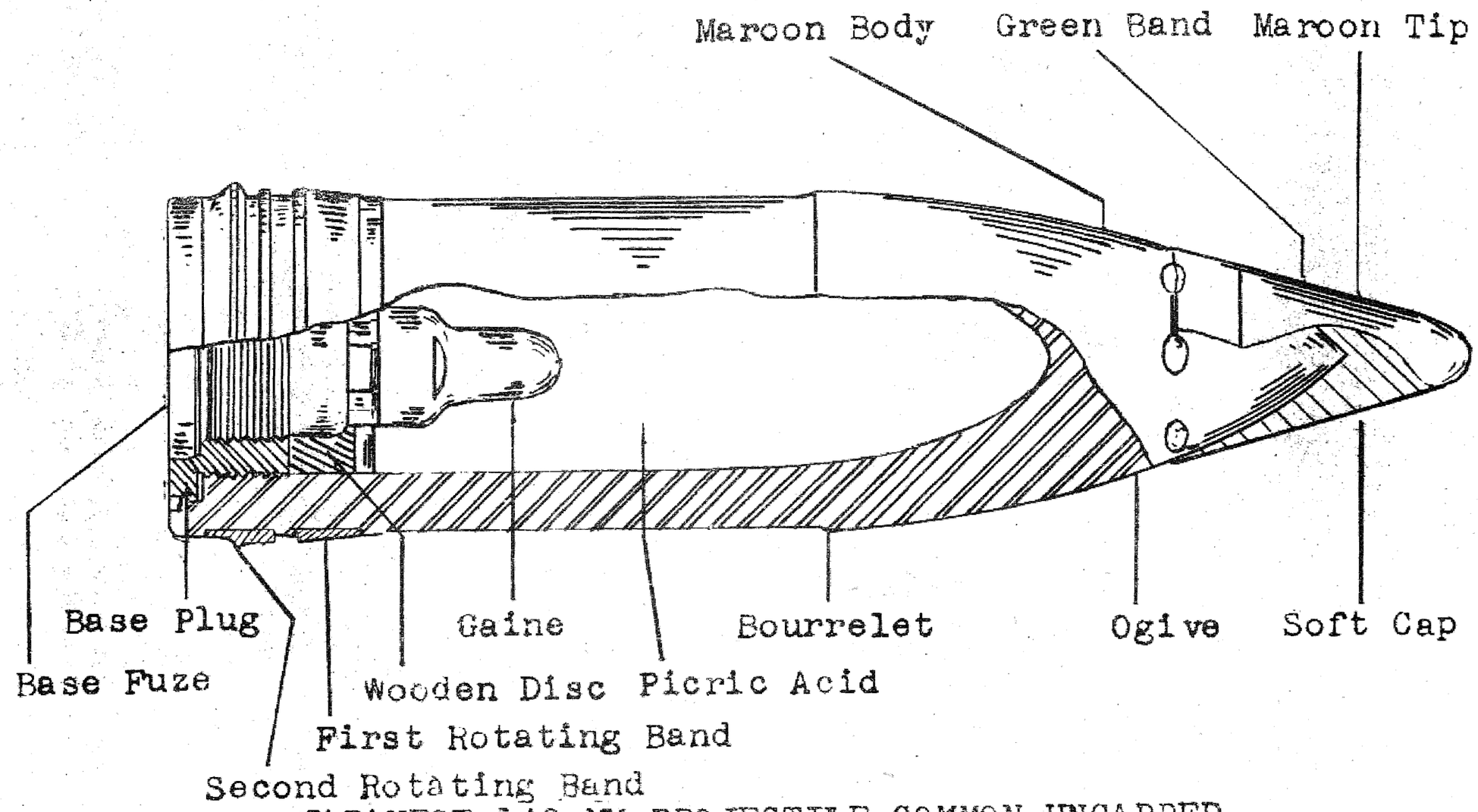
Data:

Fuzes: Type 91 (Time)
5th Year Nose Impact.
Lt. of Projectile (unfuzed): 471.0 mm.
Wt. of loaded Projectile: 40.1 kg.
Type of filling: Picric Acid.
Width of Rotating Band: 27.7 mm.

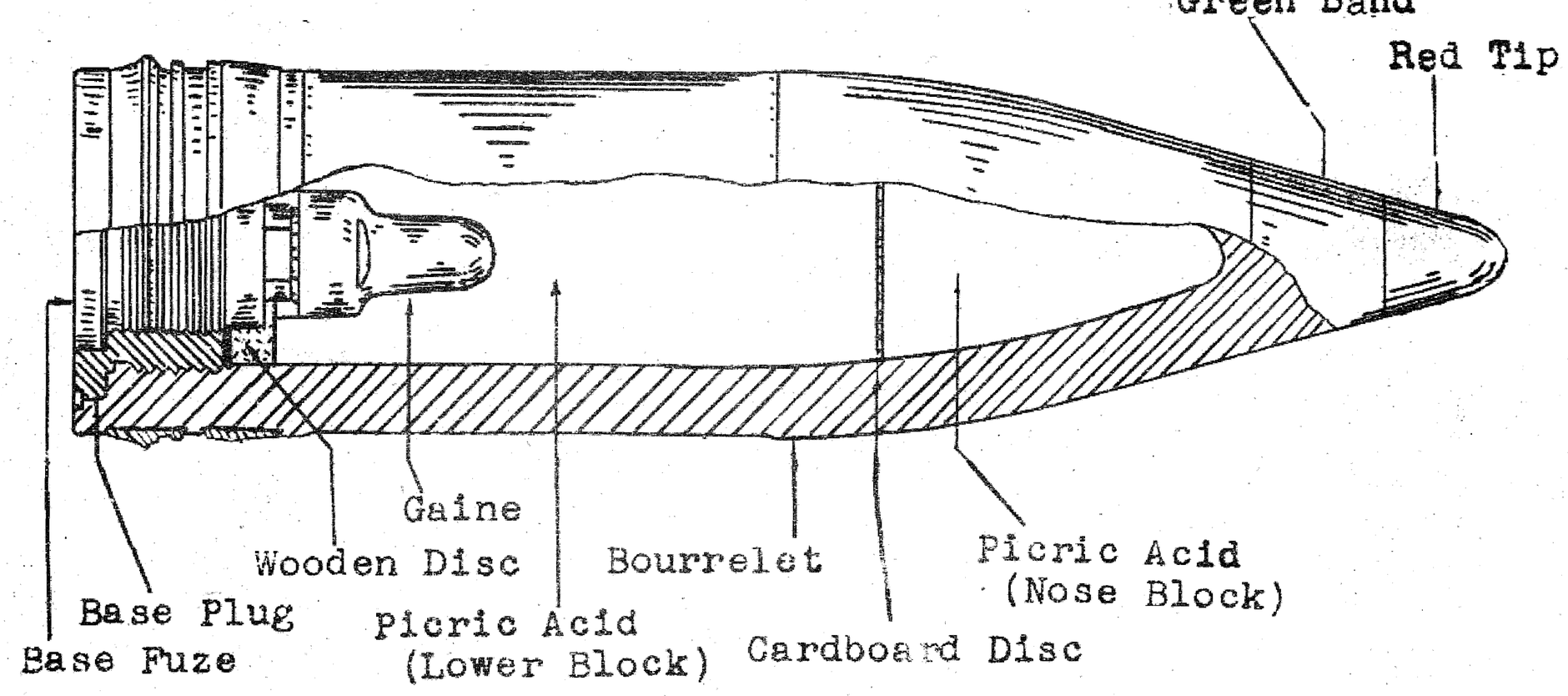
Type: Common (Uncapped).

Source: M.E.I.U. #1 Report No. 49.

JAPANESE 140 MM COMMON PROJECTILE - CAPPED



JAPANESE 140 MM PROJECTILE COMMON UNCAPPED



Description: The forward end of the ogive is long and tapered. Picric Acid charge is made of two (2) blocks. The projectile is base fuzed, the fuze having five (5) threads per inch.

Color: Body - Maroon. Nose Cap green band, red tip.

Data:

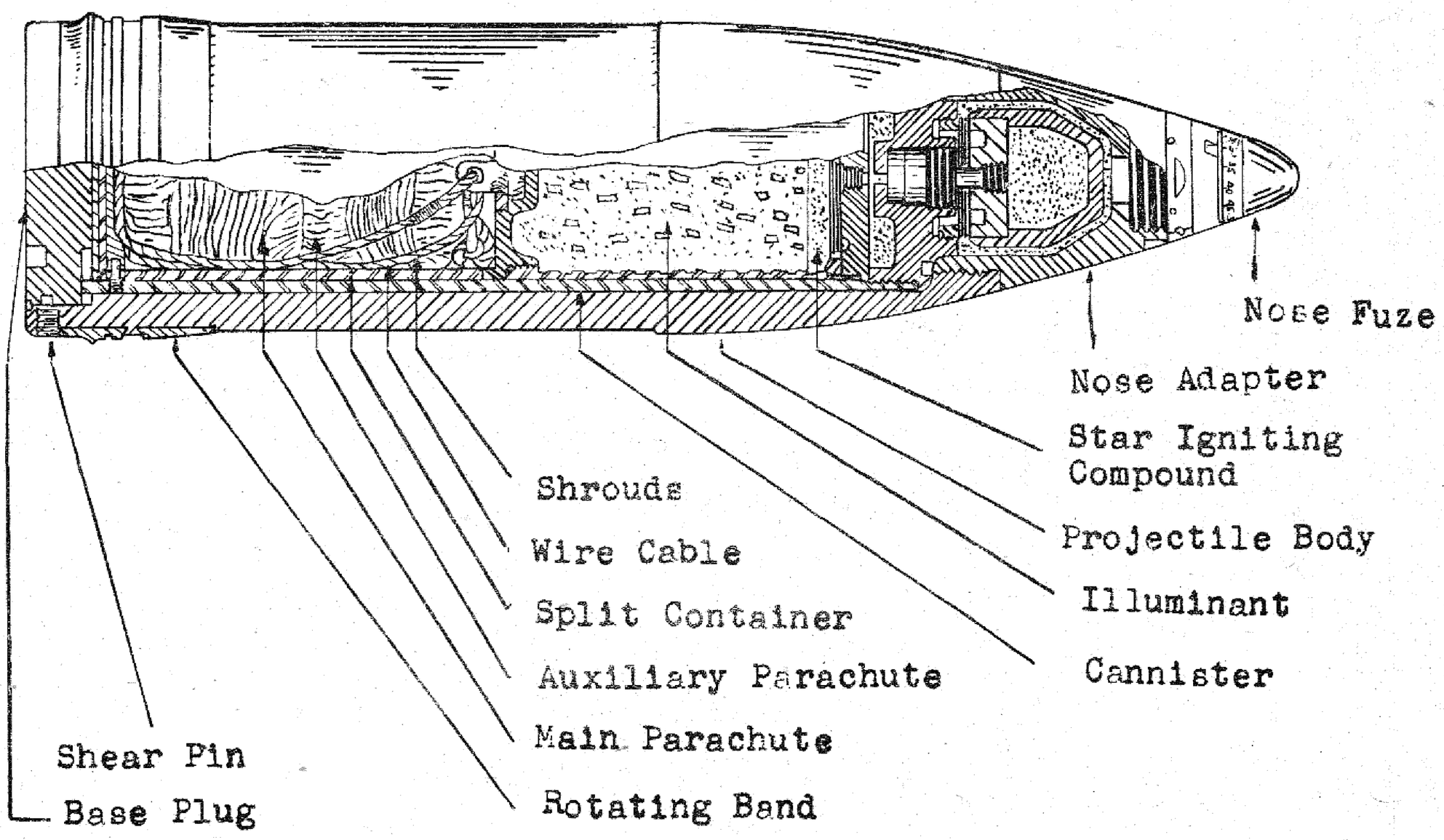
Fuzes: Base Detonating.
Lt. of Projectile: 552.0 mm.
Wt. of loaded Projectile: 38.1 kgs.
Type of filling: Picric Acid.
Width of Rotating Band: 27.7 mm.

Remarks: The capped 140 mm round varies in that the base fuze has buttress type threads. The charge of the uncapped round weighs slightly more than that of the capped round.

Type: Star Shell.

Source: M.E.I.U. #1 Report No. 49.

JAPANESE 140 MM STAR SHELL



Description: Body conforms to usual projectile body form, but a large adapter is screwed into forward end, and base is not threaded. Identical rotating band as on other H.E. rounds. Nose adapter provides a housing for primary ejection charge, relay train and primary ejection charge container. Canister encased in projectile contains the star, parachutes, split container and air brake. The canister cover screws into upper end of canister and provides a housing for secondary ejection charge, relay train and star ignition pellet. The illuminating mechanism is actuated by clockwork time fuze. The star is suspended from two (2) parachutes.

Color: Bright red.

Data:

Fuzes: Nose time clockwork fuze (Type 91).
Lt. of Projectile (unfuzed): 515.0 mm.
Wt. of loaded Projectile: 40 kgs.
Type filling: Illuminating compound, black powder relays.
Width of Rotating Band: 27.5 mm.

Type: Illuminating Projectile.

Source: M.E.I.U. #4 Specimen.



Description: This projectile is similar in construction to the Japanese Navy 14 cm Star Shell. The projectile body is of standard exterior design but has a large adapter screwed in the forward end and a friction fit base plate secured by six (6) shear screws. The bourrelet is not pronounced. There are two (2) rotating bands aft.

Within the projectile is a cannister containing the candle, parachutes, and the assembly containing the two (2) ejection charges. The mechanism is actuated by a clockwork time fuze. The illuminant is suspended by two (2) parachutes.

Color: Bright red.

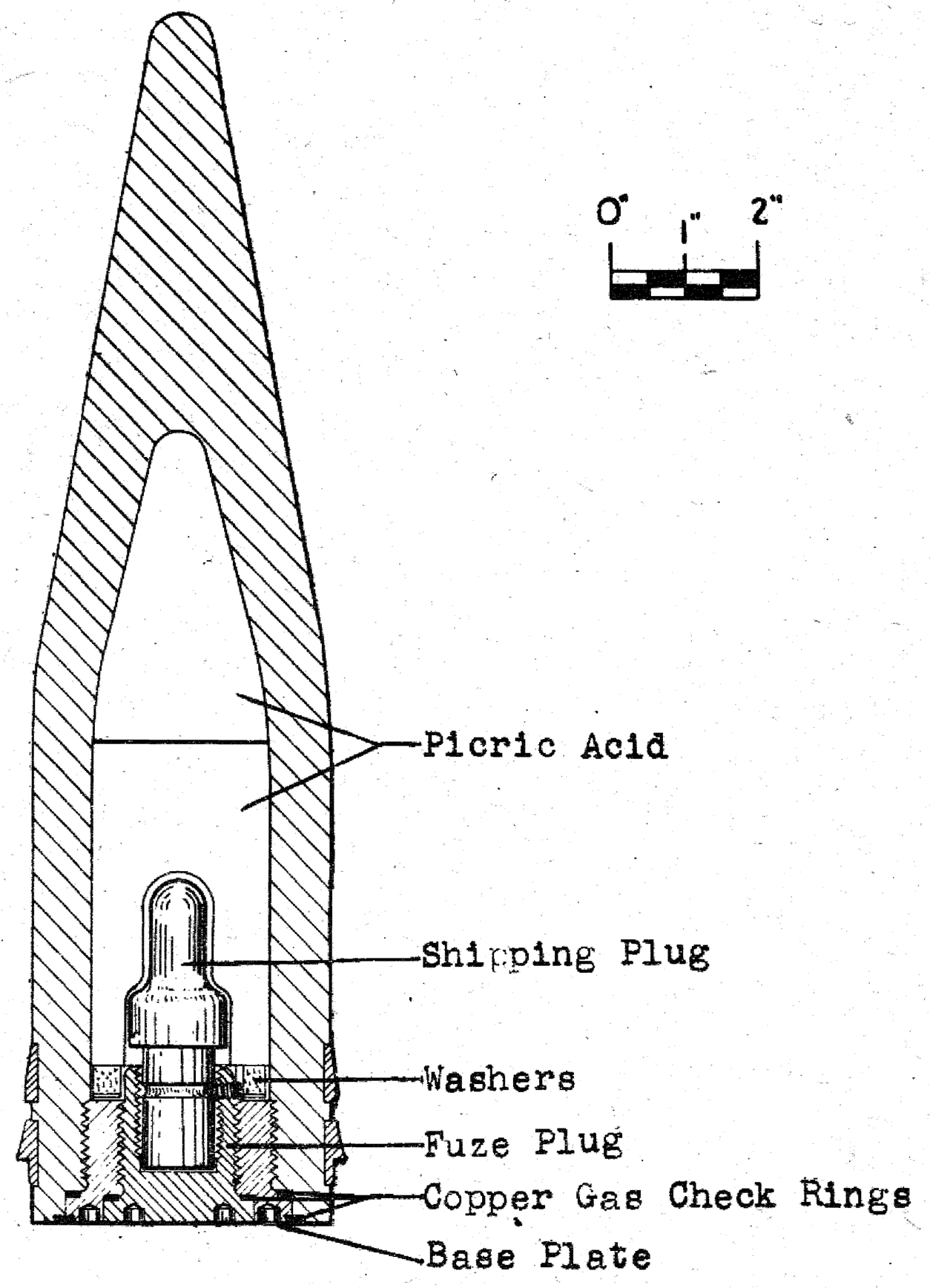
Data:

Fuze: Nose Time Clockwork Fuze (Type 91).
Lt. of Projectile (unfuzed): 21 inches.
Width of each Rotating Band: 1 3/16 inches.
Total Width: 2 25/32 inches.
Type Filling: Illuminating Compound, black powder relays.

Type: 15 cm Common Mark 4.

Source: M.E.I.U. #4 Report No. 75.





Description: The projectile is made of steel, has a long ogival nose, and a large explosive cavity closed by a base plate and fuze plug. There are two (2) copper rotating bands near the base of the projectile. The junction of the base plate and the projectile body is sealed by two (2) copper gas check rings, one external and one internal. The junction of the base plate and the fuze plug is sealed by one internal copper ring. The explosive filling consist of two preformed, paper wrapped, blocks of picric acid enclosed in a cloth bag. The after block contains a gaine well. A washer made of sawdust impregnated with glue and three (3) cardboard washers separate the explosive charge from the base plate.

Color: The projectile is maroon overall with a green tipped nose.

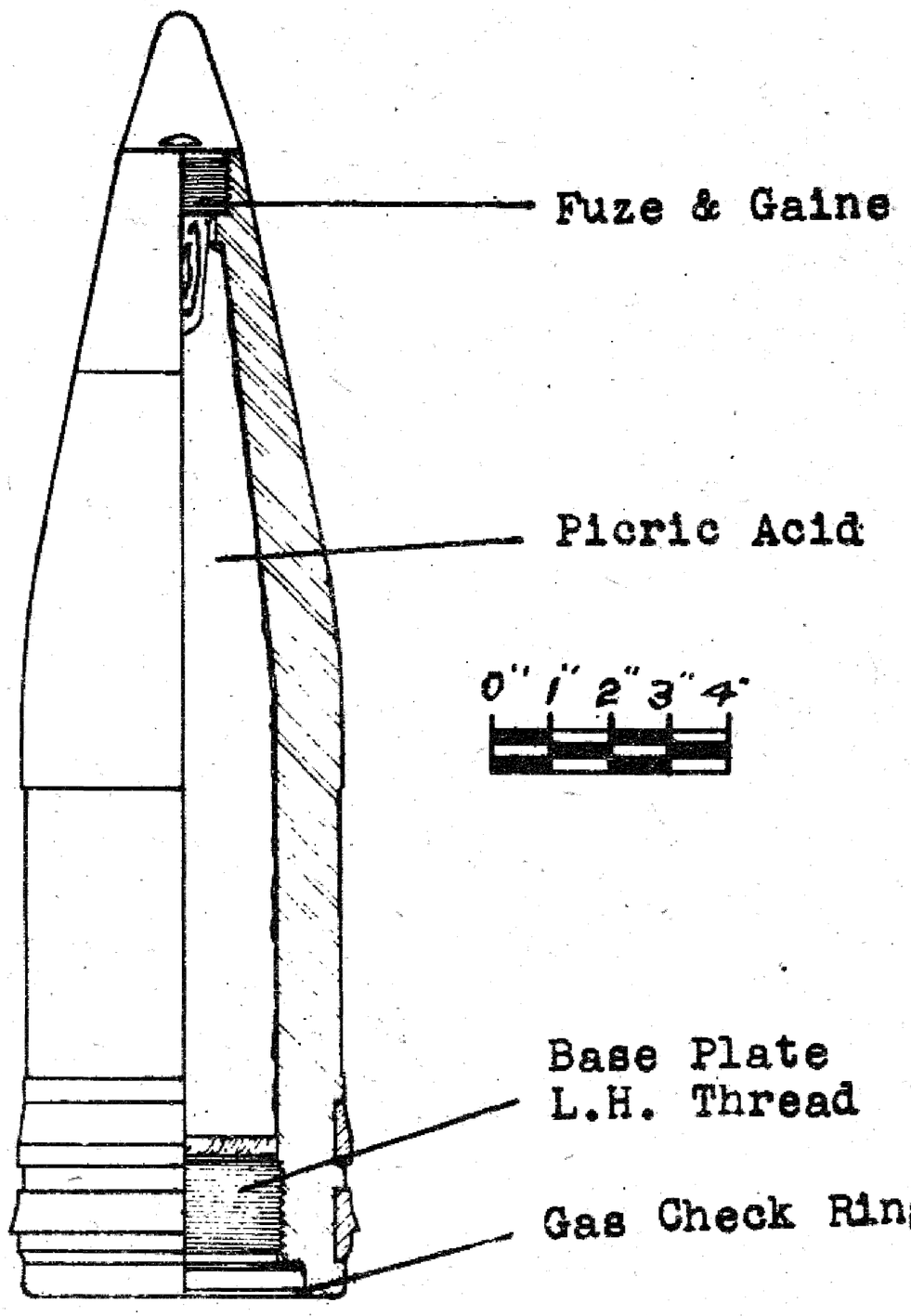
Data:

Overall Length: 22 1/2 inches.
Weight of Proj.: 98 pounds.
Type of Filling: Picric Acid.
Weight of Filling: 5 pounds 10 3/4 ounces.
Width of Rotating Bands: forward band: 1 3/16 inches.
after band: 1 inch.
Fuzes: Base detonating fuze Type 13, Mk. 1.

Type: 15 cm Type O Common.

Source: M.E.I.U. #1 Report No. 160.





Description: The body of the projectile is of usual design, and has a long ogive. The rotating band is of two-piece construction, high grade copper. The forward part is a smooth sloping surface. The after part is also smooth with a high lip. The nose of the projectile is threaded to receive a gaine and a nose fuze. The base is closed by a base plate with left hand threads. A soft copper gas check ring fills the space between the base plug and the projectile wall. The HE charge is a waxed, paper-wrapped preformed block of picric acid with a well in the nose to receive the gaine.

Color: The projectile is maroon overall with a green band 4 inches wide painted around the ogive.

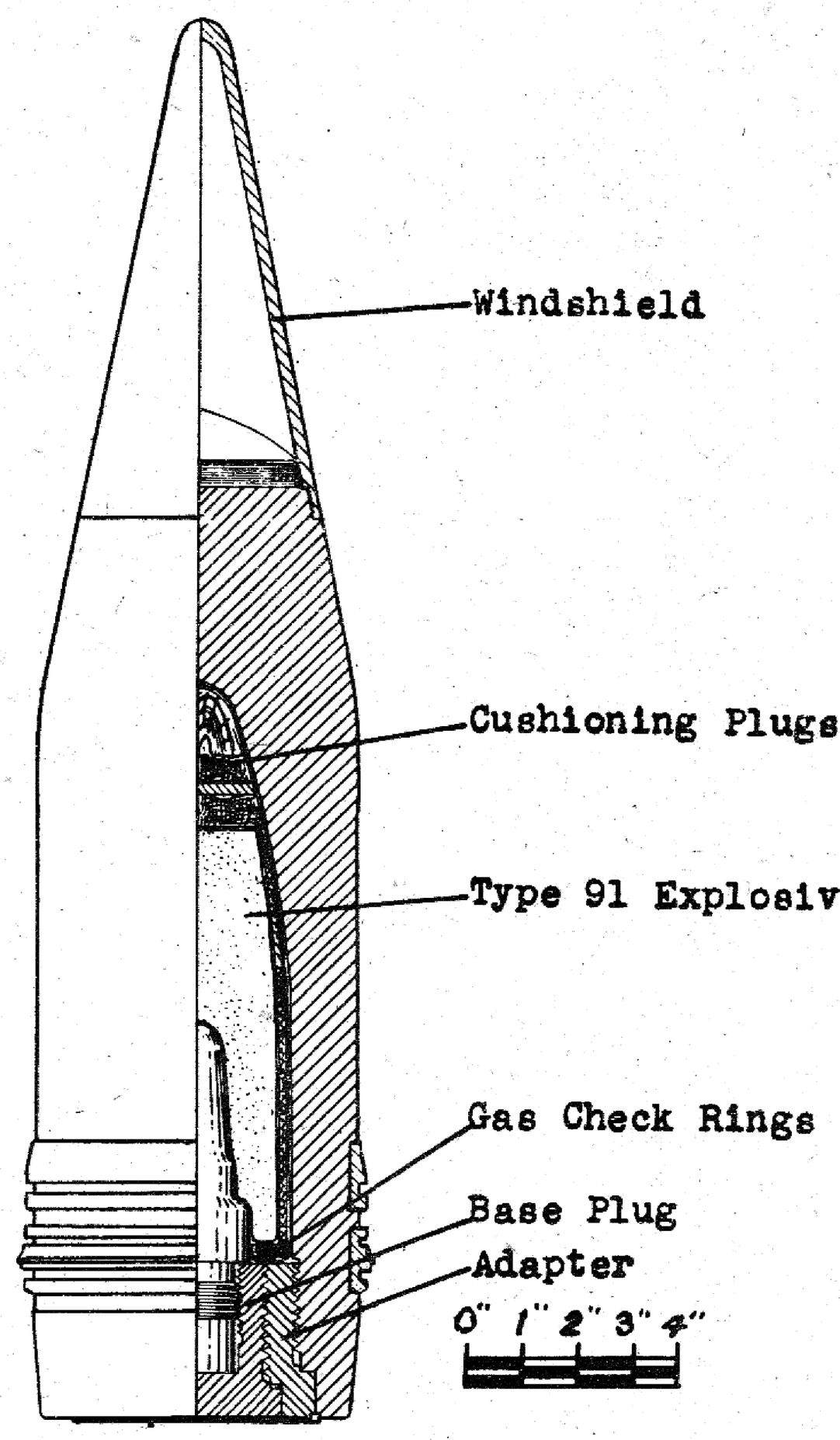
Data:

Gun Used In: 50 caliber 15 cm Gun.
Overall Lt.: (w/o fuze) 20 inches.
Wt. of Proj.: 97 1/2 pounds.
Type of Filling: Picric Acid.
Wt. of Filling: 6.8 pounds.
Width of Rotating Bands: forward band: 1 3/16 inches.
after band: 1 3/16 inches.
Fuzes: Type 88 Model 2 impact fuze or Type 91 time fuze.

Type: Type 91 Armor Piercing.

Source: M.E.I.U. #1 Report No. 162.





Description: The projectile is constructed in two (2) parts: the body and the windshield. The windshield is attached to the forward end of the body by threads and four (4) crimps. The rotating band is of two-piece construction, high grade copper. It has a forward sloping surface, a middle lip, and three (3) grooves. The adapter threads in through the base plug and a base fuze threads into the inside of the adapter. Copper gas-check rings form a seal around both the base plug and the fuze adapter. A paper-wrapped preformed block of Type 91 explosive (TNA) is fitted in the projectile cavity. Forward of the charge is a cushioning plug constructed in four (4) layers: a layer of plastic, a thin steel plate, a layer of plastic, and a wooden plug.

Color: White overall, 3/4 inch red band at center of gravity.

