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Figure 1—Definitions of Terminology.

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## Chapter 1

# JAPANESE BOMBS

### Introduction

The contents of this section are divided into two main parts, Japanese Army bombs and Japanese Navy bombs.

The Japanese Army and Navy have separate air forces each of which employs its own distinct types of bombs and fuzes. These ordnance items are dissimilar in construction and identification features, and each service utilizes its own system of designation.

For the most part the two types of bombs and fuzes may not be used interchangeably. Special adapters have been developed, however, which allow some flexibility of this rule. This has been particularly demonstrated in the use of Navy bombs by the Army in conducting antisubmarine warfare.

The Japanese designations of bombs are used in this book. A general discussion of the system is presented here. A more detailed explanation is given in the introduction to each section.

#### System of designation:

1. *Type number.*—Items of ordnance, as well as most other items of military equipment, are given a type number indicating the year the article was finally adopted for service use. This may occur several years after the ordnance has been in production and actual use.

Until the reign of the present emperor, (Showa era; started in 1926) items were designated by the

year of era. Now, however, the year of the Japanese Empire (Japanese year 2600 corresponds to our 1940) may be used. For items introduced up to the year 2600 the last two numbers are used in the designation. Thus type 99 means the item was adopted in 2599 or our 1939.

The year 2600 may be represented as type 100 or type 0, in a designation. The years 2601, 2602, etc., are usually represented by the last digit such as type 1, type 2, etc.

Experimental Ordnance items are assigned experimental type numbers indicating the year of the Showa era during which the experiment was authorized.

Ordnance items standardized in the eras preceding the Showa era; namely, Taisho 1912-1926 and Meiji 1867-1912, will be designated by the era and the year of the era. Type II (Taisho) = 1922, type 41 (Meiji) = 1908.

2. *Mark number.*—Some ordnance such as Navy bombs developed for a special purpose will be designated by a mark number.

3. *Description of ordnance.*—Some items may have a word or two following the type number which gives a brief description of the particular piece of ordnance.

4. *Model.*—This term has several meanings but generally it indicates a change in basic design.

5. *Modification.*—This is used to represent minor changes in design or a change in explosive filling.

## Chapter 1—Section 1

# JAPANESE ARMY BOMBS

### 1. Designation

The Japanese Army designates its bombs according to a type number, weight, and sometimes a descriptive title.

a. The type number indicates the year in which the bomb was adopted for service use.

b. The weight is expressed in kilograms and usually is stenciled on the bomb.

c. The descriptive title is not used on the standard high-explosive bombs but is used on others. The descriptive title such as smoke,

**ARMY EXPLOSIVES**

Explosive	Use	Japanese Designation	Remarks
<b>Primers (cap composition):</b>			
1. Mercury fulminate, potassium chlorate, antimony trisulfide.	Primer cap composition.	Bakufun=exploding powder.	Documents: Mks I and III are ammunition primers, Mk II is a fuze primer.
2. Potassium chlorate, antimony sulfide.	Primer cap composition.	-----	Most common mixture for fuze primers.
<b>Initiators (detonators):</b>			
3. Mercury fulminate.	Initiator for fuzes and blasting caps.	Raiko=thunder mercury	-----
4. Lead azide.	Initiator for fuzes and detonators.	Chikka Namari	Most common initiator especially where a black powder relay is present.
<b>Boosters:</b>			
5. Picric acid.	Main booster charge.	Ōshomyaku=yellow color explosive.	Pressed. Toxic.
6. Tetryl.	Subbooster.	Meiyaku	Pressed. Toxic.
7. RDX.	Subbooster.	Shouyaku	Pressed (often with wax).
<b>Main charges:</b>			
8. Picric acid.	Bombs, projectiles, land mines, bangalore torpedo.	Yellow color explosive.	Usually cast in preformed paper-wrapped blocks. Toxic.
9. TNT.	Bombs (rare) projectiles, hand grenades.	Chakatusuyaku=tea-brown explosive.	Generally cast into case. Granular in grenades. Toxic.
10. TNT, 25 percent; Picric, 75 percent.	Bombs.	Chaoyaku=TNT-picric.	Cast—rare. Documents: TNT lowers melting point and facilitates casting. A bit less sensitive than picric. Toxic.
11. Picric, 50 percent; Dinitronaphthalene, 50 percent.	Projectiles.	Ōnayaku	Cast—rare. Documents: Picric 80 percent, Dinitronaphthalene 20 percent. Dinitronaphthalene aids casting and makes less sensitive. Toxic.
12. Picric, 90 percent; Wax, 10 percent.	Projectiles.	Ōshivaku=picric wax.	Pressed. Used in nose of A. P. projectiles. Documents: low sensitivity. Toxic.
13. TNT, 70 percent; Dinitronaphthalene, 30 percent.	Projectiles.	Chanayaku	Cast. Toxic.
14. TNT 70, 60, and 50 percent; RDX 30, 40, and 50 percent.	Bombs, projectiles, land mines, bangalore.	Nigo tanōyaku=Mk 2 pale yellow explosive.	Cast. Appears to be the coming Army explosive. Many new types of ordnance have it. Toxic.
15. Ammonium nitrate, 75 percent; RDX, 25 percent.	Bombs.	Anga yaku	Cast in case. White and very hygroscopic.

incendiary, gas, substitute, practice, and anti-  
shipping, indicate the purpose of the bomb.

**2. Construction**

The standard high-explosive bombs are of three-  
piece construction. On older bombs the tail cone,  
which is filled with explosive, is welded to the  
cylindrical body, and the nose section is threaded  
to the body. In later models the nose is welded  
to the body and the tail cone is threaded on.

Some of the antishipping bombs utilize two-  
piece construction; the nose and body are of one  
piece, and the tail cone is threaded to the body.  
The special construction features of the various  
antishipping bombs are described under the  
individual bombs.

**3. Suspension**

All the Army bombs except those carried in  
containers are suspended by a single hinged rec-  
tangular lug located at the center of gravity.

**4. Filling**

High-explosive bombs are usually filled with  
precast, paper-wrapped blocks of explosive sur-  
rounded by paraffin, or in the latest type by cast  
TNT. When fillings other than picric acid are  
used, the nature of the filling may be stenciled  
on the bomb. Bombs filled with an explosive  
other than the standard filling for that bomb are  
marked with the Jap character for "special."

Liquid-filled smoke bombs are grey over-all,  
have a red nose band and no body band. They  
are marked by the symbol for smoke " ㄗ "

Gas bombs are painted grey over-all and have  
a red nose band. It is supposed that color bands  
around the body indicate the type of gas filling.  
This system is utilized in marking Army gas  
projectiles.

- Red band..... Vomit gas.
- Blue band..... Lung irritant.
- Green band..... Tear gas.
- Yellow band..... Vesicant.
- Brown band..... Blood and nerve poison.

**6. Sizes**

Although documents refer to 1,000-kg. bombs,  
none larger than 500-kg. has been recovered.

**7. Fuzing**

All Army bombs of 30-kg. and above may be  
fuzed in both the nose and tail. Bombs of 250- and  
500-kg. generally use larger weights.

**5. Color and markings**

High-explosive bombs are painted black over-  
all. A red band around the tip of the nose indi-  
cates that the explosive is loaded in the bomb  
case. A white band forward of the suspension  
lug indicates that the bomb case is made of  
high-grade steel. A yellow band forward of the  
white band denotes a high-explosive filling.  
Recently this system has been modified to the  
extent that the white band has been omitted.  
Forward of the yellow band is stenciled the  
type number, weight, filling, and additional  
description. Aft of the suspension lug is sten-  
ciled the place and the date of manufacture and  
a "+" or "-" indicating a minor weight dis-  
crepancy.

