

JAPANESE BOMBS & FUZES



JULY 1944

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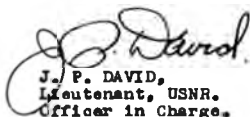
U. S. NAVY BOMB DISPOSAL SCHOOL
Washington 16, D.C.

July 1944

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JAPANESE BOMBS & FUZES

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昭和

OR

昭

(abb.) - Shows era. Note: Year one - 1926

一 - 1

二 - 2

三 - 3

四 - 4

五 - 5

東 OR 京 (abb.) - Tokyo

航空兵 OR 航改 (abb.) - The Air Service (a new word)

阪 - Osaka 改 - Revision or Modifications

勳信管 - Fuse

爆藥 - Explosive 爆藥 - Powder

爆彈 - Bomb 用 - Use

口徑 - Caliber 米 - Metre

耗 - Millimetre 米千 - Kilometre

年 - Year 月 - Month 日 - Day

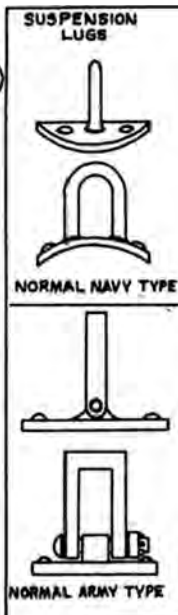
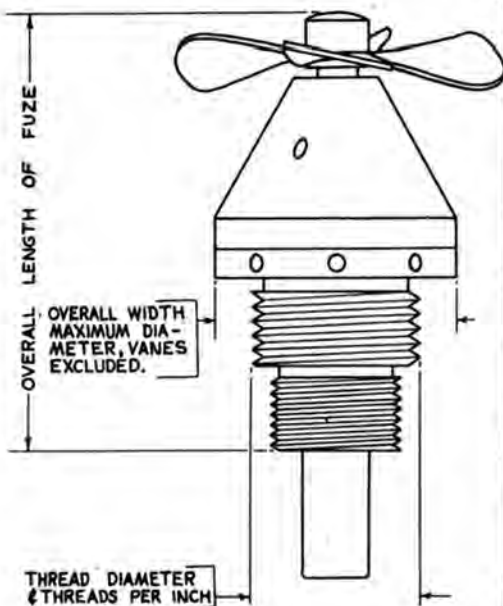
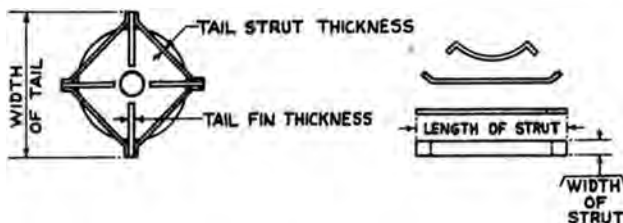
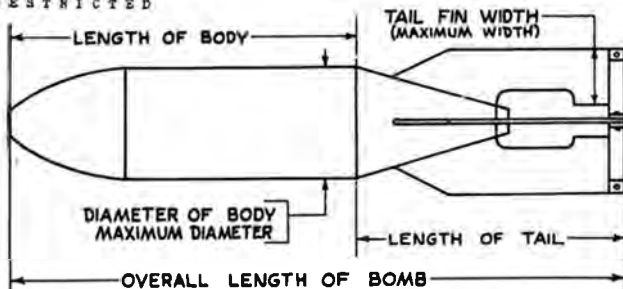
陸軍 - Army 海軍 - Navy

延
瞬
甲
乙
丙
⚓
可

- Delay
- Instantaneous
- Classification A or 1 (first calendar sign)
- Classification B or 2 (second calendar sign)
- Classification C or 3 (third calendar sign)
- Navy Arsenal
- Inspector's approval stamp (Naval)

☆
式
型
號
陸
常
吳
×

- Tokyo Army Arsenal mark
- Model
- Type
- Mark
- 用 - Land use
- Ordinary
- Kure Naval Base
- Osaka Army Arsenal Mark



DEFINITIONS OF TERMINOLOGY

**JAPANESE
BOMBS**

INTRODUCTION TO JAPANESE BOMBS

The Japanese Army and the Japanese Navy have separate Air Forces similar to the United States. Each service employs its own distinctive types of bombs which possess definite identifying characteristics.

ArmyConstructionNavy

Army G.P.H.E. and Incendiary (dual purpose) bombs are of three piece construction. The nose pieces of H.E. bombs are threaded onto the body and held by two grub screws, or attached by means of three dowel pins in case of incendiaries. (Bombs are usually filled from the nose end) while the tail assembly is usually welded to the bomb body. The interiors are not coated.

The tail fins extend from beyond the apex of the cone to within an inch or two of the body-tail cone joint. (Compare diagrams, pages 20 & 24).

The suspension lug consists of a rectangular swivel eye-hook on a plate riveted to body with four rivets.

Navy G.P.H.E. bombs are thin cased & constructed of three pieces. The nose piece is usually welded and/or riveted to the body while the tail assembly is welded and/or riveted to a retaining collar which fits into the base of the bomb body and is secured by screws.

The S.A.P. and A.P. bombs have a thicker case & are made in one piece with a threaded base plate. On S.A.P. bombs the tail assembly is secured to the base plate by screws.

The interior of Navy bombs has a hard lacquered finish.

The tail fins extend from beyond the apex of the cone to a little past midway between the apex of the cone and the body-tail joint.

The suspension lug consists of an eyebolt welded to a circular plate which is riveted to the bomb body by four rivets.

Markings

Army G.P.H.E. bombs are generally painted black overall with a yellow and a white band around the body forward of the suspension lug and a red band around the nose. The size of the bomb is usually stencilled on the body near the nose.

The incendiaries do not follow this scheme.

Navy G.P. and S.A.P. high explosive bombs are generally bluish-grey overall with green tail struts, a green band on the nose, and two thin red assembly lines, diametrically opposite running longitudinally along the entire length of the bomb. There may be a blue band around the body aft of the suspension lug.

Incendiaries are generally bluish-grey with two thin red assembly lines diametrically opposite but have a silver or red band on the nose and/or red tail struts.

Fuzing

Only Army type fuzes are used. (Refer Introduction to Japanese Fuzes, page 98). G.P.H.E. bombs are generally fuzed nose and tail; however in a few instances, a bakelite plug has been screwed into the tail fuze pocket.

The incendiary and anti-personnel bombs are usually fuzed only in the nose or tail.

Only Navy type fuzes are used. (Refer Introduction to Japanese Fuzes, pg. 98). Generally G.P. and S.A.P. high explosive bombs under 250 Kg. are fuzed only in the nose while larger bombs are fuzed both nose and tail; A.P. bombs are fuzed only in the tail.

Incendiary and other smaller bombs are fuzed in the nose and/or tail.

Filling

Army bombs are generally filled from the nose end. The explosive filling of H.E. bombs is comprised of 3 to 5 separate sections wrapped in wax paper, (nose section, body sections and tail sections), separated by cardboard, felt or both.

Incendiaries have an H.E. charge in the nose and the exploder tube with the incendiary filling in the body and tail sections.

Navy type bombs are usually filled from the tail end. The explosive filling of G.P. bombs is comprised of two sections (nose & body section, tail section); the explosive is not wrapped in wax paper but the interior surfaces of the Navy bombs are shellacked.

S.A.P. and A.P. bombs have filling in the body section only, the tail cone being empty. The explosive of these bombs is usually wrapped in felt.

Incendiary bombs have an H.E. burster charge in the nose section, tail section, or in the exploder tube with incendiary filling in the remaining sections.

COLOR MARKINGS OF JAPANESE BOMBS

The following table is an extract from a captured Japanese document. It is possibly a list of new color markings to be used by the Japanese Navy.

Kind of Bomb	Marking	Target
Ordinary bombs	Green Brown Gray Gray	(Large model (TN: OOGATA 500 Kg. and over)) Bombing of capital ships (Medium Model (TN: CHUGATA 250-500 kg.)) Bombing of capital ships and carriers (Small Model (TN: SHOGATA 250 Kg. and under)) Other ships. Destruction of super-structure.
Land Bombs	Green Brown Gray Gray	Bombing of city buildings
Practice Bombs	Green Black White White	For use in training and practice.
Dummy Bombs	Green Black White White	Release tests and training
Training Bombs	Black	Training in installation, loading, and testing of release gear.
Special Bomb Mark 1	Green Yellow Gray Yellow	(Chemical Bomb) For special circumstances
Special Bomb Mark 2	Green Blue Gray Gray	Anti-sub bombing.
Special Bomb Mark 3	Green Silver Gray Red	Formations of planes. Planes exposed on ground
Special Bomb Mark 4	Green White Gray Red	(Rocket Bomb) Dive Bombing of capital ships
Special Bomb Mark 5	Green White Gray Gray	(Armor piercing bomb) Capital ships with heavy armor.
Special Bomb Mark 6	Green Red Gray Red	(Incendiary Bomb). Incendiary bombing of city buildings
Special Bomb Mark 7	Green Purple Gray Purple	(Bacillus Bomb) For special circumstances
Smoke Bomb	Green Black Gray Black	Concealment of our ships.

JAPANESE HIGH EXPLOSIVE BOMBS

From available information, it is thought the following is correct.

Our Designation

1 Kg. Smoke Explosive

Navy 63 Kg. G.P. or S. A. P.

Navy 60 Kg. Type 97 G.P.H.R.

Navy 60 Kg. Type 96

Navy 800 Kg. A.P.

Navy 800 Kg. G.P.H.E.

Navy 250 Kg. S.A.P.

Navy 300 Kg. Anti-Submarine

Army Type 1, 100 Kg. Time Bomb

Army Type 3, 100 Kg. Bomb

Navy 60 Kg. Anti-Submarine

Japanese Designation

1 Kg. Exercise Bomb, Modification 3,
Smoke Explosive, May 1941.

一五式習爆單 = 改煙爆藥

昭和十九年五月
Type 99 No. 6 Ordinary

九九式六番通常爆單

Type 97 No. 6 Land

九七式六陸用爆單

Type 96 No. 6 Land bomb, Mark 23

九六式六陸用爆單 = 號

No. 80 Mark 5

八〇番五號爆單

No. 80 Ordinary Model 1
Modifications 2, 3, 4.

八〇番通常爆單一型

= 四改
Type 99 No. 25 Ordinary

九九式 = 五番通常爆單

Type 99 No. 25 Ordinary Bomb, Model
One, Mark 2

九九式 = 五番通常爆單

一型 = 號
Type 1, 100 Kg. Bomb

一式一〇〇瓦炸爆單

Type 3, 100 Kg. Bomb

三式一〇〇瓦炸爆單

Type 99 No. 6 Mark 2

九九式六番 = 號



EXTENDED
ARMING
SPINDLE



MODIFIED
BOMB

JAPANESE
1/3 KG. BOMB

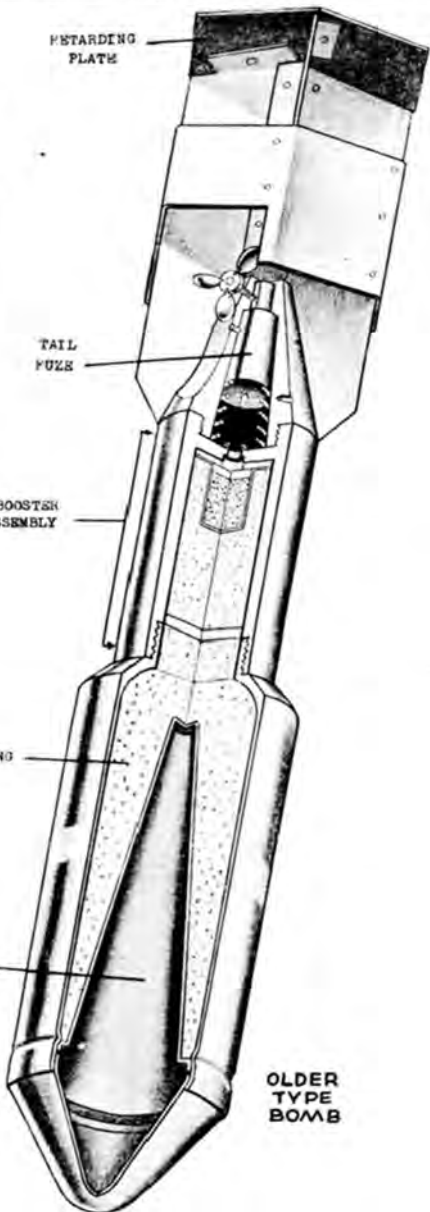
RETARDING
PLATE

TAIL
FUZE

BOOSTER
ASSEMBLY

FILLING

INNER
CORE



OLDER
TYPE
BOMB

FUZE

B-5(a)

JAPANESE NAVY BOMB 1/3 KG.

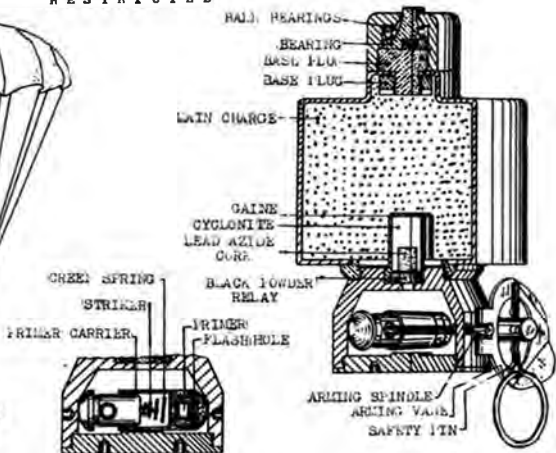
Anti-Parked Aircraft

OVERALL LENGTH	10.25 in.
LENGTH OF BODY	4.60 in.
DIAMETER OF BODY	1.58 in.
THICKNESS OF WALL	0.03 in.
MATERIAL OF WALL	Steel
TYPE OF SUSPENSION	Carried in clusters of 30 or 76 in a black container.

CONSTRUCTION OF SUSPENSION LUG	
COLOR & MARKINGS ON BOMB AND TAIL	Body is black with yellow band around center. The tail extension and tail are grey.
LENGTH OF TAIL	6.0 in.
WIDTH OF TAIL	1.5 in.
WIDTH OF TAIL FINS	
DIMENSIONS OF TAIL STRUTS	
MATERIAL OF TAIL	Magnesium Alloy.
TYPE OF FILLING	T.N.T. with cyclonite booster.
WEIGHT OF FILLING	0.12 Kg.
TOTAL WEIGHT OF BOMB	0.33 Kg.
CHARGE/WEIGHT RATIO	0.32 %

CONSTRUCTION OF BODY	The body is crimped around the nose and screwed to a tail extension to which a fuze is screwed. The tail is held by screws to the fuze. An inner cone is found inside the body to give a "Monroe effect" on exploding. The booster assembly is found inside the tail extension.
CONSTRUCTION OF TAIL	Three tail fins are held on to fuze by screws. The fuze is screwed into the tail extension.

REMARKS	The body is that of a Japanese anti-tank rifle grenade. The container bursts in mid-air, scattering its bombs. This bomb can pierce high quality armor plate because of the "Monroe" principle of explosion. <u>Modified Bomb.</u> A container full of modified 1/3 Kg. bombs, manufactured in January and February of 1944, has been recovered. These bombs were filled with Japanese Army Mark 2 Explosive (TANOSYAKU - 50% TNT - 50% cyclonite). A 5/16 inch layer of pure cyclonite poured in on top fills up the bomb body. Evidently in an effort to reduce UXB's the arming spindle of recent bombs was lengthened about 1/8 of an inch. The new length allows the cup shaped vanes to protrude further into the wind stream. The tail brake plate on the modified bombs has been omitted. A 3/16 inch strut at the extreme end of the fins has been substituted. A golden lacquered, thin, tinned steel has been substituted for the older type aluminum tail fins.
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**JAPANESE
ARMY
PARACHUTE
BOLO BOMB**

FUZES: Always acting fuze similar to the Italian "K" fuze.

OVERALL LENGTH 4-13/32 in.

DIAMETER OF BODY 2-1/2 in.

THICKNESS OF WALL 3/32 in.

COLOR & MARKINGS ON BOMB & TAIL

Black overall with red band around nose collar.



(February 1943)

(Symbol for place of filling)

Stencilled in white at the middle of the body.

JAPANESE ARMY PARACHUTE ANTI-AIRCRAFT BOLO BOMB

TYPE OF FILLING Mixture of cyclonite/TNT (40/60)

WEIGHT OF FILLING 241 grams

TOTAL WEIGHT OF BOMB 397 grams (without fuze)

CHARGE/WEIGHT RATIO 60.7 %

DESCRIPTION

The bomb assembly consists of a small bomb with fuze, a reel of cable, and two parachutes packed in a split can with a hinged bottom and a screw top. The bomb proper is a simple cylinder closed at both ends. The walls and base are made in one piece with a smaller extension drawn out from the base to take the base plug. The nose end is closed by a disc welded onto the walls and protruding threaded collar welded onto the disc. The base plug is a screw, threaded on two diameters. The smaller diameter is on the forward end and takes a keep ring which is threaded on from the inside of the bomb to hold the plug in. The larger diameter protrudes out of the base and takes the cable attachment. The nose collar is threaded to take the fuze. The bomb is filled from the nose.