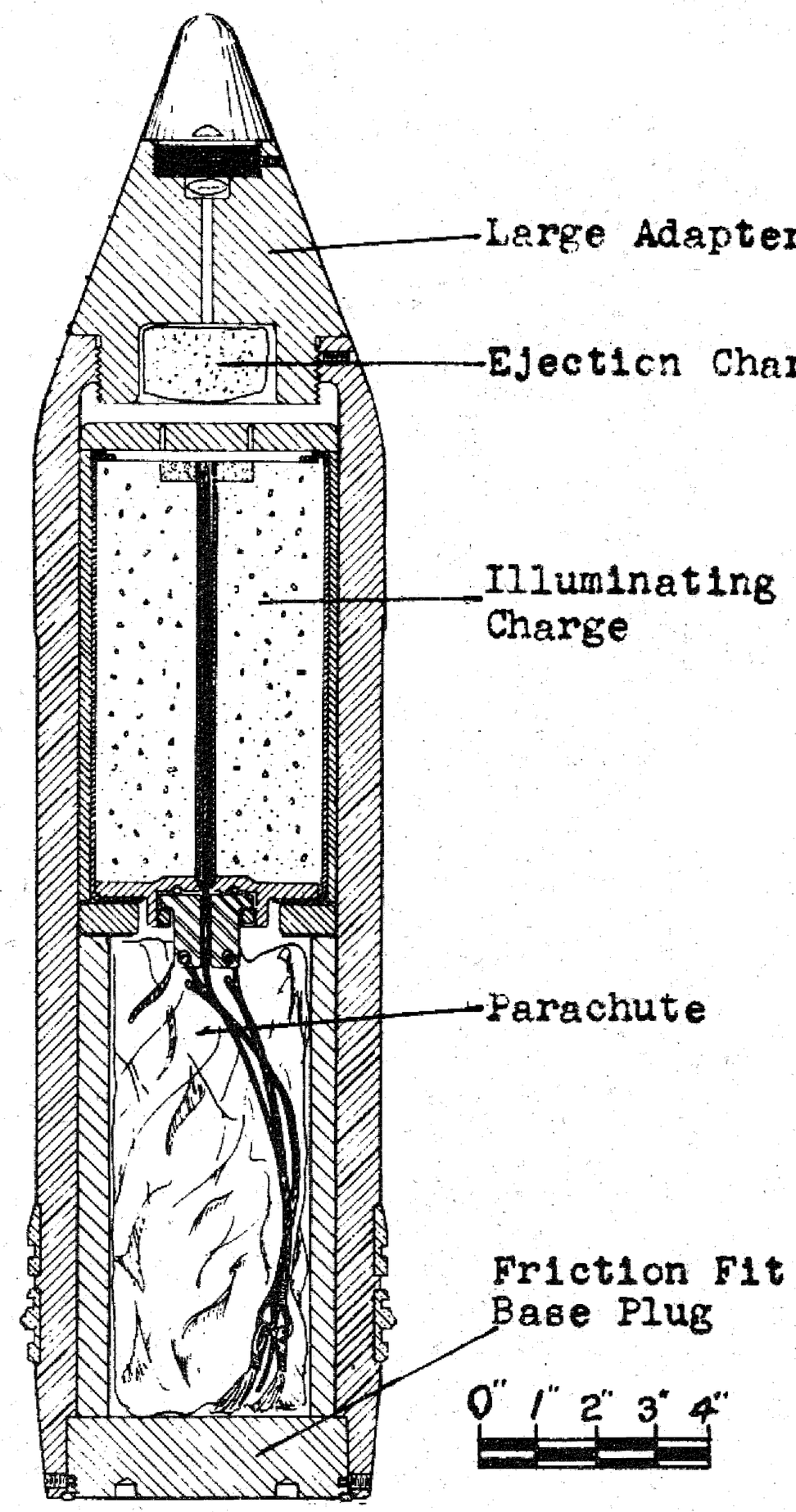
Data:

Gun Used In: 15.5 cm 3rd Year Type Bag Gun.
Overall Lt.: 27 3/32 inches.
Wt. of Proj.: 130 pounds.
Wt. of Filling: 6.83 pounds.
Width of Rotating Bands: forward band: 1 1/4 inches.
after band: 1 1/4 inches.
Fuze: Unknown.

Type: Illuminating.

Source: M.E.I.U. #1 Report No. 162.





Description: The projectile is of usual design, but a large adapter is screwed into the forward end and the base is not threaded. The base plug is rriction fit held in place by six (6) shear screws. Immediately beneath the ruze is an ignition charge and a flash hole which leads to tne black powder ejection charge. Beneath the ejection charge is a steel plate with four (4) small holes through which the flash is transmitted to the illuminating charge. The illuminant is contained in a cannister which is attached by two (2) cables to the parachute. The parachute has 25 pannels and 26 shrouds.

Color: Maroon Overall.

Data:

Gun Used In: 15.5 cm Bag Gun.
Overall Lt.: (w/o fuze) 25 1/4 inches.
Wt. of Proj.: 134 pounds.
Width of Rotating Bands: forward band: 1 1/4 inches.
after band: 1 1/4 inches.
Fuze: Type 91 time fuze.
Wt. of Illuminate Cannister: 20.2 pounds.
Diameter of Parachute: 44 11/16 inches.

Type: Common.

Source: Round recovered by M.E.I.U. #4 personnel.



Description: Projectile has long body and short ogive. No fuze pocket in nose and has appearance of armor-piercing. Takes a base detonating fuze only.

Color: Maroon overall with green nose.

Fuze: Base detonating.

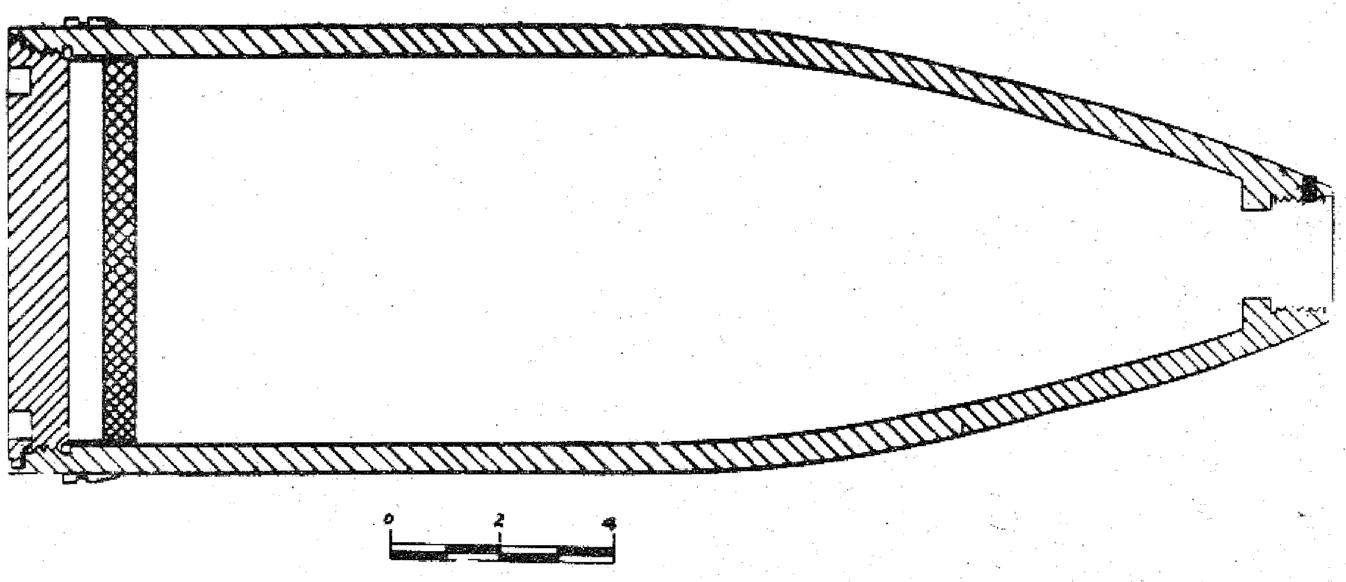
Data:

Gun Used In: 150 mm Coast Defence Gun.
Lt. of Projectile: 22 1/2 inches.
Wt. of empty Projectile: 88 lbs.
Wt. of Rotating Band: 1 3/4 inches.

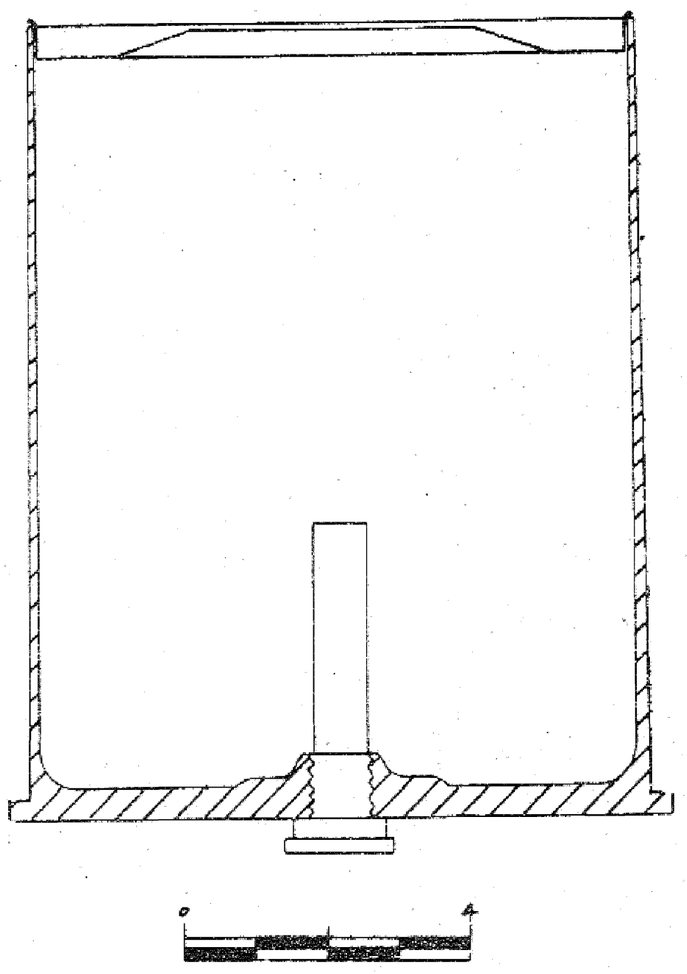
NAVY 200 MM AA ANTI-SUB PROJECTILE

Source: Examination of round recovered by M.E.I.U. #4 personnel. M.E.I.U. #4 Report No. 17.

PROJECTILE



CASE





Description: This projectile has been converted to the 8-inch rocket by adapting a motor body to the base. Nose threaded (R/H) to take standard navy fuzes. Thin case. Filler is cast in one-piece, flannel-wrapped, loaded through base plate, which has two (2) spanner holes.

Color: Maroon body, green nose, may have yellow band at center of gravity.

Data:

Gun Used In: AA and Anti-Sub.
Overall Lt.: 33 inches.
Lt. of Case: 11 inches.
Fuzes: Type 91 Nose Fuze;
Nose Impact Fuze with an adapter;

Fifth Year

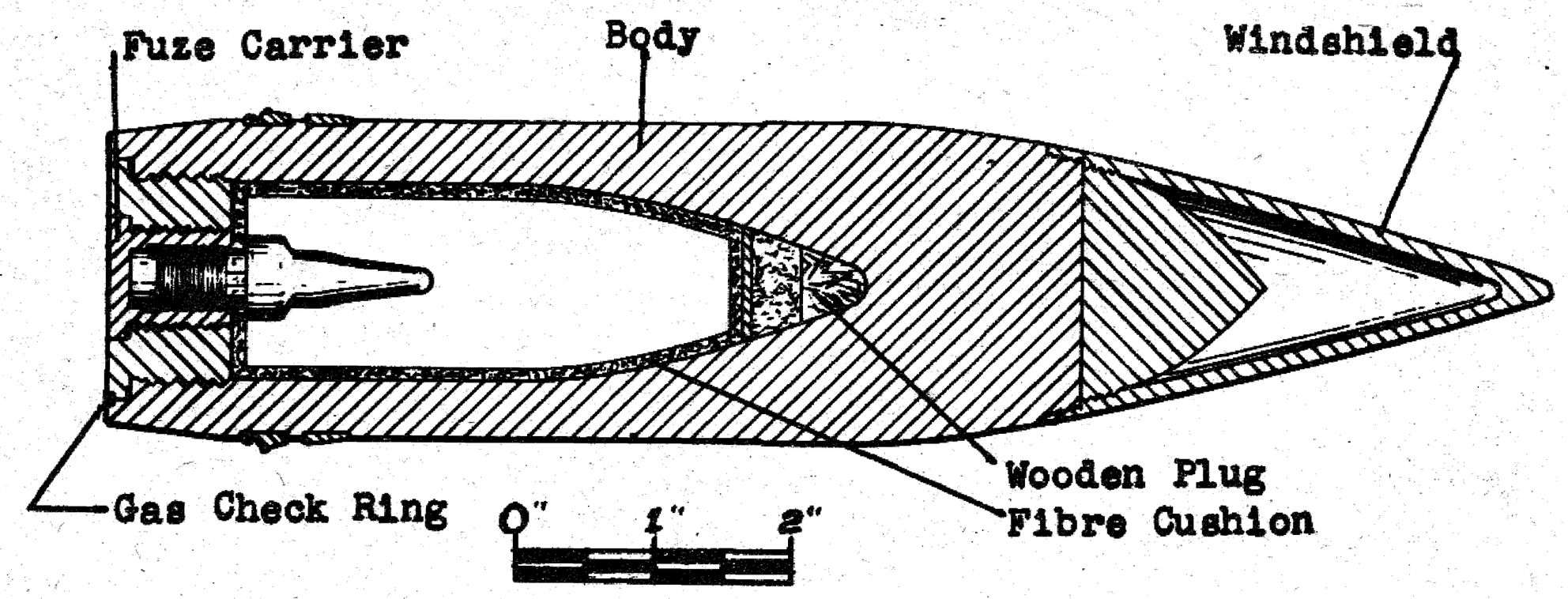
Lt. of Projectile (unfuzed): 22 inches.
Wt. of loaded Projectile: 120 lb.
Type of filling: T.N.A.
Width of Rotating Band: 1 inch.

Remarks: The aux. det. used with Type 91 clockwork fuze easily fits fuze pocket.

Type: Type 91 Armor Piercing Projectile.

Source: M.E.I.U. #1 R-166.





Description: The projectile is constructed in two (2) parts, the body and windshield. The windshield is attached to the forward end of the body by threads and four (4) crimps. Threading into the case of the windshield is a dome-shaped plate. The base plate is threaded to receive a "fuze carrier". A copper gas-check ring seals the cavity. The charge is a fibre-cushioned preformed block of explosive with a metal plate, a fibre cushion, and a wooden plug forward of it in the cavity of the projectile.

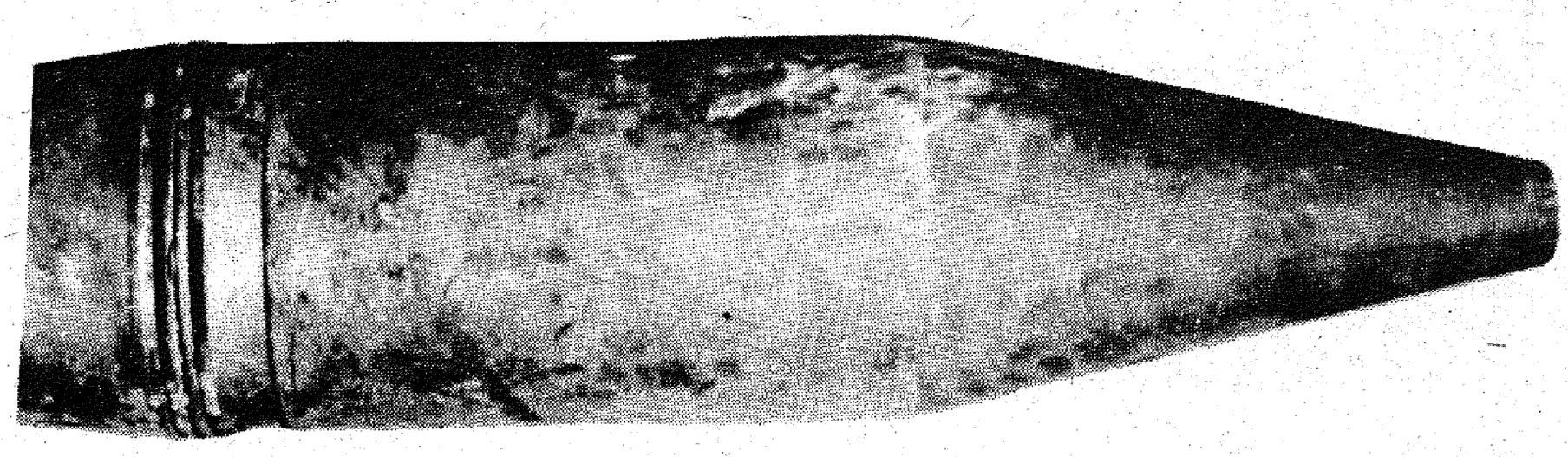
Color: White overall with a 3/4 inch red (orange) band at the center of gravity. The nose was painted green to indicate explosive filling.

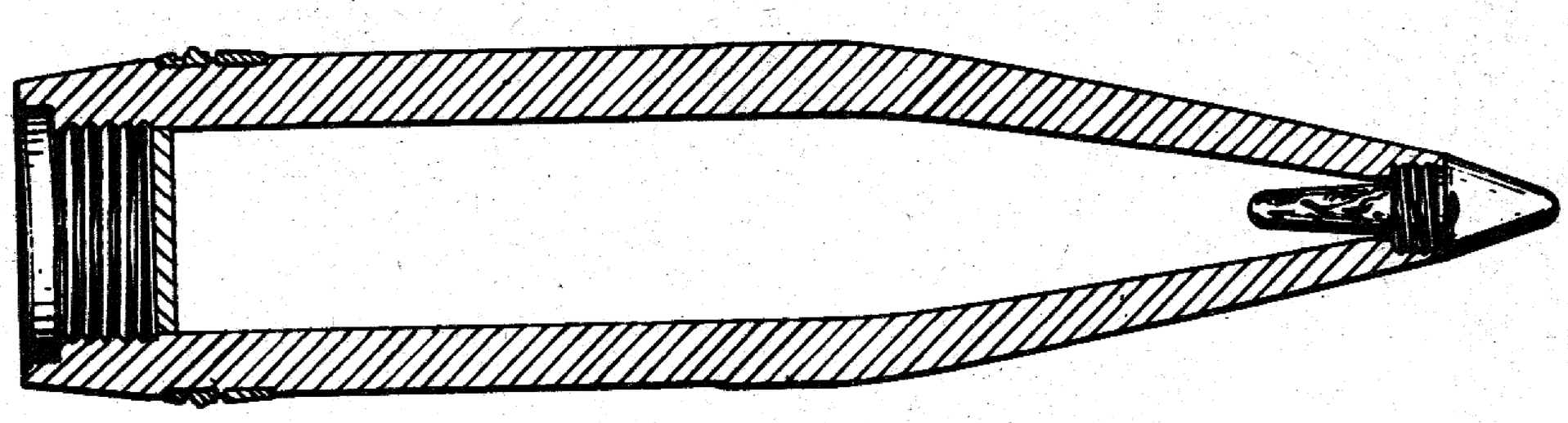
Data:

Fuze: Believed to be 13th Year Type, Mk 4 base fuze.
Overall Lt.: 36.1 inches.
Wt. of Projectile (empty): 260.1 pounds.
Wt. of Filler: 17.2 pounds.
Type of Filler: Type 91 Explosive (Trinitroanisol).
Width of Rotating Bands: forward band: 1 1/8 inches.
after band: 1 1/8 inches.
Gun Used In: Navy 20 cm 50 cal Mk 2 D.P. gun.

Type: Type 0 20 cm Common Projectile (nose fuzed).

Source: M.E.I.U. #1 R-166.





Description: This projectile has a long ogive. It is classified COMMON by the Japanese but in U.S. terminology would be known as HIGH CAPACITY. It is fuzed in the nose only and is closed at the base by a solid base plate.

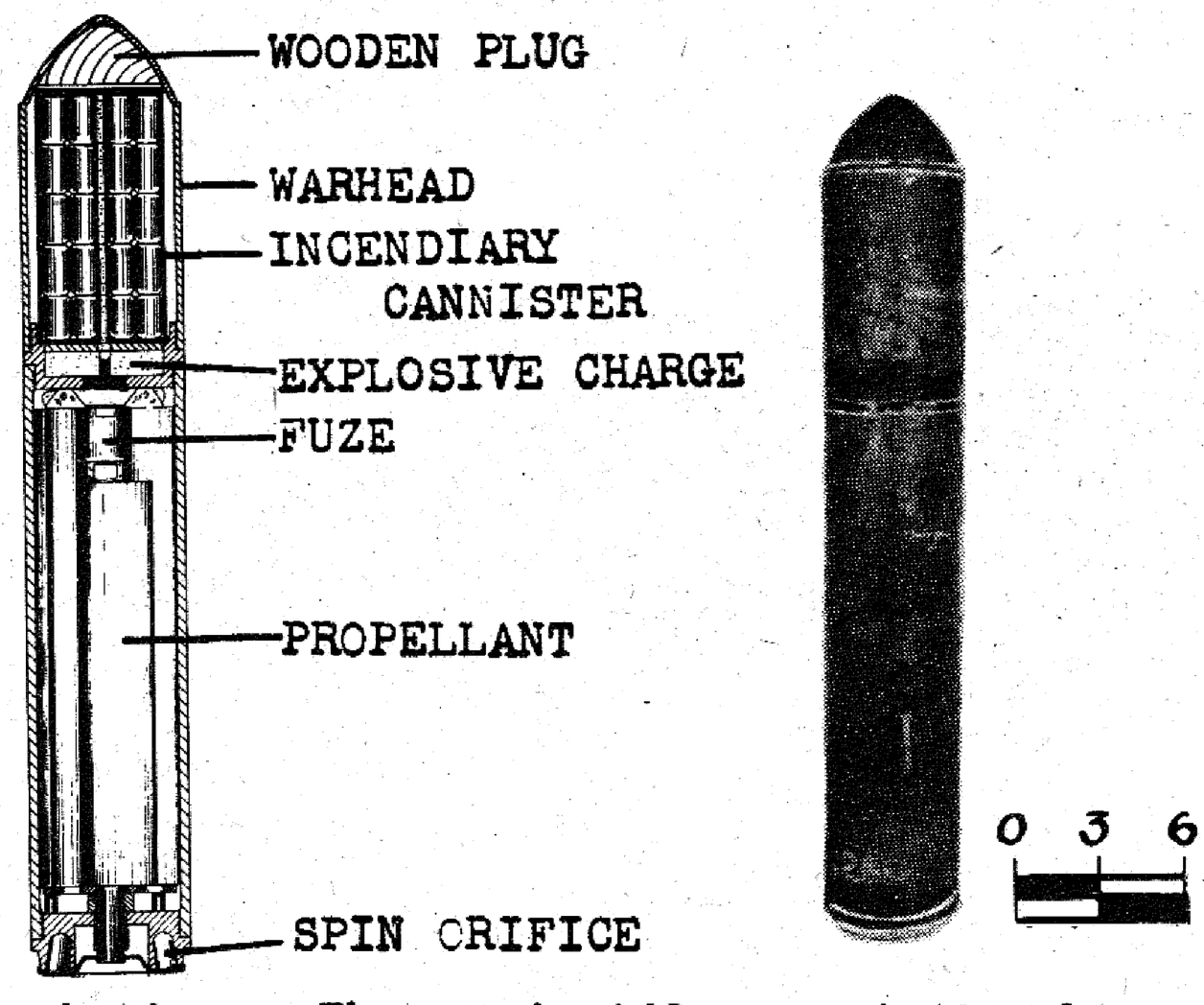
Color: Maroon overall with the body markings not legible.

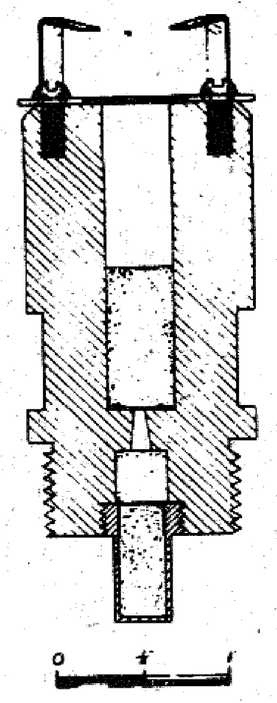
Data:

Fuzes: Type 88 (probable model 4) impact, or Type 91 Time fuze with Type 91 or Type 4 Gaine.
Overall Lt.: (unfuzed) 36.6 inches.
Wt. of Projectile (empty): 262.3 pounds.
Wt. of Filler: 21.4 pounds.
Type of Filler: Type 91 Explosive (Trinitroanisol).
Width of Rotating Bands: forward band: 1 1/8 inches.
after band: 1 1/8 inches.
Gun Used In: Navy 20 cm 50 Cal. Mk. 2 D.P. gun.

Type: Incendiary Shrapnel.

Source: M.E.I.U. #4 Report No. 70.





Description: The projectile consists of a warhead, warhead-motor adapter and the motor.

The warhead is made of a metal cylinder threaded internally aft onto the adapter and welded on the forward end to an ogival nose piece. A zinc inner cylinder containing sixty-two (62) incendiary filled metal pellets is housed in the warhead. Extending the length of the inner cylinder and centrally located is a 10/16" hole into which is fitted a cardboard tube containing five (5) picric acid pellets. In the ogival nose of the warhead a wooden plug is fitted.

The warhead-motor adapter contains a preformed, rounded block of picric acid which is the main explosive charge. The after end of the adapter is threaded externally to receive the forward end of the rocket motor.

The motor is made of a material similar to the warhead and contains one (1) short and six (6) long grains of smokeless powder propellant. Each grain has one (1) perforation. The base plate of the motor has six (6) orifices offset so that the rocket is spin stabilized in flight. The motor primer is fitted through a centrally located opening in the base plate. The flash from the motor primer ignites a small black powder charge in the forward end of the motor which in turn ignites the propellant.

The warhead is detonated by means of a small base fuze which contains a powder train and a gaine. The fuze threads into the after end of the adapter and is ignited by the flash from the propellant igniter.

The projectile is launched from a wooden trough and the primer is fired by means of a striker operated by a lanyard.

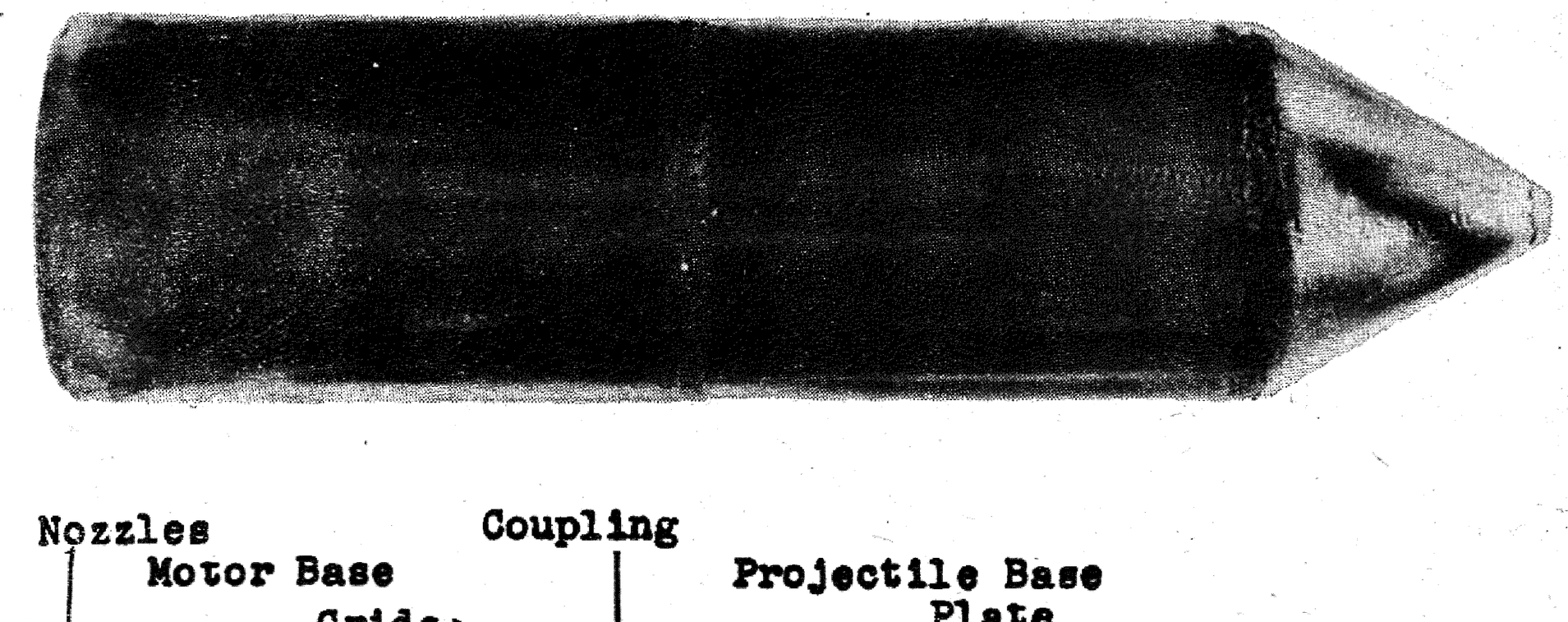
Color & Markings: The rocket is painted black overall. Three and one-half inches (3½") aft of nose and body juncture is a 1/2-inch yellow band.

Data:

Weight (complete): 51 pounds.
Length (overall): 28 9/16 inches.
Outside diameter (warhead): 4 3/4 inches (12 cm).
Case thickness (warhead): 3/16 inch.
Wt. of Main Explosive Charge: 4 3/4 ounces.
Wt. of Inner Cannister: 10 pounds 11 3/4 ounces.
Wt. of Motor Adapter: 3 pounds 6 3/4 ounces.

Type: Navy 45 cm Spin-Stabilized Rocket.

Source: M.E.I.U. #1 Report No. 148 and M.E.I.U. #4 specimen.



Description: This round is made of rolled and welded sheet steel. The conical nose is welded to the cylindrical body of the rocket. The body and motor are joined by a coupling which extends inside each and is secured to the motor by threads and to the body by one weld inside and one outside. A forward and an after grid position 39 sticks of propellant in the motor. The motor is closed by a male base plate which contains six (6) nozzles canted from the longitudinal axis by an angle of $18\frac{1}{2}^{o}$ to produce right-hand spin for stabilizing the rocket's flight. An ignition primer fits into the base plate. A Navy rocket fuze may be used in the fuze pocket directly, or, by the use of an adapter, an Army fuze may be fuzed.