Incendiary bombs with a solid filling are  
painted black over-all with a white band forward  
of the suspension lug.

A symbol for incendiary bombs " ㄗ " is  
stenciled on the bomb.

All liquid-filled bombs are painted grey over-all.  
A red nose tip indicates that the high explosive  
burster tube is loaded and a blue band aft of the  
nose tip indicates that the liquid filling is present.

Liquid-filled incendiary bombs are marked by  
a single white band just forward of the suspension  
lug and by the symbol " ㄗ ."

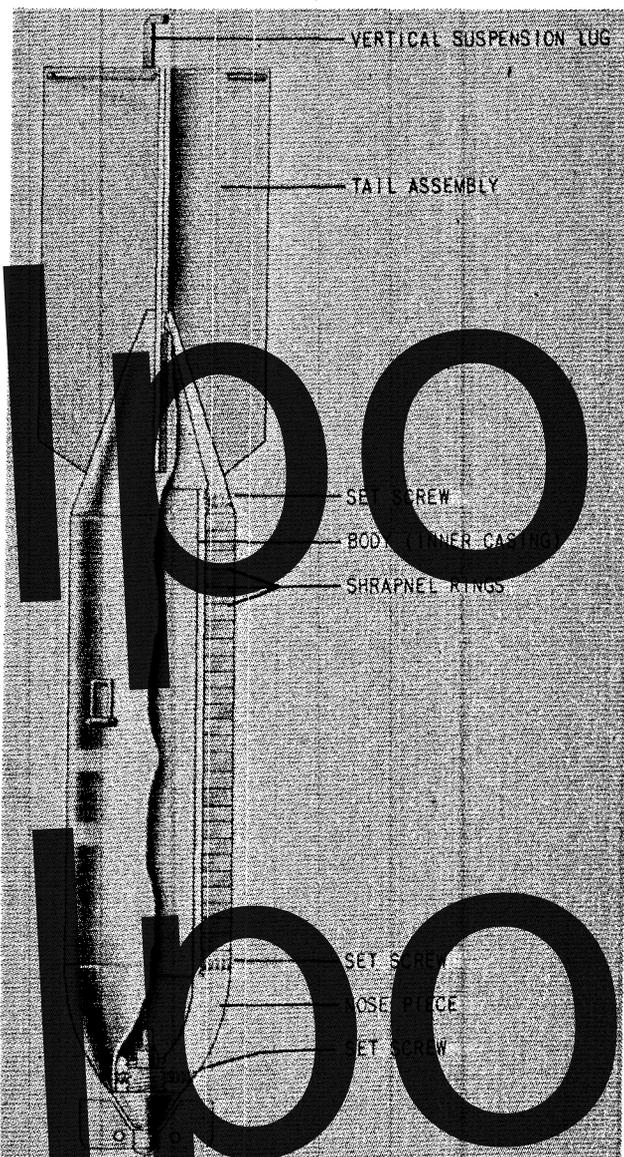


Figure 2—Type 92 15-kg. High-Explosive Bomb.

**Type 92 15-kg. High-Explosive Bomb**

Fuzes—A-2 (b), A-2 (d)

Over-all length: 25½ inches.

Length of body: 14½ inches.

Diameter of body: 3¾ inches.

Thickness of wall: ½ inch.

Material of wall: Steel rings (26).

Type of Suspension: Vertical and horizontal.

Suspension lug: Normal Army suspension lug.

Rectangular hinged steel lug on a plate riveted to body with four rivets. A similar steel hinged lug is fastened to end of tail fins.

Color and markings: Black over all with a red band around the nose and a white band and yellow band forward of the suspension lug. (White band may be missing.)

Length of tail: 11 inches.

Width of tail: 5½ inches.

Width of tail fins: 2¾ inches.

Dimensions of tail struts: Length, 3¾ inches; width, ¾ inch, thickness, ¼ inch.

Material of tail: ¼-inch sheet steel.

Type of filling: 3 precast blocks of picric acid.

An alternative filling is cast TNT.

Weight of filling: 9 pounds 9 ounces.

Total weight of bomb: 33 pounds.  
Charge/weight ratio: 30 percent.

**Construction of body:** A cast-steel nose is threaded onto a tubular steel body. Twenty-six steel rings  $\frac{3}{8}$  inch wide and  $\frac{3}{8}$  inch thick are fitted around the body. One ring to which the suspension lug is attached is  $1\frac{1}{2}$  inch wide and  $\frac{3}{8}$  inch thick. A tail cone is screwed onto the after end of the tubular body.

**Construction of tail:** Four angular fins are welded to the tail cone and braced by a single set of box-type struts. A suspension lug is secured to the after end of the fins.

**Type 99 30-kg. High-Explosive Bomb**

Fuzes: A-2 (a), A-2 (c); B-1 (a), B-1 (b); D-5 (a).

Over-all length: 33 $\frac{3}{4}$  inches.

Length of body: 19 $\frac{1}{2}$  inches.

Diameter of body: 5 $\frac{1}{2}$  inches.

Thickness of wall:  $\frac{7}{16}$  inches.

Material of wall: Tubular steel.

Type of suspension: Horizontal.

Suspension lug: Normal Army suspension lug.

**Color and marking:** Black over all with a red band around the nose and a yellow band and white band around the body forward of the suspension lug.

Length of tail: 13 $\frac{1}{4}$  inches.

Width of tail: 8 $\frac{1}{4}$  inches.

Width of tail fins: 3 $\frac{1}{4}$  inches.

Dimensions of tail struts: Length, 5 $\frac{1}{2}$  inches; width, 1 inch; thickness,  $\frac{1}{16}$  inch.

Material of tail: Sheet steel.

Type of filling: Cyclonite, 48 percent; TNT, 52 percent in 3 preformed blocks.

Weight of filling: 25 pounds, 12 ounces.

Total weight of bomb: 33 pounds.

Charge/weight ratio: 30 percent.

**Construction of body:** A cast-steel nosepiece is screwed into a tubular steel body. A tail cone is welded to the after end of the steel body.

**Construction of tail:** Four tail fins are spot welded to the cone, and are braced by a single set of box-type struts.

**Remarks:** This bomb has been found with sheet steel plates welded to the outer edges of the fins to form a box-like reinforcement for the tail fins. They cover the area from the after end of the fins to a point just forward of the curve in the fins. This is an antishipping adaptation using the A-8 (a) and B-8 (a) fuzes. Documents report that an antipenetration device is used on the tail of the type 99 30-kg. bomb for minimum altitude bombing.

**Type 94 50-kg. Type 94 and Type 3 100-kg. High-Explosive Bombs**

Fuzes: A-2 (a), A-2 (b), A-2 (c); B-1 (a), B-1 (b); D-5 (a).

	50 kg.	100 kg.
Over-all length.....	41 inches.....	53 inches.
Length of body.....	24 $\frac{1}{2}$ inches.....	31 $\frac{1}{2}$ inches.
Diameter of body....	7 inches.....	8 $\frac{1}{2}$ inches.
Thickness of wall....	$\frac{3}{4}$ inch.....	$\frac{1}{2}$ inch.

Material of wall: Tubular steel.

Type of suspension: Horizontal.

Suspension lug: Normal Army suspension lug.