The fuze, marked 日 呂 + 八 2 (February 1943) 東京 ☆ (Tokyo)

on the nose cap, is an all-ways action fuze similar to the Italian "K" fuze. It is screwed into the nose collar of the bomb.

The parachute assembly consists of the main parachute, attached to the auxiliary parachute, which is attached to the reel containing 164 feet of 1/16" diameter steel wire, which is connected to the cable attachment on top of the bomb.

The small auxiliary parachute is 13 1/2" in diameter unfilled, and is attached to the top of the reel by nine 15 inch silk shrouds. There is no apparent reason for the location of this chute between the reel and the main chute.

The main parachute is 36 1/2 inches in diameter unfilled. Thirteen silk shrouds, 37 1/2" long, are attached to a cord leading out of the top of the auxiliary parachute by 8 1/2" of double bungee cord.

OPERATION

It appears that this bomb is designed for air to air bombing. Prior to release, the container lid is unscrewed and the safety pin removed. It is probable that the entire can without the lid is discharged from the airplane. Air resistance would quickly eject the contents from the container.

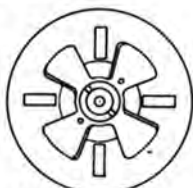
As soon as the bomb starts to fall through the air, the parachutes open, the cable partially unwinds, and the fuze arming vane rotates. The hinge attachment to the spindle permits the vane to flutter like a falling leaf, but the bent surfaces insure revolution of the vane in the same direction so that the spindle unscrews. Ten revolutions suffice to unscrew the spindle from the fuze body; the vane and spindle then fall away. The striker and primer are now free in the fuze body, held apart only by the creep spring.

When the plane strikes the cable, the bomb is either drawn up against the plane or whipped up, eventually hitting the plane. On impact with the plane, inertia causing the fuze parts to move in any direction except toward the nose of the fuze, will cause the striker and primer carrier to be driven together, firing the fuze, and detonating the bomb.

REMARKS

Since the fuze is designed not to fire when the bomb strikes on its nose, the bombs may not explode on impact with the ground (if it misses a plane). Since the creep spring is quite weak, a highly sensitive and dangerous UXB may be expected.

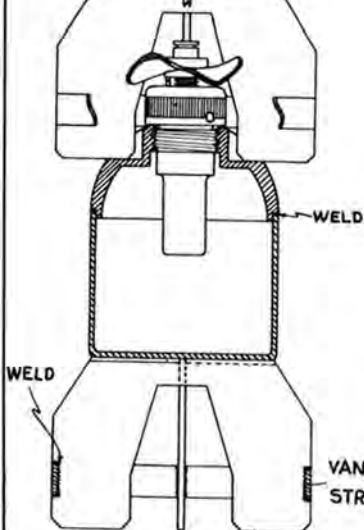
JAPANESE 1/2 Kg. H.E. CLUSTER BOMB



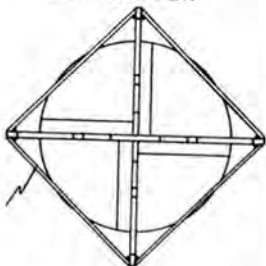
NOSE END VIEW



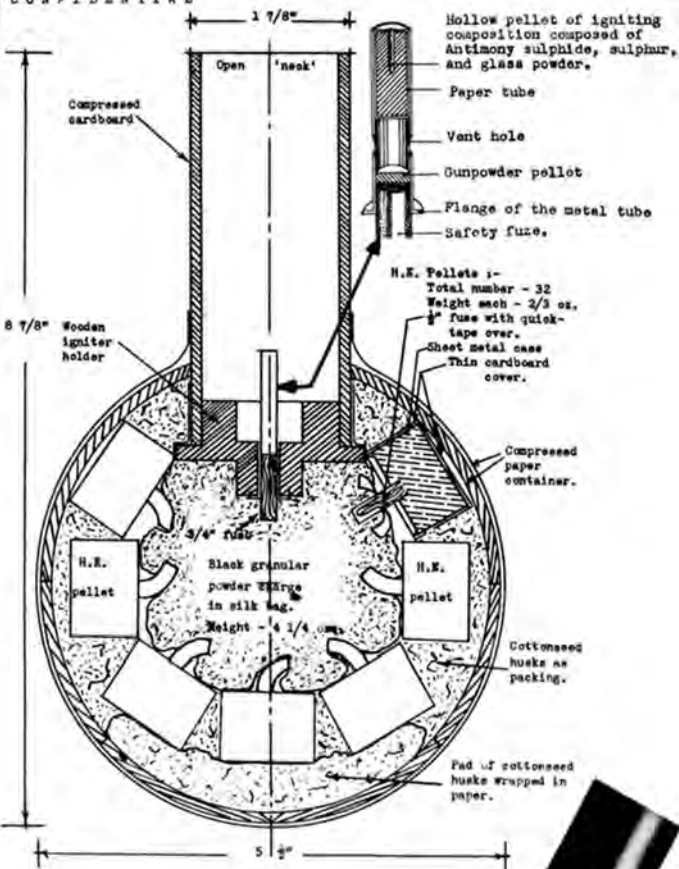
YELLOW BAND



TAIL END VIEW



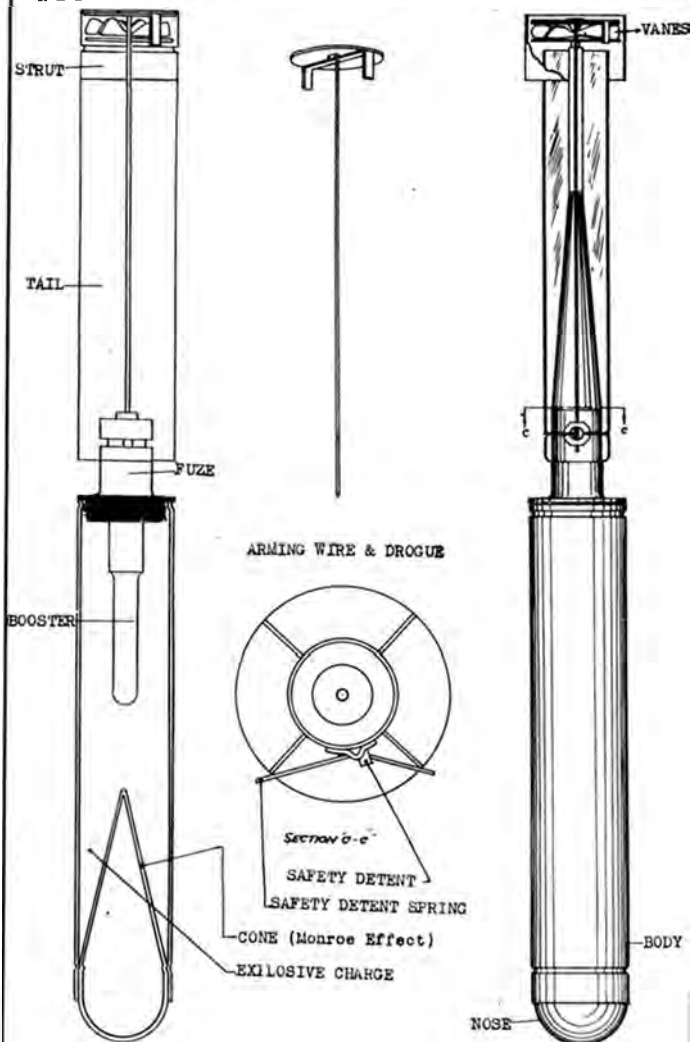
PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE ARMY BOMB ½ KG. Cluster Bomb
FUZES:		A-6(a)	
OVERALL LENGTH	4-3/4 in.		
LENGTH OF BODY	2-3/4 in.		
DIAMETER OF BODY	2-1/8 in.		
THICKNESS OF WALL	3/64 in.		
MATERIAL OF WALL	Drawn steel.		
TYPE OF SUSPENSION	Cluster container		
CONSTRUCTION OF SUSPENSION LUG	It is assumed that they are dropped from a cluster container.		
COLOR & MARKINGS ON BOMB AND TAIL	Black overall with 9/16" yellow stripe 1/2" forward of base. Stamped: (Osaka Army Arsenal, November 1939)		
LENGTH OF TAIL	2 in.		
WIDTH OF TAIL	2-15/16 in.		
WIDTH OF TAIL FINS	1.1 in.		
DIMENSIONS OF TAIL STRUTS	Width, .39"; Length, 2.16"; Thickness, .06"		
MATERIAL OF TAIL	Sheet steel		
TYPE OF FILLING	A RDX/TNA mixture originally. Filled with sand when found		
WEIGHT OF FILLING	Unknown. (Believed to be about 7 oz.)		
TOTAL WEIGHT OF BOMB	16 oz. (estimated)		
CHARGE/WEIGHT RATIO	56% (approximately)		
CONSTRUCTION OF BODY	Drawn steel cup body with cast steel nose welded on.		
CONSTRUCTION OF TAIL	Four fins spot welded to the base of the body. Fins supported by 3/8" steel struts.		
REMARKS	A distinguishing feature of these bombs is the construction which permits fitting the nose of one bomb into the tail of another. This union of the nose and tail serves two purposes: (1) It prevents the fuze vanes from rotating; (2) It decreases the length of the space needed to contain two fused bombs by 1". Although the bombs were not found in cluster containers, this feature of their construction is a strong indication that they are intended to be dropped in clusters. All samples recovered were contained in sealed boxes.		



**JAPANESE
ANTI-AIRCRAFT
MISSILE**

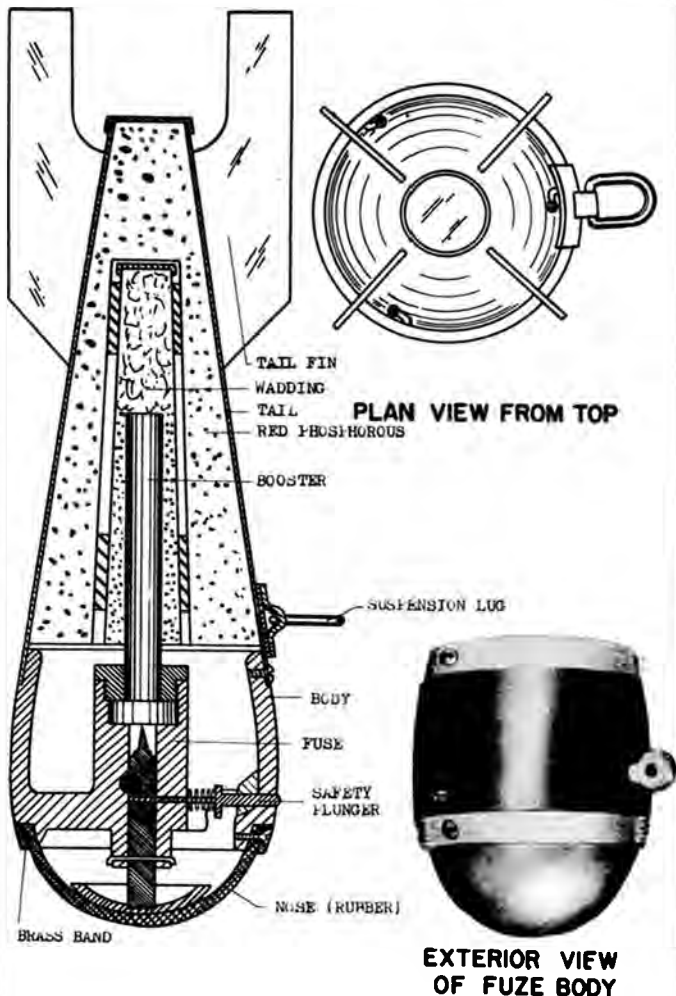


PUBLICATION DATE: July 1944		CONFIDENTIAL	JAPANESE 1 KG. Anti-Aircraft Missile
FUZES:			
OVERALL LENGTH	8.9 in. (incl. tube)		
LENGTH OF BODY	5.5 in. (spherical)		
DIAMETER OF BODY	5.5 in. (spherical)		
THICKNESS OF WALL	0.1 in.		
MATERIAL OF WALL	Compressed paper.		
TYPE OF SUSPENSION	No lug (See Remarks)		
COLOR & MARKINGS ON BOMB & TAIL	Black (probably a water proofing liquid)		
TYPE OF FILLING	Burster charge consists of black granular powder contained in a silk bag. Surrounding the burster charge are 32 high explosive pellets, each pellet having a 1/2 inch fuze in contact with the silk bag containing the black powder. Cottonseed husks are used as padding.		
WEIGHT OF FILLING	Burster Charge: 4-1/2 ozs. H.E. pellets (each): 2/3 ozs.		
TOTAL WEIGHT OF MISSILE	36-1/2 ozs.		
CONSTRUCTION OF BODY	Spherical body is constructed of three portions of compressed paper. One part is hemispherical and has a compressed cardboard tube; the other hemisphere is in two parts for purpose of assembly. Successive layers of paper total thickness 1/16 inch, overlay the three portions, being pasted on after the body is filled. A wooden plug, which holds the igniter, is fitted to the base of the tubular neck.		
OPERATION	The friction pull igniter is operated as missile is projected from aircraft. After a short delay the black powder charge is ignited which bursts the container and scatters the H.E. pellets. At the same time the black powder bursts the container, it also ignites the short fuzes which project from each pellet. After a short delay, the pellets are detonated.		
REMARKS	(1) The missile is thought to be projected from the plane by a 35 mm. signal flare pistol. At the crashed Japanese aircraft where the missile was found, one of these pistols was also recovered, and it was the only instrument capable of projecting the missile. The pistol fits into the tube of the missile, and at the same time the missile is projected, the flash from the pistol ignites the igniting composition of the igniter tube. (2) The igniter tube is similar to the igniter tube previously found in the Japanese stick type hand grenade. (3) H.E. pellets are contained in sheet metal case, 1-1/8 inches in diameter and 13/16 inch high. A 1/2 inch fuze, with short length of ordinary paper impregnated with black powder attached to aid in lighting the fuze, projects from each pellet. There is a thin cardboard disc around each pellet, with a disc at the bottom. (4) The H.E. pellets are made up as follows: 55.7% Potassium Perchlorate, 16.7% Sulphur, 14.6% Aluminum Powder, and 13.0% Antimony Sulphide. (5) Missile was recovered from a crashed aircraft in India. (6) According to the analysis report, the composition of the H.E. pellet contains traces of resinous matter and appears to be an illuminating composition. However, the above mixture approximates gunpowder and several of the pellets were ignited with resultant loud reports, rather reminiscent of a normal low explosive.		



JAPANESE 1 KG. ANTI-AIRCRAFT BOMB

PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE NAVY BOMB 1 KG. Anti-Aircraft
FUZES		B-5(b)	
OVERALL LENGTH	18.7 in.		
LENGTH OF BODY	8.4 in.		
DIAMETER OF BODY	1.8 in.		
THICKNESS OF WALL	.07 in.		
MATERIAL OF WALL	Steel.		
TYPE OF SUSPENSION	Carried - 40 in container which is fused with a D-4(a)		
CONSTRUCTION OF SUSPENSION LUG			
COLOR & MARKINGS ON BOMB AND TAIL	Unpainted - Purple stencil on tail fin indicates Navy.		
LENGTH OF TAIL	8.4 in. (includes fuze)		
WIDTH OF TAIL	1.85 in.		
WIDTH OF TAIL FINS			
DIMENSIONS OF TAIL STRUTS			
MATERIAL OF TAIL	Light sheet tin		
TYPE OF FILLING	Yellow, cast, waxy substance, apparently not picric.		
WEIGHT OF FILLING	313.5 grams.		
TOTAL WEIGHT OF BOMB	1.0012 Kg. (exclusive of nose piece.) Wt. of tail Assembly: 287.7 gr.; Wt. of body: 410.0 gr.		
CHARGE/WEIGHT RATIO	31 %		
CONSTRUCTION OF BODY	Body is of unpainted sheet steel welded in a tubular shape. Forward end contains a black steel cone and an aluminum nose cap pressed in and held by crimping of main body. Fuze assembly screws into base of bomb body.		
CONSTRUCTION OF TAIL	Four fins, each soldered on tail cone; circular sheet tin brace 1-1/8 inches in width lends strength and protects vanes from damage. Tail is secured to fuze body by four small screws. The arming system consists of the arming vanes and threaded reach rod which screws through the upper end of the fuze body and into the inertia weight; a safety detent or jump out pin inserted through the side of the tail cone and fuze body into the inertia weight; a spring wire on outside of tail cone which ejects the safety detent in arming; and an arming wire which locks the safety detent in place against the pressure of the spring wire and also extends through the arming vanes to prevent their rotation. A thin metal disc, attached to arming wire and lying over arming vanes inside circular tail brace, acts as a drogue to withdraw the arming wire.		
OPERATION	When bomb is released from canister, pressure of air on the drogue forces it from bomb and withdraws arming wire. The safety detent spring then ejects the safety detent from side of fuze. The vanes rotate and unscrew reach rod from inertia weight, the weight then being free to move forward and drive striker into primer on impact.		
REMARKS	May be carried in other containers such as the "Molotov Breadbasket".		