Color: Maroon overall with a green nose.

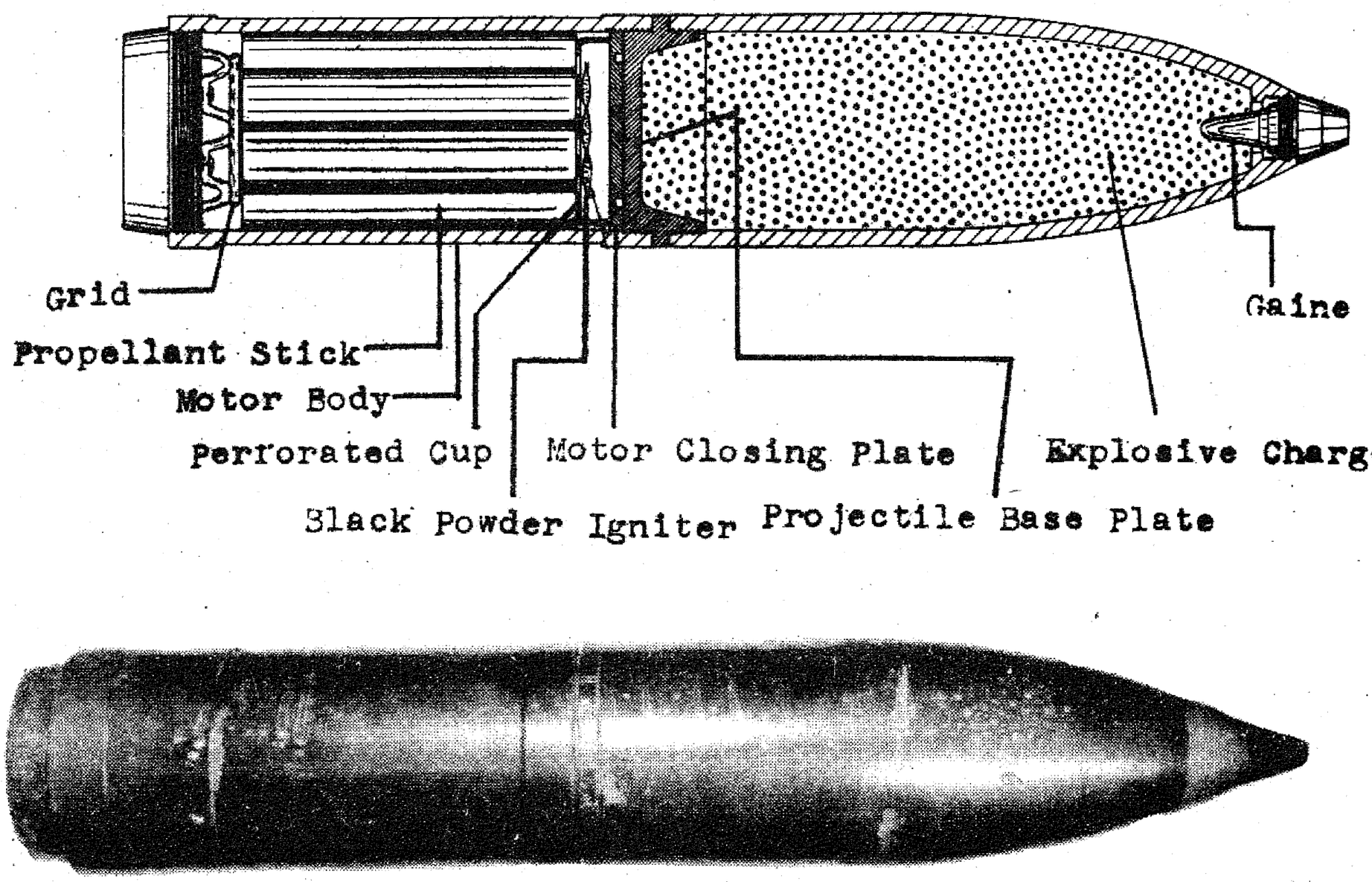
Data:

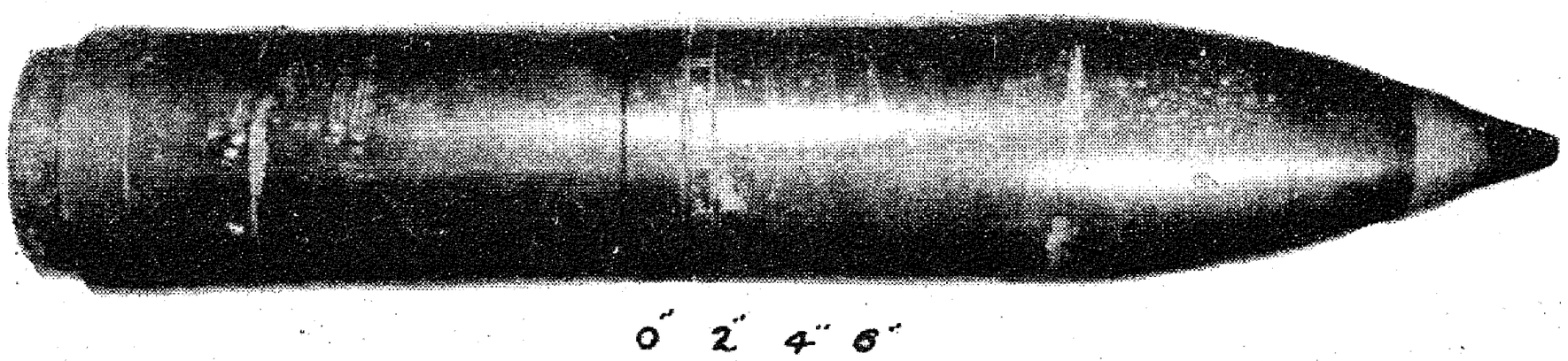
Gun Used In: Wooden trough launcher.
Overall Lt. (unfuzed): 67 1/2 inches.
Lt. of Motor: 27 inches.
Fuze (w/o Adapter): Navy Super Quick Point Detonating (used in Navy 20 cm rocket).
Fuze with Adapter: Type 100 Instantaneous-Short Delay Mortar Fuze.
Weight Loaded: 1514 pounds.
Filling of Projectile: Type 98 Explosive.

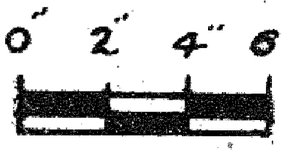
Type: Navy eight (8) inch

Source: MEIU #4 Report 17 and Addendum; and U.S.N.B.D.I.B.

JAPANESE NAVAL 20 CM ROCKET







Description: Resembles 8 inch projectile cut off just forward of the rotating band, and threaded internally to take a base plate. Nose is (r/h) threaded for standard Navy fuzes. Rocket Motor threads onto after end of projectile base plate. Motor base plate, containing gas orifices, thread into after end of motor. Orifices are canted to impart rotation to projectile.

Color: Maroon body, green nose

Data:

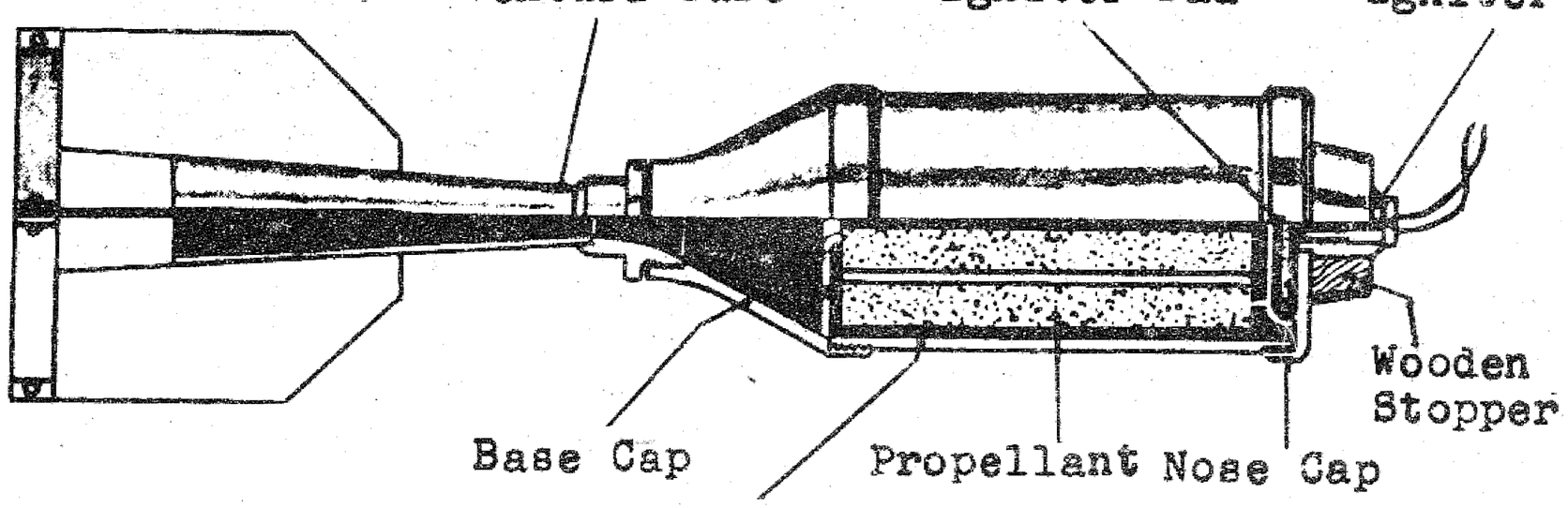
Gun used in:	Trough like launcher
Overall length:	43 inches
Length of Motor:	18½ inches
Fuze:	Special super-quick point detonating
Weight loaded:	195 lbs.
Filling:	TNA

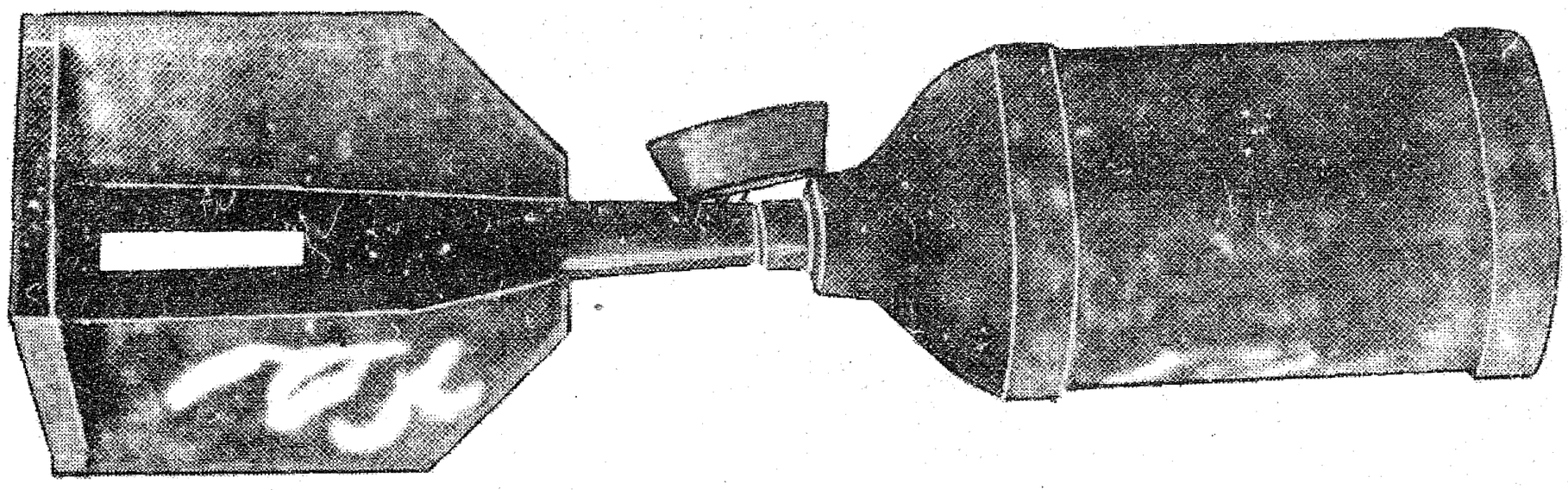
Type: Rocket Motor for Navy G.P. Bomb.

Source: Technical Intelligence Bulletin No. 6 POA;
U.S.N.B.D. Intelligence Bulletin No. 75.

Use: To propell 60 Kg. Type 97 Japanese navy G.P. bomb.

ROCKET MOTOR





Description: This unit differs from the conventional type of Rocket Motor in that it is not an integral part of the bomb. The separate rocket motor is used merely to propell the bomb out of an inclined trough launcher. After the motor burns out, it falls away and the bomb continues on its trojectory.

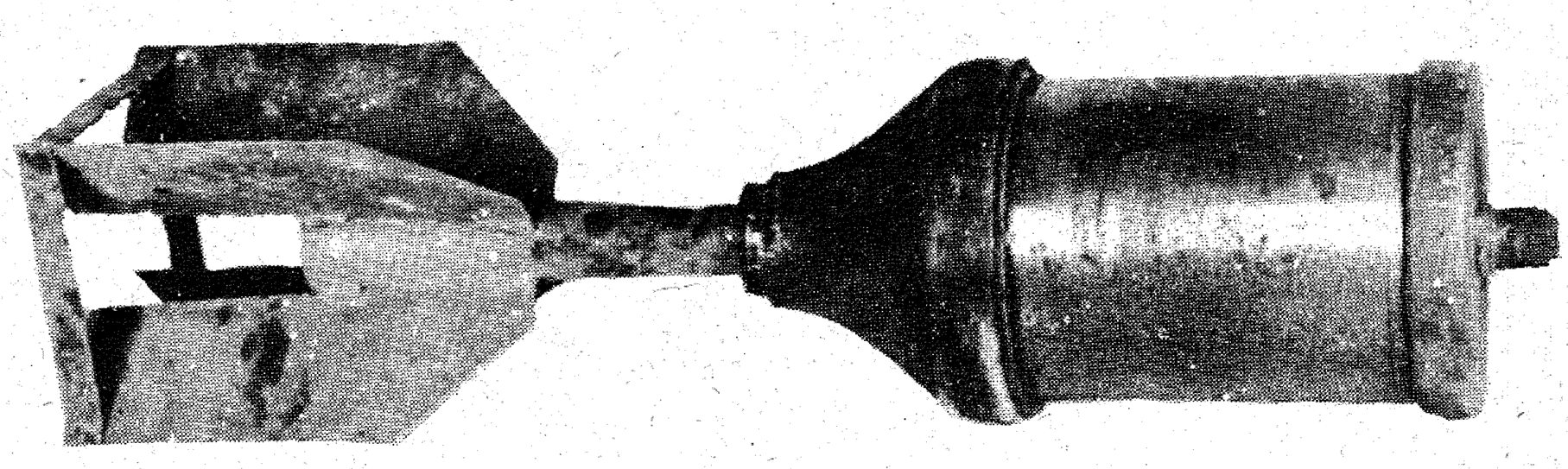
The motor has the appearance of a blunt-nose, short bodied bomb, and is shipped with a wooden spacer attached to the venturi tube. This spacer is placed between bomb and motor in launching trough.

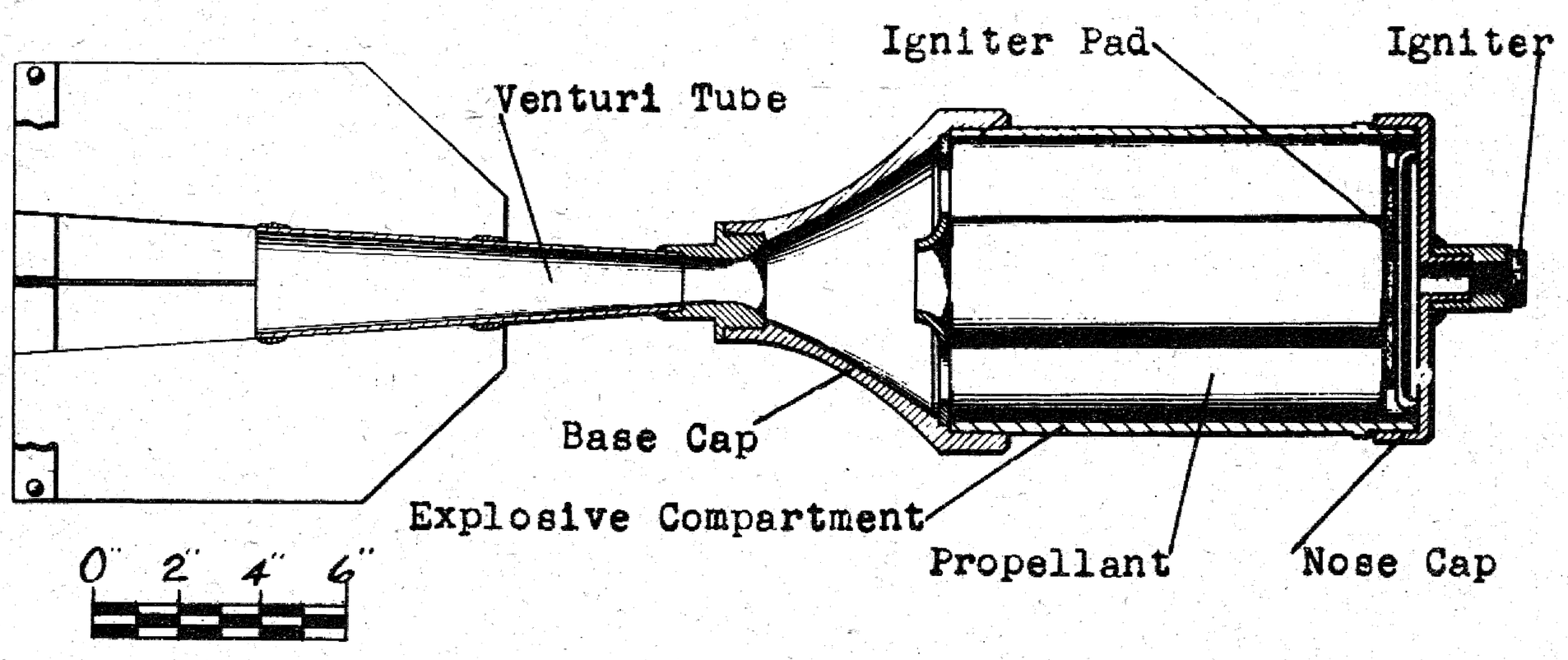
The component parts of the motor consist of a cylinder with front and rear caps, a venturi tube and tail fins with struts.

Enclosed within the cylinder are three (3) sticks of double base powder and an igniter pad of black powder. An igniter containing an electric bridge and black powder fits into the nose. The igniter is fired by means of a blasting machine.

Type: Modification of Type 1 Rocket Motor.

Source: M.E.I.U. #4 Specimen.





Description: This unit closely resembles the Type 1 Rocket Motor. It is used to propell GP HE bombs from a trough launcher and falls free of the bomb when the propellant burns out.

The motor consists of a cylinder with a threaded (RH) female nose cap and a threaded (RH) boat-tailed female base cap. A venturi tube, with fins attached, threads (RH) into the base cap.

Enclosed in the cylinder are three (3) sticks of a double base powder tied in a yellow silk bag. Their total weight is 5.7 Kg. An igniter container, an electric bridge, and black powder fit into the center of the nose cap. The igniter is fired by a blasting machine.

Color: With the exception of the unpainted cylinder, the unit is painted black.

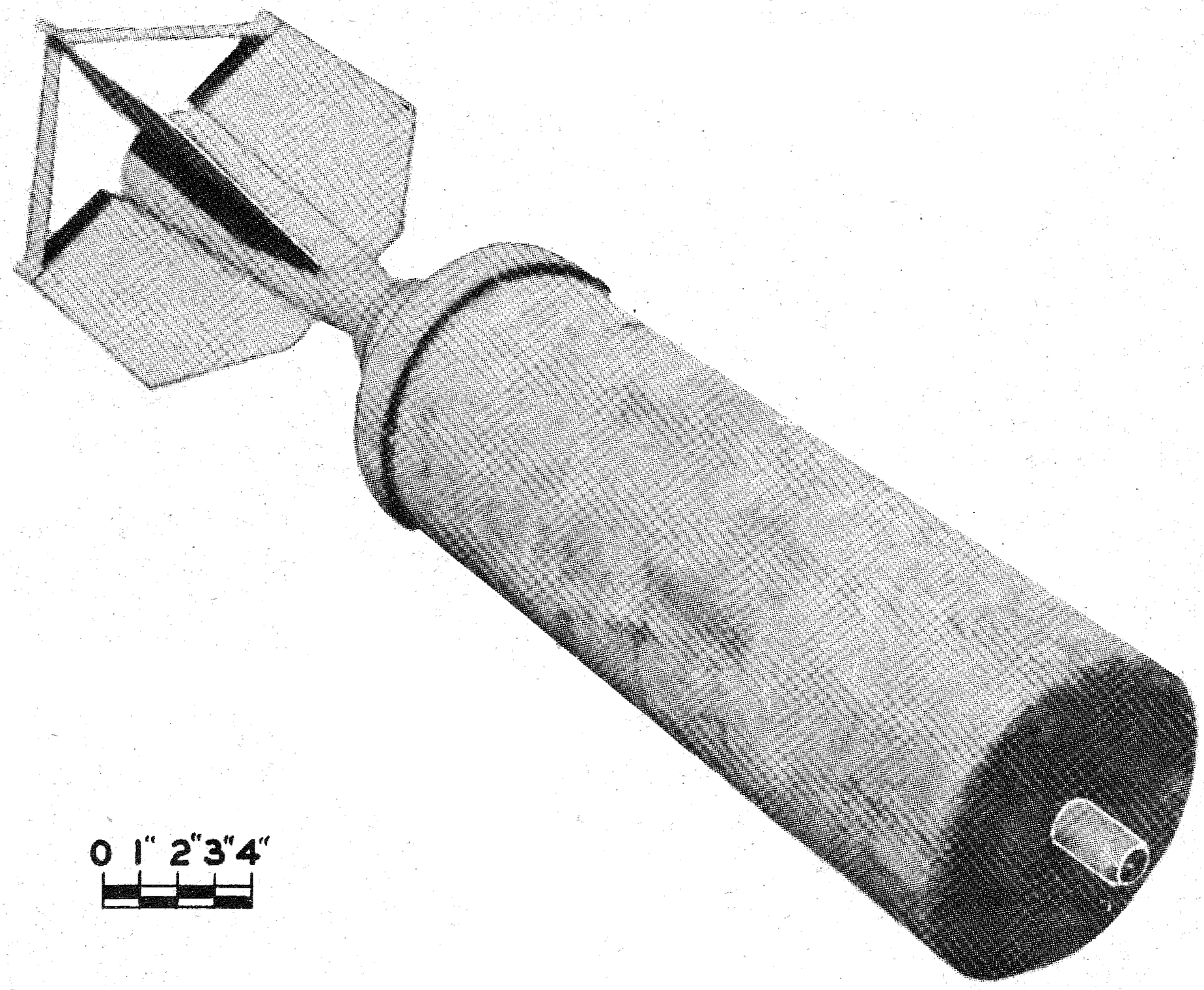
Data:

Overall Lt.: 36 inches.
Maximum Diameter: 8.4 inches.
Lt. of Propellant Cylinder: 11.24 inches.
Diameter of Propellant Cylinder: 7.4 inches.
Lt. of Tail Fins: 11.75 inches.
Width of Tail Fins: 3.6 inches.
Total Weight: 24.7 Kg.

Type: Type 3 Rocket Launcher.

Source: M.E.I.U. #4 R-60.

Use: To propell No. 6 Land Bomb.



Description: The details of construction are very similar to the one on page 126. This launcher, however, does not have a nose cap, but the forward nose plate is welded to the cylindrical body. It is longer and heavier than the later type.

Color: Blue-grey overall with red band on after end of base cap.

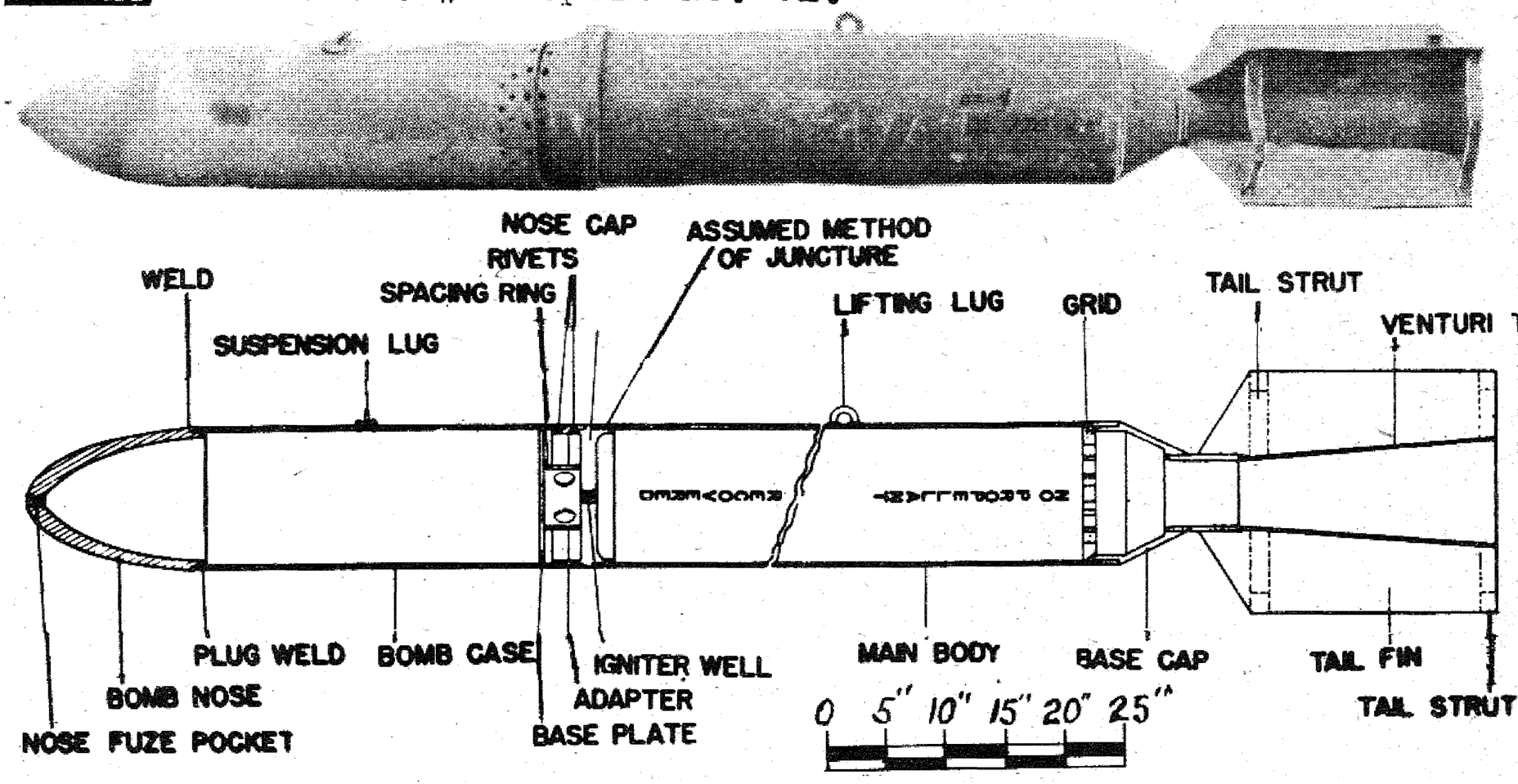
Data:

Overall Lt.: 40.6 inches.
Maximum diameter: 7.9 inches.
Lt. of Propellant Cylinder: 21.5 inches.
Diameter of Propellant Cylinder: 7.5 inches.
Total Weight: 92 lb.

250 KG BOMB ROCKET

Type: 250 Kg. Bomb Rocket.

Source: M.E.I.U. #4 Report No. 61.



Description: I. Explosive Head. The warhead of the rocket is a Navy Type 98 No. 25 Land Bomb from which the tail assembly has been removed. A base plate is slipped into the after end of the bomb, and is held in place against the explosive by the motor adapter.

Data: Overall Lt. of Warhead: 39.6 inches.
Maximum Dia. of Warhead: 11 15/16 inches.
Wt. of filled Warhead, Adapter, and Base Plate: 435 lb.
Filling: TNA-HND.
Fuze: A-3(a) with a green tip A-3 gaine.

II. Motor Adapter. The motor adapter is a shaped, steel ring which fits into the base of the bomb and over the nose flange of the rocket motor. It has twenty (20) holes in its forward section, and sixteen (16) holes in its after section by which the bomb and rocket motor, respectively, are riveted to the ring.