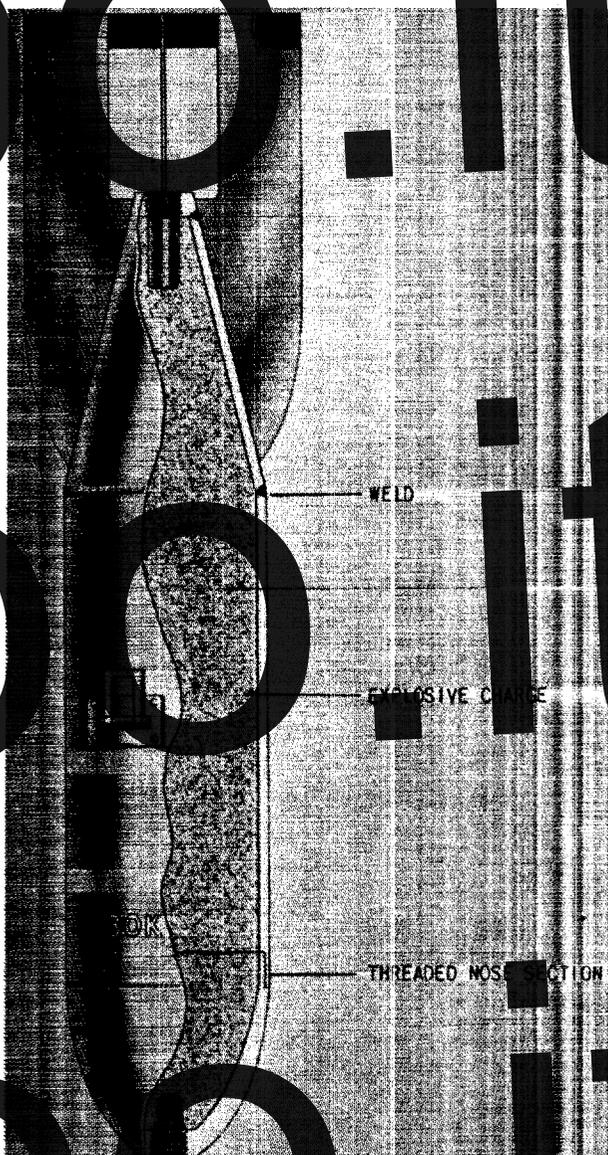


Figure 2—Type 99 30-kg. High-Explosive Bomb.



Figure 4—Type 94 50-kg., Type 94 and Type 3 100-kg. High-Explosive Bombs

**Color and markings.** Black over-all with a red band around the nose and a white band and yellow band around the body just forward of the suspension lug.

	50 kg.	100 kg.
Length of tail	10 1/4 inches	21 3/4 inches.
Width of tail	9 1/2 inches	13 3/4 inches.
Width of tail fins	3 1/2 inches	5 1/2 inches.
Dimensions of tail struts.	6 1/8 x 1 1/16 x 1/2 inches.	Forward struts: 9 1/16 x 1 1/16 x 1/2 inches.. After struts: 9 1/16 x 1 1/16 x 1/2 inches.

Material of tail	Sheet steel	Sheet steel.
Type of filling	3 blocks of picric acid.	Type 94: 4 blocks of picric acid. Type 3: 5 blocks of picric acid.
Weight of filling	44 pounds	97 pounds 12 ounces.
Total weight of bomb	110 pounds	220 pounds.
Charge/weight ratio	40 percent	42.5 percent.

**Construction of body:** Type 94, 50-kg. and 100-kg.: A cast-steel nose is screwed into a tubular steel body. A tail cone is welded to the after end of the body.

Type 3, 100-kg.: A cast steel nosepiece is welded to a tubular-steel body. A tail cone is welded to a collar which is screwed into the after end of the body.

**Construction of tail:** Four tail fins are spot welded to the tail cone and are braced by box type struts. The 50-kg. bomb has a single set of struts. The 100-kg. bomb has two sets of struts.

**Remarks:** The type 94, 100-kg. bomb may vary in its explosive filling: Variations include: (1) Picric acid, 78 percent; TNT, 22 percent in preformed blocks. (2) Ammonium nitrate, 78 percent; RDX, 22 percent cast into the bomb.

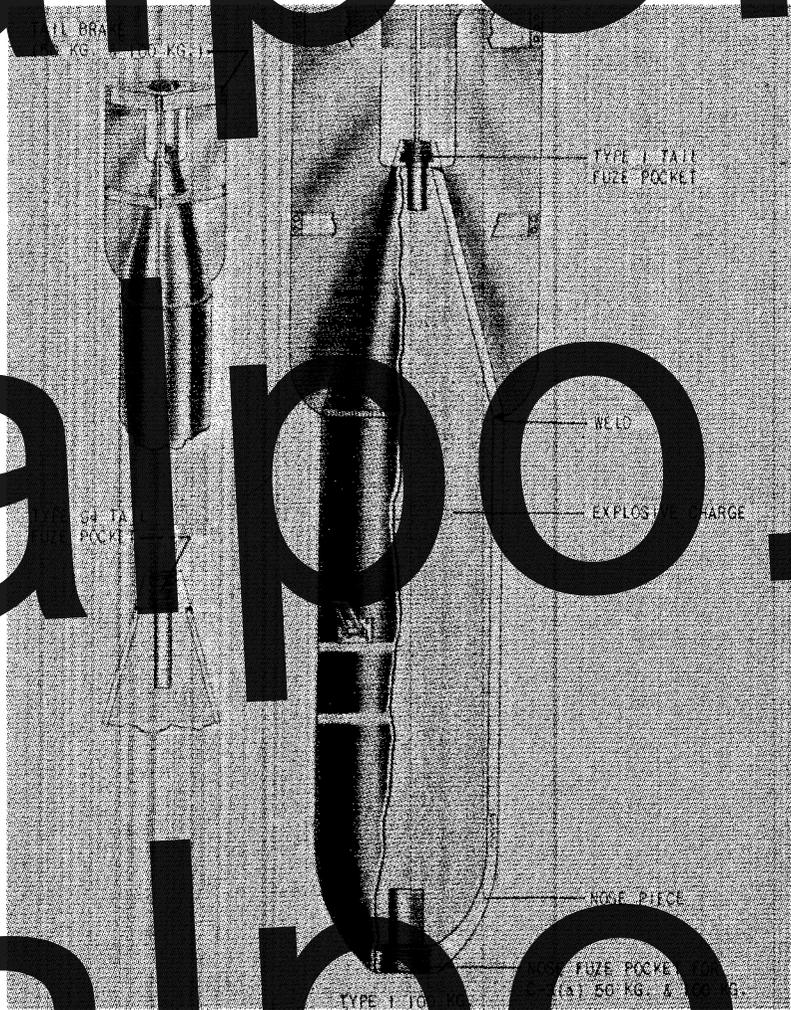
**Type 94 Modified and Type 1 50-kg. and 100-kg. H. E. Bombs**

Fuzes.... Type 94, Modified, C-3(a), B-1(a), B-1(b);  
Type 1, C-3(a), E-1(a).

	50 kg.	100 kg.
Over-all length.....	40 inch.....	52 inch.
Length of body.....	23¼ inch.....	30¼ inch.
Diameter of body.....	7½ inch.....	9½ inch.
Thickness of wall.....	½ inch.....	¾ inch.
Material of wall.....	Tubular steel.	
Type of suspension.....	Horizontal.	
Suspension lug: Normal Army type suspension lug.		
Color and markings: Black over-all and a red band around the nose. One yellow and one white band are forward of the suspension lug.		
	50 kg.	100 kg.
Length of tail.....	10¼ inch.....	21 inch.
Width of tail.....	9¼ inch.....	13¼ inch.