JAPANESE 1 KG. SMOKE INCENDIARY ANTI-PERSONNEL BOMB

PUBLICATION DATE: July 1944		CONFIDENTIAL	JAPANESE NAVY BOMB 1 KG. Smoke (Smoke Explosive Exercise Bomb)
FUZES		A-5(a)	
OVERALL LENGTH	10.5 in.		
LENGTH OF BODY	9.0 in. Nose to end of tail cone.		
DIAMETER OF BODY	3.0 in.		
THICKNESS OF WALL	0.25 in.		
MATERIAL OF WALL	Steel.		
TYPE OF SUSPENSION	Horizontal		
CONSTRUCTION OF SUSPENSION LUG	A rectangular steel swivel eye-hook on a plate riveted to body with four rivets.		
COLOR & MARKINGS ON BOMB AND TAIL	White rubber nose, black body, white tail cone and fins. Brass band just aft of rubber nose.		
LENGTH OF TAIL	4.3 in.		
WIDTH OF TAIL	3.1 in.		
WIDTH OF TAIL FINS			
DIMENSIONS OF TAIL STRUTS			
MATERIAL OF TAIL	Sheet metal		
TYPE OF FILLING	Picric booster; red phosphorus is the main charge with a smoke-incendiary effect.		
WEIGHT OF FILLING			
TOTAL WEIGHT OF BOMB	1 Kg.		
CHARGE/WEIGHT RATIO			
CONSTRUCTION OF BODY	A hemispherical rubber nose closes the forward end of the one-piece, cast iron body to which the tail cone and its fins are attached by four screws. A mushroom-head fuze is fitted inside the nose and a booster filled with picric acid, and some cotton wadding are contained in a central tube which is surrounded by red phosphorus filling. A safety pin is pulled out when the bomb is released. A safety plunger is depressed while the bomb is in the container.		
CONSTRUCTION OF TAIL	Four fins are welded to a sheet metal tail cone which is fastened to the body with four screws.		
REMARKS	This bomb is dropped over land targets before an H.E. bombing attack. The smoke and fires enable the bombers to identify the targets. The shrapnel from the body on exploding is dangerous to personnel		



VERTICAL
SUSPENSION LUG

TAIL
ASSEMBLY

GRUB SCREW

INNER
CASING

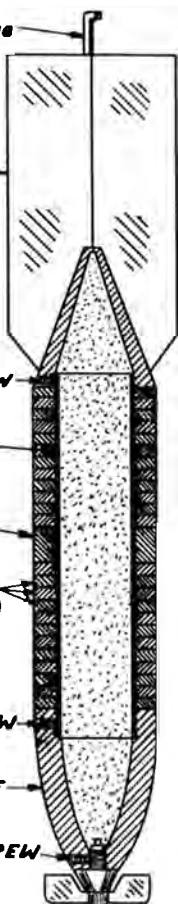
BODY

SHRAPNEL
RINGS (26)

GRUB SCREW

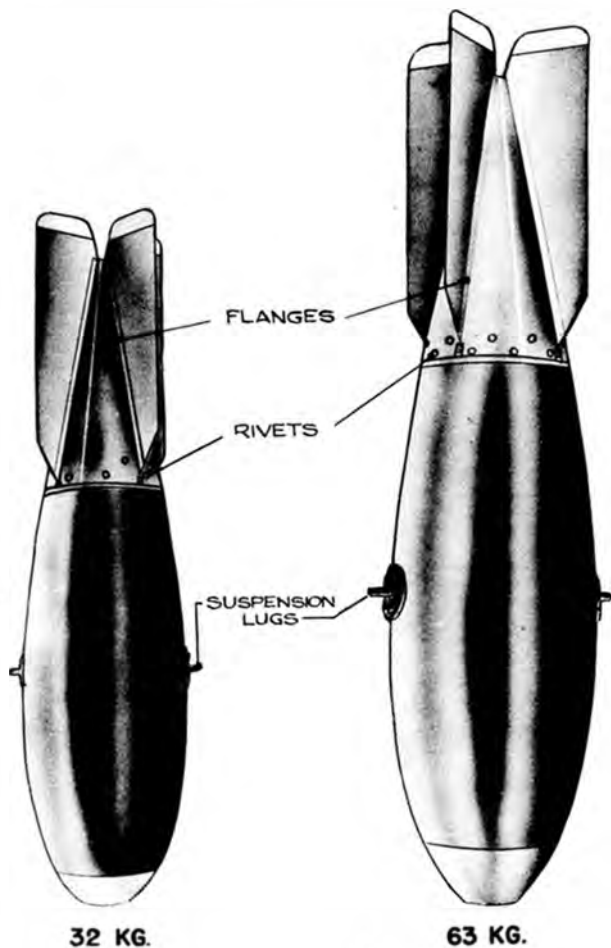
NOSE PIECE

GRUB SCREW



**JAPANESE
15 KG. ANTI-PERSONNEL H.E. BOMB**

PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE ARMY BOMB 15 KG. Anti-Personnel H.E.
FUZES		A-2(b)	
OVERALL LENGTH	25.37 in.		
LENGTH OF BODY	14.8 in.		
DIAMETER OF BODY	3.87 in.		
THICKNESS OF WALL	0.53 in.		
MATERIAL OF WALL	Steel rings. (26)		
TYPE OF SUSPENSION	Vertical or Horizontal (Army type).		
CONSTRUCTION OF SUSPENSION LUG	Normal Army suspension lug. Rectangular steel swivel eye-hook on a plate riveted to body with four rivets. A similar steel swivel lug is fastened to end of tail fins.		
COLOR & MARKINGS ON BOMB AND TAIL	Army Code: Black nose, body and tail with red banded nose. 3/4 inch white band and orange band forward of suspension lug. (If faded, may be white and yellow.) "15 K" stencilled near nose.		
LENGTH OF TAIL	11.0 in.		
WIDTH OF TAIL	5.6 in.		
WIDTH OF TAIL FINS			
DIMENSIONS OF TAIL STRUTS			
MATERIAL OF TAIL	1/16 inch Sheet Iron.		
TYPE OF FILLING	Army style: 3 sections (nose, body, tail) of Iyodite (88% picric acid) separated by waxed cardboard.		
WEIGHT OF FILLING	4.4 Kg.		
TOTAL WEIGHT OF BOMB	15.0 Kg.		
CHARGE/WEIGHT RATIO	30.0 %		
CONSTRUCTION OF BODY	Army Construction: Cast steel nose screwed to steel tubular body and secured by grub-screw. Twenty-six steel rings sweated around body. Rings are 3/8 inches square. Suspension lug ring is 1-3/8 by 3/8 inches. Tail cone screwed to body sleeve. Rings fit closely. Can be seen only if paint is scraped off. Nose fuze secured by grub-screw.		
CONSTRUCTION OF TAIL	Four Army fins welded to cone. Cone screwed to body sleeve. Single row of struts. Second suspension lug secured at end of fins.		
REMARKS	Army Bomb: Dual purpose - anti-personnel and H.E. fuze held by grub-screw. No tail fuze fitted to date. Common usage. Fuze has cap and booster assembly.		



JAPANESE STREAMLINE G.P. H.E. BOMBS

PUBLICATION DATE: July 1944

R E S T R I C T E D

JAPANESE
NAVY BOMBSFUZES: 32 Kg.) A-1(a), A-3(a) or A-3(b) probably.
63 Kg.)**32 KG.**
63 KG.G.P.H.E.
Streamline

OVERALL LENGTH	32 Kg. 33 in.	63 Kg. 42.5 in.
LENGTH OF BODY	19.75 in.	25.5 in.
DIAMETER OF BODY	7-9/16 in.	9 in.
THICKNESS OF WALL	0.25 in. (approx.)	
MATERIAL OF WALL	Steel	Steel
TYPE OF SUSPENSION	Horizontal	
CONSTRUCTION OF SUSPENSION LUG	Two U-shaped eyebolts 180° removed welded to circular plates which are riveted to bomb body.	
COLOR & MARKINGS ON BOMB AND TAIL	32 Kg.- Body dark green. Tail blue-grey with thin red stripe running the length of the cone. 63 Kg.- Light grey overall with two thin red lines diametrically opposite running the length of body and tail cone. Both bombs have green band on nose and on tip of tail fins.	
MATERIAL OF TAIL	Sheet Steel	
TYPE OF FILLING		Picric Acid
WEIGHT OF FILLING		65.75 lbs.
TOTAL WEIGHT OF BOMB	38 Kg.	139 lbs.
CHARGE/WEIGHT RATIO		47 %
CONSTRUCTION OF BODY	One piece machined steel body of streamlined shape with lacquered interior. A male base plate threads into the body and is held by two grub screws.	
CONSTRUCTION OF TAIL	The tail cone consists of four sheet metal sections riveted to an internally threaded ring. The edge of each section has a flange which turns up. The fins are secured between flanges of adjoining sections by spot welds. There are no fin struts. The tail cone ring threads to the base plate and is secured by two grub screws.	
REMARKS	Closely resembles British bombs in its streamlining.	



STRUTS
30 KG-50KG

STRUTS
100 KG

ADAPTER

GRUB SCREW

WELD

WELD

SUSPENSION
LUG

NOSE PIECE

GRUB SCREW

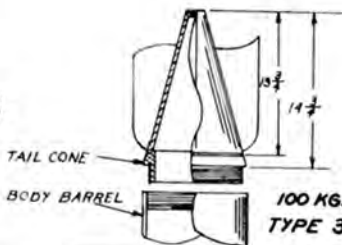
JAPANESE

30 KG.

50 KG.

100 KG.

G.P. H.E. BOMBS



TAIL CONE

BODY BARREL

**100 KG.
TYPE 3**

CONFIDENTIAL

PUBLICATION DATE: July 1944		CONFIDENTIAL		JAPANESE ARMY BOMB 30 KG. 50 KG. 100 KG.
FUZES: Nose: A-2(a) or A-2(b) or A-2(c) Tail: B-1(a), or B-1(b)				
	30 Kg.	50 Kg.	100 Kg.	
OVERALL LENGTH	33.85 in.	41.0 in.	53.0 in.	
LENGTH OF BODY	19.7 in.	24.4 in.	31.25 in.	
DIAMETER OF BODY	5.87 in.	7.1 in.	9.5 in.	
THICKNESS OF WALL	0.29 in.	0.27 in.	0.4 in.	
MATERIAL OF WALL	Tubular Steel			
TYPE OF SUSPENSION	Horizontal (army type)			
CONSTRUCTION OF SUSPENSION LUG	Normal Army suspension lug			
COLOR & MARKINGS ON BOMB AND TAIL	Army code: Black nose, body and tail. One yellow and one white band (7/8 in.) are forward of suspension lug. "30 K", "50 K", or "100 K" stencilled near nose. A red band may be stencilled on the nose. 100 Kg. type 3, may have only one band, yellow.			
LENGTH OF TAIL	13.8 in.	16.6 in.	21.75 in.	
WIDTH OF TAIL	8.25 in.sq.	9.5 in.sq.	9.75 in.sq.	
MATERIAL OF TAIL	Steel			
TYPE OF FILLING	30 Kg.: Three separate preformed blocks of picric acid. 50 Kg.: Nose, body, and tail cone are separately filled with RDX(TNT) (50/50), or Picric Acid. 100 Kg.: Type 3 bomb contains 5 preformed blocks of picric acid sealed in with a TNT binds. Type 94 bomb found with several variations of filling. The common filling is four preformed paper-wrapped picric acid blocks, sealed in with paraffin. This filling is found in bombs with Japanese characters directly above the weight mark are filled with 4 preformed blocks of a mixture of TNT-picric acid. Bombs marked (73) contain a cast mixture of 77.6% ammonium nitrate and 22.4% cyclonite.			
WEIGHT OF FILLING	11.75 Kg.	20.0 Kg.	44.47 Kg.	
TOTAL WEIGHT OF BOMB	30.0 Kg.	50.0 Kg.	100.0 Kg.	
CHG/WEIGHT RATIO	39 %	40 %	42.44 %	
CONSTRUCTION OF BODY	Army construction: A steel nose is screwed to body and fastened by one or two grub screws. Tail cone is welded to body. A fuze adapter is welded to apex of tail cone. The nose fuze is held by one or two grub screws. The 100 Kg. bomb, Type 3, differs from this description in that the nose is welded to the body and the tail cone is externally threaded to screw into the bomb body. This bomb is similar to the 100 Kg. Type 94 otherwise.			
CONSTRUCTION OF TAIL	Four army fins, one spot welded to cone. Fins braced by single row of box-type struts on 30 Kg. and 50 Kg. and by a double row on 100 Kg. Grub screws for tail fuze.			
REMARKS	The 30 Kg. is Type 99. The 50 Kg. is Type 94, and the 100 Kg. is Type 94 and Type 3.			

1/8 THRD DIA.
8 T.P.I.
ANNULAR
GROOVE

THREAD DIA. = 1 3/16
13 T.P.I.

WELD

TYPE I TAIL FUZE POCKET

TYPE 94 TAIL FUZE POCKET

TAIL FUZE
POCKET

TAIL FINS

TAIL CONE

WELD

EXPLOSIVE

BODY

GRUB SCREW

BLIND HOLES (2)

NOSE PIECE

NOSE FUZE
POCKETLOCKING
PLUNGERGRUB SCREW
C-3 (4)

CROSS SECTION 50 KG.-100 KG.

BAKELITE
PLUG

GRUB SCREW

NOSE FUZE
POCKET FOR
C-3 (2)

50 KG. & 100 KG.

3" THREAD DIA.
12 T.P.I.

100 KG. TYPE I
TAIL BRAKE
(50 KG. & 100 KG.)



TAIL OF 50 KG.

JAPANESE ARMY 50 KG.-100 KG TIME BOMB

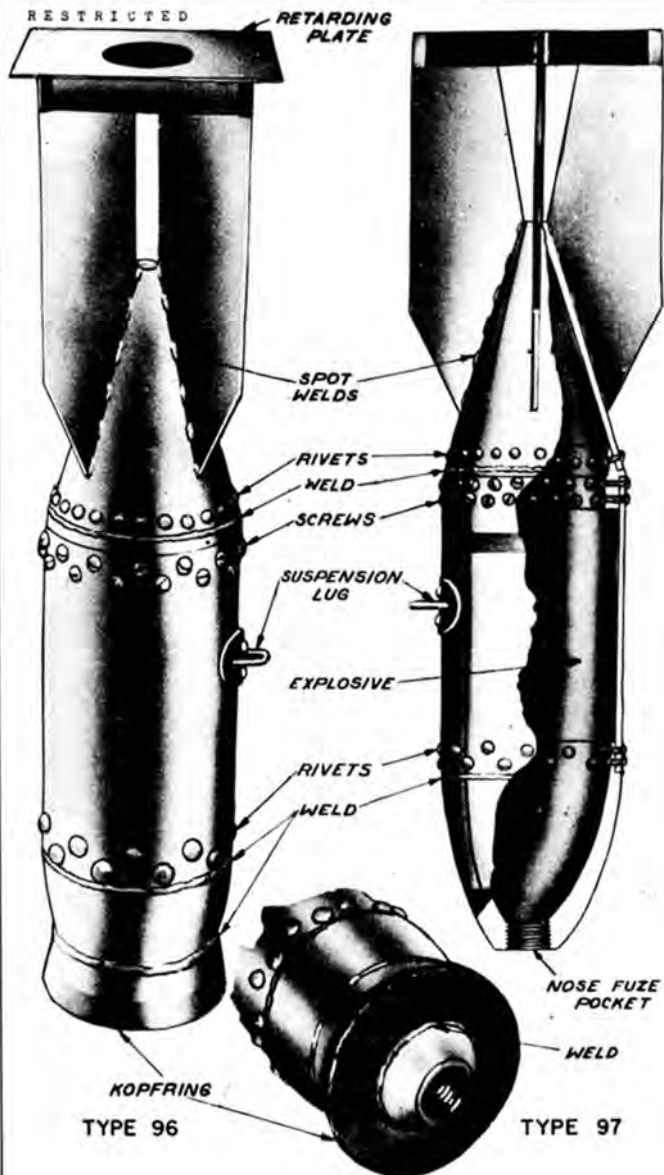
JAPANESE
ARMY BOMB50 KG.
100 KG.G.P.H.E.
Time Bomb

FUZES	Nose - C-3(a) Tail - B-1(a); B-1(b)	
	50 Kg.	100 Kg.
OVERALL LENGTH	39.8 in.	52 in.
LENGTH OF BODY	23.2 in.	30.25 in.
DIAMETER OF BODY	7-1/8 in.	9.5 in.
THICKNESS OF WALL	9/32 in.	0.4 in.
MATERIAL OF WALL	Tubular steel	
TYPE OF SUSPENSION	Horizontal	
CONSTRUCTION OF SUSPENSION LUG	Normal Army type.	
COLOR & MARKINGS ON BOMB AND TAIL	Black nose, body and tail. One yellow and one white band (7/8") are forward of the suspension lug. 50 Kg. or 100 Kg. stencilled near nose. Red band may be stencilled on nose.	
LENGTH OF TAIL	16.6 in.	21.75 in.
WIDTH OF TAIL	9.8 in.	13-3/8 in.
WIDTH OF TAIL FINS	3.3 in.	
DIMENSIONS OF TAIL STRUTS	Width 1.6 in.; Length, 6.9 in.; Thickness .075 in.	
MATERIAL OF TAIL	Steel	
TYPE OF FILLING	Preformed blocks of picric acid	
WEIGHT OF FILLING	20 Kg.	47 Kg.
TOTAL WEIGHT OF BOMB	50 Kg.	107.7 Kg.
CHARGE/WEIGHT RATIO	40 %	43.6 %
CONSTRUCTION OF BODY	A steel nose is screwed to the body and fastened by one or two grub screws. Tail cone is welded to body.	
CONSTRUCTION OF TAIL	50 Kg.: Four army fins welded to tail cone. Single row of box-type struts brace the fins. A tail brake is fitted on top of struts. Tail fuze pocket is filled by bakelite plug. 100 Kg.: Four army fins welded to tail cone and braced by double row of box-type struts. Tail brake on end of fins. Fuze adapter welded on end of tail cone. Two types of tail fuze pockets have been found. Bombs manufactured February 1942 and earlier have same fuze pocket as Type 94. Bombs dated August 1942 and later have a longer tail fuze pocket and a 5/8" shorter tail cone. The fuze pocket has three threads and then an annular groove (probably for a spring-loaded plunger to pop into) thus preventing subsequent withdrawal.	
REMARKS	Because of the construction of the longer tail fuze pocket of the 100 Kg. bomb, it is believed that an unreported anti-disturbance fuze or an additional time fuze exists.	