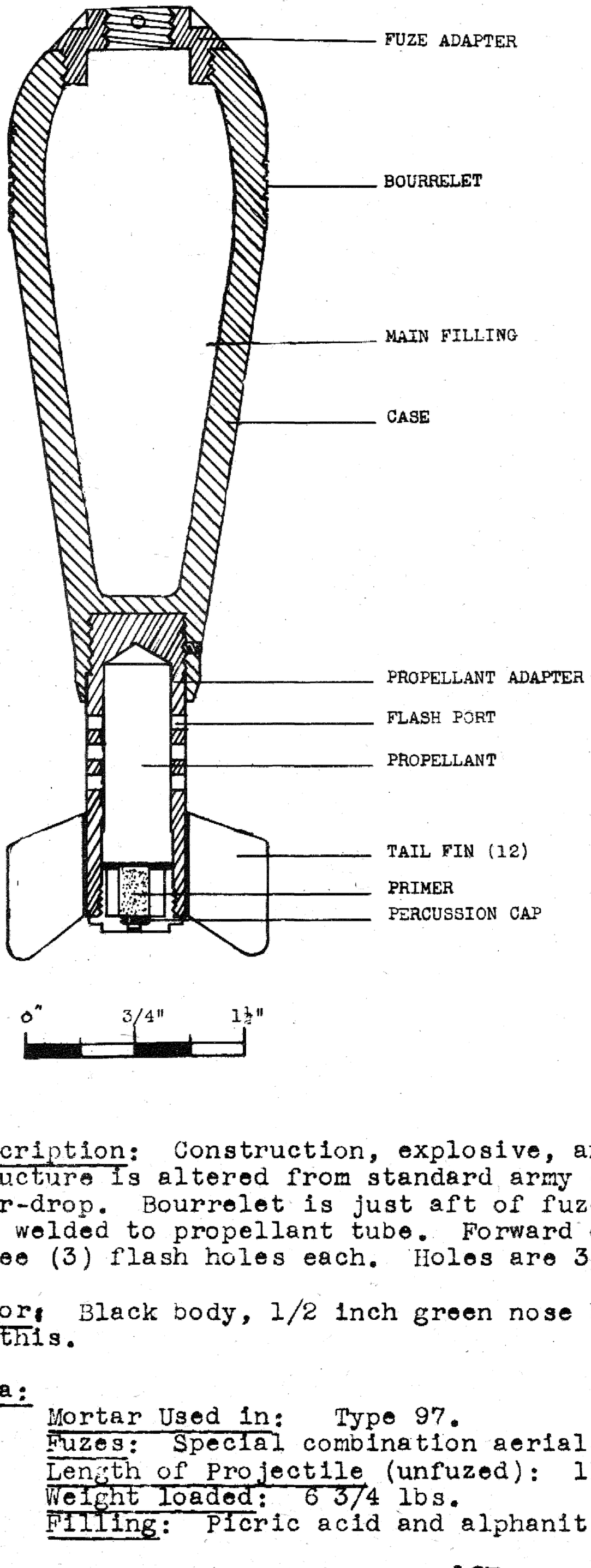
III. Rocket Motor. The known parts of the rocket motor are the nose cap, main body base cap, tail assembly, and grid. It is believed that the nose cap threads into the rocket body. The nose cap has a flange on its forward end to which the adapter is riveted, and a 3/4 inch threaded hole into which the igniter is fitted. The main body is a cylindrical tube internally threaded on both ends. An eye-bolt of flat steel plate is welded longitudinally to the main body. The base cap is in the form of a truncated cone, internally threaded aft to take the venturi tube. A heavy grid in the after end of the main body positions the propellant.

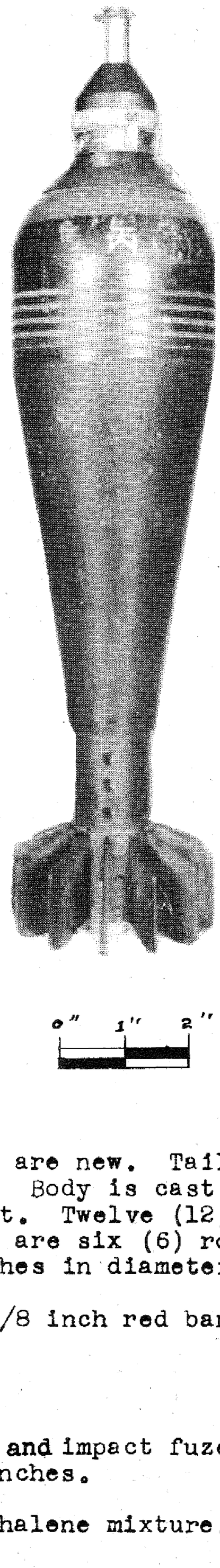
Data: Overall Lt. of Motor: 78 inches (approx.).
Dia. of Main Body: 11 15/16 inches.
Wt. of Motor (empty): 25 pounds
Lt. of Venturi Tube: 24 3/4 inches.
Dia. of Venturi Tube (after end): 8 1/4 inches.
Length of Tail Fins: 22 inches.

* NOTE: The specimen herein reported was a dud. Thus, some details of construction and coloring remain uncertain. Nothing is known of the propellant. The approximate weight and length of the complete bomb rocket are, respectively, 686 lb. (bomb filled) and 118 inches.

Source: MEIU #4, Report #12, Report #25, MEIU #1, Report #104.

JAPANESE NAVY 81 MM MORTAR PROJECTILE





Description: Construction, explosive, and fuze are new. Tail structure is altered from standard army design. Body is cast steel tear-drop. Bourrelet is just aft of fuze pocket. Twelve (12) fins are welded to propellant tube. Forward of fins are six (6) rows of three (3) flash holes each. Holes are 3/16 inches in diameter.

Color: Black body, 1/2 inch green nose band, 7/8 inch red band aft of this.

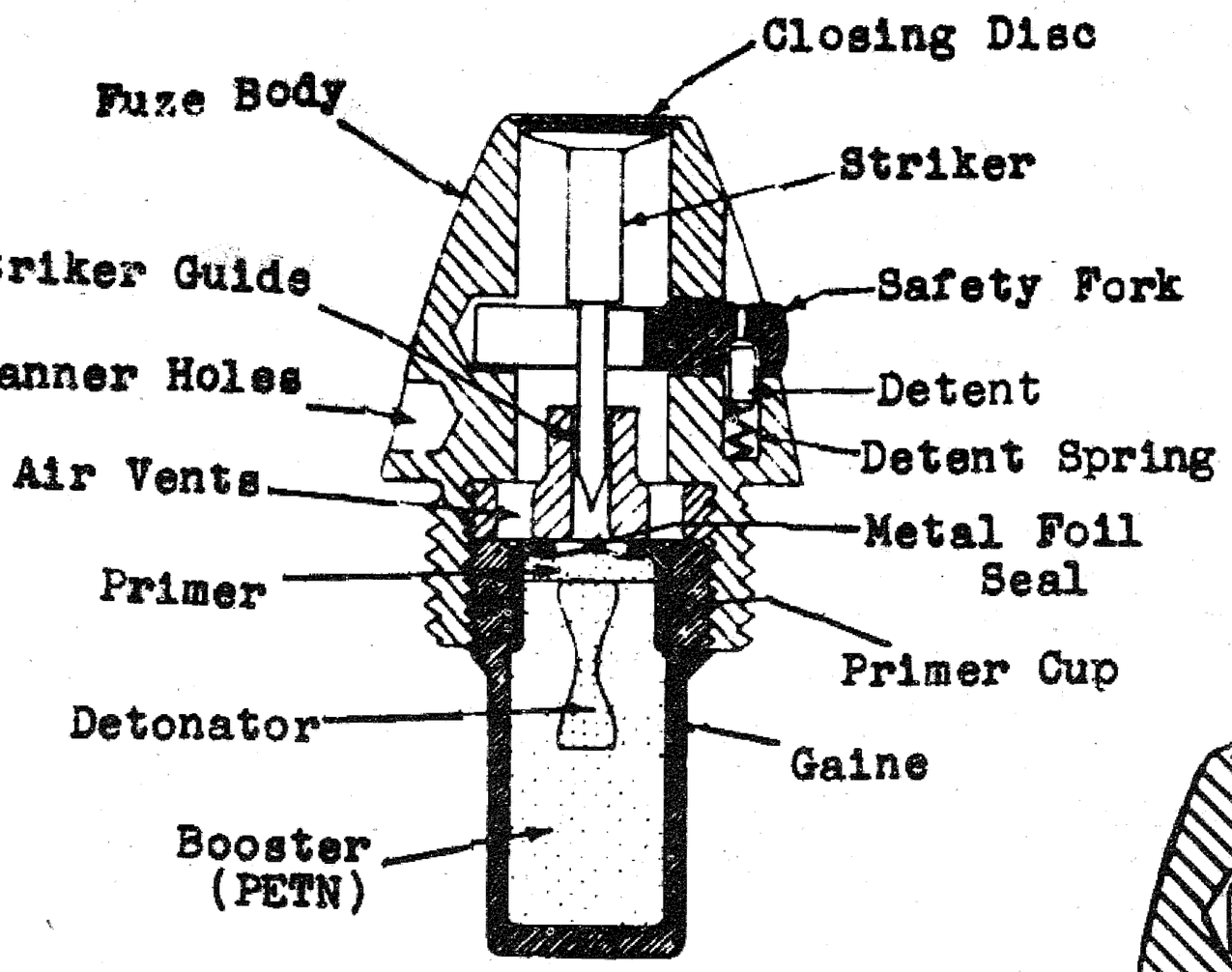
Data:

Mortar Used in: Type 97.
Fuzes: Special combination aerial burst, and impact fuze.
Length of Projectile (unfuzed): 11 1/2 inches.
Weight loaded: 6 3/4 lbs.
Filling: Picric acid and alphanitronaphthalene mixture.

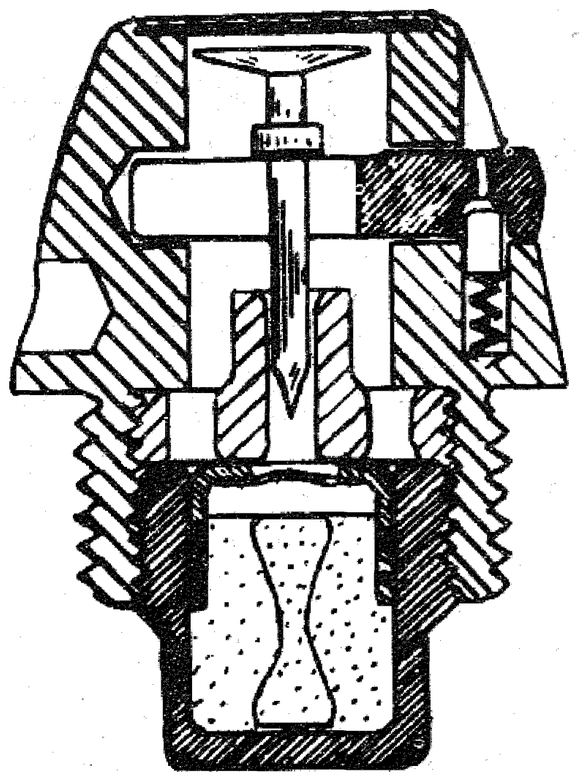
JAP NAVY PROJECTILE FUZES

Type: Jump-out Type (Type I(a))&(I(b)). Oerlikon design nose fuze.

Source: M.E.I.U. #1 Report No. 96.



LONG BODY
LONG GAINE



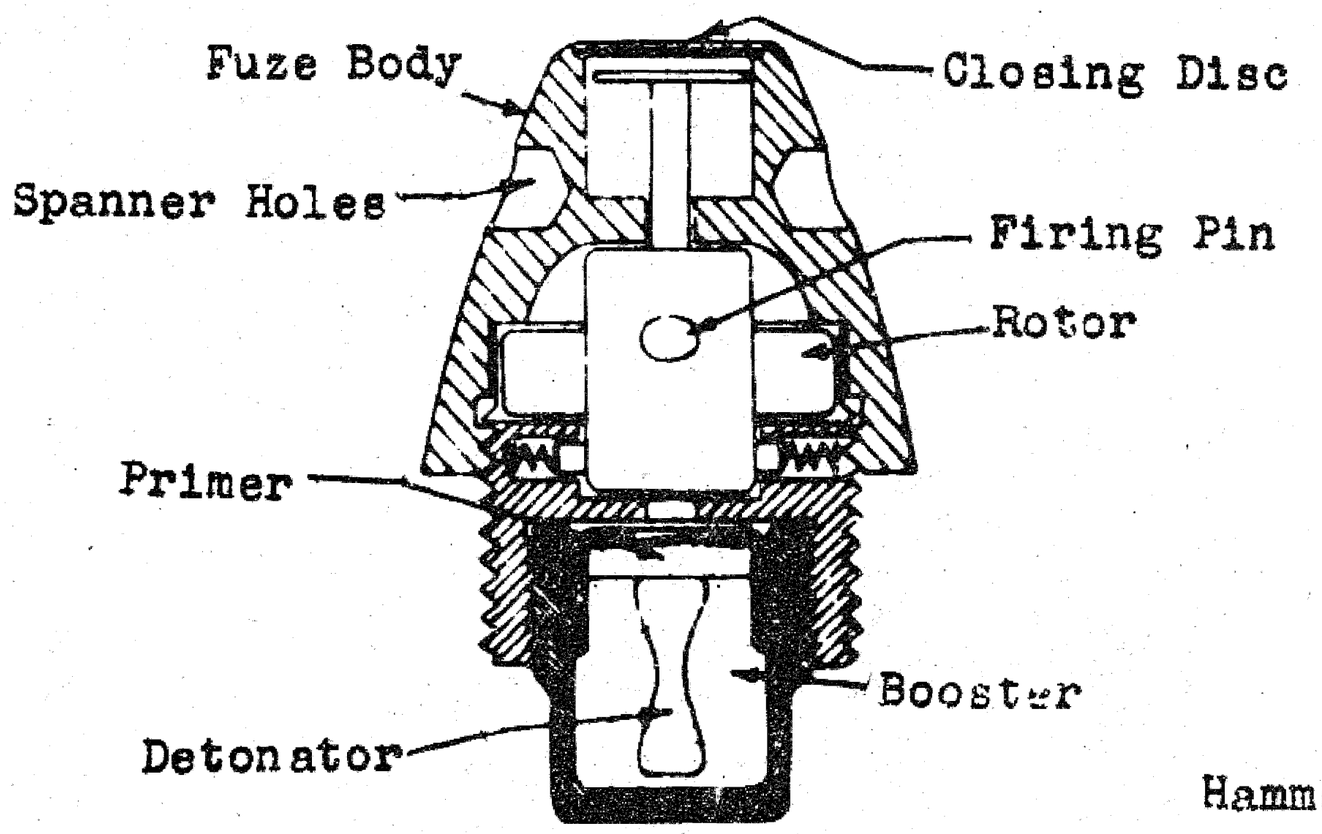
SHORT BODY
SHORT GAINE

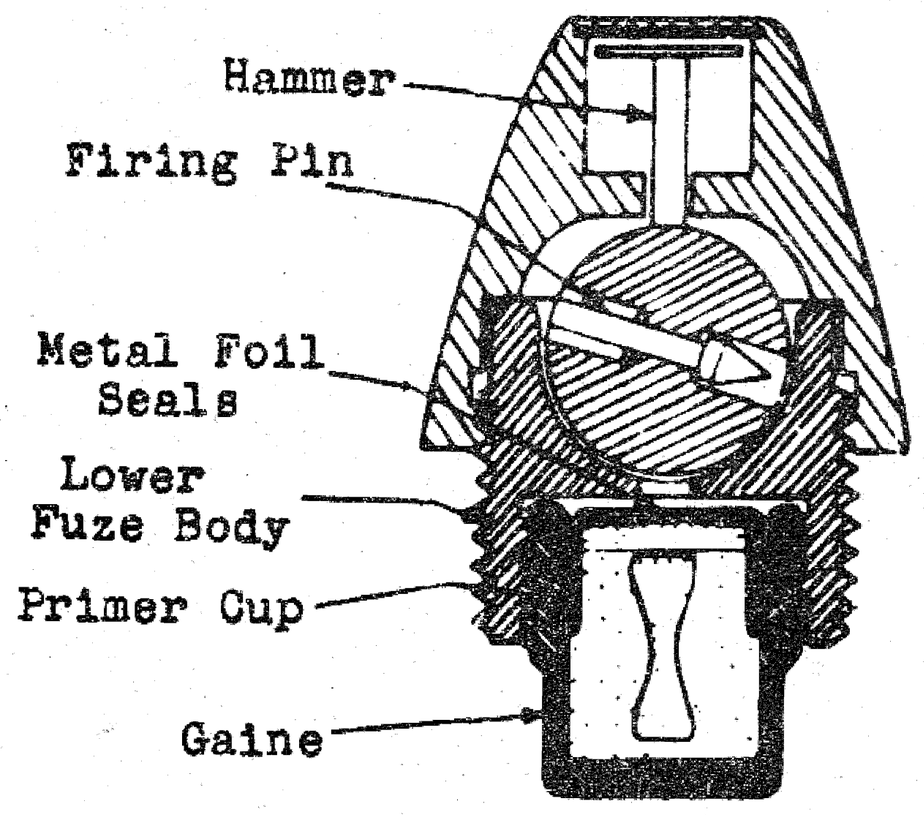
Use: I(a)-HET (no mod, Mod 1) Jap, HET (S.D.) Jap, HET (S.D.) Swiss
I(b)-HE (Swiss), HET (Mod 2), HEI (no Mod & Mod 1) Jap.

Description & Operation: Two (2) sizes having same operation. Detent moves down on setback. Safety fork thrown clear by centrifugal force as round leaves bore of gun.

Type: Rotor type (Type II). Oerlikon design nose fuze.

Source: M.E.I.U. #1 Report No. 96.





View 90 Degrees Removed

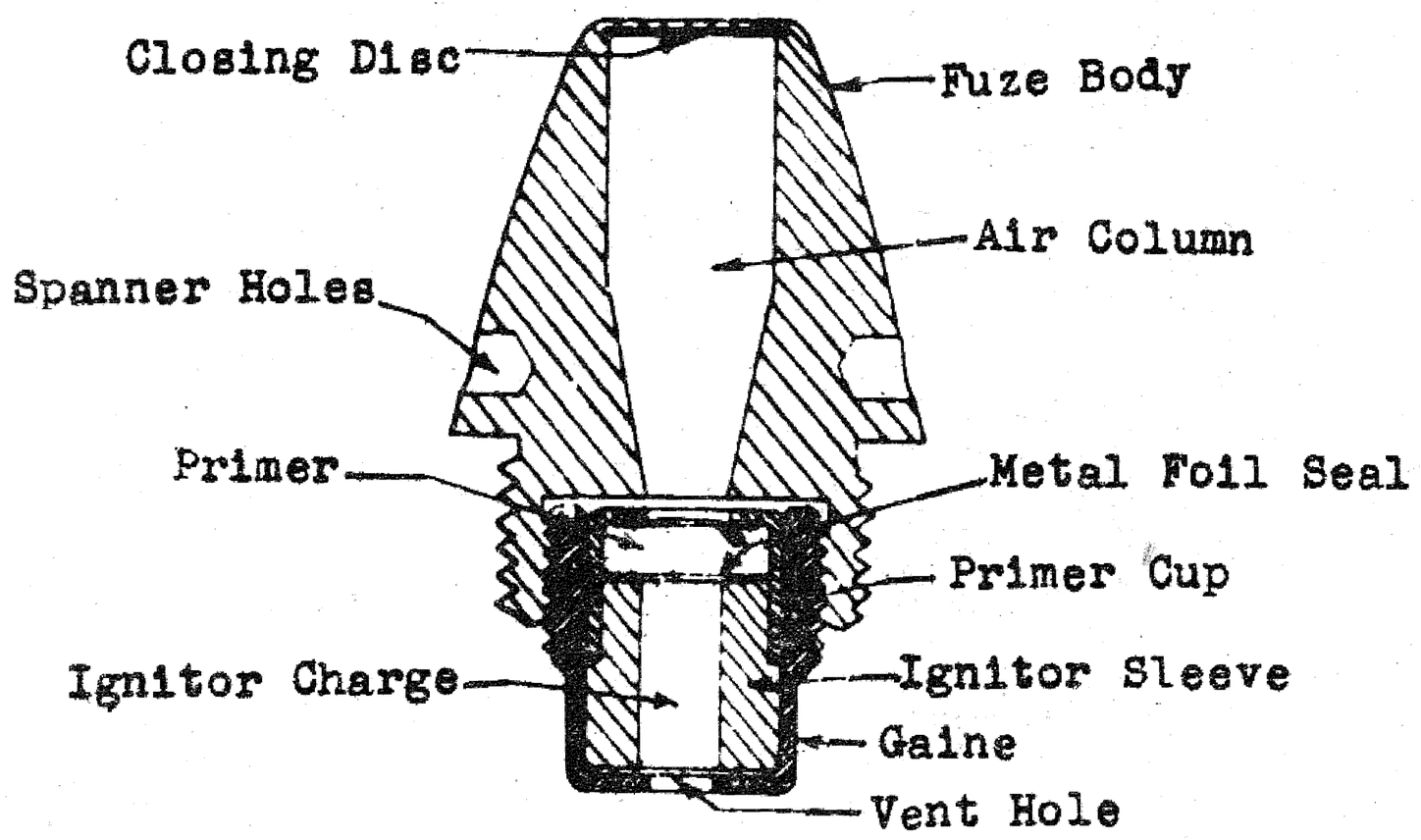
Use: HE and HET Mod. 3.

Description & Operation: Firing pin housed in rotor. Centrifugal force causes detents to move back against their springs, releasing rotor which turns because of centrifugal force until striker is aligned with hammer and gaine.

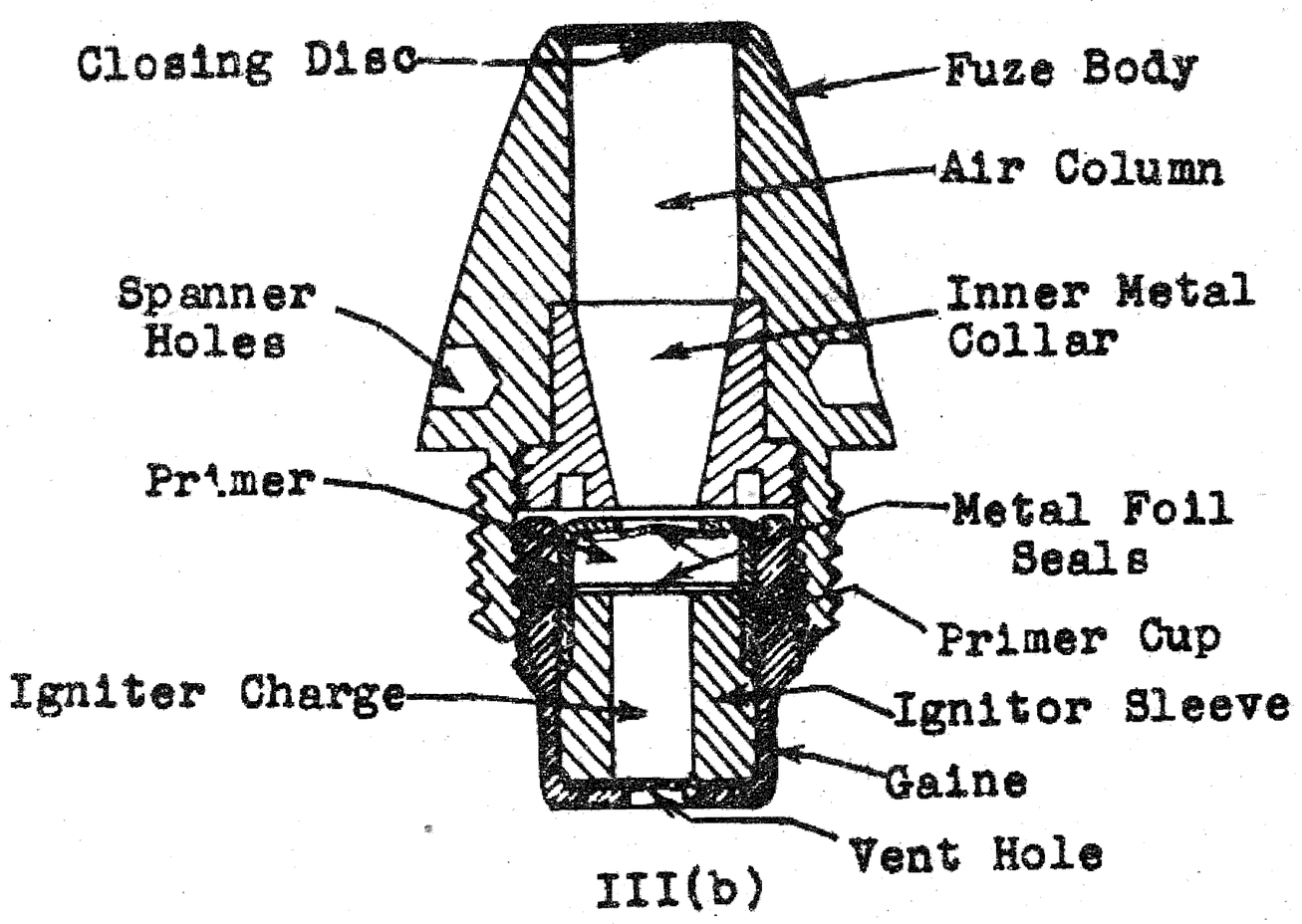
20 MM AIRCRAFT CANNON NOSE FUZE

Type: IIIa and IIIb. Air column nose fuze.

Source: M.E.I.U. #1 Report No. 96.



III(a)



III(b)

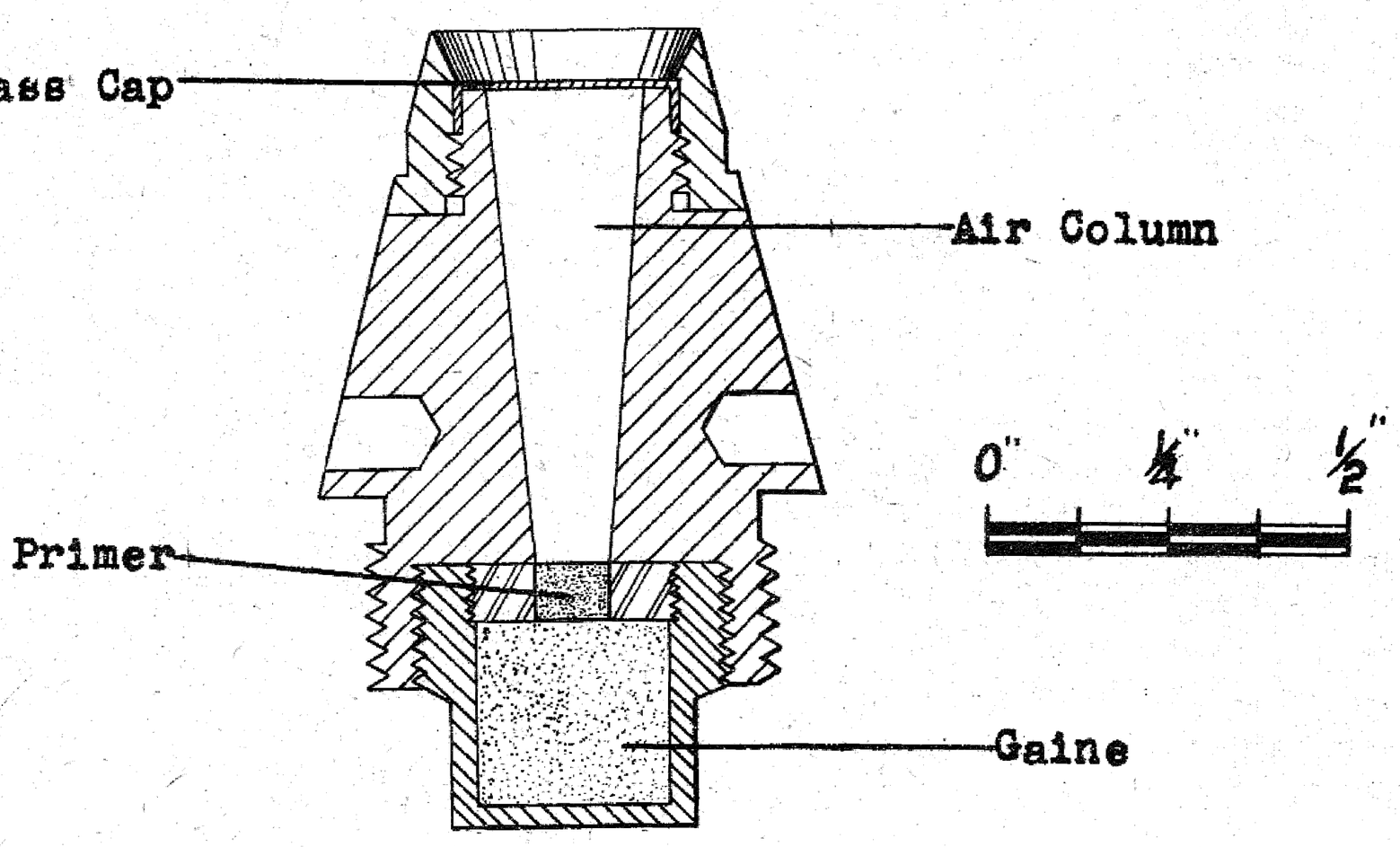
Use: HEI Mod. 2.

Description & Operation: Principle same as U.S. Navy Mk. 26. Two (2) variations. III(a) is one piece construction. III(b) is two (2) piece construction. No arming principle employed. On impact air pressure generates sufficient heat to detonate primer.

Type: 20 mm Air Column Fuze.

Source: M.E.I.U. #4 Specimen.

Use: Type 99 Mk. 2 H.E.I. 20 mm projectile.



Description: A black steel nose section threads onto the brass body. The top of the air column is closed by a thin, brass cap held between the nose section and the fuze body. Two (2) spanner holes are present in the fuze body.

Operation: The fuze has no safety or arming features. On impact the nose is crushed and the compression of the air in the air column detonates a highly sensitive primer which in turn fires the gaine.