	50 kg.	100 kg.
Width of tail fins.....	3¼ inch.....	5½ inch.
Dimensions of tail struts.	6½ x 1½ x ½ inch.	Forward: 9½ x 1½ x ½ inch. After: 9½ x 1½ x ½ inch.
Material of tail.....	Sheet steel.....	
Type of filling.....	3 blocks of picric acid.	4 blocks of picric acid.
Weight of filling.....	44 pounds.....	103 pounds.
Total weight of bomb.....	110 pounds.....	237 pounds.
Charge weight ratio.....	40 percent.....	43.6 percent.

**Construction of body:** A cast-steel nosepiece is screwed into a tubular-steel body. The orifice in the nose measures 3 inches in diameter. A tail cone is welded to the after end of the body. A fuze adapter is welded onto the apex of the cone.



**Figure 5—Type 94 Modified and Type 1 50-kg. and 100-kg. High-Explosive Bombs.**

Type 94, Modified, tail fuze pocket is completely threaded.

Type 1 tail fuze pocket has three threads and then an annular groove.

**Construction of tail:** Four fins are welded to the tail cone and braced by box-type struts, a single set for 50-kg. bombs and a double set for 100-kg.

bombs. A tail brake is fitted to the after end of the tail of the bombs.

**Type 1 250-kg. High-Explosive Bomb**

Fuzes: C-3 (a), E-1 (a).  
 Over-all length: 75¼ inches.  
 Length of body: 45¼ inches.  
 Diameter of body: 11¼ inches.  
 Thickness of wall: ¼ inch.  
 Material of wall: Tubular steel.  
 Type of suspension: Horizontal.  
 Suspension lug: Normal Army type.  
 Color and markings: Black over-all. One yellow and one white band (¾ inch) forward of suspension lug, 1 inch red band on tip of nose.  
 Length of tail: 30 inches.  
 Width of tail: 10½ inches.  
 Width of tail fins: 8¼ inches.  
 Dimensions of tail struts: Length 11 inches; width ¾ inch; thickness ⅙ inch.  
 Material of tail: Steel.  
 Type of filling: Preformed, paper-wrapped, paraffin sealed picric acid blocks.  
 Weight of filling: 227 pounds.  
 Total weight of bomb: 550 pounds.  
 Charge/weight ratio: 43 percent.

**Construction of body:** A cast-steel nosepiece is screwed into a tubular-steel body. The tail cone is welded to the after end of the body. The nose piece has a 3-inch orifice to accommodate the C-3 (a) time fuze.

**Construction of tail:** Four fins are welded to the tail cone and braced by two sets of box-type struts. A fuze adapter is welded at the apex of the tail cone. The tail fuze pocket has three threads and then an annular groove.

**Type 92 250-kg. and 500-kg. High-Explosive Bombs**

Fuzes: A-4 (a); B-4 (a).

	250 kg.	500 kg.
Over-all length.....	76 inches.....	99¼ inches.
Length of body.....	46 inches.....	57¼ inches.
Diameter of body.....	11¼ inches.....	15 inches.
Thickness of wall.....	¼ inch.....	⅙ inch.
Material of wall:	Tubular steel.	
Type of suspension:	Horizontal.	
Suspension lug:	Normal Army type.	
Color and markings:	Black over all with a red tipped nose and one yellow and one white band forward of suspension lug.	

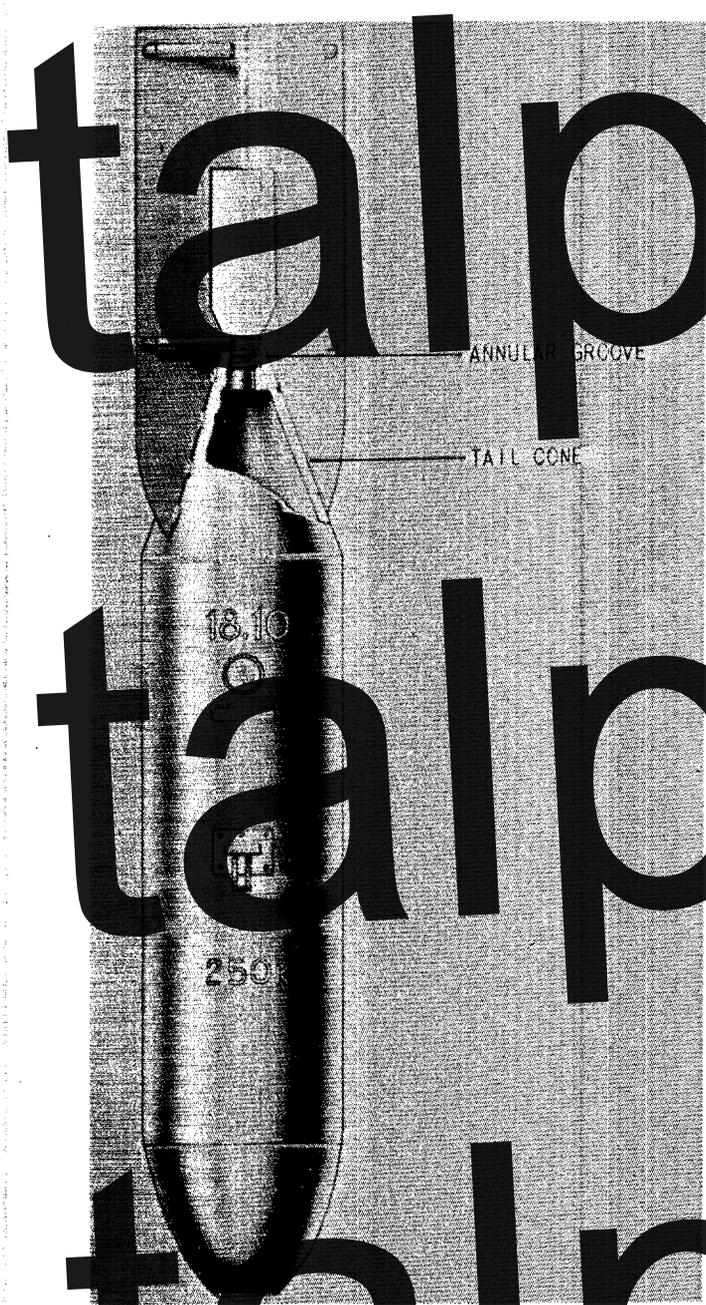
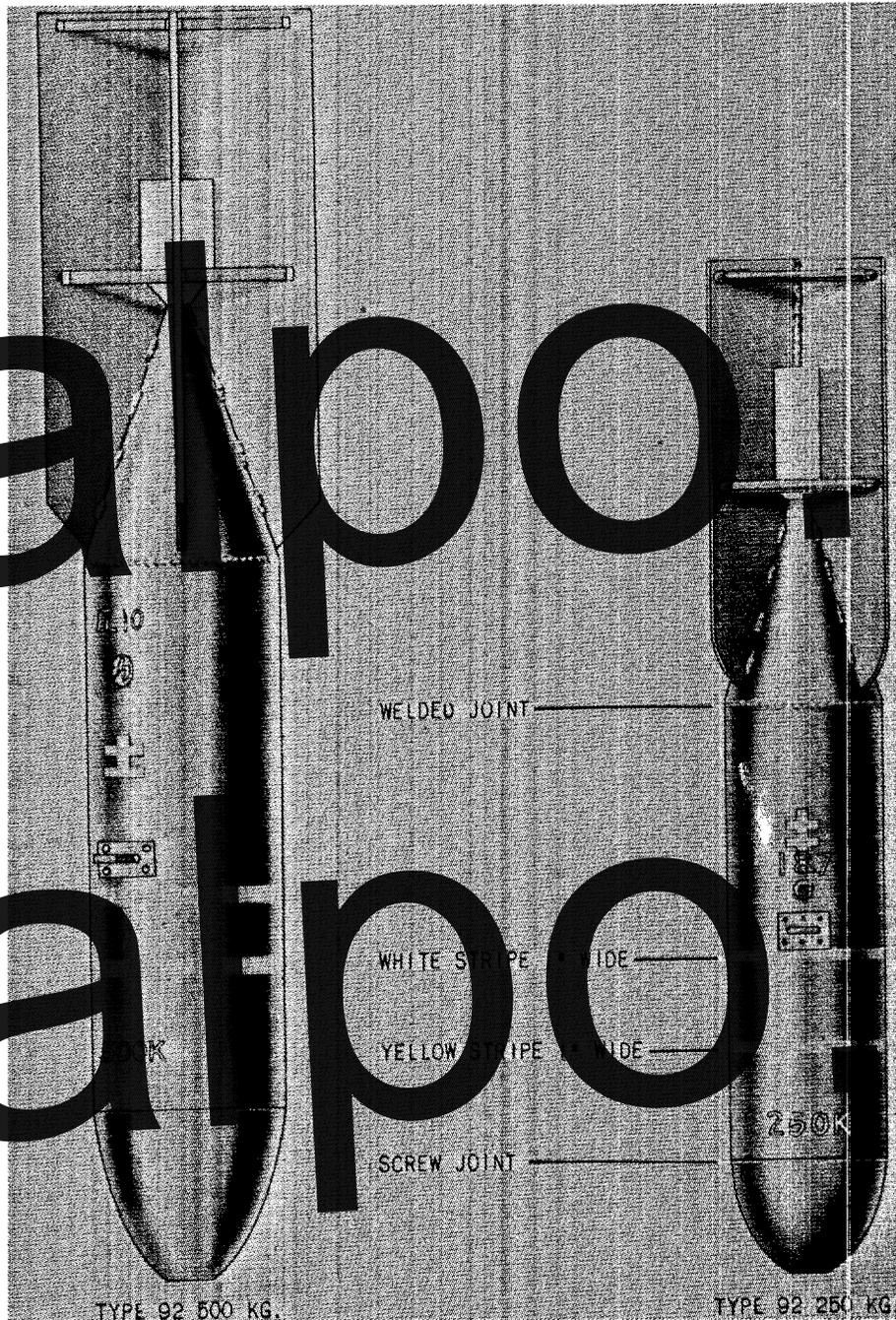