ARMY BOMB

50 KG.
100 KG.

G.P.H.E.
Time Bombs



JAPANESE 60 KG. G.P. H.E. BOMBS

PUBLICATION DATE: July 1944 R E S T R I C T E D

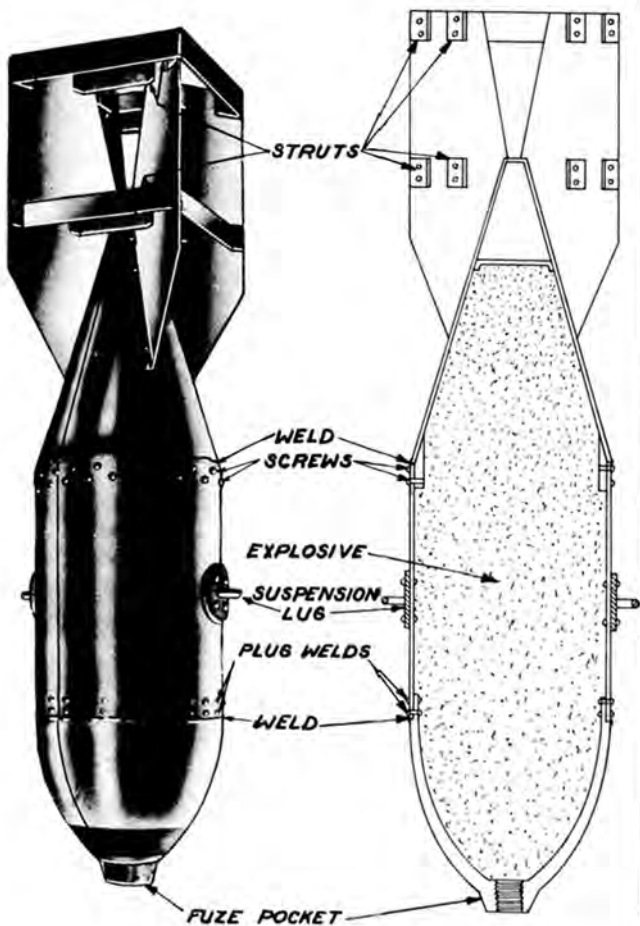
FUZES: Type 96 - A-2(a) or A-3(a)
Type 97 - A-3(a)JAPANESE
NAVY BOMBS

60 KG.

G. P. H. E.

Type 96 and Type 97

	Type 96	Type 97
OVERALL LENGTH	40.7 in.	40.0 in.
LENGTH OF BODY	21.75 in.	21.8 in.
DIAMETER OF BODY	7.85 in.	7.85 in.
THICKNESS OF WALL	.28 in.	.28 in.
MATERIAL OF WALL	Steel	
TYPE OF SUSPENSION	Horizontal	
CONSTRUCTION OF SUSPENSION LUG	Normal Navy type	
COLOR & MARKINGS ON BOMB AND TAIL	Type 96:-Gray overall with green band on nose forward of kopfring. Type 97:-Gray overall. Blue band on body. Green band on nose. Green struts. Two thin red lines diametrically opposite run longitudinally along the bomb.	
LENGTH OF TAIL	18.6 in.	18.2 in.
WIDTH OF TAIL	10.6 in.	10.6 in.
WIDTH OF TAIL FINS	4.8 in.	4-3/4 in.
DIMENSIONS OF TAIL STRUTS	Type 96:-Width 1.4 in.; Length 7.75 in; Thickness .075 in. Type 97:-Width 1-3/8 in.; Length 7-7/8 in; Thickness 3/32".	
MATERIAL OF TAIL	Sheet steel.	
TYPE OF FILLING	Picric Acid	Mixture of Hexanite and TNA.
WEIGHT OF FILLING	39 Kg. (estimated)	50 lbs.
TOTAL WEIGHT OF BOMB	65 Kg. (approx.)	124 lbs. (58 Kg.)
CHARGE/WEIGHT RATIO	60 %	41 %
CONSTRUCTION OF BODY	A cast steel nose is riveted, with two rows of ten rivets each, to a steel tubular body. The tail cone is held by one row of twenty-four rivets to a collar which is held in the base of the bomb by two rows of screws (fourteen per row). The type 96 also has an iron kopfring (outer diameter: 7-7/8 inches; maximum thickness: 1-3/4 in.) welded around the nose to prevent penetration.	
CONSTRUCTION OF TAIL	Four Navy fins welded to tail cone and braced by boxlike struts. The Type 96 also has a retarding plate (7-7/8" square; .076" thick) welded onto the fins and struts, and has a hole 3-15/16" in diameter.	
REMARKS	The Type 97 is quite common. The Type 96 is in all respects a type 97 bomb with a kopfring and retarding plate. Though no markings other than the green nose band were evident on the bomb, another bomb of the same type was reported to have longitudinal red assembly stripes and green tail struts. This was filled with picric but could use T.N.A. or Hexanite and Anisol.	



TYPE 99
JAPANESE 60 KG. G.P. H.E. BOMBS

JAPANESE
NAVY BOMB

60 KG.

ANTI-SUBMARINE

TYPE 99 NO.6 MARK 2

FUZES

A-3(a)

OVERALL LENGTH 42.0 in.

LENGTH OF BODY 21.0 in.

DIAMETER OF BODY 9.4 in.

THICKNESS OF WALL 0.18 in.

MATERIAL OF WALL Steel

TYPE OF SUSPENSION Horizontal

CONSTRUCTION OF
SUSPENSION LUG Two lugs. Normal Navy type.COLOR & MARKINGS
ON BOMB AND TAIL Gray overall. Two thin red lines diametrically opposite
run longitudinally along the bomb. Green band on nose.
Blue band just aft of green band. Aft outer struts may
be blue.

LENGTH OF TAIL 21.0 in.

WIDTH OF TAIL 13.25 in.

WIDTH OF TAIL FINS Width, 6"; Thickness 3/8".

DIMENSIONS OF
TAIL STRUTS Outer struts . . Width 1-3/8"; Length 9 1/2"; Thickness 3/64"
Inner struts . . Width 1-3/8"; Length 4-3/4"; Thickness 3/64"

MATERIAL OF TAIL Sheet iron

TYPE OF FILLING TNA/RMD (60/40)

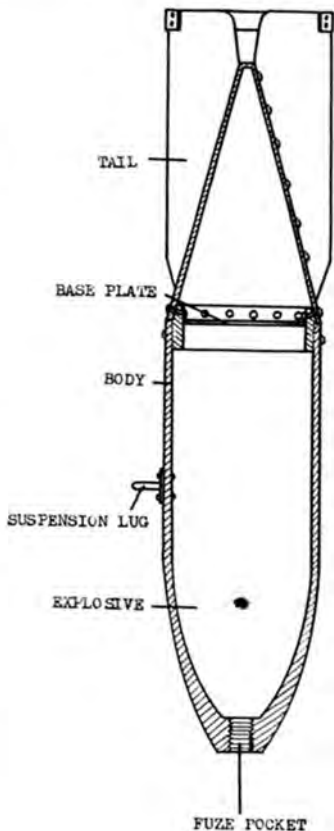
WEIGHT OF FILLING 39 Kg.

TOTAL WEIGHT
OF BOMB 64 Kg.

CHARGE/WEIGHT RATIO 61 %.

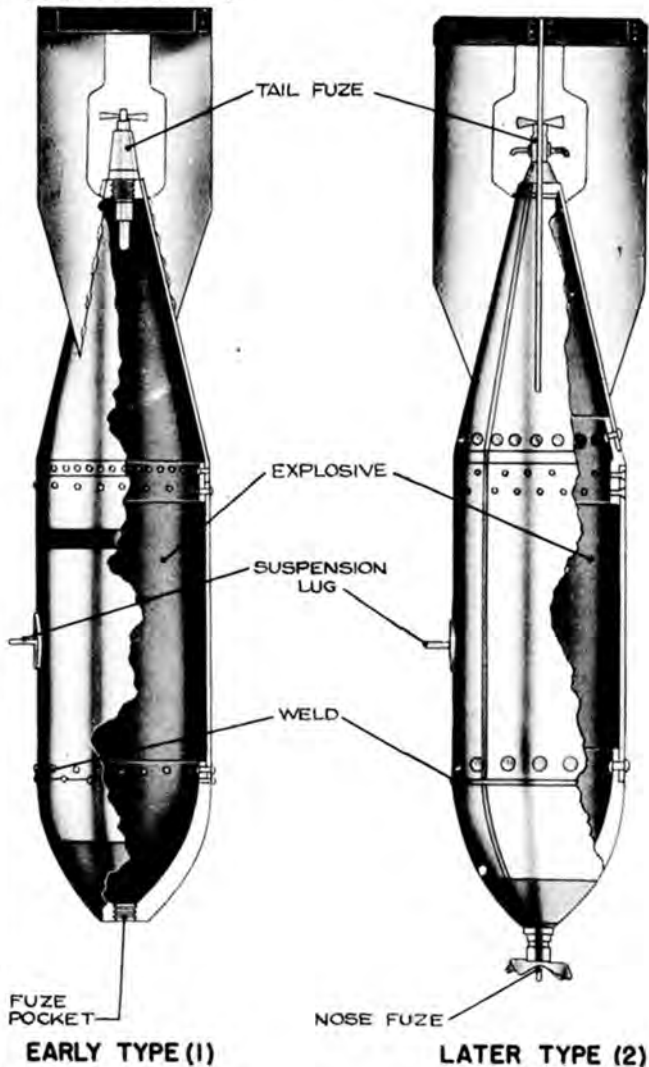
CONSTRUCTION OF
BODY A cast steel nose is welded and plug welded with two rows
of sixteen plug welds each, to a steel tubular body. The
tail cone is welded to a collar which is held on the bomb
by two rows of screws (16 per row).CONSTRUCTION OF
TAIL Four Navy fins welded to tail cone. The fins are braced
by four sets of struts.REMARKS This bomb may be found with only one set of struts.
This bomb was originally referred to as Type 98 but
translation of markings on recently captured bombs indi-
cates the Japanese designation is "Type 99 No. 6 Mark 2".
The Japanese designate their anti-submarine bombs as
Mark 2.

A captured Japanese document states that one of two dif-
ferent gaines is to be used with this bomb. The gaines to
be used are either the Type I Mark 2 Bomb "Fuze" (Gaine)
Model 5 with a delay of 3.5 seconds, or Type I Mark 2
Bomb "Fuze" (Gaine) Model 6, with 10.0 seconds delay.
Specimens of these gaines have not been recovered.



**JAPANESE
63 KG.
G.P. OR S.A.P.**

PUBLICATION DATE: July 1944		CONFIDENTIAL	JAPANESE NAVY BOMB 63 KG. G.P. or S.A.P.
FUZES A-3(a), A-3(b).			
OVERALL LENGTH	42.25 in.		
LENGTH OF BODY	25.5 in.		
DIAMETER OF BODY	8.9 in.		
THICKNESS OF WALL	0.25 in.		
MATERIAL OF WALL	Steel		
TYPE OF SUSPENSION	Horizontal Navy Type		
CONSTRUCTION OF SUSPENSION LUG	Normal Navy suspension lug. (Eyebolt welded to circular plate which is riveted to body with four rivets.		
COLOR & MARKINGS ON BOMB AND TAIL	Navy code; Grey body and tail with longitudinal diametrically opposite thin red lines. Green band on nose and on tail struts.		
LENGTH OF TAIL	16.88 in.		
WIDTH OF TAIL	12.25 in.		
WIDTH OF TAIL FINS	5-5/8 in.; Thickness: 1/16 in.		
DIMENSIONS OF TAIL STRUTS	1" x 9" x 1/16"		
MATERIAL OF TAIL	Steel		
TYPE OF FILLING	Picric Acid or TNA Hexinate		
WEIGHT OF FILLING	32 Kg.		
TOTAL WEIGHT OF BOMB	63 Kg.		
CHARGE/WEIGHT RATIO	50 %		
CONSTRUCTION OF BODY	Navy construction: A machined forged steel body with a 1-7/8 in. diameter 10 TPI nose fuze pocket, and right hand threaded male base plate. There is a grub screw in nose and tail for holding nose fuze and base plate securely.		
CONSTRUCTION OF TAIL	Four fins welded to the tail cone which is held by 10 screws to the base plate of the bomb. Tail cone is empty.		
REMARKS	In India, bombs were found with an additional suspension lug bolted to the regular eyebolt for carrying this bomb in the regular 50 Kg. Army bomb rack.		



JAPANESE 250 KG. G.P. H.E. BOMBS

PUBLICATION DATE: July 1944 **CONFIDENTIAL****JAPANESE
NAVY BOMB****250 KG.**

G. P. H. E.

FUZES: Nose - A-3(a); A-3(b) or C-2(a)
Tail - B-3(a) or C-1(a)

	Type I	Type II
OVERALL LENGTH	72.0 in.	72.0 in.
LENGTH OF BODY	35.5 in.	39.6 in.
DIAMETER OF BODY	13.8 in.	12.0 in.
THICKNESS OF WALL	0.25 in.	.5 in.
MATERIAL OF WALL	Steel.	Steel.
TYPE OF SUSPENSION	Horizontal (Navy type).	

CONSTRUCTION OF SUSPENSION LUG Normal Navy suspension lug. (Eyebolt welded to circular plate which is riveted to the body with four rivets).

COLOR & MARKINGS ON BOMB AND TAIL Navy code: Gray body and tail with two longitudinal red lines diametrically opposite, running from nose to tail, with a green band around the nose and green tail struts. Type I has a blue band around the body.

LENGTH OF TAIL 37.1 in. 32.4 in.

WIDTH OF TAIL 19.3 in.

WIDTH OF TAIL FINS 7.65 in.

DIMENSIONS OF TAIL STRUTS Type I: Width, 2.25"; Length, 13.85"; Thickness, .075".

MATERIAL OF TAIL Sheet iron (.09 in.) Sheet iron (.09 in.)

TYPE OF FILLING Hexanite and Anisol (40/60) or Trinitro anisol (100 %)

WEIGHT OF FILLING 83 kg.