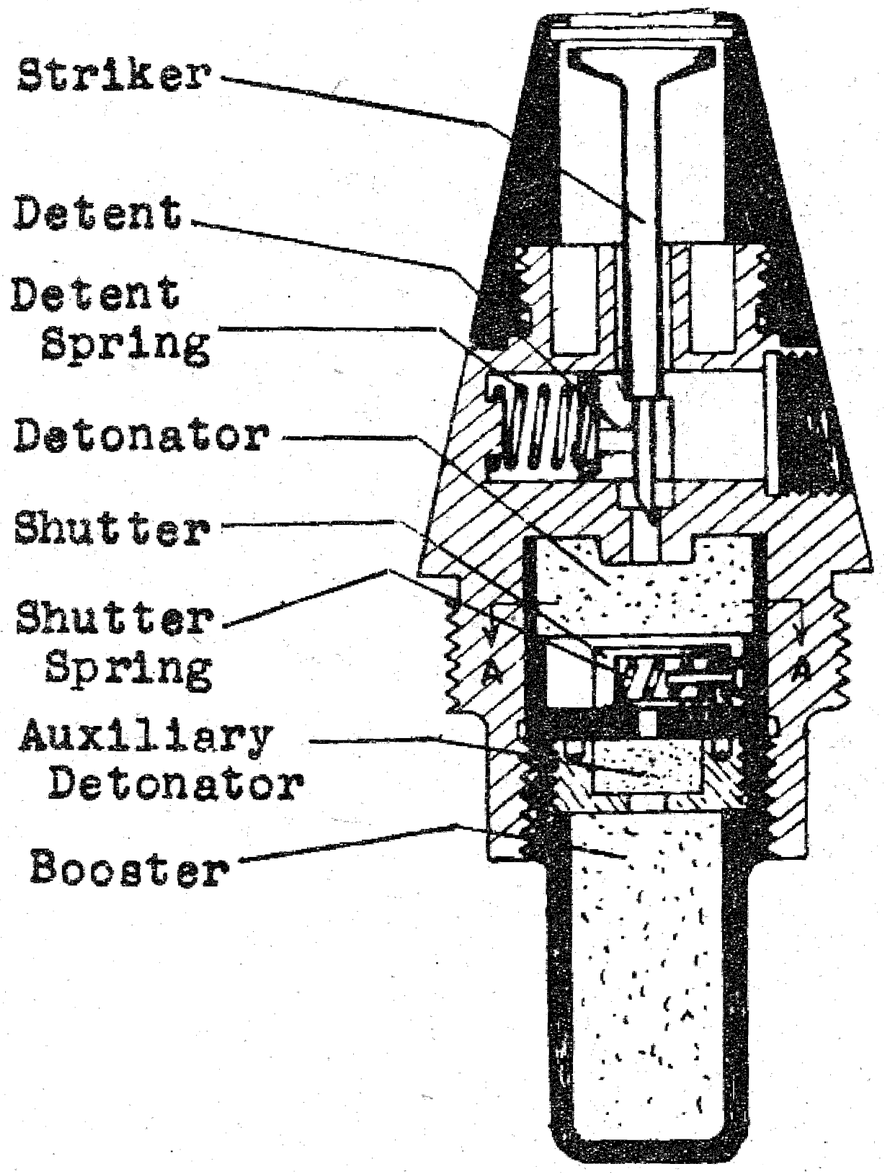
25 MM FUZE

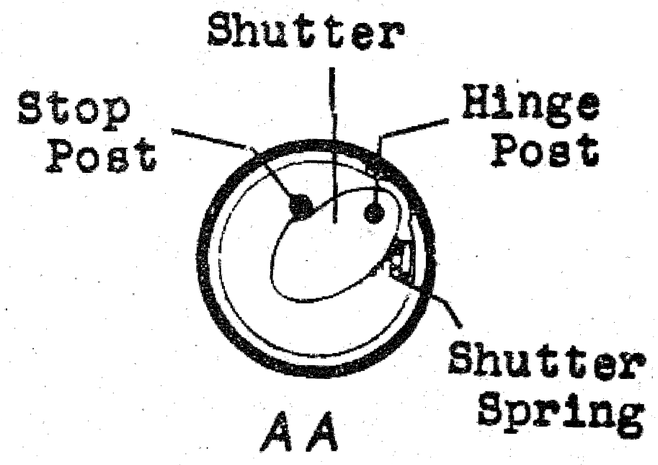
Type: Model I

Source: MEIU #1, Report 12

Use: All nose fuzed 25 mm projectile

25 MM FUZE MODEL 1





Description & Operation: Conical impact fuze, armed by rotation. With centrifugal force detent moves from under striker and centrifugal flash seal swings clear allowing explosive cap to flash down on gaine. Lead azide pellet imbedded in top of Tetryl gaine.

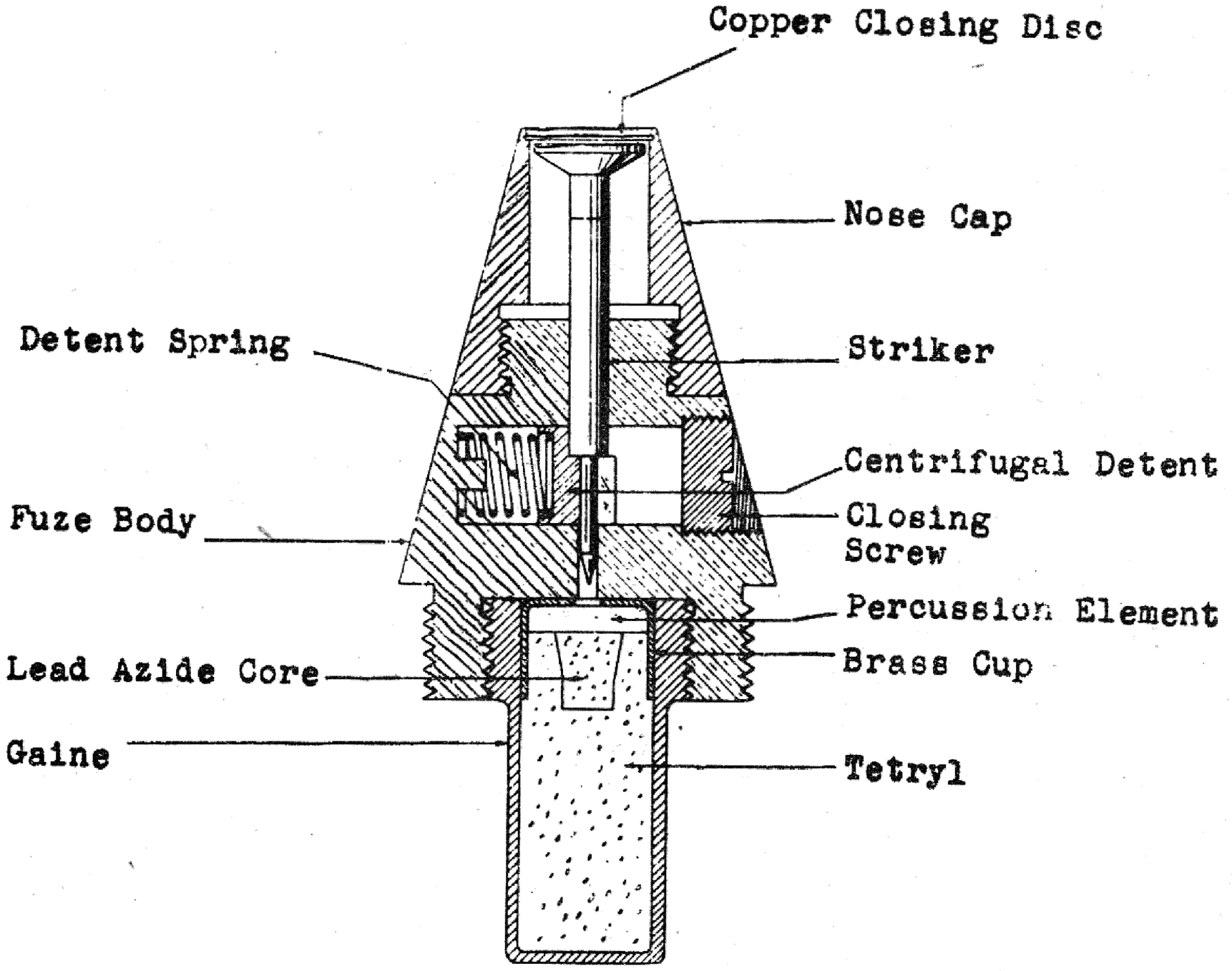
Remarks: Because of shutter housing on Model 1 fuze, Model 1 and 4 fuzes are not interchangeable after the projectile is loaded.

Type: Model 4

Source: MEIU #1, Report 74

Use: All nose fuzed 25 mm projectiles

25 MM FUZE MODEL 4



Description & Operation: May have brass or steel nose cap Nose more sharply pointed and striker longer than Model 1. Centrifugal flash seal and housing eliminated. Operation same as Model 1. Lead azide pellet is embedded directly below the percussion cap in gaine.

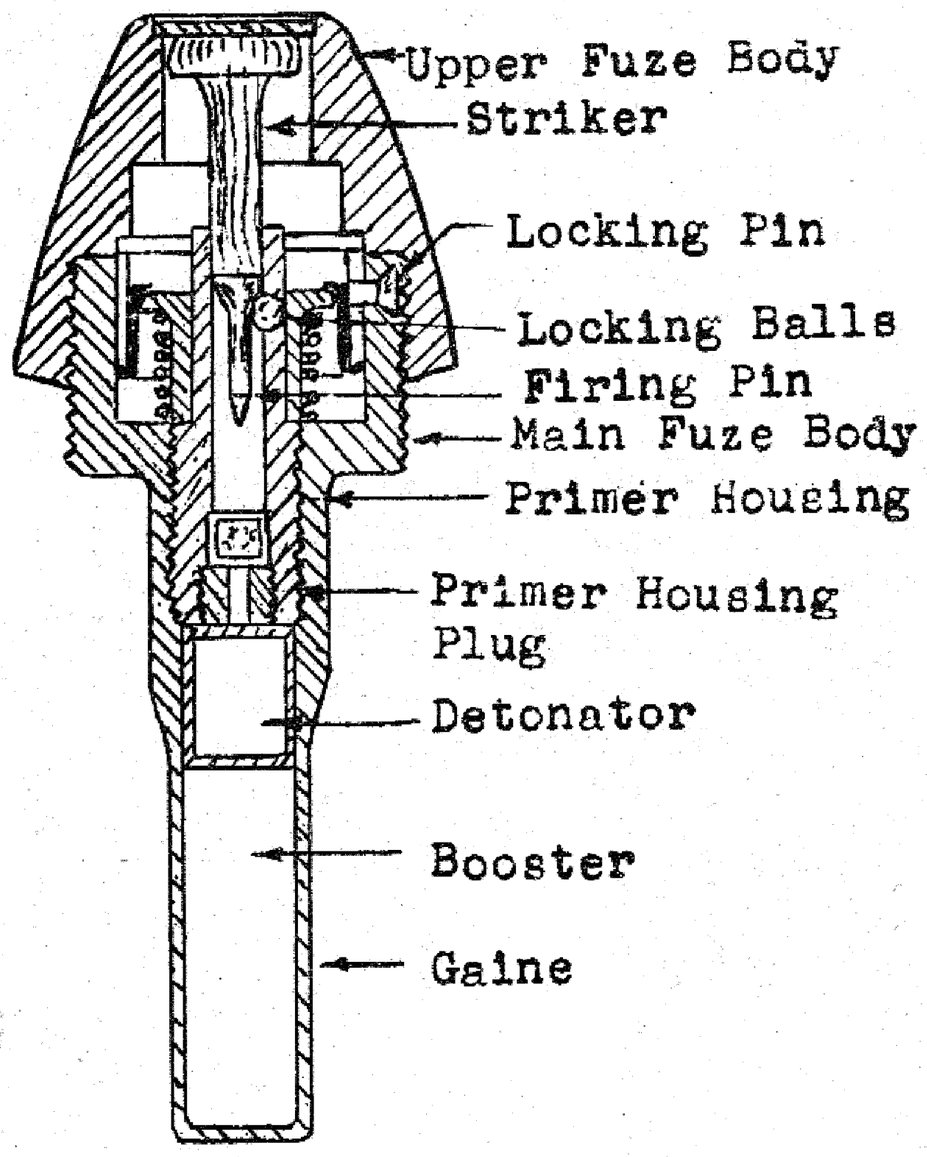
Remarks: Model 4 fuze fits into a smaller cavity and thus there is a larger amount of filling in the new projectiles.

Type: 40 mm Dutch, Point Detonating.

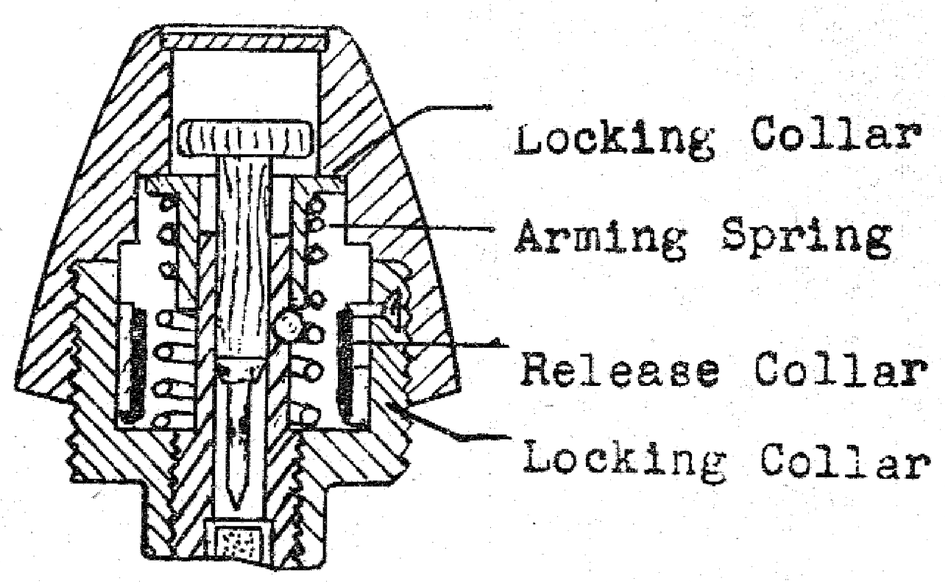
Source: M.E.I.U. #1 Report No. 59.

Use: 40 mm Bofors A.A. Gun.

DUTCH 40 MM NOSE FUZE



Unarmed



Armed

Description & Operation: Consists of upper fuze body threaded to the main fuze body, which receives the primer housing and gaine.

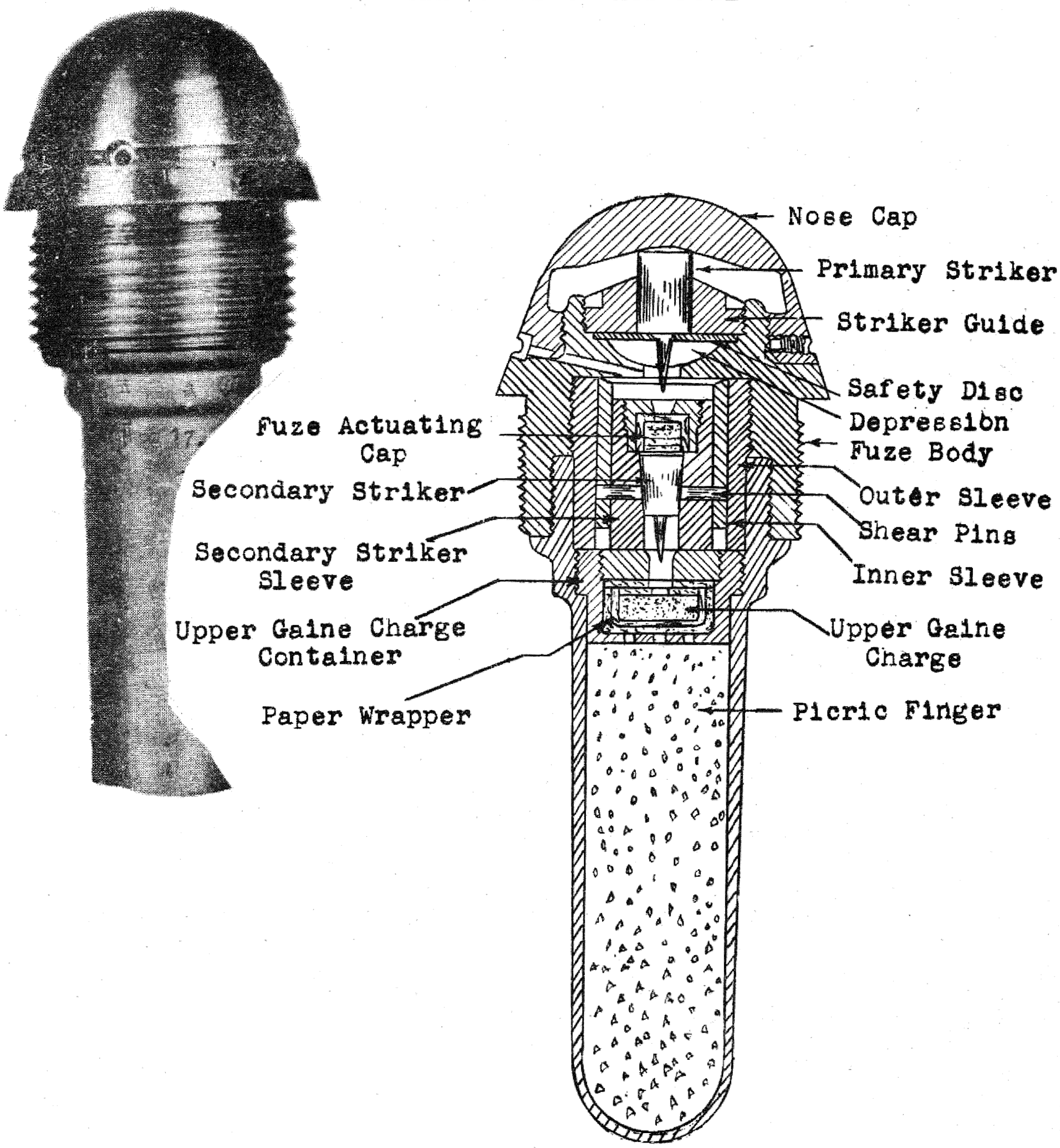
Setback causes locking collar and releasing collar to move down, allowing spring loaded ball retainer to move forward. Centrifugal force removes locking balls. On impact striker is forced down on detonator.

NOSE FUZE (IMPACT)

Type: 5th Year Impact.

Source: M.E.I.U. #1 Report No. 49.

5TH YEAR NOSE IMPACT FUZE



Use: Large Cal. Navy H.C. projectiles with adapter.

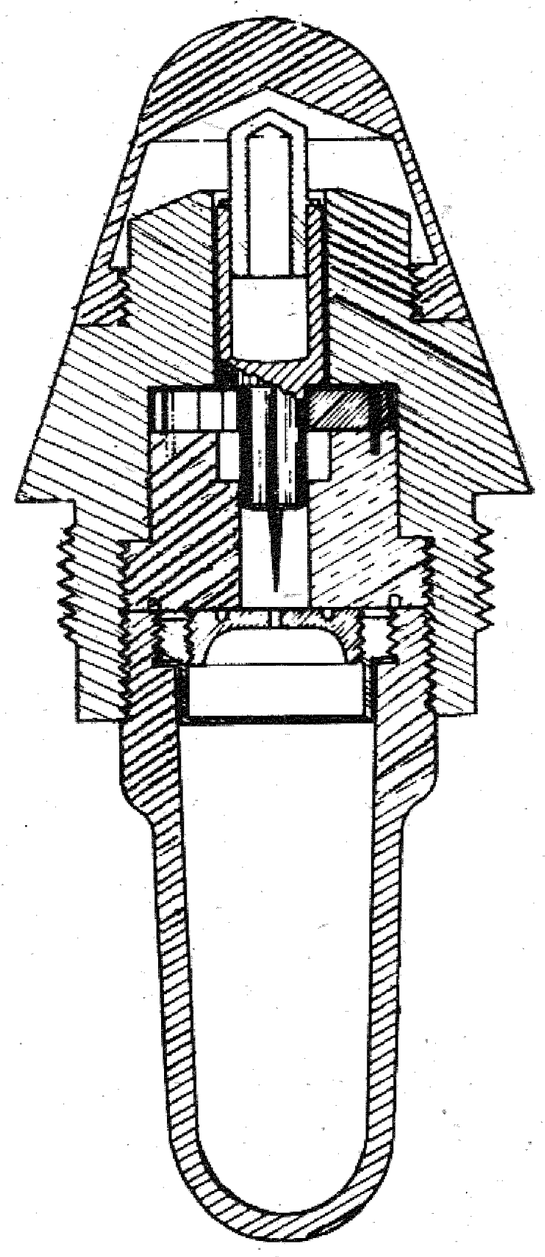
Description & Operation: Fuze constructed of brass; gaine of light steel. Fuze body threaded externally to fit into nose adapter, and internally to take gaine. The nose cap is rounded cup-shaped piece, heavy on nose and purposefully thin on walls to allow cup to be sheared off or crushed on impact, forcing striker inward onto actuating cap. The gases thus generated forces secondary striker into gaine, detonating projectile.

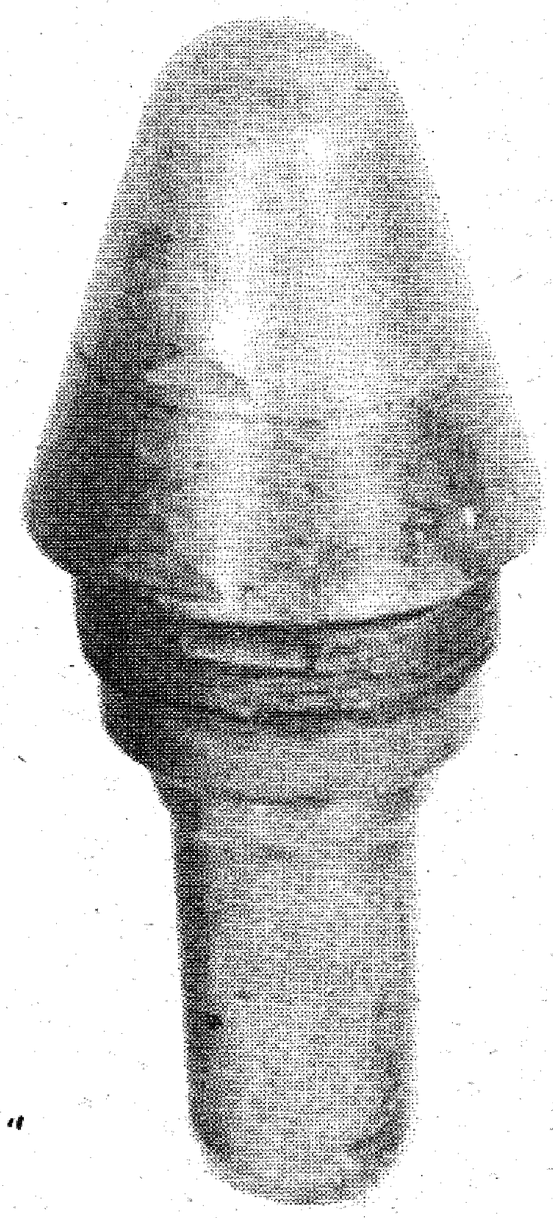
Type: Type 88 Model 2 Projectile Fuze.

Source: Recovered specimen.

Use: Large caliber Navy projectiles.

TYPE 88 MODEL 2 PROJECTILE FUZE





0 1"

Description: A conical nose fuze with a domed-shaped nose tip. In external appearance and construction it resembles the Type 88 Modification 2 nose fuze. In internal construction it is very similar to the 20 cm rocket fuze. It differs from the Type 88 Modification 2 in the following respects: (1) Gaine is threaded externally to fit into base of fuze body. (2) Has no setback plunger and safety pin. (3) Has a flat spring surrounding the arming cams.

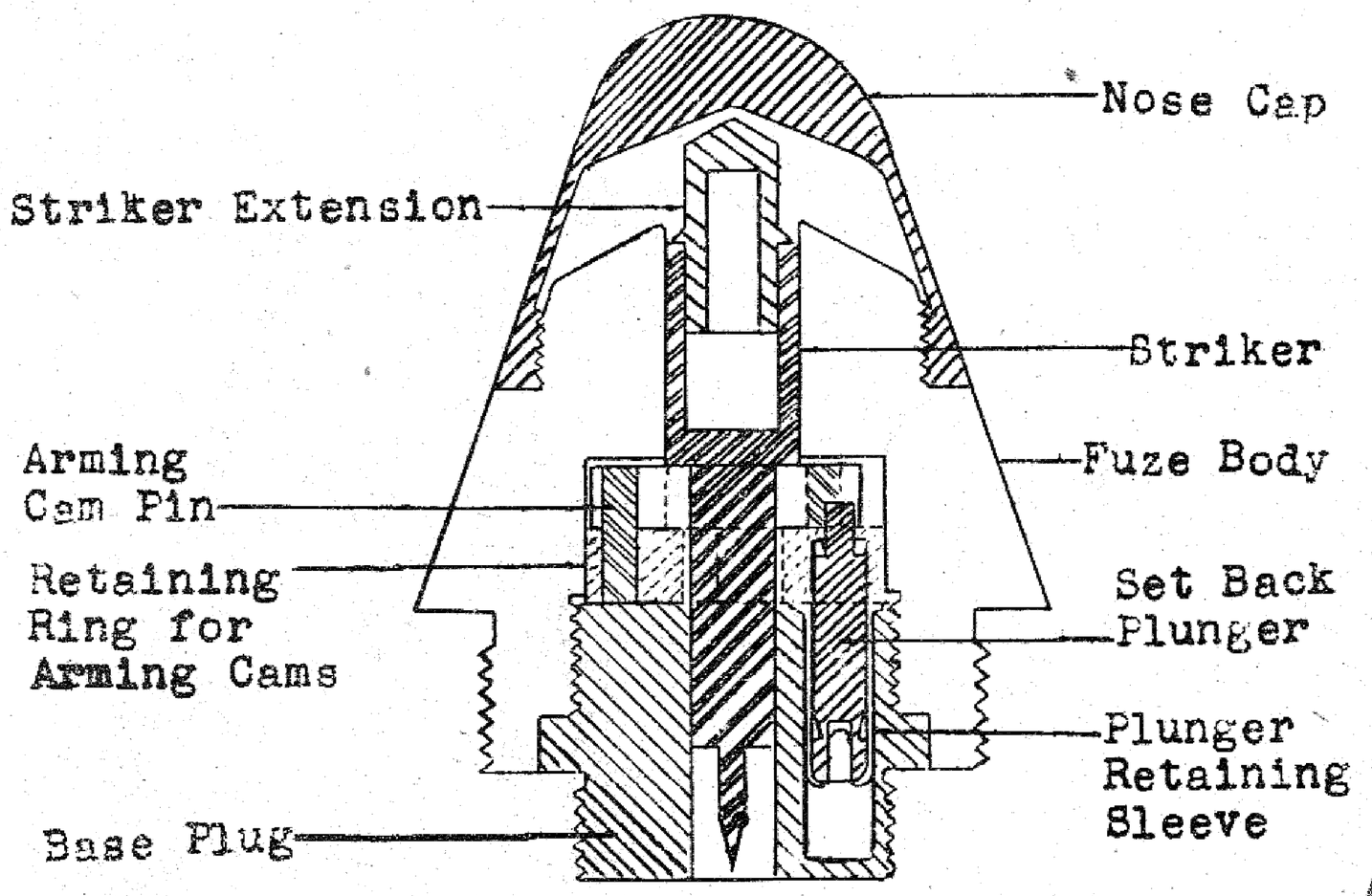
Operation: Centrifugal force causes the arming cams to open against the flat spring. When all cams have moved from under the striker the striker is free to hit the primer on impact.

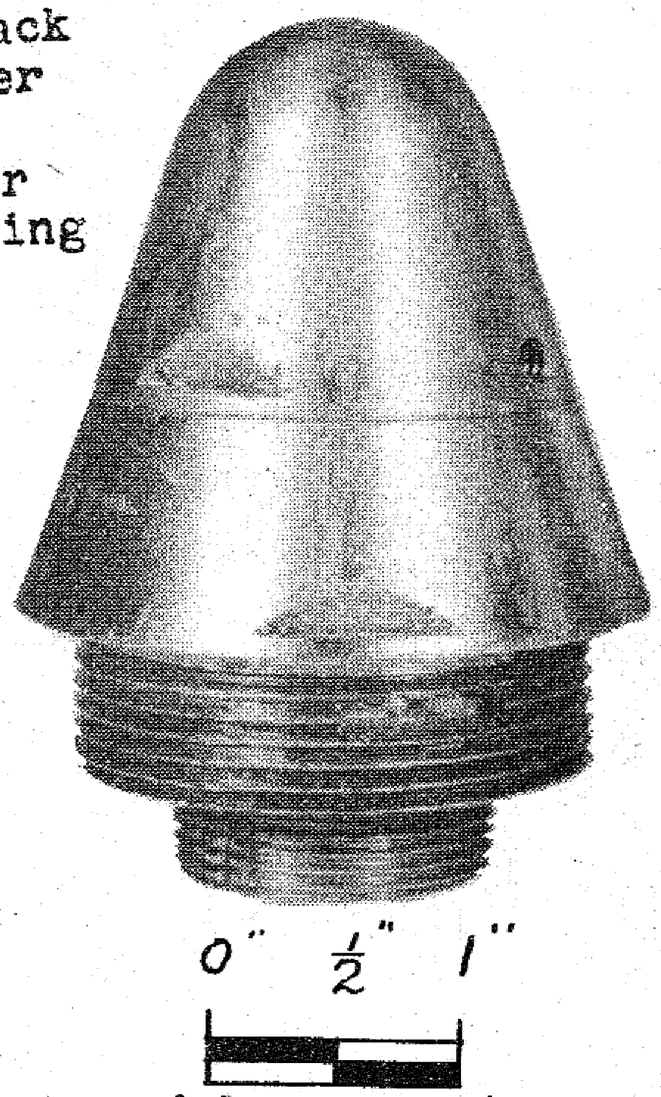
Type: 4.7 Inch Projectile Fuze.