Figure 6—Type 1 250-kg. High-Explosive Bomb.



**Figure 7—Type 92 250-kg. and 500-kg. High-Explosive Bombs.**

	250 kg.	500 kg.		250 kg.	500 kg.
Length of tail.....	30 inches.....	43 1/4 inches.....	Weight of filling.....	230 pounds.....	490 pounds.....
Width of tail.....	10 1/2 inches.....	20 1/4 inches.....	Total weight of bombs.....	550 pounds.....	1,100 pounds.....
Width of tail fins.....	8 1/2 inches.....	10 1/8 inches.....	Charge/weight ratio.....	43 percent.....	46.2 percent.....
Dimensions of tail struts: Length 10 inches; width, 3/8 inches; thickness 1/16 inch.			<b>Construction of body:</b> A cast-steel nosepiece is threaded into a tubular-steel body. A tail cone is welded to the after end of the body.		
Material of tail: Steel.					
Type of filling: Preformed blocks of picric acid.					

**Construction of tail:** Four fins are welded to the tail cone and braced by two sets of box type struts. The tail fins of the 500 kg. are similar to the Navy bombs in that they are angled on the outer edge, as compared to the characteristic curve on the fins of Army 30-kg. to 250-kg. high-explosive bombs.

**Type 3 100-kg. Skipping Model Bomb**

Fuzes: A-8 (a); B-8 (a).  
 Over-all length: 53 inches.  
 Length of body: 31¼ inches.  
 Diameter of body: 9½ inches.  
 Thickness of wall: ¾ inch.  
 Material of wall: Tubular steel.  
 Type of suspension: Horizontal.  
 Suspension lug: Normal Army type hinged suspension lug.  
 Color and markings: Black over-all with a red-tipped nose and a yellow band forward of the suspension lug.  
 Length of tail: 21¼ inches.  
 Width of tail: 12¼ inches.  
 Width of tail fins: 5⅙ inches.  
 Dimensions of tail struts. Forward struts: 9⅙ x 1⅙ x ⅜ inches. After struts: 9⅙ x 1⅙ x ⅜ inches.  
 Material of tail: Steel.  
 Type of filling: Paper wrapped cast picric blocks sealed with TNT.  
 Weight of filling: 98 pounds.  
 Total weight of bomb: 220 pounds.  
 Charge/weight ratio: 42.5 percent.

**Construction of body:** The nosepiece and body are constructed of one piece of machined tubular steel. The after end of the barrel is threaded internally to receive the tail assembly. The tail cone is welded to a collar which screws into the after end of the barrel.

**Construction of tail:** Four tail fins are spot welded to the tail cone. They are braced by two sets of box-type struts. The tail fins are further strengthened by four steel plates welded to the outer edges and running the entire length from the after end to the curved portion of the fins. A round hole is cut in each plate to permit access to the tail fuze pocket.

**Remarks:** Recent specimens of this bomb incorporate a steel reinforcing section in the after end of the body. This cylindrical section closed at one end by a perforated plate is strengthened by three strips of metal which divide it into six equal compartments. Twelve hexagonal bolts around the outer circumference of the bomb hold the section in place. TNT is cast into the section to a point flush with its after edges.



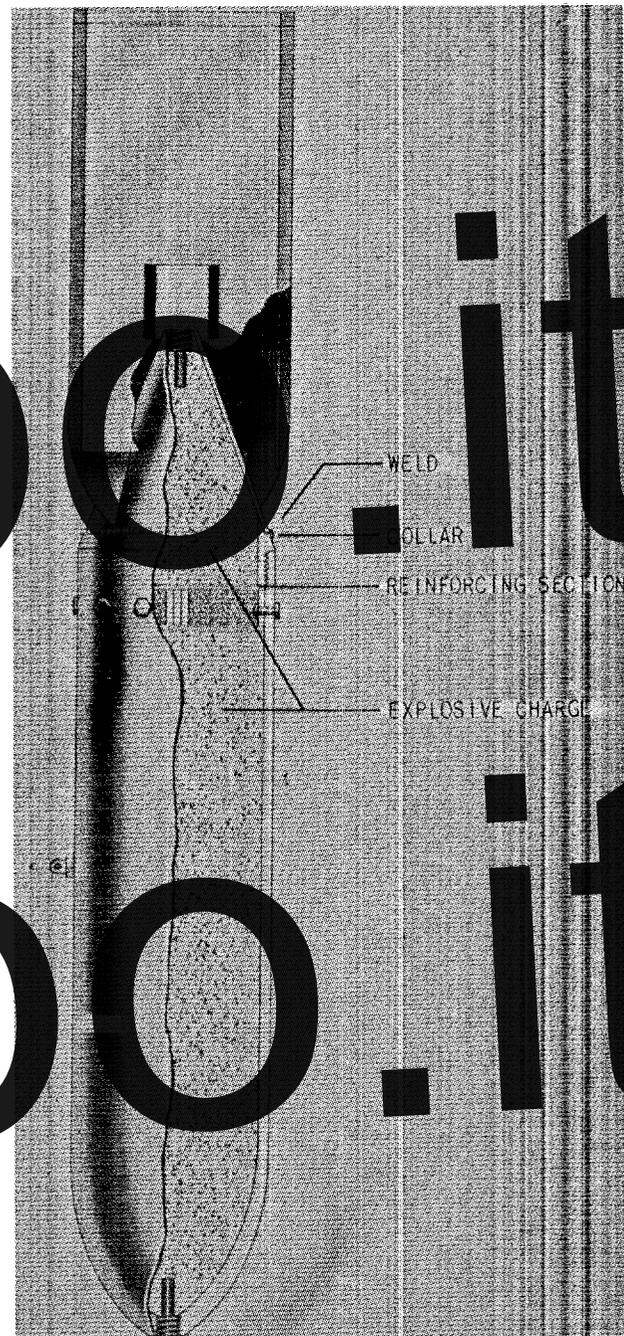
Figure 8—Type 3 100-kg. Skipping Model Bomb.