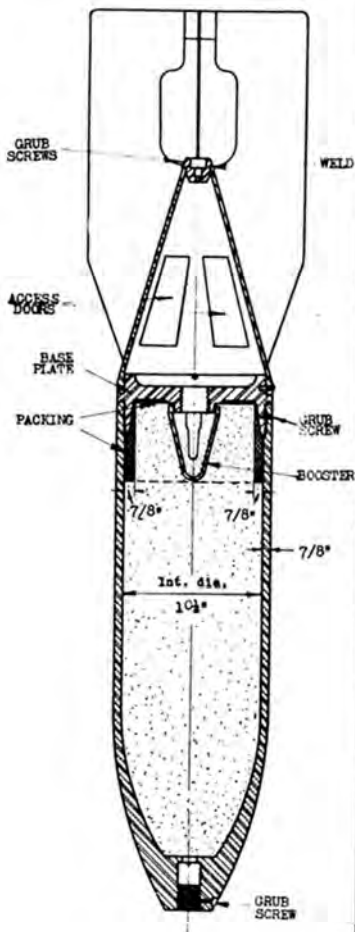
TOTAL WEIGHT OF BOMB 250 Kg. 230 Kg.

CHARGE/WEIGHT RATIO 36 %

CONSTRUCTION OF BODY: Type I:- A cast steel nose is riveted to the steel tubular body with eighteen rivets. The tail cone is held by one row of thirty-two screws to a collar which is held in the base of the bomb by a row of sixteen rivets. A grub-screw is present in nose and tail fuze pockets. Type II:- A cast steel nose is welded to the body by a continuous weld and twelve large spot-welds. The tail cone is held by one row of eighteen spot-welds and a continuous weld to a collar which is riveted to the body with forty screws in two rows of twenty each. A grub-screw is present in nose and tail fuze pockets.

CONSTRUCTION OF TAIL Four Navy fins spot-welded to the cone which is fastened to the collar on the base of the body. Fins are braced with box-type struts.

REMARKS Other variation in sizes of this bomb have been reported, but the reports are incomplete.



**JAPANESE
250 KG. S.A.P. BOMB**

PUBLICATION DATE: July 1944 R E S T R I C T E D

JAPANESE NAVY BOMB 250 KG.

FUZES

A-3(a) or A-3(b) and B-2(a)

S.A.P.

OVERALL LENGTH	68.0 in.
LENGTH OF BODY	39.75 in.
DIAMETER OF BODY	11.5 in.
THICKNESS OF WALL	0.75 in.
MATERIAL OF WALL	Steel
TYPE OF SUSPENSION	Horizontal (Navy Type)
CONSTRUCTION OF SUSPENSION LUG	Normal Navy suspension lug. (Eyebolt welded to circular plate which is riveted to body with four rivets.)
COLOR & MARKINGS ON BOMB AND TAIL	Navy Code: Grey body and tail with longitudinal diametrically opposite thin red lines. Green band on nose and on tail struts.
LENGTH OF TAIL	28.0 in.
WIDTH OF TAIL	16.25 in.
WIDTH OF TAIL FINS	6-15/16 in.; Thickness: 1/16 in.
DIMENSIONS OF TAIL STRUTS	1-21/32" x 12" x 1/16".
MATERIAL OF TAIL	Steel
TYPE OF FILLING	Tri-nitro-Anisol wrapped in felt.
WEIGHT OF FILLING	133 pounds.
TOTAL WEIGHT OF BOMB	540 pounds - 250 Kg.
CHARGE/WEIGHT RATIO	25 %
CONSTRUCTION OF BODY	A machined forged steel body with 1-7/8" diameter 10 TPI nose fuze pocket; 2-1/8" diameter 4 TPI fuze pocket in base plate; and a right hand threaded 4 TPI male base plate. Grub screw into nose fuze pocket and base plate.
CONSTRUCTION OF TAIL	Four Navy type fins welded to tail cone which is held by 6 screws to the base plate of the bomb. Tail cone is empty and has three doors for insertion of the fuze.

PUBLICATION DATE: July 1944

CONFIDENTIAL

FUZES

Unknown

JAPANESE
NAVY BOMB

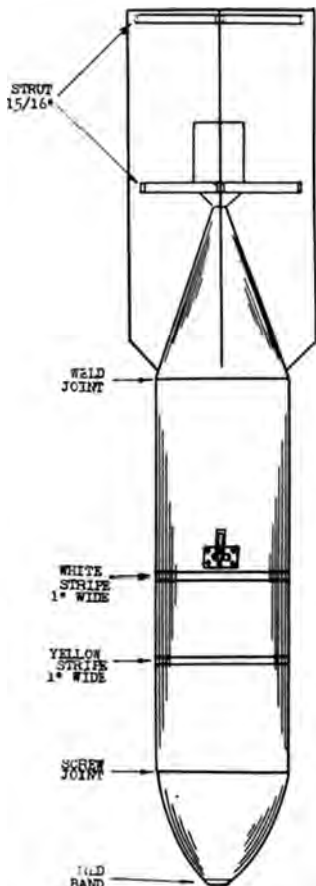
250 KG.

G.P.H.E.
Streamline

OVERALL LENGTH	71½ in.
LENGTH OF BODY	44½ in.
DIAMETER OF BODY	14 in.
THICKNESS OF WALL	
MATERIAL OF WALL	Steel
TYPE OF SUSPENSION	Horizontal
CONSTRUCTION OF SUSPENSION LUG	One lug at center of gravity.
COLOR & MARKINGS ON BOMB AND TAIL	Olive drab body and tail with 4½ in. green band on nose. Green tail struts.
LENGTH OF TAIL	27 in.
WIDTH OF TAIL	10 in.; Diameter: 14 in.
WIDTH OF TAIL FINS	4-3/32 in.
DIMENSIONS OF TAIL STRUTS	3/32 in. in thickness
MATERIAL OF TAIL	Steel
TYPE OF FILLING	
WEIGHT OF FILLING	
TOTAL WEIGHT OF BOMB	
CHARGE/WEIGHT RATIO	
CONSTRUCTION OF BODY	One piece cast or forged steel streamlined body.
CONSTRUCTION OF TAIL	Four 3/32 sheet steel fins welded to filled tail cones, braced by 3/32 in. sheet steel struts spot welded to fins. Box type struts.
REMARKS	Nose fuze pocket 11 TFI Tail fuze pocket 12 TFI This bomb was found at Tarawa and the above information was sent in. Additional information and corrections will be furnished when available.



250 KG.



500 KG.

JAPANESE ARMY
250 KG.
500 KG.
G.P. H.E. BOMBS

JAPANESE
ARMY BOMB

FUZZES:

250 Kg. - Proccaly A-4(a) and B-4(a)

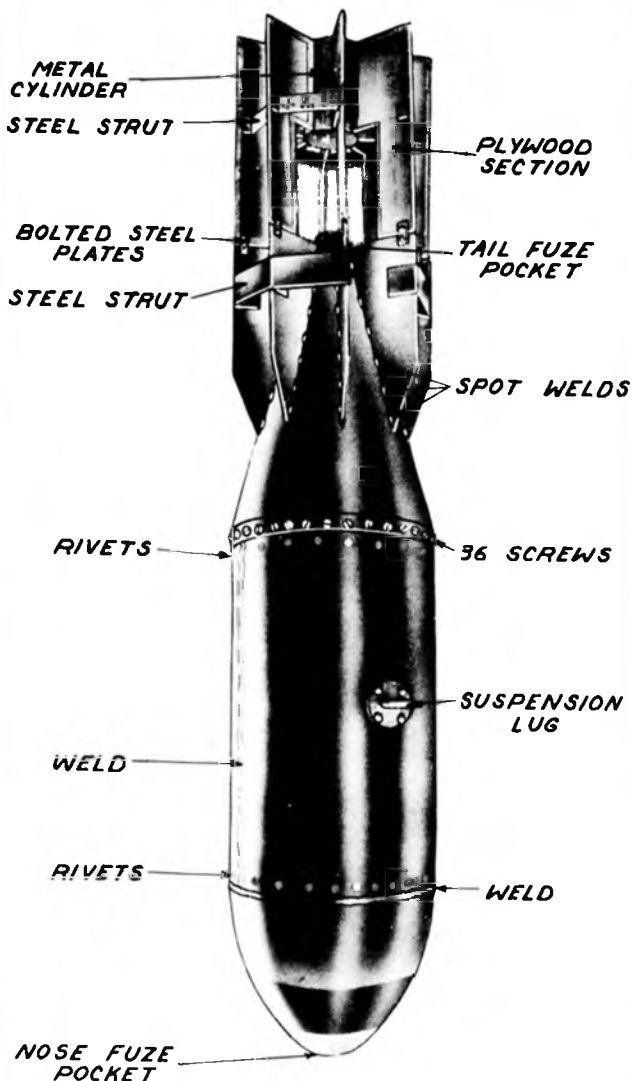
500 Kg. - Not known. 250 Kg. 500 Kg.

OVERALL LENGTH	76½"	99"
LENGTH OF BODY	59½" with tail cone	77" with tail cone
DIAMETER OF BODY	11-3/4"	14½"
THICKNESS OF WALL	½"	
MATERIAL OF WALL	Tubular Steel	
TYPE OF SUSPENSION	Horizontal	

250 KG.
500 KG.

O.P.H.E.

CONSTRUCTION OF SUSPENSION LUG		
COLOR & MARKINGS ON BOMB AND TAIL	Black nose, body and tail. One yellow and one white 1" band forward of suspension lug. 1" red band on tip of nose. Weight stencilled 4" aft of nose screw joint.	
LENGTH OF TAIL	Fins 29"	Fins 40" estimated
WIDTH OF TAIL	16½"	21½" (estimated)
WIDTH OF TAIL FINS		
DIMENSIONS OF TAIL STRUTS		width 15/16"
MATERIAL OF TAIL	Steel	
TYPE OF FILLING	Picric Preformed	
WEIGHT OF FILLING	104.3 Kg.	
TOTAL WEIGHT OF BOMB	250 Kg.	500 Kg
CHARGE/WEIGHT RATIO	43%.	
CONSTRUCTION OF BODY	These bombs are constructed in a similar manner to the 30, 50, and 100 Kg. Army bombs. Nose screwed into the body. The tail cone is welded to the body.	
CONSTRUCTION OF TAIL	Four fins welded to tail cone and braced by two sets of box-type struts. A fuze adapter is welded at the apex of the tail cone. A grub screw is fitted to the tail fuze.	
REMARKS	The 250 Kg bomb has a weight discrepancy marking (±4.-) aft of the suspension lug.	



JAPANESE 300 KG. BOMB

JAPANESE NAVY BOMB 300 KG.

Anti-Submarine

Type 99 Number 25
Ordinary Bomb
Model One, Mark 2

FUZZE nose; A-(b), A-3(a) A-3(b)
tail; B-3(a), C-1(a)

OVERALL LENGTH 71.75"

LENGTH OF BODY 35.65"

DIAMETER OF BODY 14. "

THICKNESS OF WALL 0.25"

MATERIAL OF WALL Steel

TYPE OF SUSPENSION Horizontal

CONSTRUCTION OF
SUSPENSION LUG Standard Navy type

COLOR & MARKINGS
ON BOMB AND TAIL Bluish gray with a green band forward of a blue
band on the nose. Some have only a 6" blue band.

LENGTH OF TAIL First section 21.5" Extension 14.5"

WIDTH OF TAIL 14"

WIDTH OF TAIL FINS 5 1/2"

DIMENSIONS OF
TAIL STRUTS width 2 3/16"-Length 42" continuous band-thickness 5/32"

MATERIAL OF TAIL First section-sheet steel-Extension-plywood

TYPE OF FILLING Trinitroanisol main filler picric acid booster

WEIGHT OF FILLING TNA: 396 lbs. Picric booster 2.25 lbs.

TOTAL WEIGHT
OF BOMB 650 l. s. (295 KG)

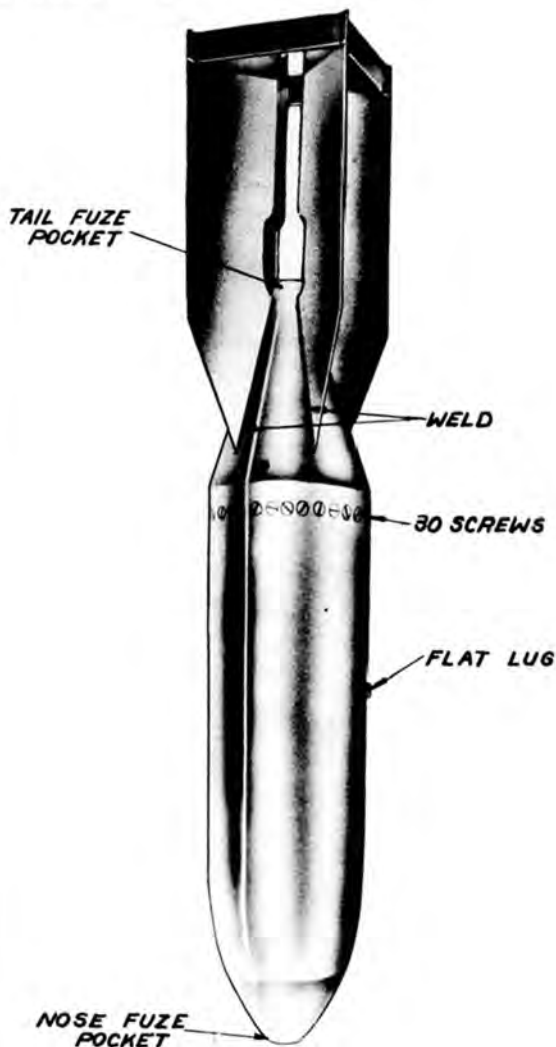
CHARGE/WEIGHT RATIO 61%

Construction
of body A cast steel nose is welded and riveted to tubular
body. The body has one longitudinal weld. The tail
cone is attached to an adapter ring by 36 screws,
the ring being riveted to base of bomb body

Construction
of tail The tail is constructed in two sections: the first
section has eight 1/8 inch sheet steel fins welded
to the tail cone and supported by a 1/8 inch steel
strut. The second section consists of eight plywood
fins in steel frames riveted to and supported at the
interior of their tips by a metal cylinder 4 inches
in diameter and on their outer tips by a 1/16 inch
steel strut.

The second section is attached to the first by bolted
steel plates on each of the eight fins.

Remarks Apparently the wooden tail section is designed to come
off on water impact.



JAPANESE 800 KG. G.P. H.E. BOMB

JAPANESE NAVY BOMB 800 KG.

G. P. H. E.

FUZE Probably B-3(b) and A-1(c)	
OVERALL LENGTH	111.5 in.
LENGTH OF BODY	62 in.
DIAMETER OF BODY	17.5 in.
THICKNESS OF WALL	
MATERIAL OF WALL	Steel
TYPE OF SUSPENSION	Horizontal
CONSTRUCTION OF SUSPENSION LUG	Two flat lugs screwed to bomb body 180° removed. One is in longitudinal axis, the other in the vertical axis.
COLOR & MARKINGS ON BOMB AND TAIL	Blue-grey overall. Green nose and tail struts. Two red lines 180° removed along the longitudinal axis of the bomb.
LENGTH OF TAIL	49 in.
WIDTH OF TAIL	24.5 in.
WIDTH OF TAIL FINS	10.5 in. THICKNESS: 5/32"
DIMENSIONS OF TAIL STRUTS	3-9/16"x 17-3/4"x 5/32"
MATERIAL OF TAIL	Steel
TYPE OF FILLING	Trinitroanisol (cone is filled).
WEIGHT OF FILLING	770 lbs. (approx.)
TOTAL WEIGHT OF BOMB	1820 (827 Kg.)
CHARGE/WEIGHT RATIO	41.7 %
CONSTRUCTION OF BODY	One piece forged steel; adapter ring held on base of bomb by 30 screws.
CONSTRUCTION OF TAIL	Four 1/8 inch steel fins welded to cone & supported by box type struts. Cone threads onto adapter ring and is held by two grub screws.
REMARKS	Diameter of fuze pockets: Forward - 2" TPI - 10 Aft - 3.75" TPI - 8 Possibly carried in torpedo racks. A large bomb of apparently the same size and shape but with the nose attached by a continuous weld and three rows of rivets, and the tail cone attached by two rows of rivets and two rows of round headed screws has been reported, but complete information or a specimen has not been received.

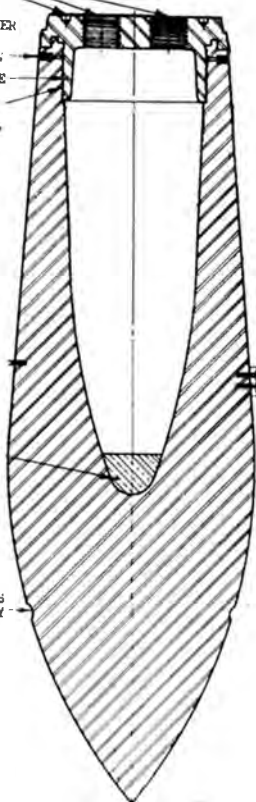


**JAPANESE
800 KG.
A.P. BOMB**

TWIN PUGH
LOCKETS
5/8" HOLE
5/8" deep
for SPANNER
WRENCH
SET SCREW
BASE PLATE
THREAD
APPROX
6 T.P.I.
R.H.