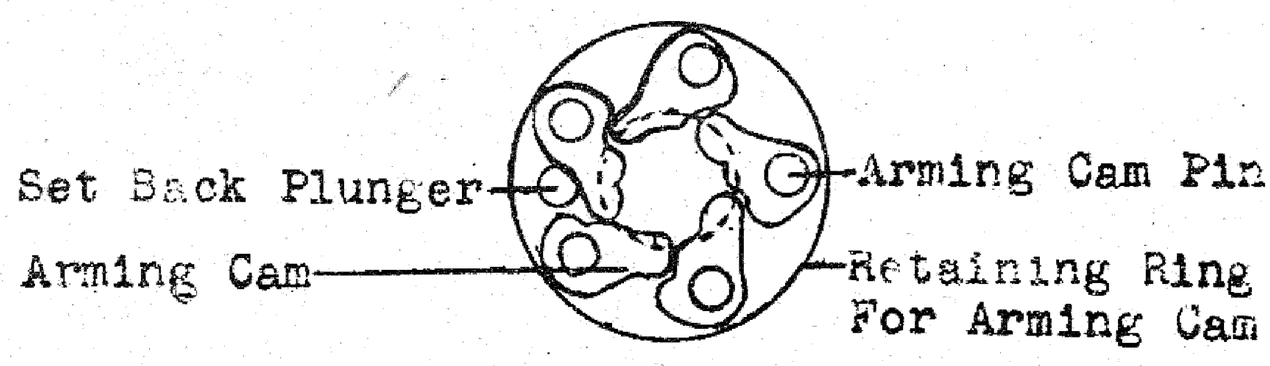
Source: M.E.I.U. #1 Report No. 13 (C.S.).

Use: Large Cal. Navy Projectiles.

4.7-INCH PROJECTILE IMPACT FUZE







View of Arming Cam Set-Up

Description: Conical nose fuze, impact type, armed by setback, and centrifugal force. Semi-domed shaped brass nose cap is secured by grub screw and provides housing for the striker. Fuze has groove for grub screw located in threaded portion, which fits into projectile proper.

Operation: On setback, the setback plunger moves down, freeing the master detent. The master detent, together with the four (4) other detents, move out by centrifugal force, freeing the striker. On impact, the striker is driven in the detonator setting off the explosive train

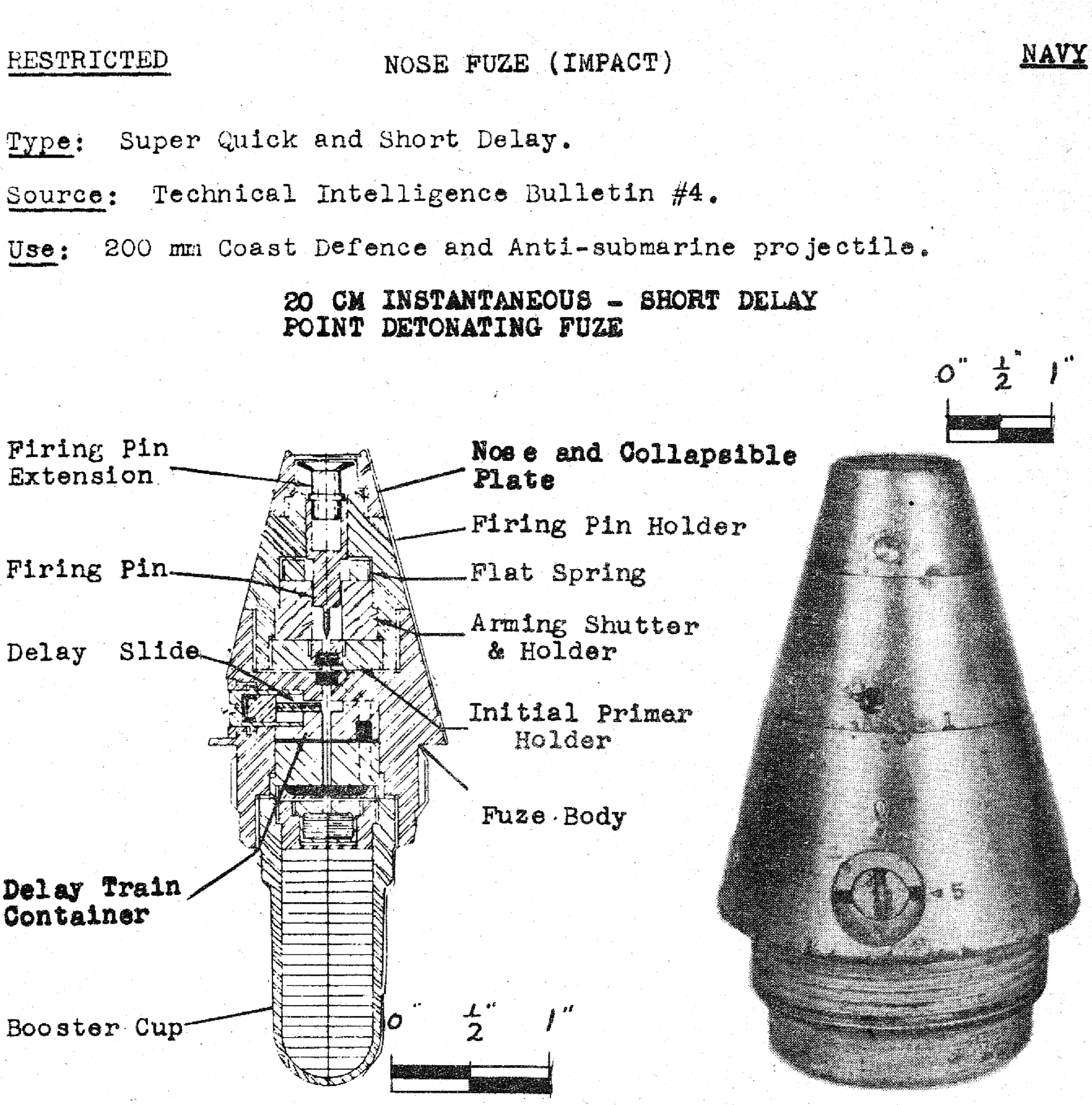
NOSE FUZE (IMPACT)

Type: Super Quick and Short Delay.

Source: Technical Intelligence Bulletin #4.

Use: 200 mm Coast Defence and Anti-submarine projectile.

20 CM INSTANTANEOUS - SHORT DELAY POINT DETONATING FUZE



Description: Conical fuze body consisting of 3 main parts. The nose is flat. The lower part contains setting screw with markings 0 for instantaneous and 5 for delay.

Operation: When the projectile is fired and deceleration begins, rotation causes centrifugal blocks to move out against a resisting flat spring, arming the firing pin. Upon impact, the firing pin is driven back against the initial primer. This initiates the short delay powder train and if the fuze is adjusted for instantaneous firing (which permits the delay slide to move out under centrifugal action) the booster primer will also be set off causing instantaneous detonation of projectile.

If the fuze is adjusted for short delay, the booster primer will not be set off directly, but will be set off by the powder train which has been started by the initial primer as described above.

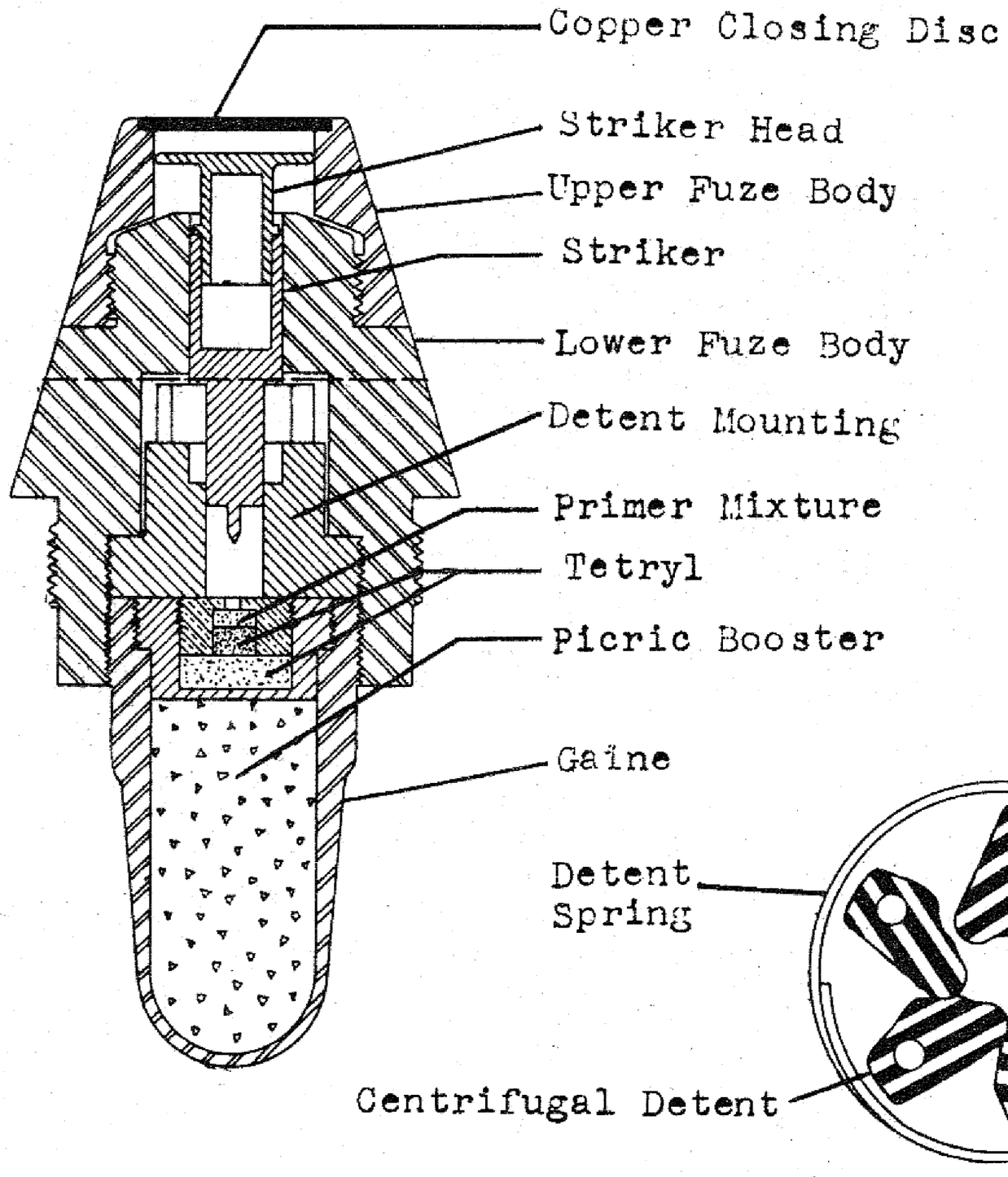
Remarks: The centrifugal detents or blocks are identical in principle to those found in 8" rocket fuze. The meaning of the number "5" is uncertain. It is thought to mean either 5.5 sec. or 5 sec.

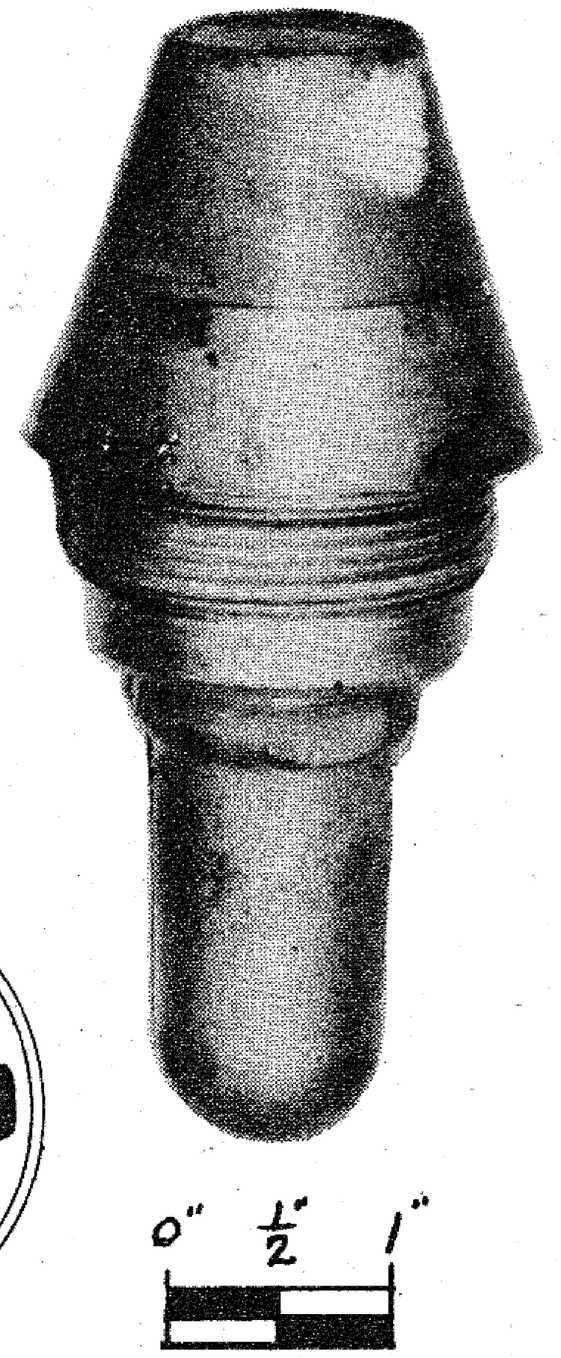
Type: Super Quick Point Detonating.

Source: M.E.I.U. #4 Addendum to Report No. 17.

Use: 8-Inch Rocket.

POINT DETONATING ROCKET FUZE





Description & Operation: Point detonating instantaneous fuze, armed by centrifugal force. Naval manufactured and resembles standard Japanese naval fuzes in design and operating principles.

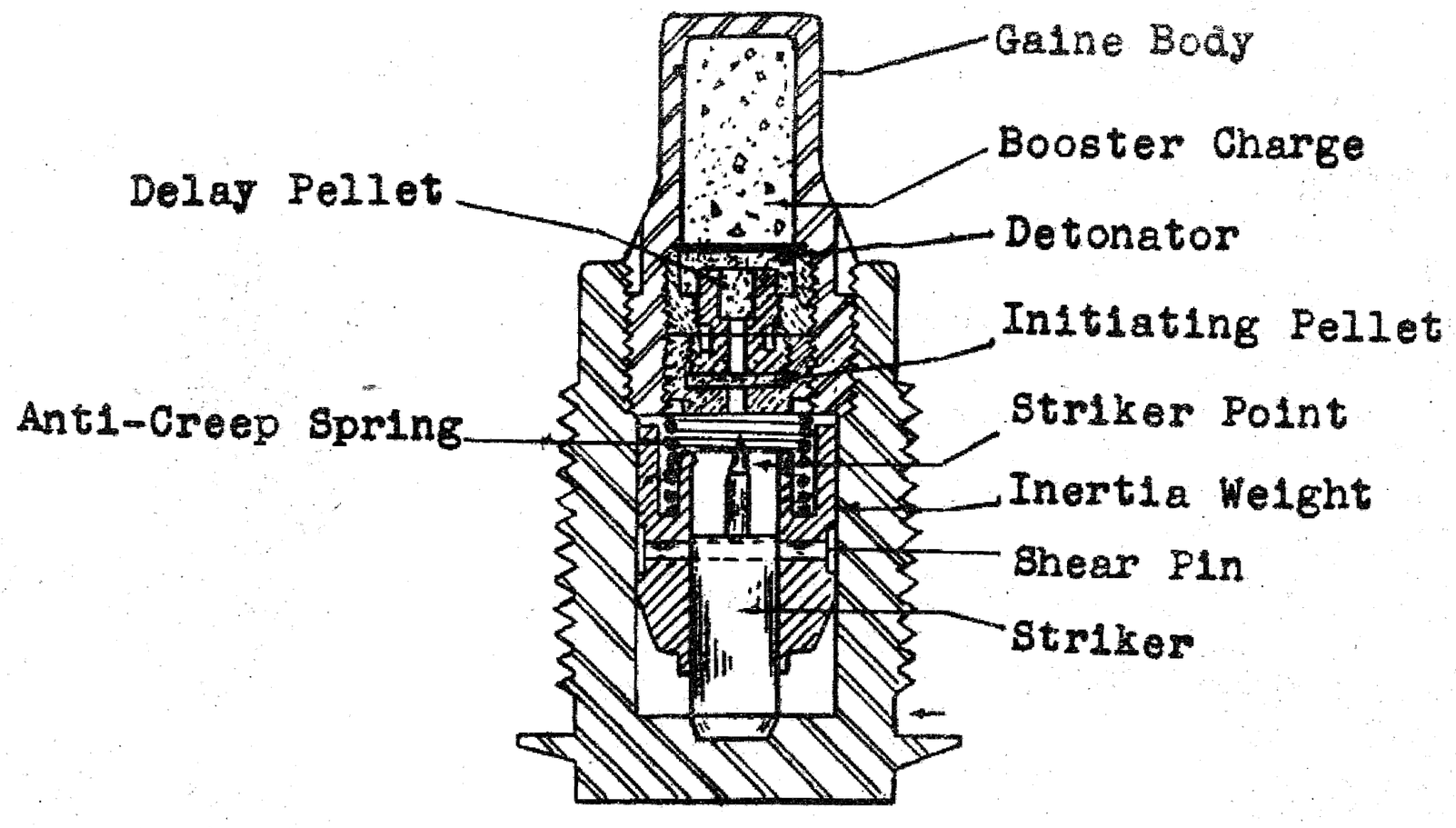
As the rocket propells itself forward, the striker, under the influence of the forces of setback, moves back onto the centrifugal detents and prevents their movement outward, being assisted by the detent spring. The centrifugal detents tend to move out. When deceleration of rocket begins, creep sets in. The striker will then creep forward away from the centrifugal detents which then swing out against the detents spring. In swinging outward, these detents follow the master detent one at a time as none can pivot clear of the other until the master detent swings out. When the striker channel is cleared of detents, the striker is then free to be driven inward on impact, initiating pellet in the gaine, detonating main charge.

Type: Base Detonating.

Source: M.E.I.U. #1 Report No. 37.

Use: 40 mm A.P. Projectile.

BASE FUZE - 40 MM - A.P.

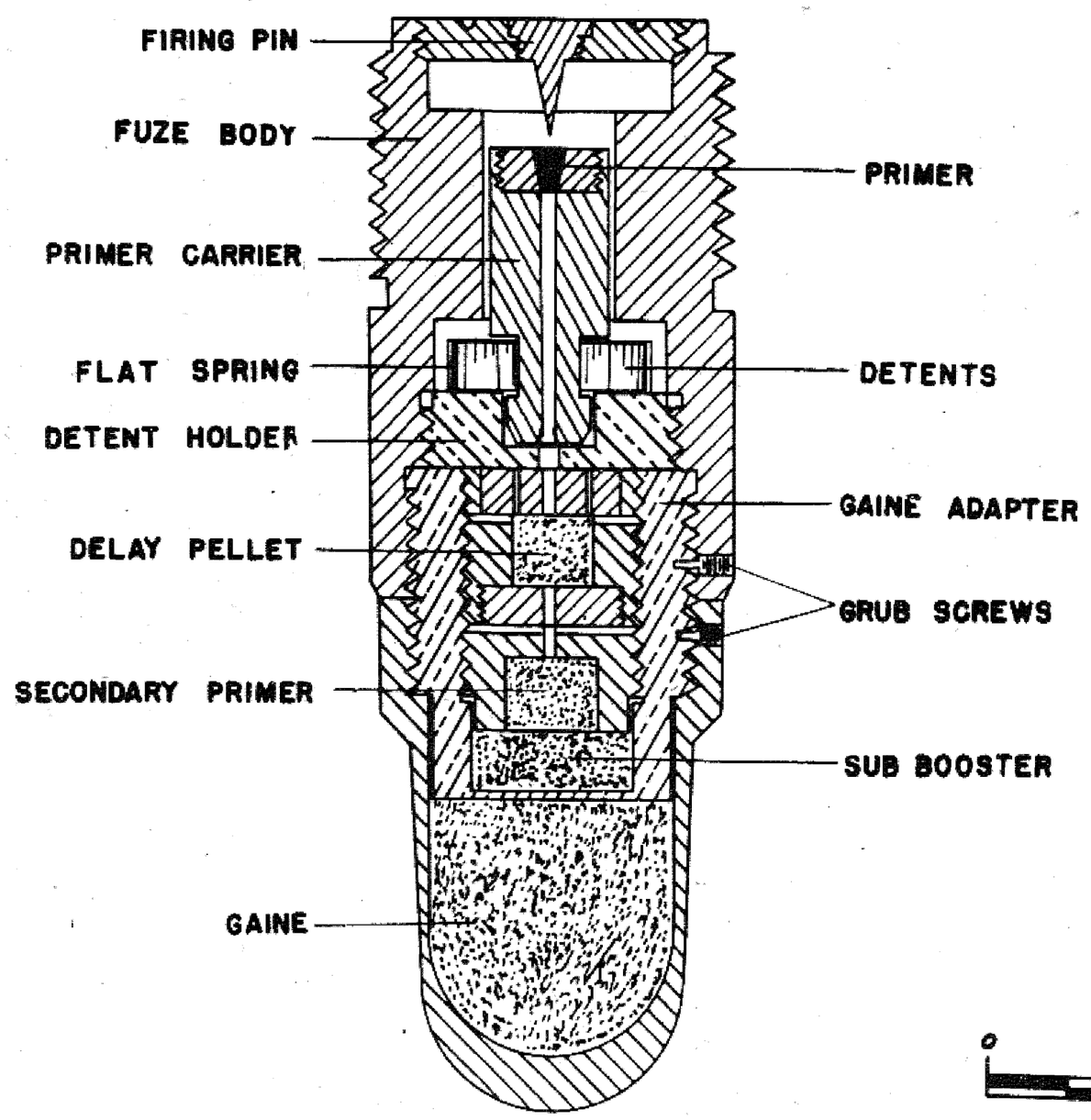


Description & Operation: A cylindrical steel piece, centrally drilled to provide a recess to house and guide the striker, inertia weight and creep spring. Internally threaded to receive gaine. Is a delay action base detonating fuze similar in design and operation to Japanese 37 mm base fuze. The fuze is inertia operated, incorporating a shear pin and creep spring, and screws in with left hand threads.

Type: Type I Short Delay Impact.

Source: M.E.I.U. #4 Report No. 62.

Use: 3" Special Common Projectile.



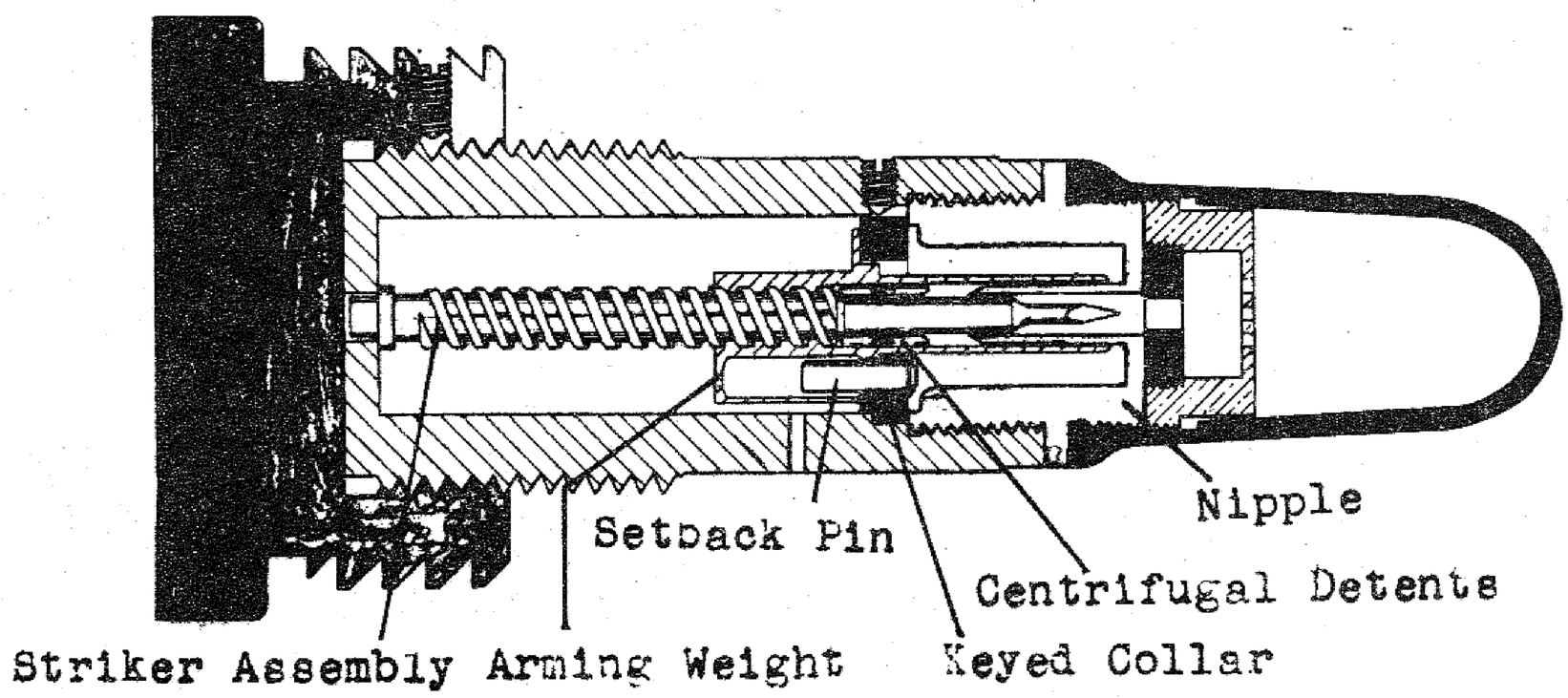
Description & Operation: This fuze is designated by the Japanese as "Type 1 Fuze" and is of the conventional Japanese Navy projectile base fuze design. The forward end of the fuze is threaded externally to fit into the after end of the projectile nose piece, and internally to receive the stationary firing pin. Just aft of the firing pin is the primer carrier, the forward end of which houses the primer. In the after end of the primer carrier is machined a circumferential recess into which fits five (5) centrifugal arming detents. The arming detents are held in position by a circular flat spring (see page 137). Aft of the arming detents is threaded the gaine adapter which contains the delay pellet. Onto the after end of the gaine adapter is threaded the high explosive gaine. Centrifugal force causes the arming detents to move out from the primer carrier recess against the pressure of the flat spring, leaving the primer carrier free to move down onto the stationary striker on impact.

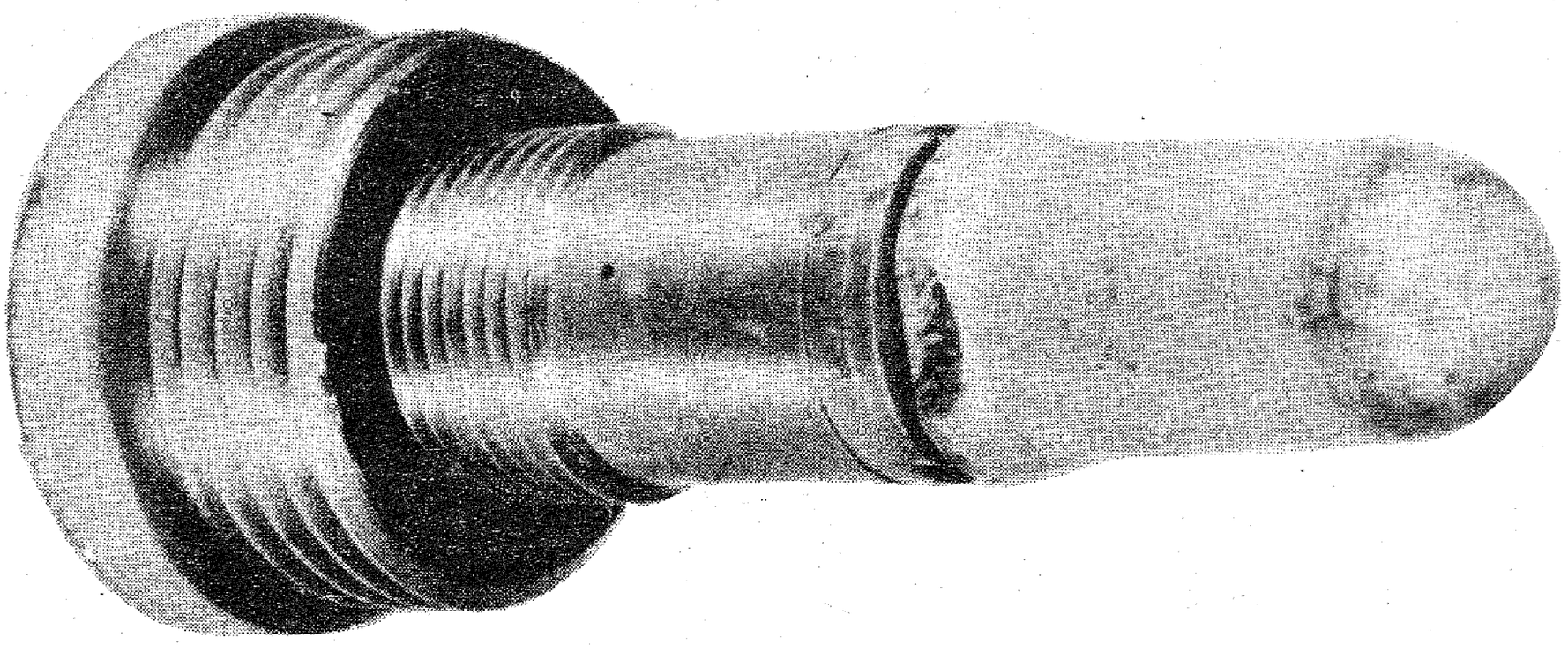
Type: 3rd Year Type Mk. 1 fuze.