**Type 3 250-kg. Skipping Model Bomb**

Fuzes: A-8 (b); B-8 (a).  
Over-all length: 78 inches.  
Length of body: 46½ inches.  
Diameter of body: 11¼ inches.  
Thickness of wall: ½ inches.  
Material of wall: Tubular steel.  
Type of suspension: Horizontal.  
Suspension lug: Normal Army type suspension lug.  
Color and markings: Black over all with a red-tipped nose and a yellow band forward of the suspension lug.  
Length of tail: 31¼ inches.  
Width of tail: 16½ inches.  
Width of tail fins: 8¼ inches.  
Dimensions of tail struts: Length, 11¼ inches; width, ¼ inch; thickness, ⅜ inch.  
Material of tail: Steel.  
Type of filling: Paper wrapped cast picric blocks sealed with TNT.  
Weight of filling: 230 pounds.  
Total weight of bomb: 550 pounds.  
Charge weight ratio: 41 percent.

**Construction of body:** A steel nosepiece is welded to a tubular-steel barrel. The after end of the barrel is threaded internally to receive the tail assembly. A row of 12 hexagonal bolts around the circumference of bomb 3¼ inches forward of the after end of the barrel hold a steel reinforcing section in place. This cylindrical section closed at one end by a perforated plate is strengthened by three strips of metal which divide it into six equal compartments. Twelve holes are drilled in the outer circumference of the section to accommodate the bolts. TNT is cast in the section to a point flush with its after edges. The tail cone is welded to a collar which screws into the after end of the barrel.

**Construction of tail:** Four tail fins are spot welded to the tail cone. They are braced by a single set of box-type struts. The tail fins are further strengthened by four steel plates welded to the outer edges and running the entire length from the after end to a point just forward of the



**Figure 9—Type 3 250-kg. Skipping Model Bomb.**

curved portion of the fins. A square hole is cut in each plate to permit access to the tail fuse pocket.

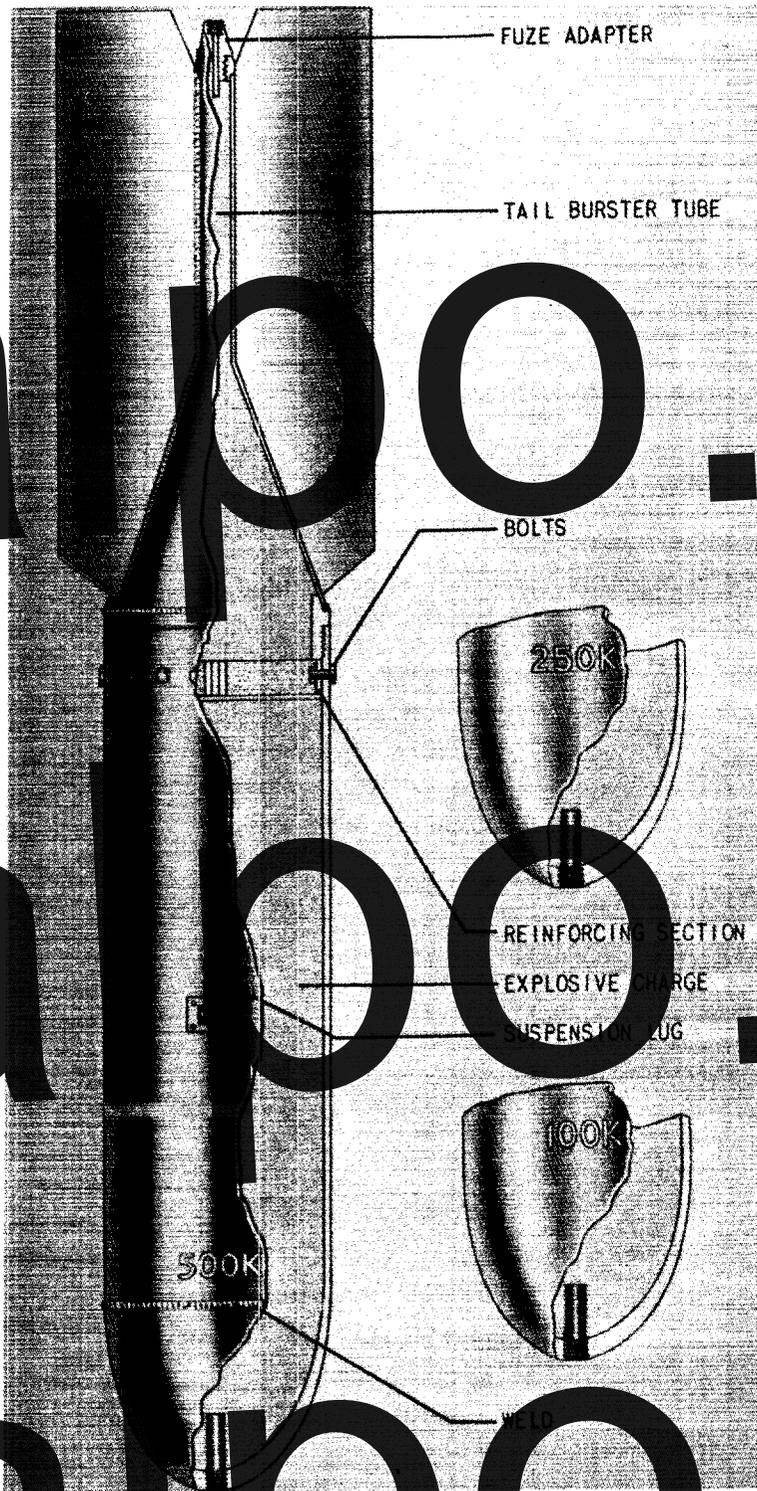


Figure 10—Type 4 100-kg., 250-kg., and 500-kg. Antishipping Bombs.

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**Type 4 100-kg., 250-kg. and 500-kg. Anti-Shipping Bombs**

	100 kg.	250 kg.	500 kg.
Fuzes:	A-8 (a).....	A-8 (b).....	A-8 (b).
	B-8 (a).....	B-8 (a).....	B-8 (a).
Over-all length.....	53¼ inches	77¼ inches	99½ inches.
Length of body.....	31¼ inches	49 inches	57½ inches
Diameter of body.....	8¼ inches	11¼ inches	15 inches.
Thickness of wall.....	¼ inch	¼ inch	½ inch.
Material of wall: Tubular steel.			
Type of suspension: Horizontal.			
Suspension lug: Normal Army suspension lug.			
Color and marking: Black over-all with a red-tipped nose and a yellow band forward of the suspension lug.			