ALUMINUM CUSH-
IONING
PLUG

8 HOLES
EQUALLY
SPACED



PUBLICATION DATE: July 1944 C O M P I D E N T I A L

FUZES:

Two B-2(b) tail fuzes

JAPANESE
NAVY BOMB

800 KG.

A.P.

OVERALL LENGTH

LENGTH OF BODY

48.3 in.

DIAMETER OF BODY

16.1 in.

THICKNESS OF WALL

4.0 in. (Nose);
2.0 in. (Tail).

MATERIAL OF WALL

Forged steel.

TYPE OF SUSPENSION

Horizontal

CONSTRUCTION OF
SUSPENSION LUG

Navy lug bolted to body.

COLOR & MARKINGS
ON BOMB AND TAIL

LENGTH OF TAIL

WIDTH OF TAIL

WIDTH OF TAIL FINS

DIMENSIONS OF TAIL
STRUTS

MATERIAL OF TAIL

TYPE OF FILLING

1240 cubic inches of Trinitro Anisol with an aluminum
plug in the forward end of the cavity to protect the
filling from shock.

WEIGHT OF FILLING

30.0 Kg.

TOTAL WEIGHT
OF BOMB

746.0 Kg. (less tail)

CHARGE/WEIGHT RATIO

4.0 %

CONSTRUCTION OF
BODYThe bomb is a one piece constructed missile of forged,
machined steel. The nose and body are one piece, with
8 recesses cut in the nose to hold a windshield if it
were used as a projectile. The base plate is screwed
into the body and has two fuse pockets.

REMARKS

This bomb was recovered with two B-2(b) tail fuzes.

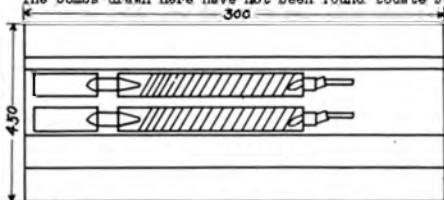
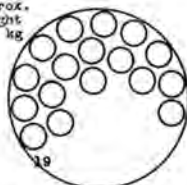
CONFIDENTIAL

Excerpt from

JAPANESE SPECIAL BOMB CHART

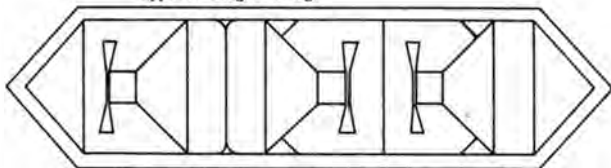
Captured at Darwin, Australia, 6 July 1943

The bombs drawn here have not been found to date July 1944

Approx.
Weight
800 kg

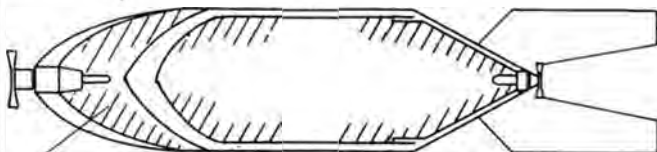
Bomb Type	Detonating Equipment	Fuze	Remarks
Air Technical Arsenal Experimental	<u>Container body</u>		For aerodrome neutralization.
Model 18	<u>Cluster Bombs</u>	<u>Nose Type 92</u>	Aerodromes bombed
Mark 22 Bomb	<u>Nose Type 1 Special</u>	bomb	with stick clus-
(Fig. 5)	<u>Bomb Nose Booster</u>	<u>Fuze, Im-</u>	ters (time delay
	<u>Tail Type 2, Special</u>	proved 2	or instantaneous
	<u>Bomb Base Booster</u>	<u>Tail Type 2</u>	fuze) will be
	Model 11	<u>Bomb Fuze,</u>	rendered unsuit-
		Model 11	able for take-off
			or landing.

Approx. weight 45 kg.



Air Technical Arsenal Experimental	Assembly		For neutraliza-
Model 18, Mark 25	<u>Cluster Bombs</u>	Type 2, Bomb	tion of aero-
Bomb	<u>Type 2 Special Bomb</u>	Fuze,	dromes. After
(Fig. 7)	<u>Nose Booster,</u>	Model 11	landing, explo-
	Model 11		sion will result
			by contact with
			aircraft or per-
			sonnel. Body
			shaped to resist
			penetration.

Approx. weight 250 kg.



Air Technical Arsenal Experimental	<u>Nose</u>	Type 92 Bomb	For neutralization
Model 18,	Type 1	Fuze, Improved 2	of aerodromes.
Mark 26 Bomb	0		Special burster
(Fig. 8)	<u>Bomb Nose Booster</u>		charge in bomb nose.
	<u>Model 2</u>		Burst will decrease
	<u>Tail Type 99</u>	<u>Type 92 Bomb</u>	rate of fall and
	<u>Special Bomb Nose</u>	Fuze,	penetration. Time
	<u>Booster</u>	Improved 2	delay fuze attached
	Models (1,2,3)		in tail.

JAPANESE INCENDIARY BOMBS

From available information, it is thought that the following is correct.

Our Designation

Japanese Designation

Navy 32 Kg. Incendiary

Type 99, No. 3 Incendiary Bomb,
Mark 3.

九九式三番焼夷用爆弾三號

Navy 250 Kg. Incendiary

Type 2, No. 25, Mark 3, Bomb Model 1

二式二十五番三號爆弾一型

Army 50 Kg. Type 97, Incendiary

Type 97 No. 2 Incendiary Bomb

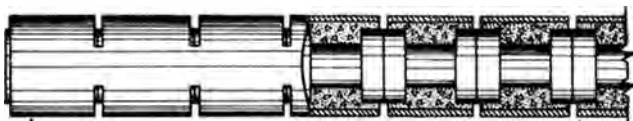
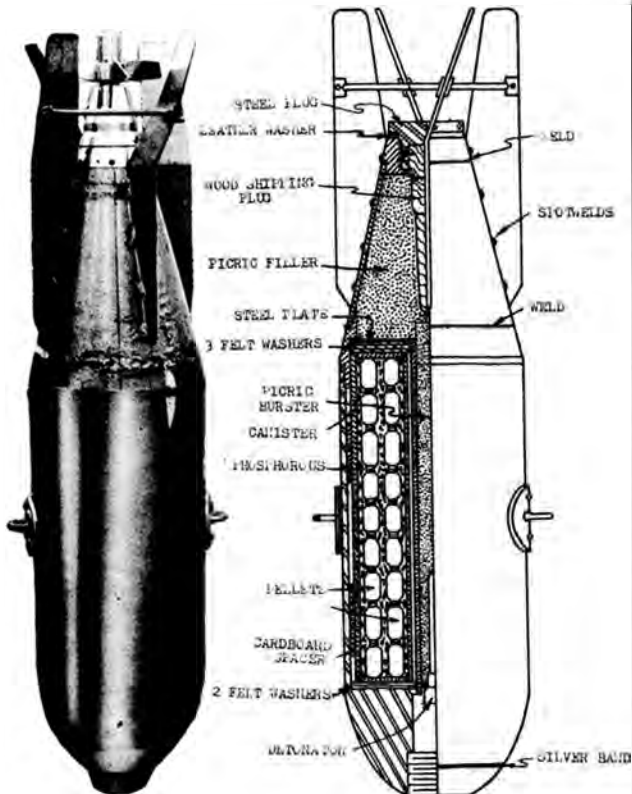
九七式二番焼夷爆弾

Army 50 Kg. Type 0, Incendiary

Type 0 No. 2 Incendiary Bomb

〇式二番焼夷爆弾

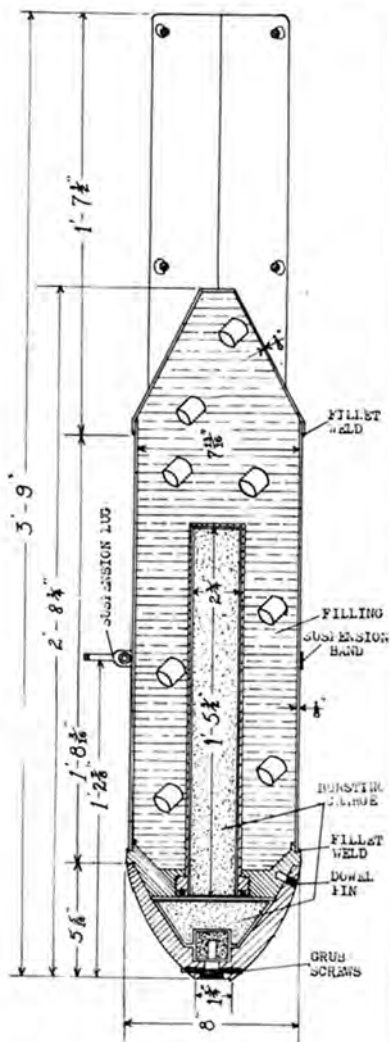
JAPANESE 32 KG. INCENDIARY



TYPES OF INCENDIARY PELLETS



PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE NAVY BOMB 32 KG. Incendiary (Shrapnel)
FUZES :		Nose: A-1(b) Tail: Solid plug or D-2(a), D-2(b) or D-2(c)	
OVERALL LENGTH	24.5 in.		
LENGTH OF BODY	13.5 in.		
DIAMETER OF BODY	5.75 in.		
THICKNESS OF WALL	0.19 in.		
MATERIAL OF WALL	Steel.		
TYPE OF SUSPENSION	Horizontal (or possibly vertical) (Navy type)		
CONSTRUCTION OF SUSPENSION LUG	Two normal Navy suspension lugs are diametrically opposite at the center of gravity. (Eyebolts welded to circular plate which is riveted to body with four rivets.		
COLOR & MARKINGS ON BOMB AND TAIL	Navy Incendiary Code: Grey body and tail. A two inch silver band around the nose. a one inch silver band on the end of the tail fins, and two red lines diametrically opposite run from nose to tail.		
LENGTH OF TAIL	11.0 in.		
WIDTH OF TAIL	5.75 in.		
WIDTH OF TAIL FINS			
DIMENSIONS OF TAIL STRUTS			
MATERIAL OF TAIL	Sheet Steel.		
TYPE OF FILLING	Canister containing 198 phosphorus-filled steel pellets. Picric acid in tail cone.		
WEIGHT OF FILLING	3.5 pounds Picric acid.		
TOTAL WEIGHT OF BOMB	32.0 Kg.		
CHARGE/WEIGHT RATIO			
CONSTRUCTION OF BODY	A cast, mechanical steel body with a solid nose is fitted with a canister. The picric burster is in a steel rod screwed into the nose, and running the entire length of the body. Two suspension lugs are fitted. The canister is filled with 198 phosphorus-filled steel pellets. Tail cone is screwed into the body, and held by two grub-screws. A grub-screw is present at the nose fuze pocket.		
CONSTRUCTION OF TAIL	Four fins (.06 inches) welded with four spot-welds each, to a cone which is welded to a collar which in turn is screwed into the base of the bomb. A fuze adapter is welded at the apex of the tail cone. The fins are supported by 3/16 inch round struts flattened at the fins to take one rivet. A plate closes the tail cone containing a picric bursting charge.		
REMARKS	Bomb found fitted with A-1(b) nose fuze and wood gaine in tail. A D-2(b) clockwork fuze was found. Similar to the D-2(a) it required centrifugal action to be armed. The fins are bent at approximately 19 degrees, thus imparting a rotation to the bomb, and allowing the aerial burst D-2(b) to be used with it; thus this is similar in use to the 250 Kg. Incendiary (Shrapnel) A modification of the bomb, probably a factory variation, has been recovered. It contains 21 lengths of 1" external diameter mild steel pipe packed vertically in the canister. Each length is divided into 8 equal sections by being cut completely through except for 1/4" of circumference left along one side, thus the bomb contains 168 phosphorus filled pellets.		



**JAPANESE INCENDIARY BOMB
50 KG. TYPE 97**

PUBLICATION DATE: July 1944

RESTRICTED

FUZES:

Nose: A-2(a) or A-2(b).
Tail: None

OVERALL LENGTH 45.0 in.

LENGTH OF BODY 26.4 in.

DIAMETER OF BODY 7.5 in.

THICKNESS OF WALL 0.2 in.

MATERIAL OF WALL Steel.

TYPE OF SUSPENSION Horizontally (Army type)

CONSTRUCTION OF SUSPENSION LUG Normal Army suspension lug. (A rectangular steel swivel eye-hook on a plate riveted to body fastened to carrying band).

COLOR & MARKINGS ON BOMB & TAIL Army Code for Incendiaries: Grey nose, body and tail. A yellow and a white band are stencilled just forward of the suspension lug.

LENGTH OF TAIL 18.5 in.

WIDTH OF TAIL 9.2 in.

MATERIAL OF TAIL Sheet iron

DIMENSIONS OF TAIL STRUTS

TYPE OF FILLING Carbon disulphide solution (64.5%) of white phosphorus, with rubber bungs impregnated with phosphorus (1 inch long x 1 inch in diameter).

WEIGHT OF FILLING 6 Kg. (approx.) (Explosive)

TOTAL WEIGHT OF BOMB 50 Kg.

CHARGE/WEIGHT RATIO 12 %

CONSTRUCTION OF BODY Army construction: A steel nose is screwed to body and fastened by three grub-screws. Tail cone welded to body. No fuse pocket in tail cone.

CONSTRUCTION OF TAIL Four Army fins are welded to cone. Supported by two rows of box-type struts.

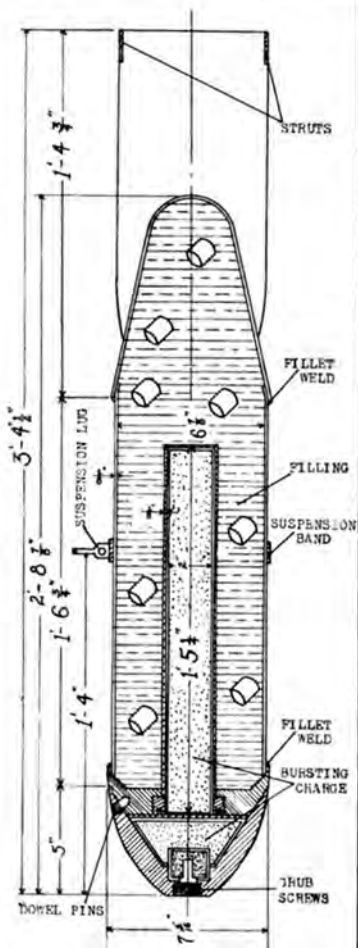
REMARKS This bomb was dropped in India.