Source: M.E.I.U. #4.

Use: Base Detonating Fuze for H.E. round in 12 cm gun.

3RD YEAR TYPE MK. 1 BASE FUZE





Description: This fuze consists of a fuze body with a nipple for attaching the aluminum gaine. The fuze body contains a collar keyed to the body, a setback pin, an arming weight, and a striker assembly. The aft end of the striker is keyed to the bottom of the fuze and the striker shaft has square threads on which the arming weight is threaded. Two (2) detents held by a brass strip and the arming weight are fitted around and just aft of the striker point. All the fuze parts with the exception of the aluminum setback pin and gaine are made of brass. The fuze is secured to the fuze plug by right-hand threads and a grub screw.

Operation: Setback shears the shoulders on the setback pin and forces the pin out of the collar and into the arming weight leaving the weight free to rotate about the striker. The striker, being fastened to the fuze body, rotates with the projectile. However, the arming weight tends to lag behind, thus threading itself down the striker and exposing the striker point and detents. As soon as the detents are freed from the arming weight centrifugal force causes them to fly apart leaving the fuze armed. On impact the striker and arming weight move forward piercing the initiating primer.

Data:

Fuze length with gaine: 5 1/4 inches.
Length of gaine: 2 1/4 inches.

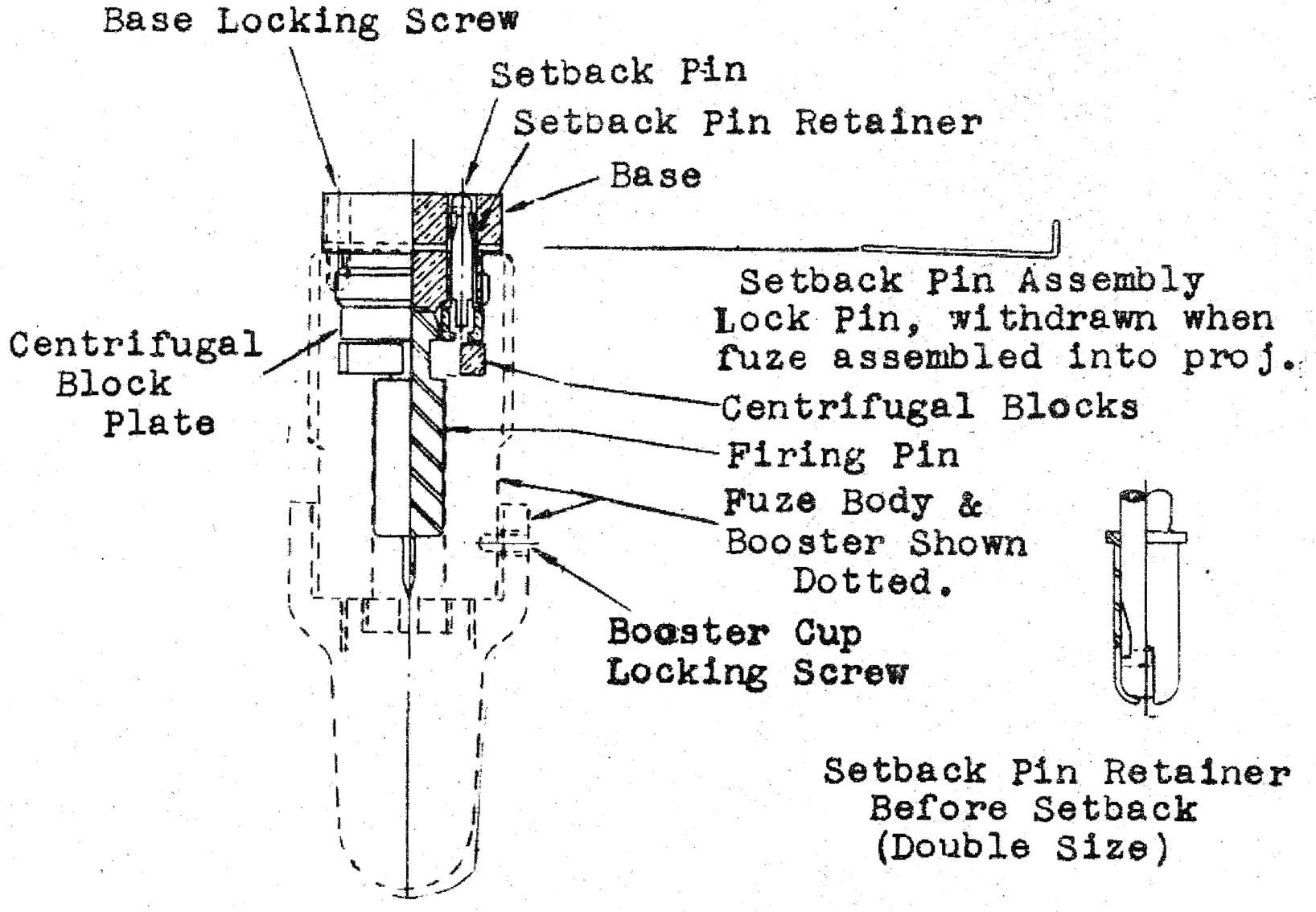
BASE FUZE

Type: 140 mm B.D. Model 13, No. 1.

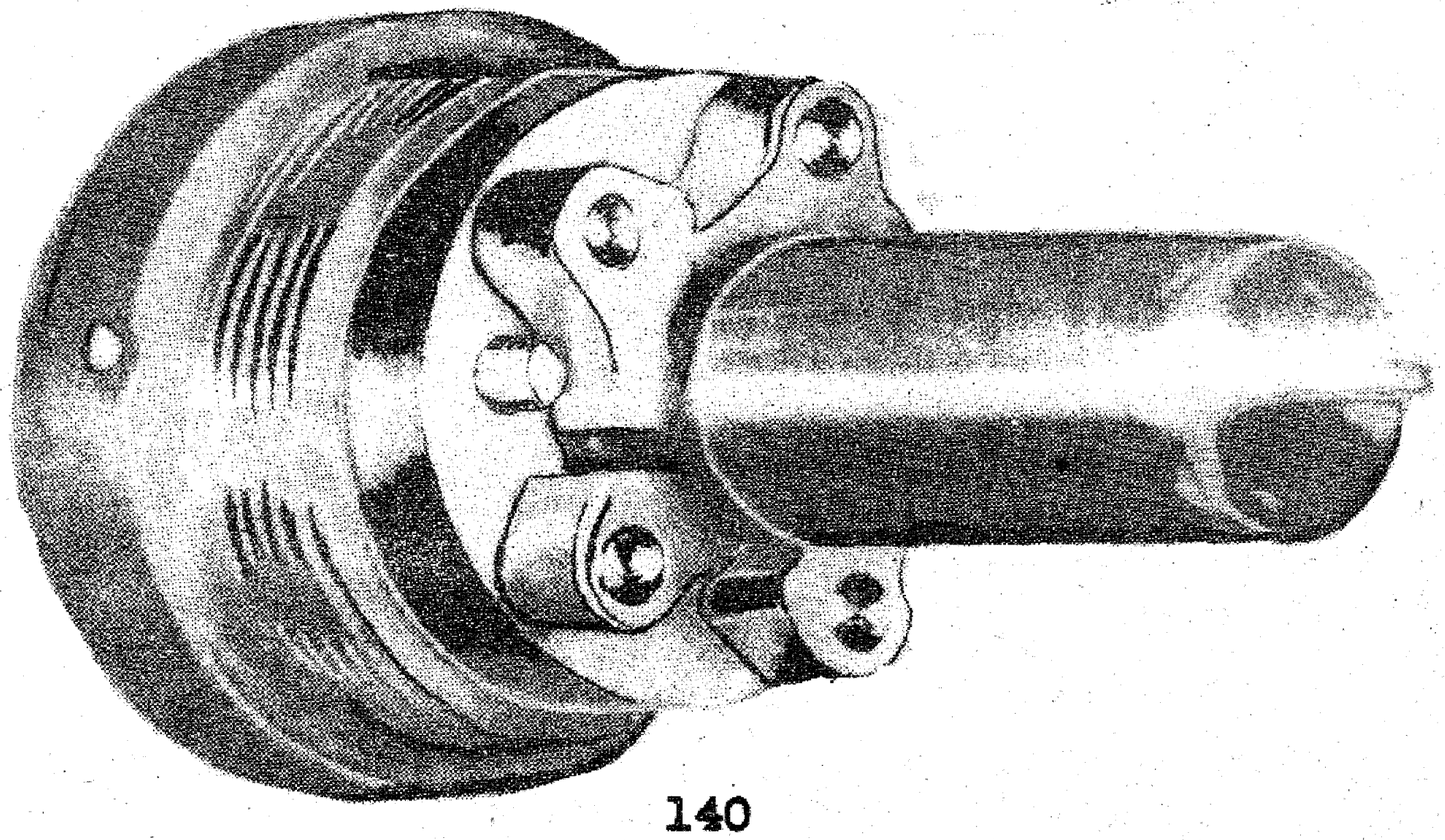
Source: M.E.I.U. #1 Report No. 22 and Tech. Intell. Bulletin.

Use: Japanese six-inch base detonating projectiles for Armstrong-Whitworth design. Six-inch coast defence guns and six-inch rifles of type-mounted on light cruiser of Agana class.

BD FUZE, MODEL 13, No. 1



Description & Operation: Fuze is carried in the base of the projectile by a base fuze carrier, which screws into base plug. Fuze secured to base fuze carrier by set screw. Does not incorporate a creep spring. May have any type gaine. Is of usual base fuze design. Is armed by combined action of set-back and centrifugal force, and on impact, the inertia of firing pin forces striker into primer, initiating the explosive train. Very dangerous to handle, but may be removed by carefully unscrewing to the right with appropriate tool to fit spanner holes in its base. Keep upright if necessary to move.

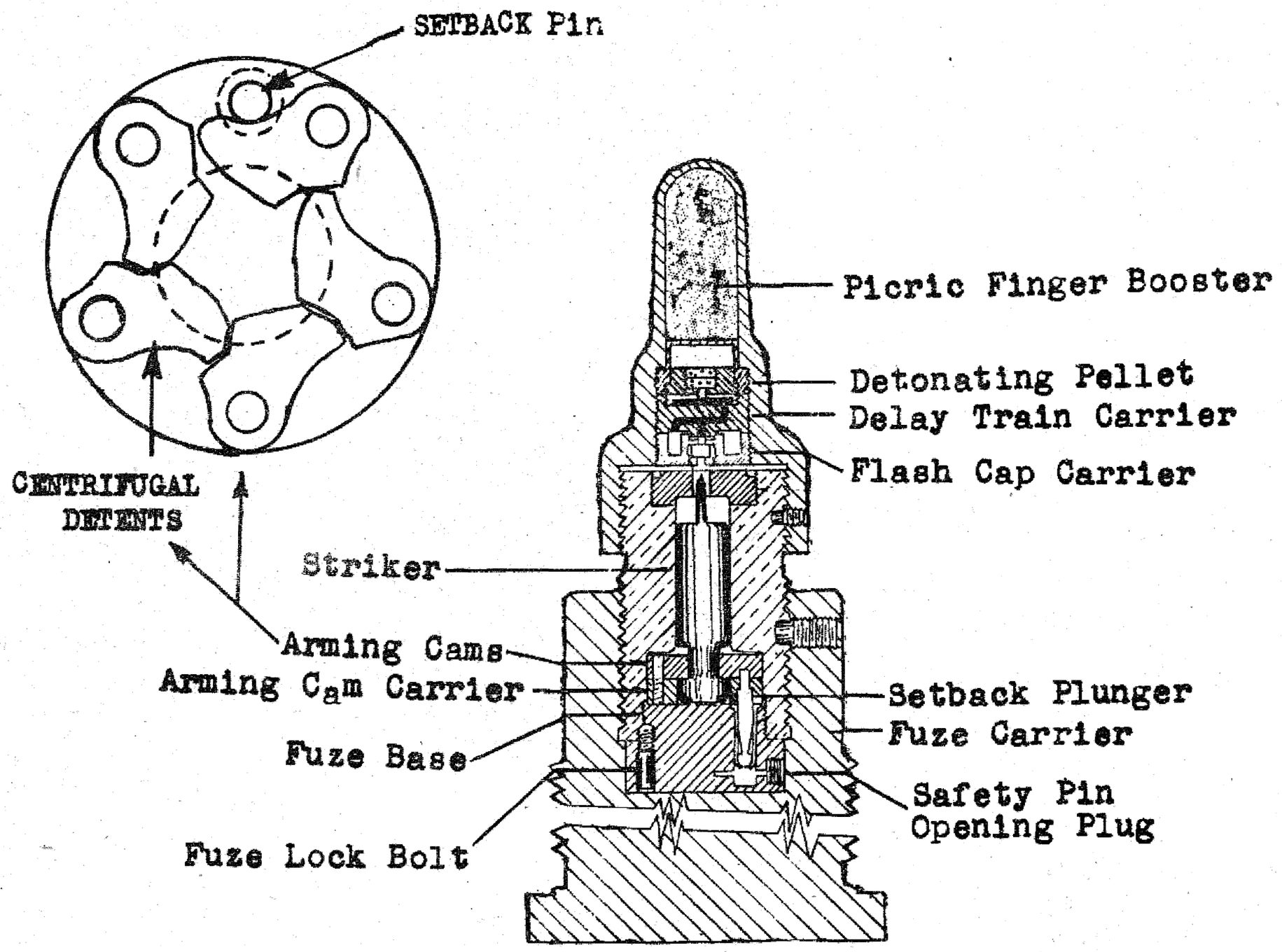


Type: 14-Inch Base Detonating Fuze.

Source: M.E.I.U. #1 Report No. 25.

Use: 14-Inch Armor Piercing Projectile (probably used in other large caliber projectiles).

JAPANESE BASE FUZE FOR 14 INCH NAVAL PROJECTILE



Description: This fuze is made up of a fuze body threaded to a fuze carrier and a gaine body threaded to the fuze body. Both the fuze body and gaine body are held in place by set screws. The striker is held in the safe (unarmed) position by five (5) centrifugal detents which engage its reduced section. These centrifugal detents are held in place by a setback plunger; the plunger being fixed in the forward position by a safety pin in the safety pin recess. The safety pin is removed before installation of fuze in projectile. After installation, the setback plunger is kept in position only by the fingers of the setback plunger sleeve.

Operation: When fired, the setback plunger moves back through its sleeve, spreading the fingers which then close, engaging the groove in the head of the setback plunger and holding it in place. This action frees the centrifugal detents,which, however, do not move outby centrifugal force until setback is over. When setback ceases, centrifugal force causes the detents to move outward, freeing the striker. Since there is no anti-creep spring, the striker will now creep forward but primer will not be set off because of wax cardboard disc protecting the primer. On impact, the striker is driven into the primer setting off the explosive train.

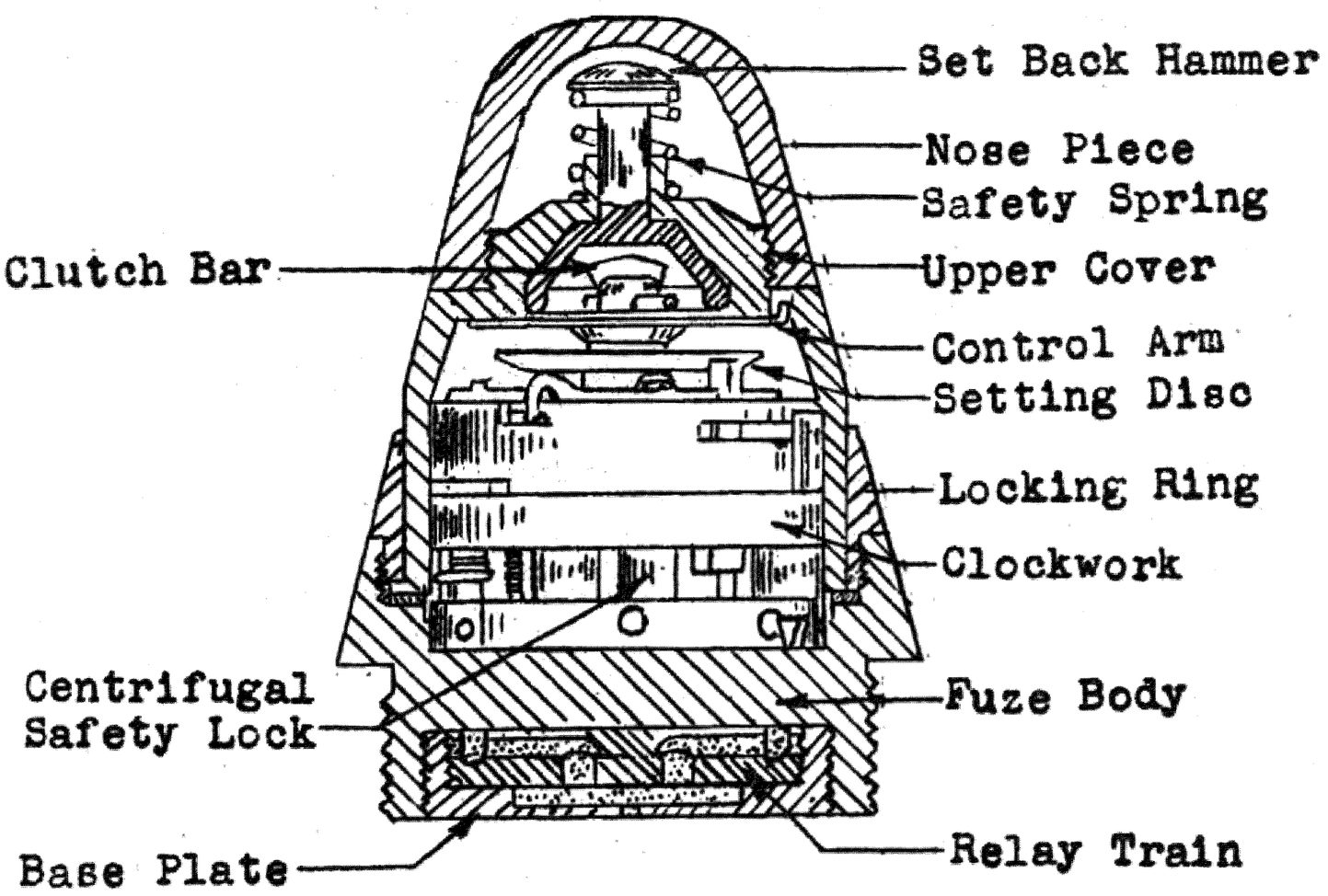
Remarks: Fuze safe until fired, after which time,inertia striker is resting on the cardboard disc or possibly on primer. If fuze found in UXP, if should be handled carefully.

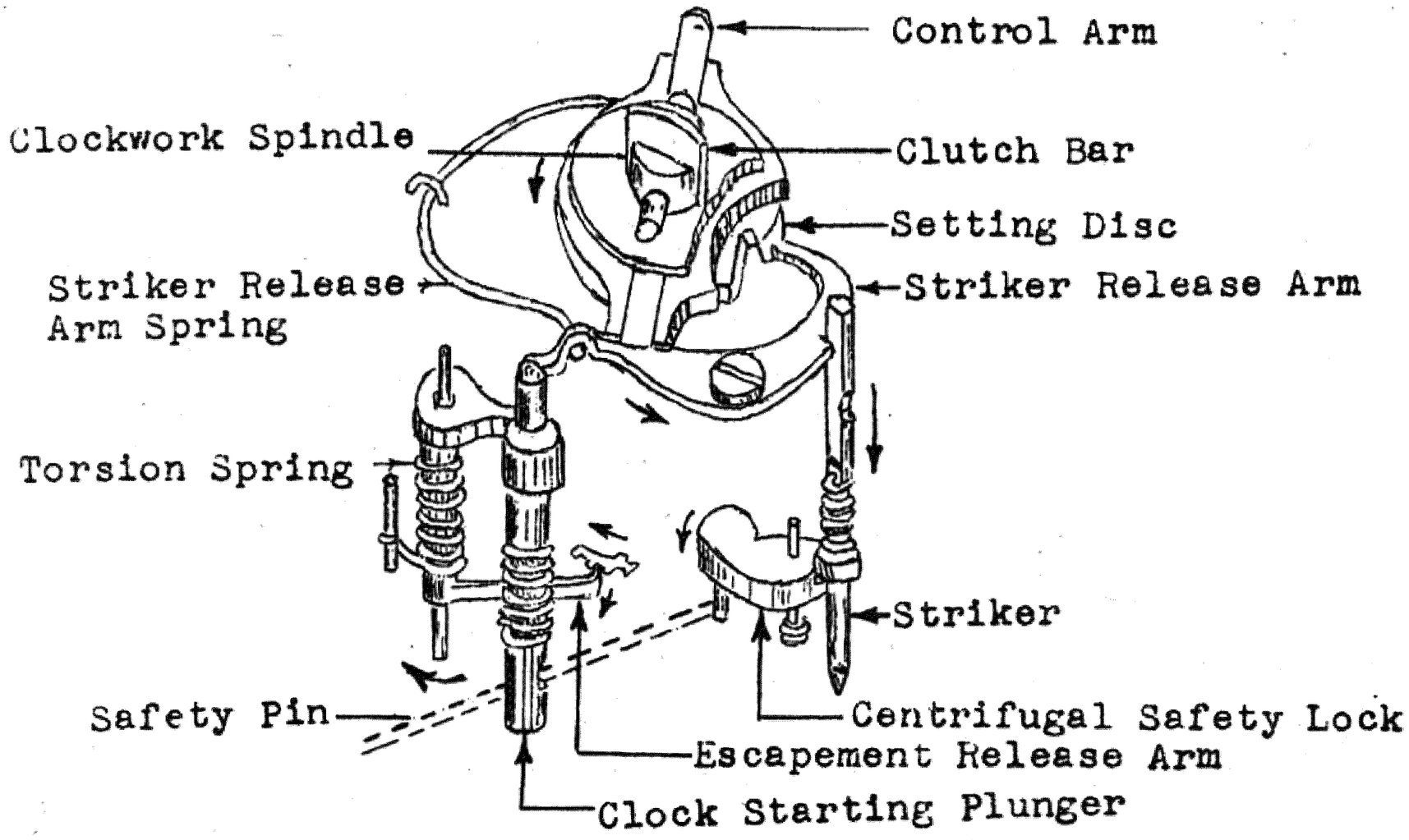
Type: Type 91.

Source: M.E.I.U. #1 Report No. 49.

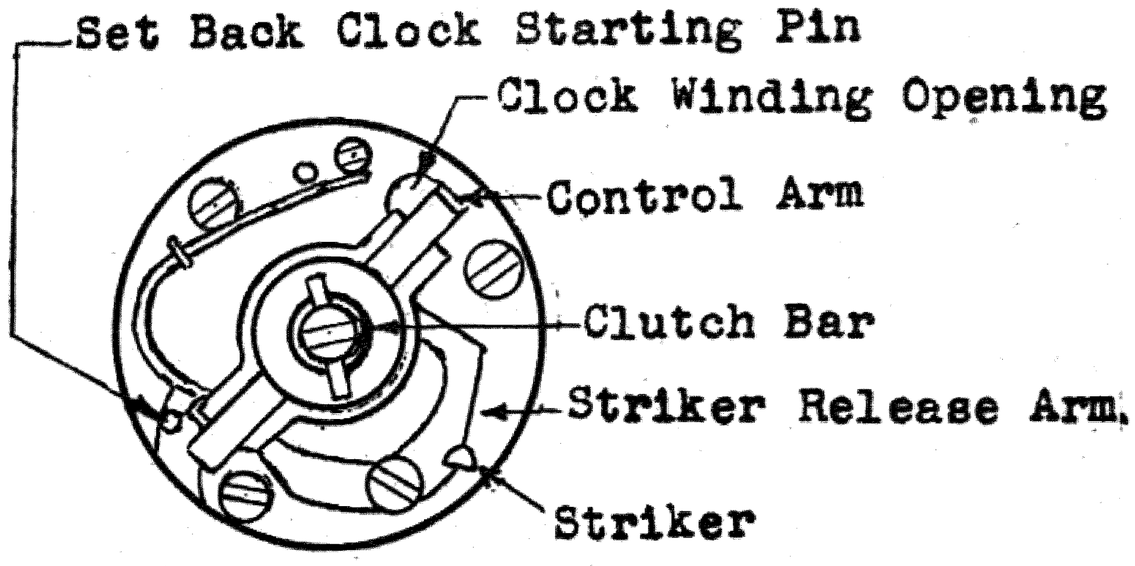
Use: Large Cal. Navy Projectiles.

TYPE 91 CLOCKWORK NOSE TIME FUZE





OPERATING DETAILS OF JAPANESE CLOCKWORK FUZE



VIEW OF TOP PLATE

Type 91 Nose Time Fuze (Continued)

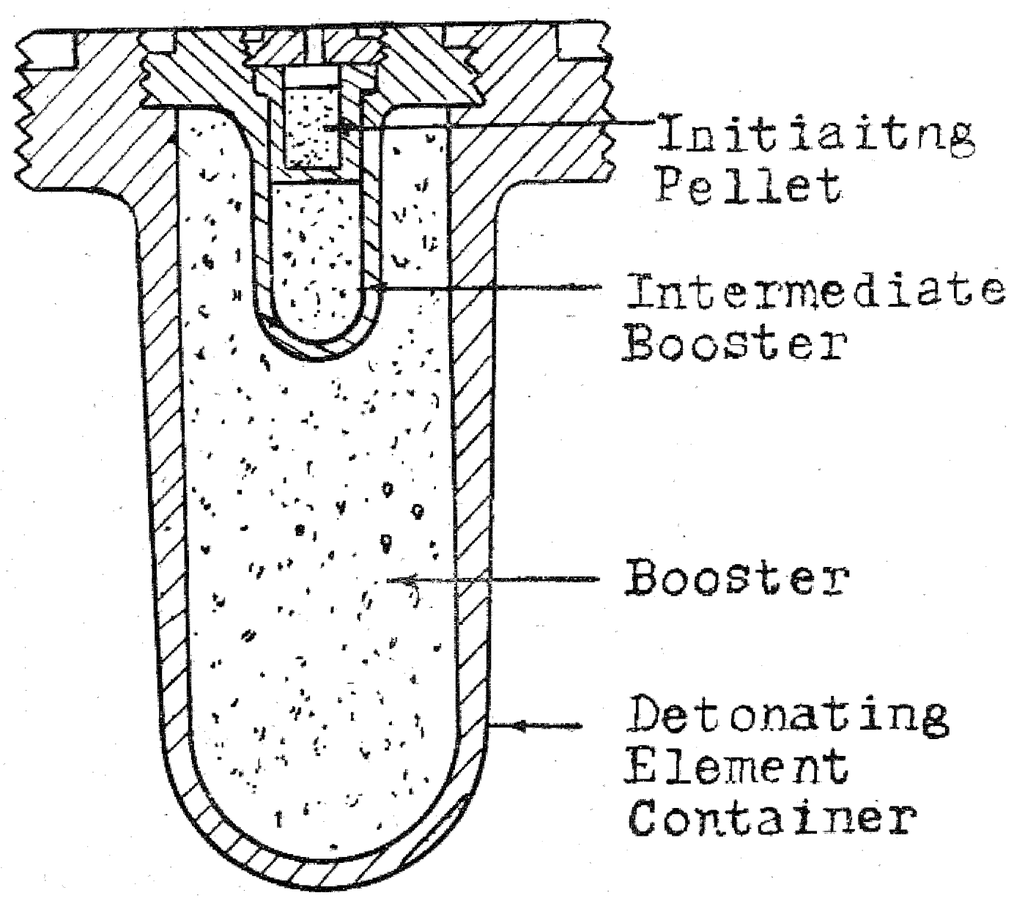
Description & Operation:

Faze composed of light aluminum nose cap which shapes fuze nose and provides recess for upper end of setback hammer; an inner cover which covers upper clockwork, takes setback hammer and provides setting scale; clockwork mechanism, spring driven; the fuze body itself, which provides housing for clockwork and has initiating pellet directly below striker; the magazine container in base of fuze which relays flash from cap to detonating element of projectile. Fuze is actuated by spring driven clockwork identical in construction with those in bomb fuze D-2(a), D-2(b) and D-2(c). However, this fuze is started by setback and maintained in armed position by centrifugal force. Setting time from 0 to 55 seconds. The action of clockwork serves merely to ignite the detonating element , which initiates main projectile charge. There are two (2) exterior setting lugs. One is secured to the time ring and the other to the lower portion of the fuze body.