	100 kg.	250 kg.	500 kg.
Length of tail.....	22 inches	29¼ inches	42 inches.
Width of tail.....	13¼ inches	16¼ inches	20¼ inches.
Width of tail fins.....	6 inches	6¼ inches	8¼ inches.
Dimensions of tail struts.....	None	None	None.

Material of tail: Sheet steel.

Type of filling: Paper-wrapped, cast picric blocks sealed with TNT.

	100 kg.	250 kg.	500 kg.
Weight of filling.....		208 pounds	535.5 pounds.
Total weight of bomb.....	220 pounds	554 pounds	1, 123 pounds.
Charge weight ratio.....		38 percent	47.7 percent.

**Construction of body:** The nose and barrel of the 100-kg. and 250-kg. are constructed of 1 piece machined tubular steel. On the 500-kg. a steel nosepiece is welded to a tubular-steel barrel. The after end of the barrel is threaded internally to receive the tail assembly. A row of 12 hexagonal bolts around the circumference of the bomb just forward of the after end of the barrel hold a steel reinforcing plate in place. This cylindrical section closed at one end by a perforated plate is strengthened by 3 strips of metal bent at a 60° angle, which divide it into 6 equal compartments. Twelve holes are drilled in the outer circumference of the section to accommodate the

bolts. TNT is cast in the section to a point flush with its after edges. The tail cone is welded to a collar which screws into the after end of the barrel. Welded to the apex of the tail cone is a burster tube. This tube contains picric acid and is fitted with a fuze adapter at its after end.

**Construction of tail:** The tail fins are made from sheet steel. There are two layers of steel in each fin, a single piece having been bent double and the two inner edges welded to the tail cone and burster tube by a continuous weld. The forward and after ends of the fins are closed by welding. The tail fins are not supported by tail struts.



Figure 11—1-kg. Thermite Incendiary Bomb.

RESTRICTED

**1-kg. Thermite Incendiary Bomb**

Fuzes: Inertia impact fuze.  
Overall length: 13½ inches  
Length of body: 8⅞ inches  
Diameter of body: 2⅞ inches  
Thickness of wall: ⅜ inch.  
Material of wall: Magnesium.  
Type of suspension: Cluster container.  
Suspension lug: None.  
Color and markings: Black over-all (prime coat of gold paint on the body only).  
Length of tail: 5⅞ inches  
Width of tail: 2⅞ inches  
Width of tail fins: 1⅞ inches  
Dimensions of tail struts: 1⅞ inch wide.  
Material of tail: Light sheet metal.  
Type of filling: Thermite.  
Total weight of bomb: 2 pounds 12 ounces.

**Construction of body:** The bomb consists of a nosepiece, incendiary filled body and explosive filled tail. The nosepiece is made of magnesium and screws into the bomb body. At the flat forward end it is threaded centrally to receive the brass firing pin holder which contains a fixed steel firing pin. At the after end it is pierced by a flash hole. The recess within the nosepiece houses a movable detonator carrier and a creep spring. An off-center transverse safety pin prevents the detonator carrier from hitting the firing pin. The body is a thermite filled cylindrical magnesium tube. The forward end is threaded internally to receive the nosepiece. The after end is boat-tailed to accommodate the conical tail cone. Three-fourths inch aft of the forward end are four vent holes, 90° apart. The conical tail cone, made of light sheet metal, slips over the boat-tailed after body of the bomb, and is secured to it by four screws. Each of the three fins, which are made of the same material as the cone, has its inner edge turned and held to the cone by four rivets. Where the three fins meet aft of the apex of the tail cone, they are braced and held together by angular metal strips, which are riveted onto both sides of each fin by two rivets. The outer edge of each fin is turned for a distance of ¼ inch from the after end. Six rivets hold these turned edges to a circular strut. Filling the inside of the tail cone is a conical cloth bag containing a pyrotechnic mixture which may have explosive properties.

**Operation:** The fuze is armed when the safety pin is removed. On impact the detonator carrier moves down against the creep spring and hits the firing pin. The resultant flash ignites the thermite filling of the bomb.

**5-kg. Thermite Incendiary Bomb**

Fuzes: Mechanical impact tail fuze.  
Over-all length: 15¼ inches.  
Length of body: 6¼ inches.  
Diameter of body: 3⅞ inches.  
Thickness of wall: ⅜ inch.  
Material of wall: Welded steel tube  
Type of suspension: Horizontal.  
Suspension lug: ¼ inch steel band secured around the body by a nut and bolt, ⅞ inch hole drilled in the extension of the band to accept metal hook.  
Color and marking: Bomb body: Black or olive drab. Tail: Unpainted tin color.  
Length of tail: 9 inches.  
Width of tail: 3⅞ inches.  
Width of tail fins: None.  
Dimensions of tail struts: None.  
Material of tail: Tin-plated sheet steel.  
Type of filling: Incendiary, consisting of a first fire charge and a main charge.  
Total weight of bomb: 11 pounds.

**Construction of body:** The bomb body consists of a ⅝ inch thick steel tube welded longitudinally and closed at the forward end by a ¾ inch thick nose plug which is welded in place. A cylindrical wooden block is fitted part way into the aft end of the body and secured by six countersunk wood screws. The block contains the simple impact fuze and spring-loaded safety pin and also acts as the connecting element between the body and the tail. Two ¾ inch vent holes are drilled longitudinally through the block 180° apart. The fuze is 2⅞ inches long and has a 1⅞ inch diameter. The tubular aluminum body contains a striker and a creep spring. A solid threaded plug closes the aft end and a plug containing the primer screws into the forward end. A spring-loaded safety pin holds the striker in position. The incendiary filling in the bomb body consists of a first fire charge which is adjacent to the primer and a main charge below it. The first fire charge is a compressed black powder composed of magnesium, barium peroxide and potassium nitrate. The main charge is thermite.