JAPANESE
ARMY BOMB

50 KG.

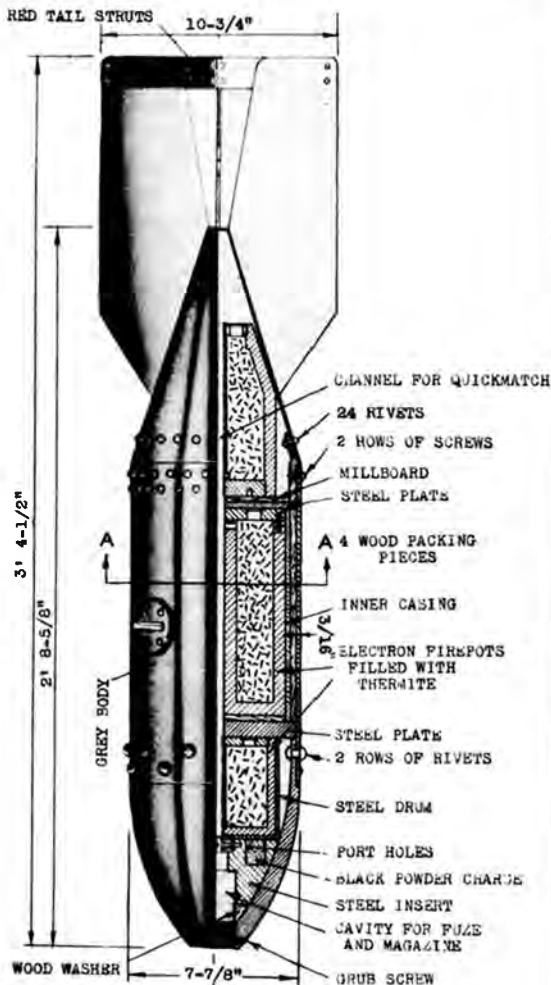
Type 97

Gas Bomb used as
Incendiary



**JAPANESE INCENDIARY BOMB
50 KG. TYPE 100**

PUBLICATION DATE: July 1944		RESTRICTED		JAPANESE ARMY BOMB 50 KG. Type 100 Incendiary (Phosphorus Pellets)
FUZES: A-2(b) or possibly A-2(a) or A-2(c)				
OVERALL LENGTH	40.0 in.			
LENGTH OF BODY	24.0 in.			
DIAMETER OF BODY	7.0 in.			
THICKNESS OF WALL	0.125 in.			
MATERIAL OF WALL	Steel			
TYPE OF SUSPENSION	Horizontal (Army Type)			
CONSTRUCTION OF SUSPENSION LUG	Normal Army suspension lug. (A rectangular steel swivel eye-hook is welded to a carrying band.)			
COLOR & MARKINGS ON BOMB AND TAIL	Army Code for Incendiaries: Grey nose, body and tail. A yellow and white band are stencilled just forward of the suspension lug.			
LENGTH OF TAIL	16.0 in.			
WIDTH OF TAIL	9.5 in.			
WIDTH OF TAIL FINS				
DIMENSIONS OF TAIL STRUTS				
MATERIAL OF TAIL	Sheet metal			
TYPE OF FILLING	Carbon disulphide solution (64.5%) of white phosphorus with rubber bungs impregnated with phosphorus (one inch long by one inch in diameter). A picric acid burster tube and burster charge in the nose constitute the explosive filling.			
WEIGHT OF FILLING	6 Kg. (approx.) (Explosive)			
TOTAL WEIGHT OF BOMB	50 Kg.			
CHARGE/WEIGHT RATIO	12%			
CONSTRUCTION OF BODY	A steel nose is held on a steel plate, which acts as a collar, by three dowels which are threaded at their outer ends. The plate is welded to the body of tubular steel. The tail is welded to the body. A central exploder tube is screwed into the plate.			
CONSTRUCTION OF TAIL	Four Army fins welded to cone are supported by a row of box-type struts. The cone is welded to the body.			
REMARKS				



**JAPANESE 60 KG. INCENDIARY
(THERMITE) BOMB**

PUBLICATION DATE: July 1944

RESTRICTED

FUZES:

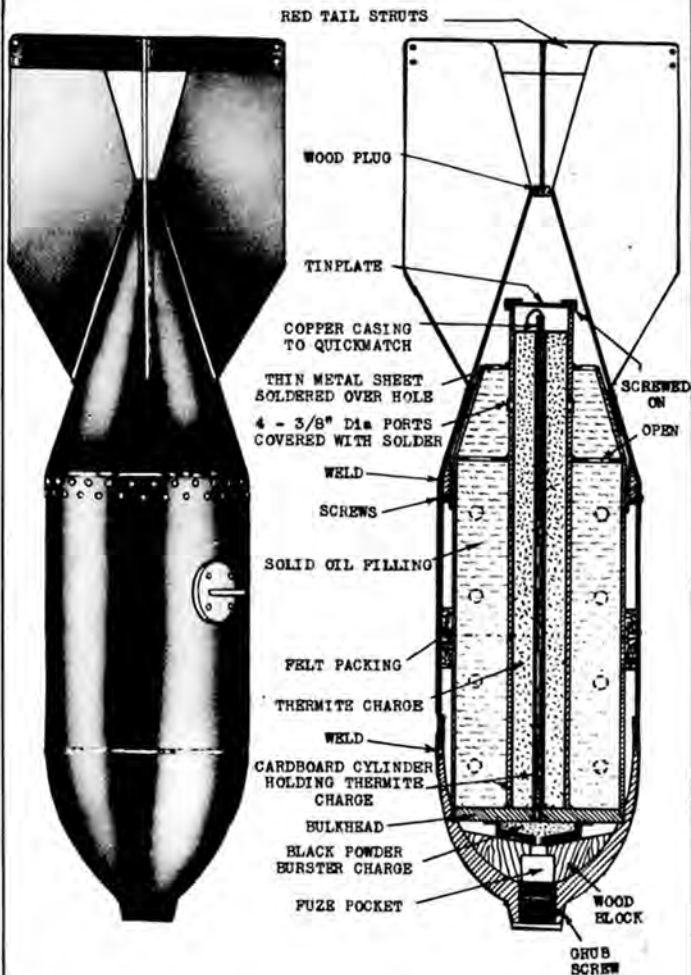
A-3(a) or A-3(b)

**JAPANESE
NAVY BOMB
60 KG.**

INCENDIARY THERMITE
TYPE 97

OVERALL LENGTH	40.0 in.
LENGTH OF BODY	21.8 in.
DIAMETER OF BODY	7.9 in.
THICKNESS OF WALL	0.3 in.
MATERIAL OF WALL	Steel.
TYPE OF SUSPENSION	Horizontal (Navy type)

CONSTRUCTION OF SUSPENSION LUG	Normal Navy suspension lug. (Eyebolt welded to circular plate which is riveted to body with four rivets).
COLOR & MARKINGS ON BOMB & TAIL	Navy Code: Grey body and tail with red tail struts.
LENGTH OF TAIL	18.3 in.
WIDTH OF TAIL	10.6 in.
MATERIAL OF TAIL	Sheet iron (.06 in.)
TYPE OF FILLING	Four electron inserts comprise the filling. The nose and tail inserts are cylindrical, while the body inserts are hemi-cylindrical and are made of thermite and priming compositions.
WEIGHT OF FILLING	30 pounds (approx.)
TOTAL WEIGHT OF BOMB	132 lbs.
CHARGE/WEIGHT RATIO	23% (approx.)
CONSTRUCTION OF BODY	A cast steel nose is riveted, with two rows of ten rivets each, to a steel tubular body. The tail cone is held by one row of twenty-four rivets to a collar which is held in the base of the bomb by two rows of screws (fourteen per row).
OPERATION	On impact, the nose fires a magazine which ignites a fuse cord passing through the bomb. This fuse ignites the electron and a black powder charge which scatters the burning thermite.
REMARKS	A magazine replaces the standard Navy gaine in this bomb.



**JAPANESE 60 KG.
OIL INCENDIARY**

PUBLICATION DATE: July 1944

RESTRICTED

FUZES:

A-3(a) or A-3(b)

JAPANESE
NAVY BOMB

60 KG.

Oil Incendiary

OVERALL LENGTH 42.25 in.

LENGTH OF BODY 21.0 in.

DIAMETER OF BODY 9.5 in.

THICKNESS OF WALL 0.18 in.

MATERIAL OF WALL Tubular steel.

TYPE OF SUSPENSION Horizontal (Navy type)

CONSTRUCTION OF SUSPENSION LUG Normal Navy suspension lug. Eyebolt welded to circular plate which is riveted to body (four (4) rivets).

COLOR & MARKINGS ON BOMB AND TAIL Navy Code: Grey body and tail with longitudinal diametrically opposite thin red lines. Red nose and red struts.

LENGTH OF TAIL 21.25 in.

WIDTH OF TAIL 13.2 in.

WIDTH OF TAIL FINS

DIMENSIONS OF TAIL STRUTS

MATERIAL OF TAIL 1/16 inch Sheet steel fins and cone.

TYPE OF FILLING Two types: (a) A central thermite core surrounded by a kerosene, petrol, alcohol-soap mixture.
(b) Rubber pie-shaped pellets impregnated with iron and aluminum surround a central tube of H.E. bursting and scattering charge.

WEIGHT OF FILLING 20 lbs. of Inflammable mixture. 7.5 lbs. Thermite.

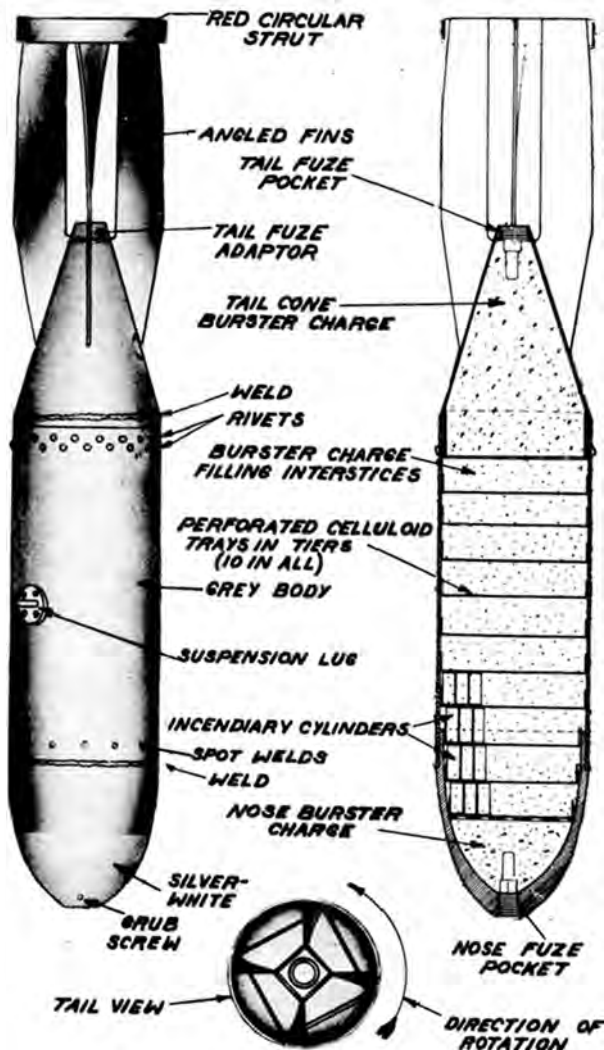
TOTAL WEIGHT OF BOMB 60 kg. (132 lbs.)

CHARGE/WEIGHT RATIO 22%

CONSTRUCTION OF BODY Navy Construction: Outer steel cylindrical tube enclosing inner casing. Cast nose welded to outer casing. Tail collar secured by two (2) rows (sixteen per row) of 5 mm screws to casing. Conical tail welded to collar.

CONSTRUCTION OF TAIL Four Navy fins (.06 inches thick) welded to metal strips which are riveted (fourteen rivets each) to cone. Cone welded to tail collar. Collar held by two rows (sixteen each row) of 5 mm screws. Single row box-type struts (1.4 inches wide).

REMARKS Navy Bomb: Impact actuates fuze whose booster explodes a black powder charge. This blows inner casing out, shearing thirty-two screws. Simultaneously a length of quick-match ignites thermite which burns as a compact mass with gel mixture. If rubber pellets are used, the explosive trains detonates the H.E. burster tube.



**JAPANESE 250 KG.
INCENDIARY (SHRAPNEL) BOMB**

PUBLICATION DATE: July 1944		CONFIDENTIAL	JAPANESE NAVY BOMB 250 KG. Incendiary
FUZES: Nose: A-3(a) Tail: D-2(a)			
OVERALL LENGTH	69.0 in.		
LENGTH OF BODY	39.0 in.		
DIAMETER OF BODY	12.0 in.		
THICKNESS OF WALL	0.22 in.		
MATERIAL OF WALL	Steel.		
TYPE OF SUSPENSION	Horizontal (Navy type)		
CONSTRUCTION OF SUSPENSION LUG	Navy suspension lug (assumed). Lug and plate held by four rivets to bomb body.		
COLOR & MARKINGS ON BOMB AND TAIL	Navy Incendiary code: Grey body and tail. A six inch silver band around nose and red painted tail struts.		
LENGTH OF TAIL	30.0 in.		
WIDTH OF TAIL	12.0 in. square (approx.)		
WIDTH OF TAIL FINS			
DIMENSIONS OF TAIL STRUTS			
MATERIAL OF TAIL	Sheet steel.		
TYPE OF FILLING	Seven hundred and fifty steel tubes filled with incendiary metallic-rubber mixture. Bursting charges (H.E. or Black powder) are found in nose and tail sections. Steel tubes are 2-3/4" x 1-1/8".		
WEIGHT OF FILLING	27 Kg.		
TOTAL WEIGHT OF BOMB	250 Kg.		
CHARGE/WEIGHT RATIO	11 %		
CONSTRUCTION OF BODY	A cast steel nose is welded to a tubular steel body. Nose threaded for Navy size fuze. Thirty-six spot-welds fill holes in body near nose (probably rivet holes when bomb is used as G.P.H.E.). Tail cone welded and riveted with two rows of 3/8 inch rivets (twenty per row). Tail fins are arranged so as to give an anti-clockwise rotation.		
CONSTRUCTION OF TAIL	Four Navy fins (.06 inch) welded to .20 inches thick tail cone. Four additional tail fins are fastened so as to cause rotation of the bomb in flight. Single row of two inch box-type struts. Cone filled with H.E.		
REMARKS	The aerial burst fuze functions and the flash from the tail charge passes through perforated closing plates and trays separating the shrapnel tubes. The inflammable trays ignite and these ignite incendiary mixture in the tubes. Scattered over 175 yard radius when air-burst occurs 100 feet above ground. Some bombs have all the voids within the bomb body filled with a burster charge of black powder, the flash from which initiates ignition of the incendiary cylinders.		

PUBLICATION DATE: July 1944

CONFIDENTIAL

FUZES

Unknown

JAPANESE
INCENDIARY BOMB

(PARACHUTE)

OVERALL LENGTH

42.0 in.

LENGTH OF BODY

DIAMETER OF BODY

6.0 in.

THICKNESS OF WALL

MATERIAL OF WALL

TYPE OF SUSPENSION

CONSTRUCTION OF
SUSPENSION LUGCOLOR & MARKINGS
ON BOMB AND TAIL

Black body with red band 6 inches from nose.

LENGTH OF TAIL

WIDTH OF TAIL

WIDTH OF TAIL FINS

DIMENSIONS OF
TAIL STRUTS

MATERIAL OF TAIL

TYPE OF FILLING

WEIGHT OF FILLING

TOTAL WEIGHT
OF BOMB

CHARGE/WEIGHT RATIO

REMARKS

A delay fuze with 12 hour delay is incorporated. The incendiary is dropped by day. Planes return at night and carry out bombing mission, using flares as markers. Possibly equipped with anti-handling device.

JAPANESE BOMB CONTAINERS

From available information, it is thought that the following is correct.

Our Designation

Navy Bomb Container for 5
7 Kg. H.E. Bombs

Navy Bomb Container for
1 Kg. H.E. Bombs

Navy Bomb Container (60 Kg.)
for 5 parachute bombs

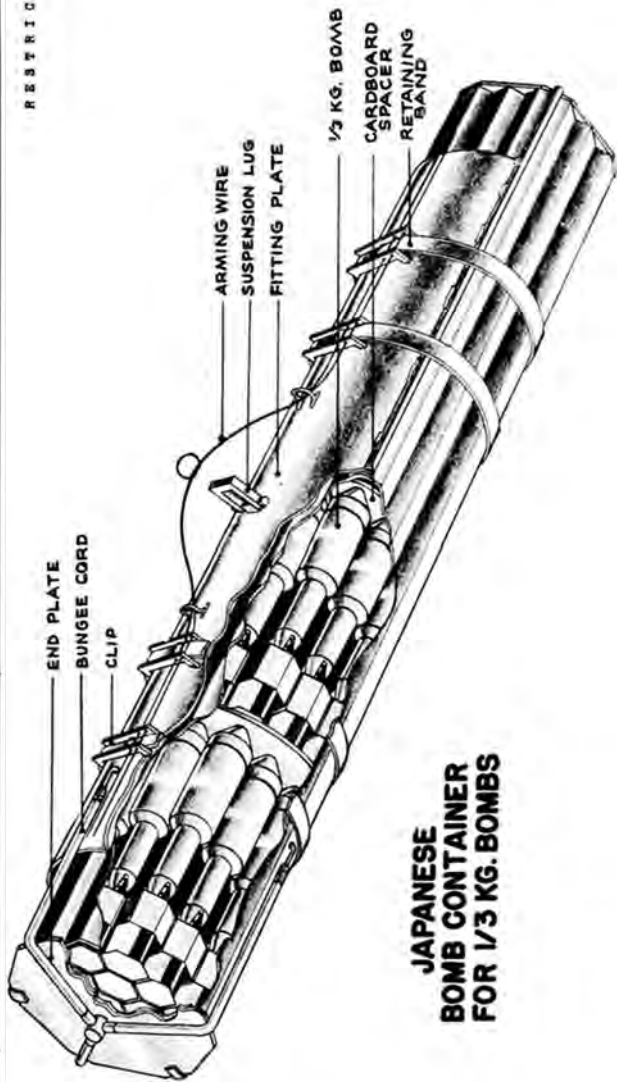
Japanese Designation

Type 21, No. 6 Land Bomb, Model 5
二一式九番陸用爆彈五型

Type 2, No. 6, Mark 21 Bomb, Model 1
二式九番二一號爆彈一型

Air Technical Arsenal Experimental
Model 18, Mark 24

航技巧製試十八型二四號



**JAPANESE
BOMB CONTAINER
FOR 1/3 KG. BOMBS**

PUBLICATION DATE: July 1944 R E S T R I C T E D

FUZES:

None

OVERALL LENGTH 41-1/2 in.

LENGTH OF BODY 41-1/2 in.

DIAMETER OF BODY 8 in.

THICKNESS OF WALL .050 in.

MATERIAL OF WALL Corrugated sheet metal.

TYPE OF SUSPENSION Swinging type suspension lug secured by bolt.