Variation 1: This fuze differs from Type 91 in that there is a knurled gear ring on the outside of time ring. These gears are meshed with gears in fuze setter on the gun and are set automatically. 55 seconds is maximum setting time.

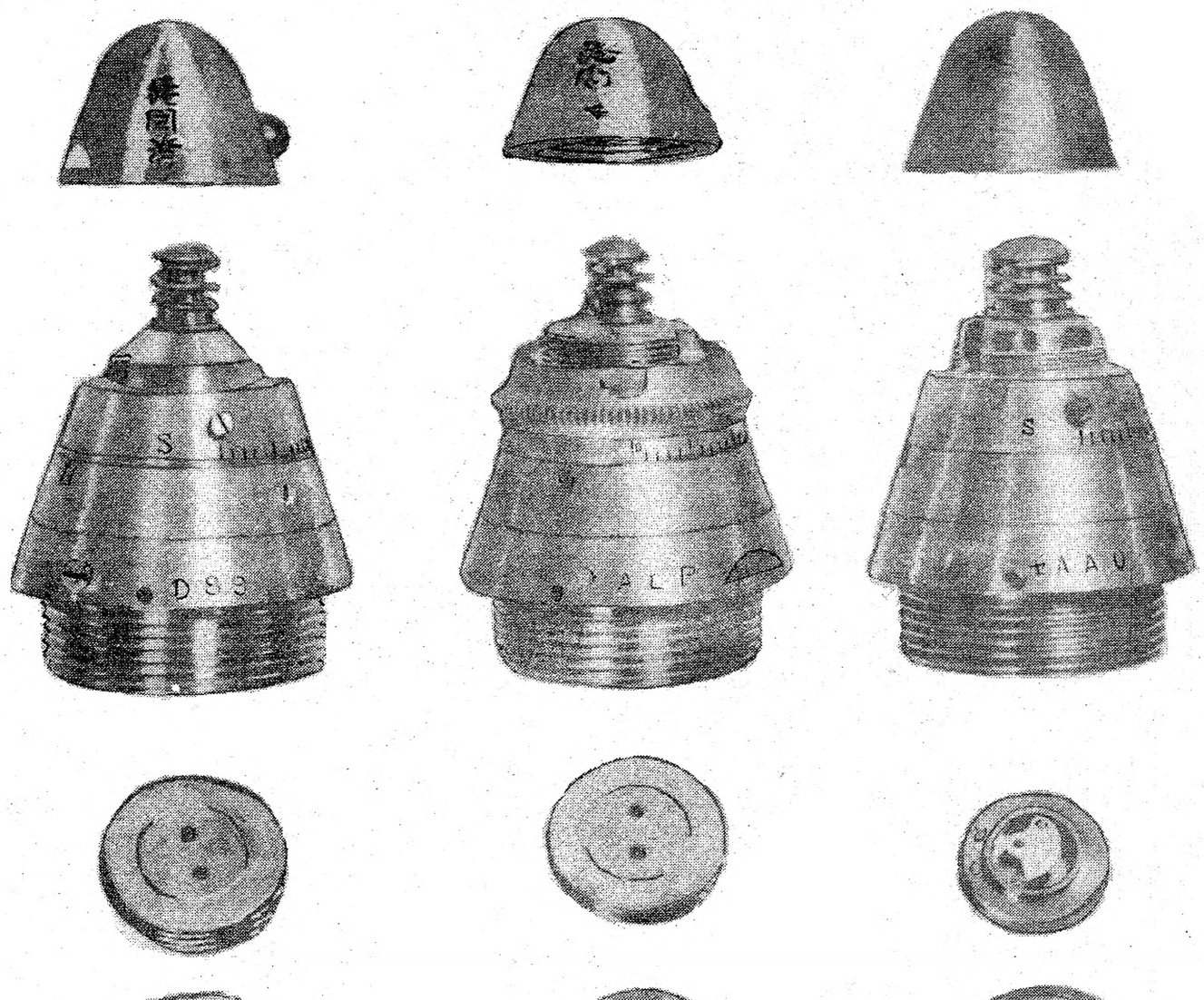
Variation 2: 55 seconds. Howitzer fuze. Requires less setback to be initiated . Contains centrifugal flash gate in base. Nose shield is painted red. The mechanisms are, in other respects, the same as Type 91.

DETONATING ELEMENT FOR USE WITH 140 MM NAVAL PROJECTILE

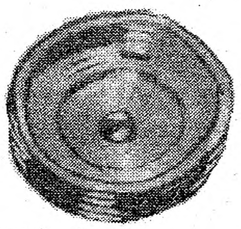


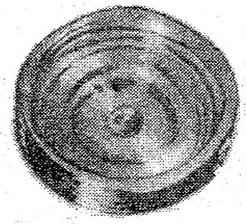
Type 91 Clockwork Nose Time Fuze (Continued)

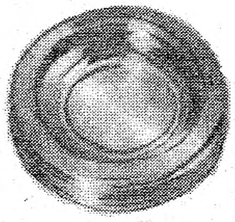
EXPLODED VIEWS

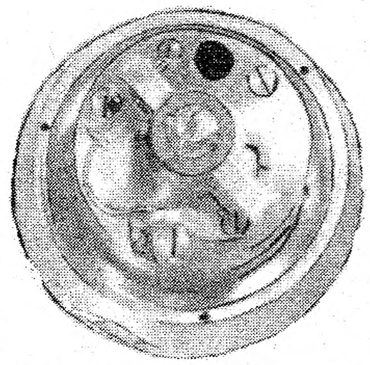


TYPE 91 TYPE 91 VARIATION 1 TYPE 91 VARIATION 2

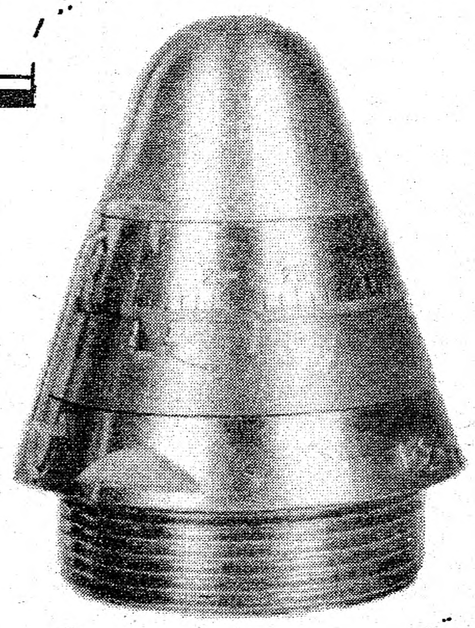








VIEW OF TOP PLATE



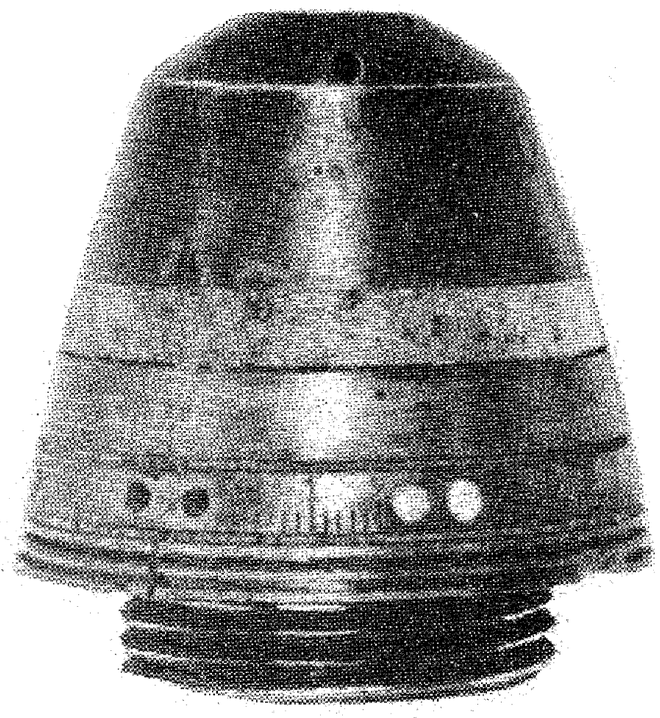
ASSEMBLED TYPE 91

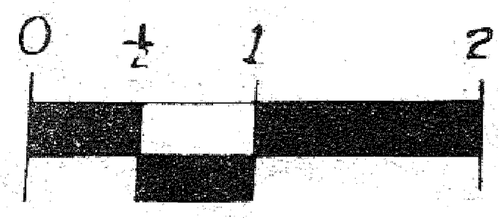


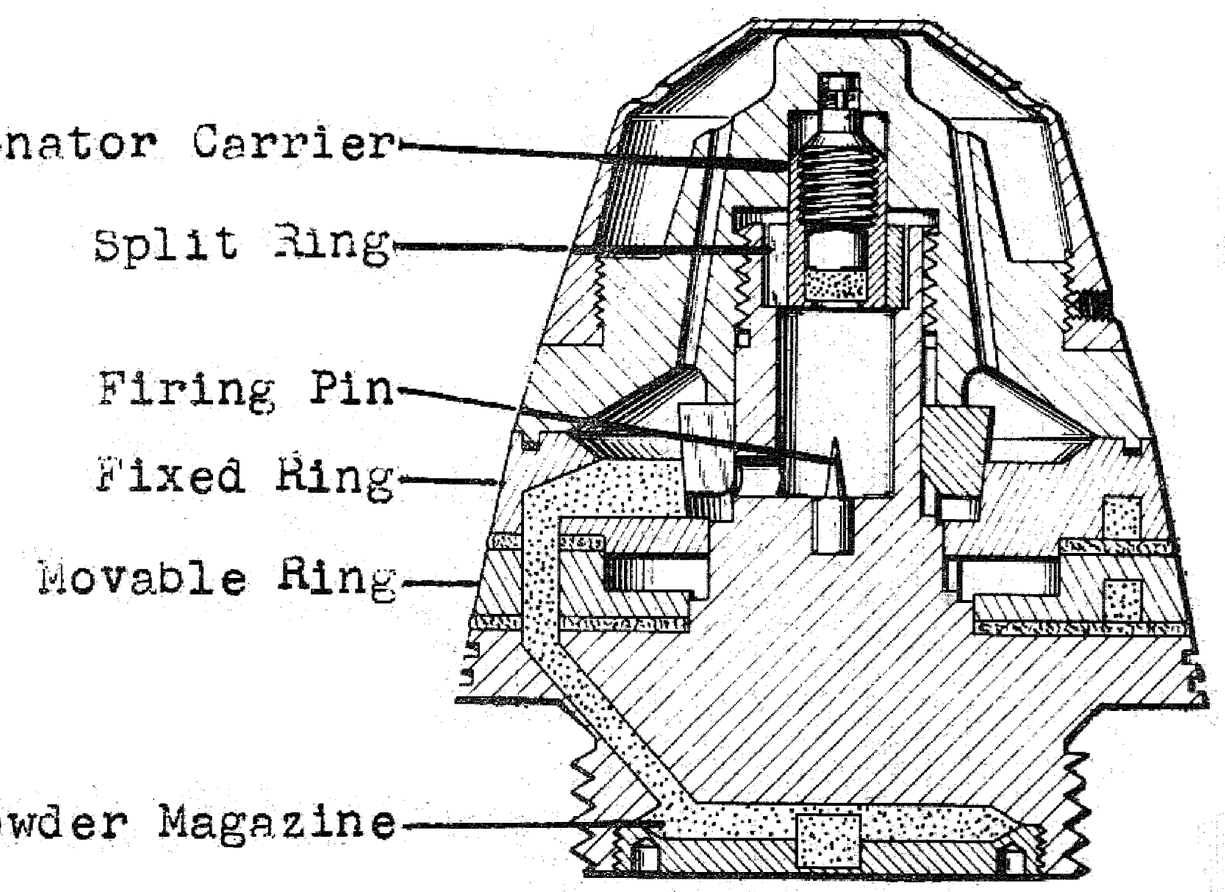
Type: 30-Second Time Fuze.

Source: M.E.I.U. #4 Report No. 73.

Use: 12 cm Illuminating Projectile.







Description: This is a powder train, time fuze with two (2) time rings. The upper ring is fixed, and the lower one movable. The setting dial is graduated from 0 to 30 seconds in increments of 1/5 second. The movable detonator carrier is held in place by a friction fit split collar which surrounds the carrier and rests on an internal shoulder in the fuze.

Operation: On setback the movable detonator carrier snaps down out of the split collar and onto the fixed firing pin. The flash from the cap in the detonator carrier ignites the black powder train in the stationary ring. The powder train burns around the upper ring and flashes to the lower time ring. The lower time train burns and flashes into the black powder magazine in the base.

Data:

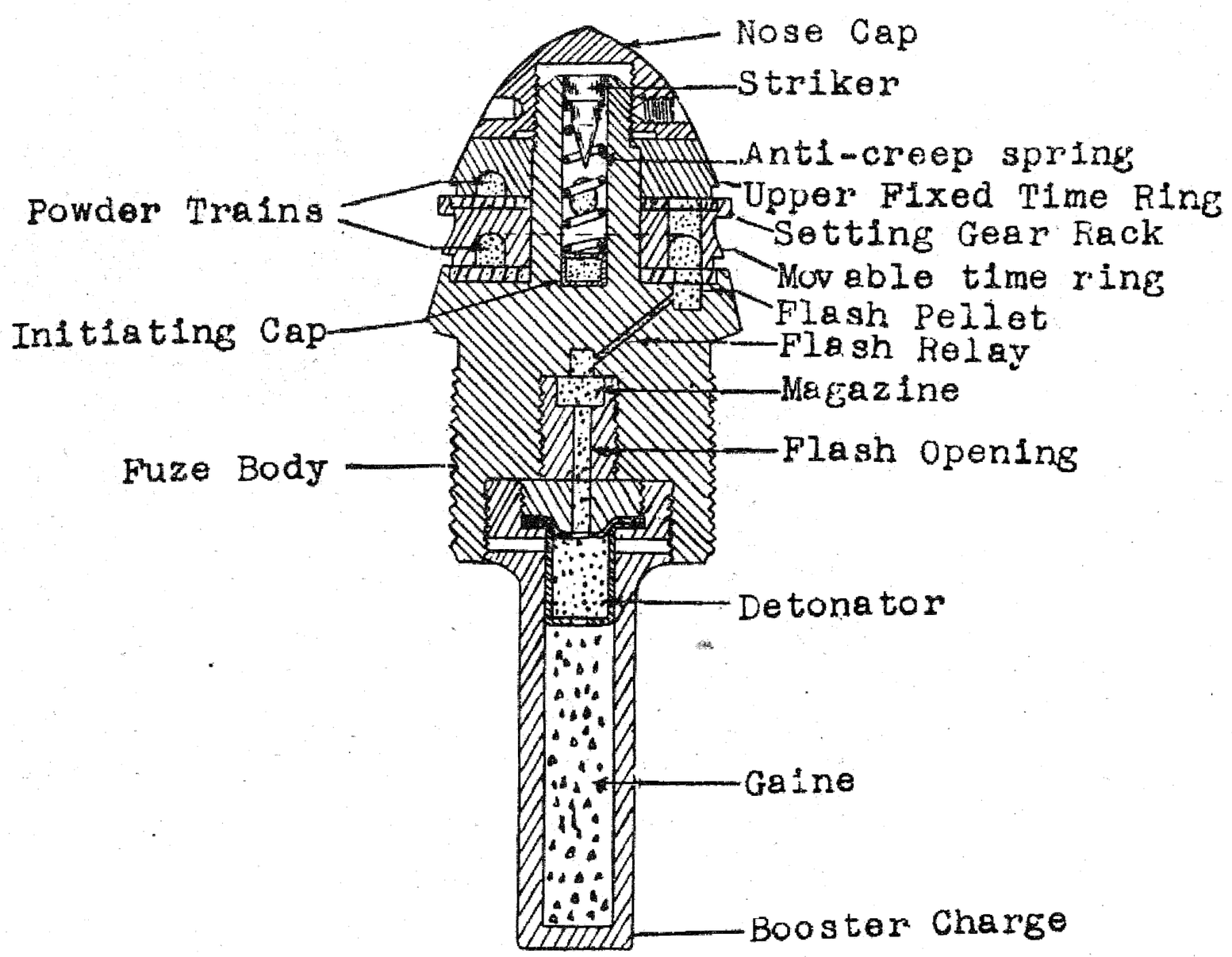
Overall length: 2 3/4 inches.
Maximum width: 2 5/8 inches.

Type: H.E. A.A. Time Fuze.

Source: M.E.I.U. #1 Report No. 37.

Use: 40 mm A.A.

40 MM TIME FUZE



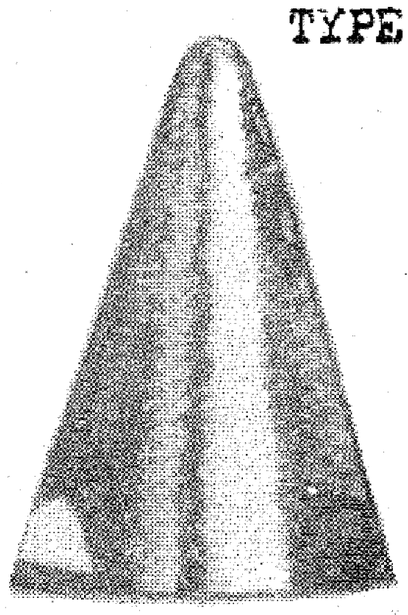
Description & Operation: The fuze body, gaine, magazine carrier, and nose cap are of aluminum. Time rings are of brass. The fuze utilizes a powder train time delay and operates on same principle as U.S. Frankfort Arsenal 21 second time fuze. Incorporates no impact element or tracer.

Type: Type 91, Variation 3.

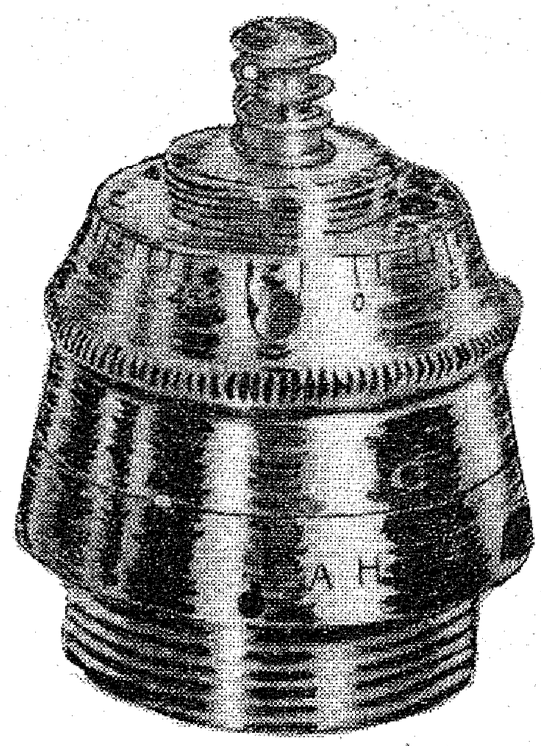
Source: M.E.I.U. #4.

Use: 10 cm D.P. Gun (assumed).

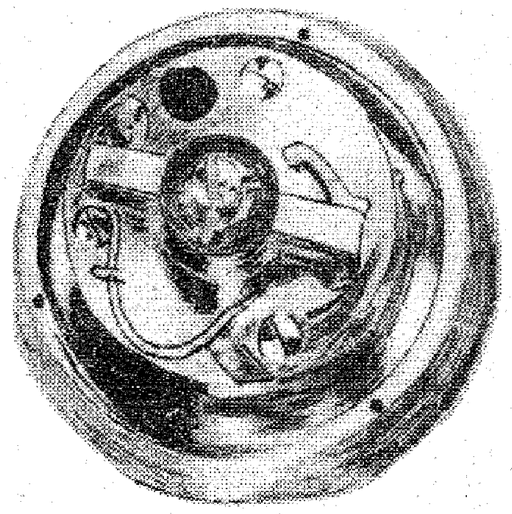
TYPE 91, VARIATION 3, NOSE TIME FUZE



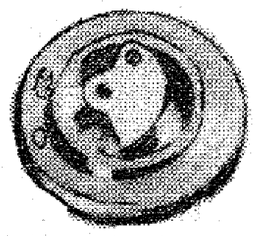
Nose Cap



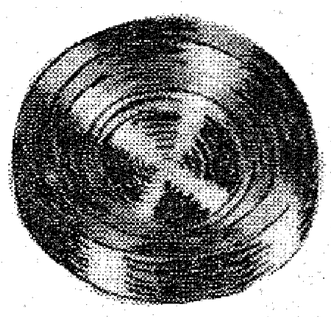
Fuze Body



VIEW OF TOP PLATE



Shutter Housing
(Bottom View)



Base Plate

0" 1/2" 1"

Description & Operation: This fuze was recovered in the same area in which the unfuzed 10 cm rounds were recovered, and closely resembles the dummy fuze found on the 10 cm dummy drill round.

The nose cap is sharp pointed and made of aluminum. The body, assembly ring, and time setting ring are nickled plated brass. The main body, clock mechanism, and arming mechanism of this fuze are identical to the Type 91. The time setting ring is marked in 1 sec. increments from 0 to 45 seconds. The setting lugs found on Type 91 are replaced here by gear teeth on the time setting ring. An additional safety feature has been added in the base of this fuze in the form of a spring loaded centrifugal shutter. The lower shutter housing contains the shutter. The upper shutter housing contains a small black powder charge. In the unarmed position the shutter interrupts the path of the flash between the black powder charge in the shutter housing and the black powder charge in the threaded-in base plate of the fuze. As the shutter is moved out by centrifugal force the path of the black powder flash becomes unobstructed. Type 91 navy projectile gaine is thought to be used with this fuze. The fuze is threaded with right-hand threads.

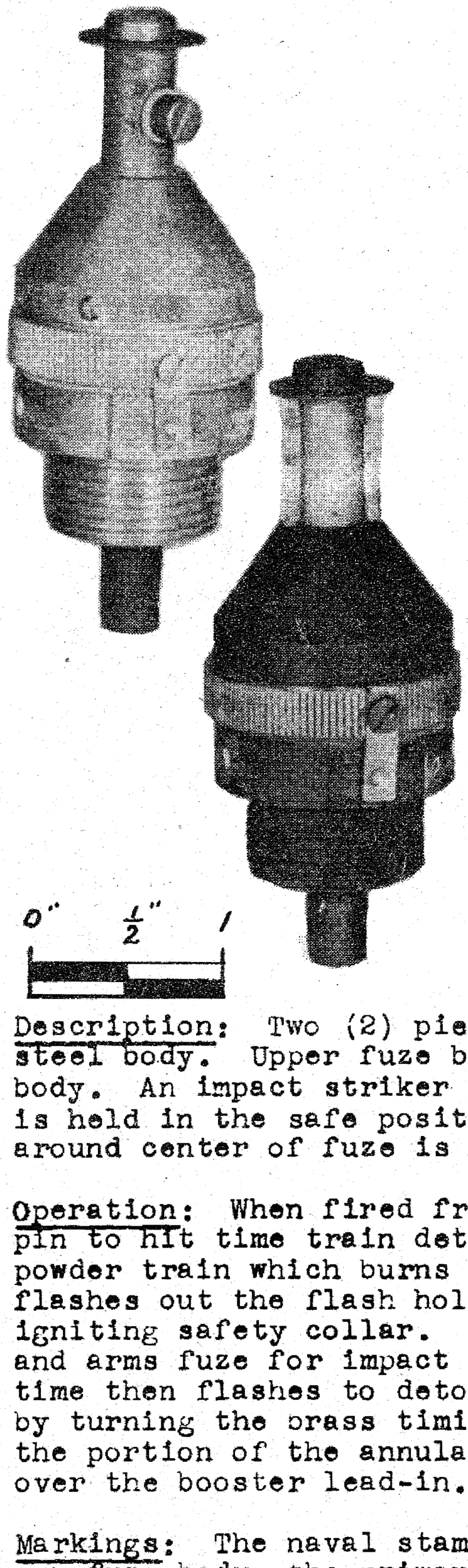
NOSE FUZE (COMBINATION)

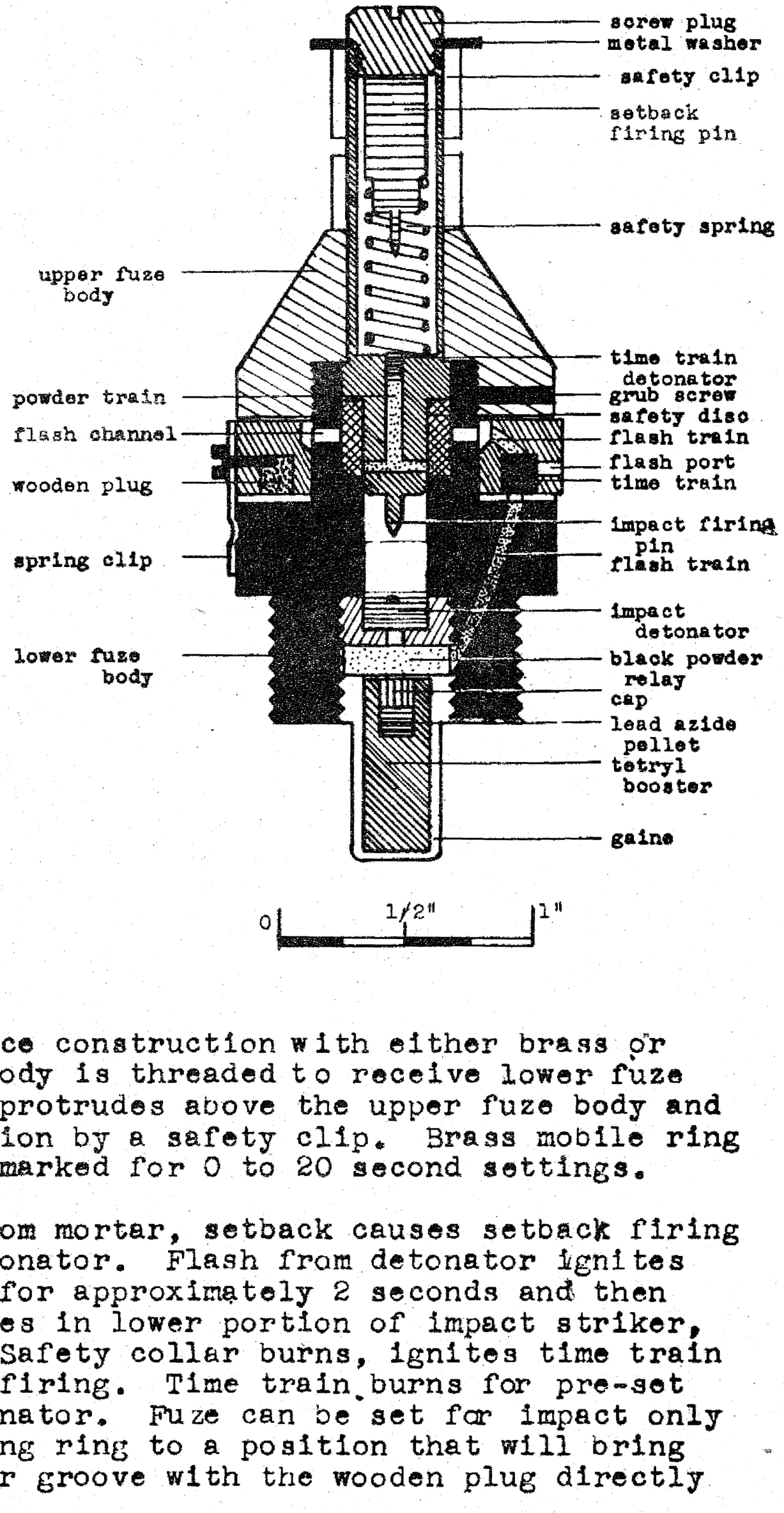
Type: Combination Aerial Burst and Impact Fuze.

Source: M.E.I.U. #4 Report #25, #12; M.E.I.U. #1 Report #104.

Use: 81 mm Navy Mortar Projectile.

JAPANESE AERIAL BURST-IMPACT FUZE FOR 81 MM MORTAR PROJECTILE





Description: Two (2) piece construction with either brass or steel body. Upper fuze body is threaded to receive lower fuze body. An impact striker protrudes above the upper fuze body and is held in the safe position by a safety clip. Brass mobile ring around center of fuze is marked for 0 to 20 second settings.

Operation: When fired from mortar, setback causes setback firing pin to hit time train detonator. Flash from detonator ignites powder train which burns for approximately 2 seconds and then flashes out the flash holes in lower portion of impact striker, igniting safety collar. Safety collar burns, ignites time train and arms fuze for impact firing. Time train burns for pre-set time then flashes to detonator. Fuze can be set for impact only by turning the brass timing ring to a position that will bring the portion of the annular groove with the wooden plug directly over the booster lead-in.

Markings: The naval stamp of approval, ⚓ , appears on the upper fuze body, the primary firing pin, the powder ring, and the lower fuze body.