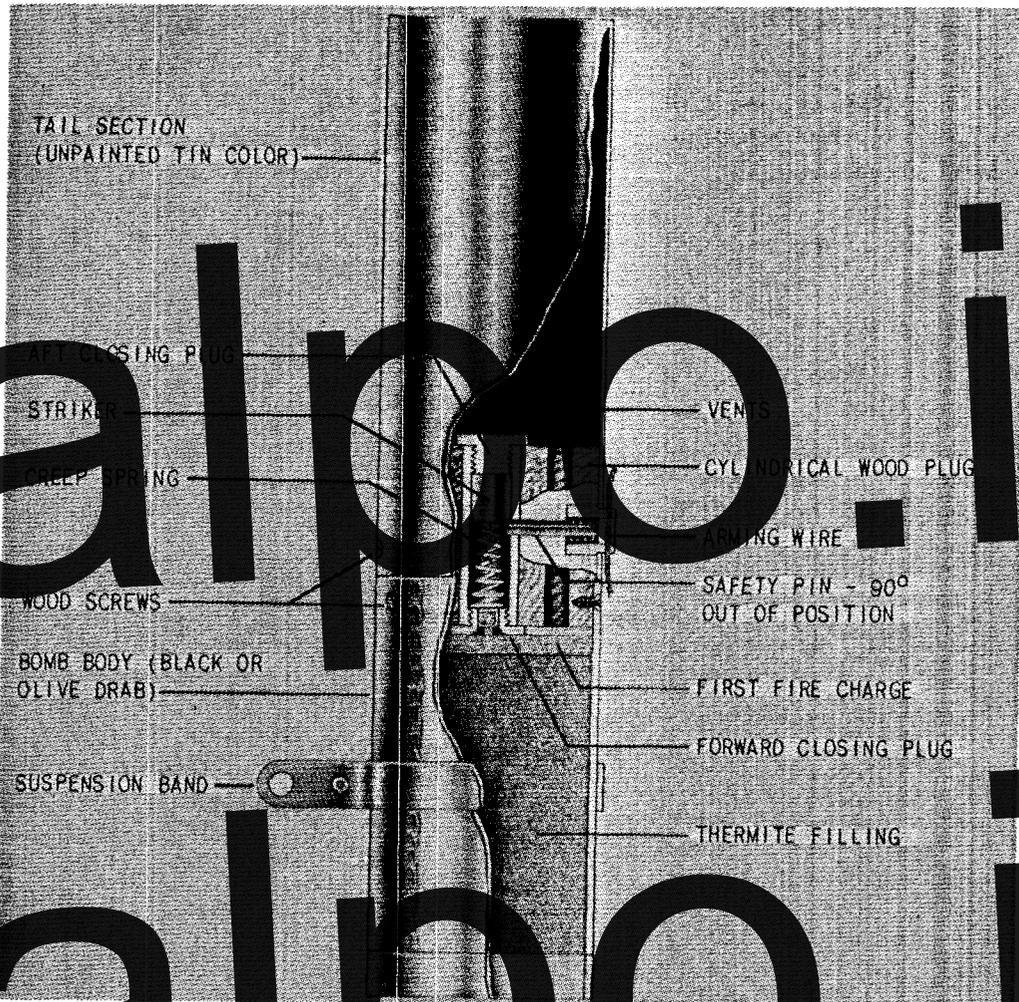


Figure 12—5-kg. Thermite Incendiary Bomb.

**Construction of tail:** The tail, consisting of a tinned sheet steel tube closed at the after end, is secured to the wooden block by five wood screws. The tail and body sections rest flush against one another, completely concealing the wooden block to which they are attached. A slot in the tail receives the brass safety pin housing which is contained in the wooden block.

**Operation:** When the bomb is released the arming wire is withdrawn, allowing the spring-loaded safety pin to fly out, arming the fuze. On impact, the striker compresses the creep spring and hits the primer. The explosion of the primer ignites the first fire charge and the thermite.

**Type 97 12-kg. Thermite Incendiary Bomb**

- Fuzes: A-2 (a) (fitted with a magazine).
- Over-all length: 25½ inches.
- Length of body: 14½ inches.
- Diameter of body: 4 inches.
- Thickness of wall: ⅜ inch.
- Material of wall: Steel.
- Type of suspension: Horizontal.

RESTRICTED

Suspension lug: Normal Army suspension lug on barrel, plus an improvised suspension device described below.

Color and markings: Black over-all with a  $\frac{1}{16}$  inch white stripe just forward of the suspension lug.

Length of tail: 11 inches.

Width of tail:  $5\frac{1}{16}$  inches.

Width of tail fins:  $2\frac{3}{16}$  inches.

Dimensions of tail struts: Length,  $3\frac{1}{2}$  inches; width,  $\frac{1}{2}$  inch; thickness,  $\frac{1}{8}$  inch.

Material of tail:  $\frac{1}{8}$  inch rolled steel.

Type of filling: Three thermite-filled magnesium fire pots. Two black powder charges.

Weight of filling: Fire pots, 10 pounds; black powder charges, 11 ounces.

Total weight of bomb: 26 pounds.

Charge/Weight ratio: 38 percent.

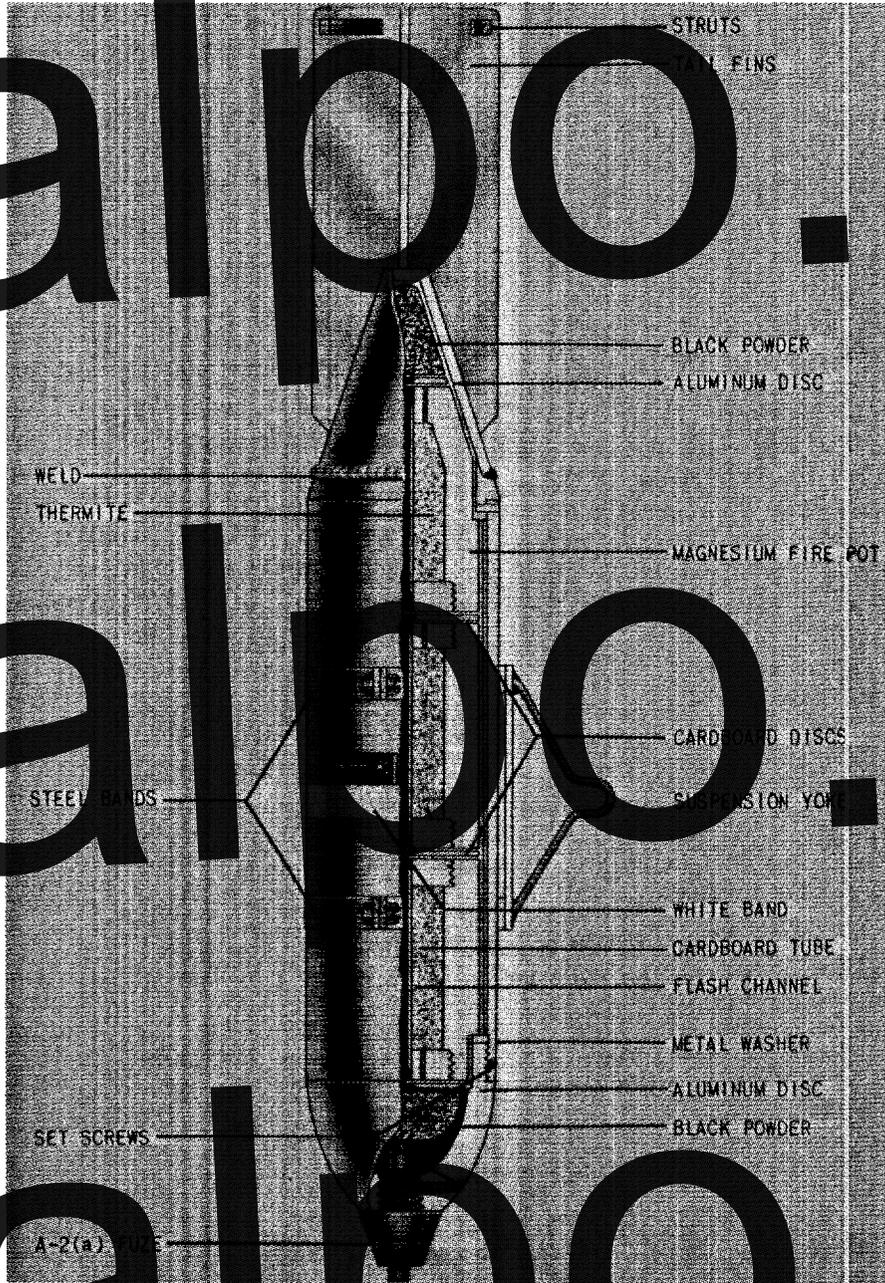


Figure 13—Type 97 12-kg. Thermite Incendiary Bomb.