JAPANESE ARMY BOMB CONTAINER

For

Seventy-six 1/3 Kg. Bombs

CONSTRUCTION OF
SUSPENSION LUG

COLOR & MARKINGS
ON BOMB AND TAIL

LENGTH OF TAIL

WIDTH OF TAIL

WIDTH OF TAIL FINS

DIMENSIONS OF TAIL
STRUTS

MATERIAL OF TAIL

TYPE OF FILLING Four (4) sections, each containing nineteen (19) 1/3 Kg. H.E. bombs. (76 total). Sections formed by placing one transverse cardboard disc between each group of nineteen (19) bombs.

WEIGHT OF FILLING

TOTAL WEIGHT
OF BOMB 35 Kg.

CHARGE/WEIGHT RATIO

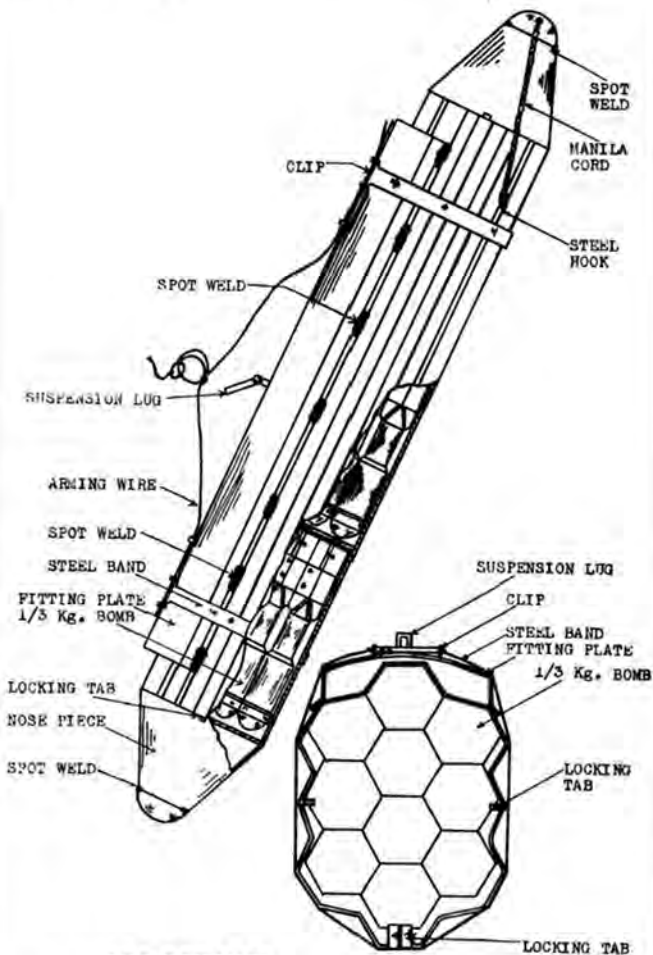
CONSTRUCTION OF BODY

The container is formed by three (3) interlocking lengths of corrugated sheet steel, closed at each end by hexagonal sheet steel plates. The three interlocking lengths are held in position by four (4) encircling sheet steel bands and clips. The clips are prevented from opening by two (2) arming wires. To the exterior of one of the end plates are attached three Bungee cords 7-1/2 inches long, to each of which is attached a steel hook.

One of the three interlocking corrugated lengths serves as the upper portion of the horizontally suspended container. To this upper portion is spot welded a smooth semi-circular sheet steel piece 31 1/2" long, in the center of which is located the suspension lug. On each side of the lug, between it and the inboard steel bands, there is welded an eyebolt to take the arming wires.

REMARKS

It is thought that the Japanese Army Air Force employs the swinging type suspension lug, as found on this container, and that their Naval Air Force employs the rigid U-bolt. This would indicate that the 1/3 Kg. bomb may be employed by the Army instead of the Navy as previously reported.



JAPANESE BOMB CONTAINER

FOR THIRTY 1/3 KG. ANTI-AIRCRAFT BOMBS

PUBLICATION DATE: July 1944 R E S T R I C T E D

JAPANESE
CONTAINER

for

THIRTY 1/3 KG.
ANTI-AIRCRAFT BOMBS

FUZZES

None

OVERALL LENGTH	43 in.
LENGTH OF BODY	31.0 in. less nose piece.
DIAMETER OF BODY	Maximum - 7-1/8 in. Minimum - 4-3/16 in.
THICKNESS OF WALL	1/25 in.
MATERIAL OF WALL	Corrugated sheet steel
TYPE OF SUSPENSION	Horizontal

CONSTRUCTION OF
SUSPENSION LUG

Normal Army type.

COLOR & MARKINGS
ON BOMB AND TAILBlack overall. Japanese characters on nose piece
(鼻) meaning "nose".

LENGTH OF TAIL

Conical tail section 6" & nose section 6".

WIDTH OF TAIL

WIDTH OF TAIL FINS

DIMENSIONS OF
TAIL STRUTS

MATERIAL OF TAIL

TYPE OF FILLING

Thirty 1/3 Kg. Anti-Aircraft Bombs.

WEIGHT OF FILLING

10.3 Kg.

TOTAL WEIGHT
OF BOMB

Filled - 24.4 Kg.

CHARGE/WEIGHT RATIO

CONSTRUCTION

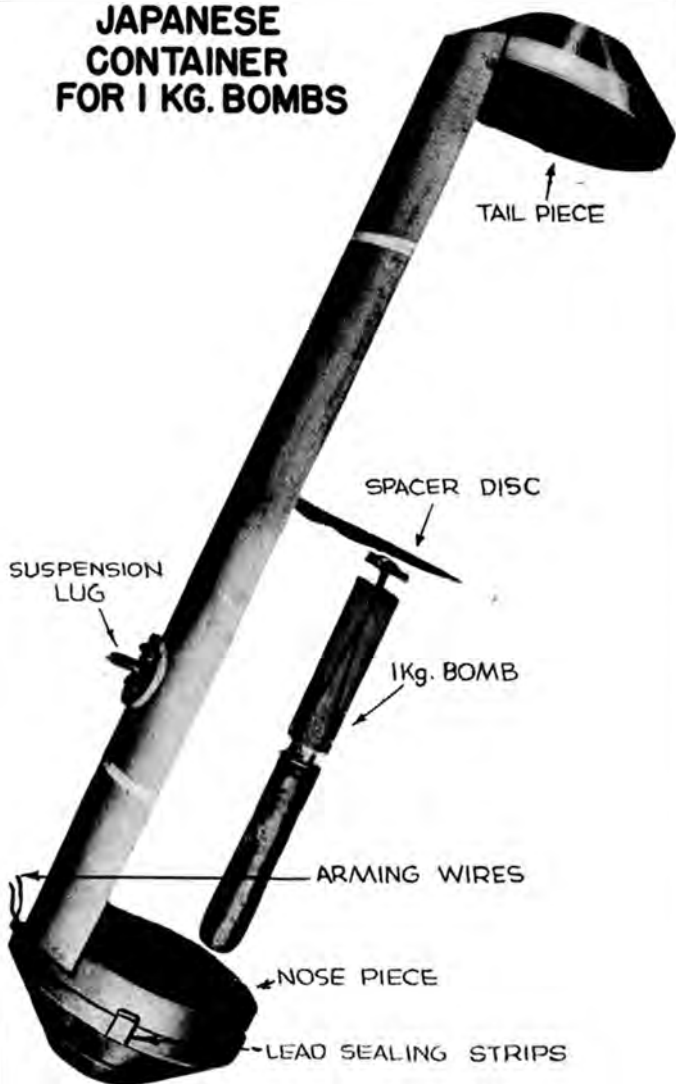
The container is formed by three interlocking lengths of corrugated sheet steel. Each end is closed by a conical nose and tail piece made of thin sheet steel. The three interlocking lengths are held in position by two sheet steel bands with clips. The clips are prevented from opening by two arming wires.

Attached to the tail piece are three manila cords 13 in. long. To each of these is attached a steel hook which fits into a hole in each of the three body sections.

One of the three interlocking corrugated lengths serves as the top of the bomb. Spot welded to this is a smooth semi-circular sheet steel piece 25 1/2 in. long. The Army type, folding suspension lug is attached to this piece. Eyebolts are welded on either side of the lug to serve as guides for the arming wires.

By inserting transverse cardboard discs, the inside of the container is divided into three sections containing 10 bombs each. The layers of bombs are also separated by cardboard.

JAPANESE CONTAINER FOR 1 KG. BOMBS



FUZZES

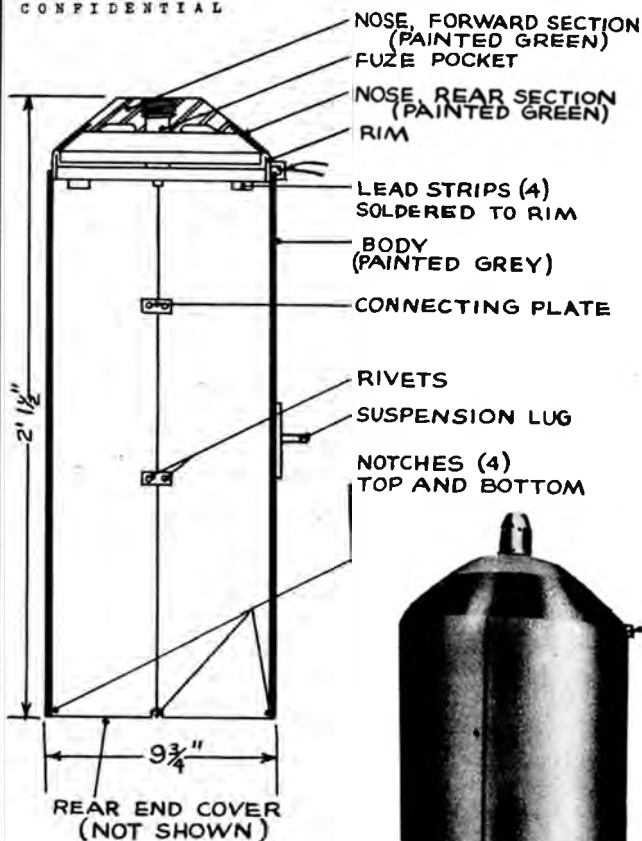
D-4(a)

JAPANESE
NAVY BOMB

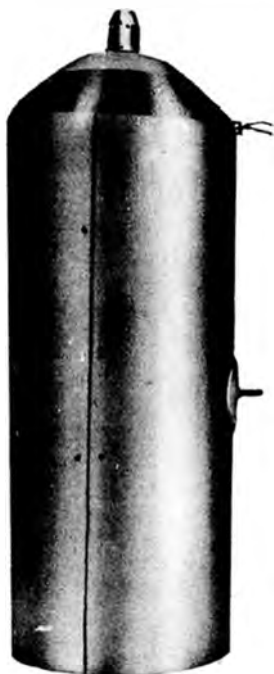
CONTAINER

For 1 Kg. H. E. Bombs

OVERALL LENGTH	41 in.
LENGTH OF BODY	36.25 in.
DIAMETER OF BODY	9.5 in.
THICKNESS OF WALL	0.06 in.
MATERIAL OF WALL	Steel
TYPE OF SUSPENSION	Horizontal
CONSTRUCTION OF SUSPENSION LUG	Normal Navy type.
COLOR & MARKINGS ON BOMB AND TAIL	Painted grey overall. One inch green band on nose. Broader brown band just aft of green band. Two $\frac{1}{2}$ inch white bands on body mark position at binding straps.
LENGTH OF TAIL	
WIDTH OF TAIL	
WIDTH OF TAIL FINS	
DIMENSIONS OF TAIL STRUTS	
MATERIAL OF TAIL	
TYPE OF FILLING	40 1 Kg. H.E. bombs.
WEIGHT OF FILLING	
TOTAL WEIGHT OF BOMB	60 Kg. (approx.)
CHARGE/WEIGHT RATIO	
DESCRIPTION	The canister consists of a blunt nose assembly and a light tail piece around which is fitted a segmented cylinder held together by two circumferential metal binding straps. Two steel wires, which are attached to the nose, run longitudinally along the canister and pass through buckles of the straps locking them together. The buckles open automatically when the wires are withdrawn. The burster charge is made up in an annular silk bag, enclosed in a flat, round can. The ignition hole, which is near the periphery of the top, is sealed with tinfoil. This can is mounted off center in a wooden disc which fits snugly into the steel pan of the nose assembly. The eccentric position of the charge centers the ignition hole directly under the fuze and places the main portion of the charge near to the point at which the two steel release wires are attached to the nose piece. This accounts for a more direct pull being exerted on the release wires when the burster charge detonates. The cylinder is filled with forty 1 Kg. H.E. bombs, a flat steel disc separating these into two clusters of twenty each. Remains of paper on the nose assembly, spacer disc, and tail piece indicate that cardboard packing discs were glued to the metal surfaces in front and back of each group of bombs.
OPERATION	The burster charge is contained within the nose assembly. When this charge is fired by the aerial burst fuze, the lead sealing strips are sheared and the nose piece is blown free from the canister. The nose piece withdraws the release wires from the buckles of the binding straps which in turn frees the segments of the canister and allows the forty bombs to fall individually.



**JAPANESE
CONTAINER
(60 KG.)
FOR
5 PARACHUTE
BOMBS**



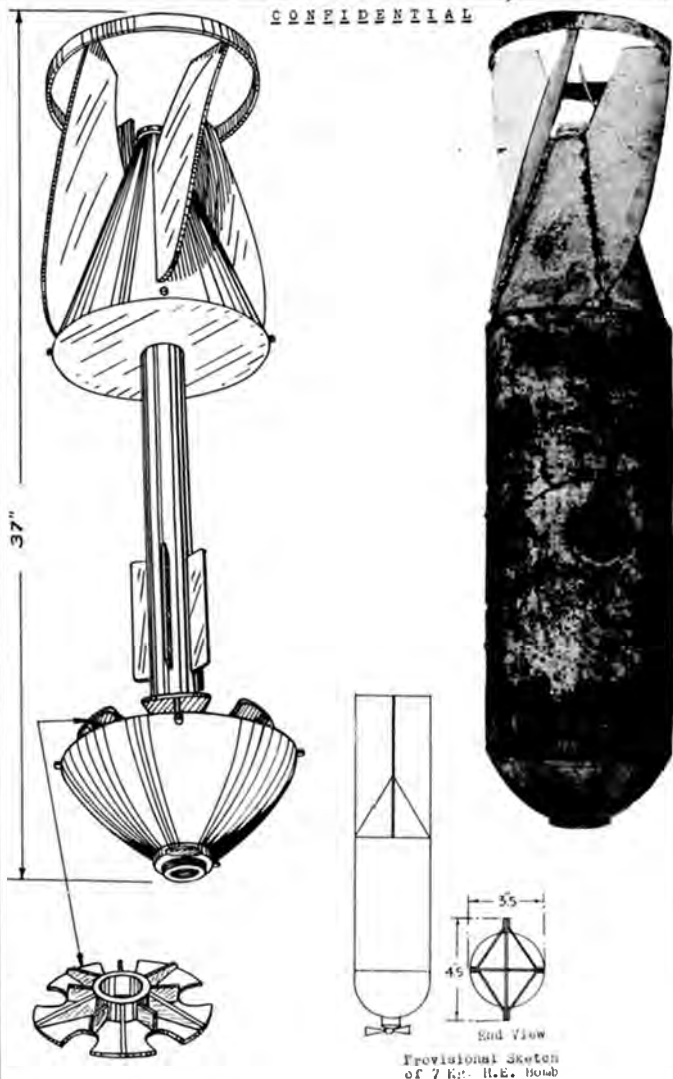
JAPANESE NAVY BOMB CONTAINER

For 5 Parachute Bombs
(60 Kg.)
(Provisional)

Air Technical Arsenal
Experimental Model 18, Mk 24

FUZES	
D-4(a)	
OVERALL LENGTH	25.5 in.
LENGTH OF BODY	22.25 in.
DIAMETER OF BODY	9.75 in.
THICKNESS OF WALL	0.08 in.
MATERIAL OF WALL	Sheet Steel.
TYPE OF SUSPENSION	Horizontal.
CONSTRUCTION OF SUSPENSION LUG	Normal Navy type.
COLOR & MARKINGS ON BOMB AND TAIL	Grey body. Black nose with green band on nose tip.
LENGTH OF TAIL	
WIDTH OF TAIL	
WIDTH OF TAIL FINS	
DIMENSIONS OF TAIL STRUTS	
MATERIAL OF TAIL	
TYPE OF FILLING	5 Parachute H.E. bombs (each approx. 10 Kg.)
WEIGHT OF FILLING	
TOTAL WEIGHT OF BOMB	Probably 60 Kg.
CHARGE/WEIGHT RATIO	
CONSTRUCTION OF BODY	The body casing consists of 2 hemi-cylindrical pieces of sheet steel joined internally with 4 lugs and rivets. The nose tip of machined solid steel contains a threaded fuse pocket and is welded to a hollow portion made of sheet steel. A sheet steel rim, welded around the base of the hollow portion, fits inside the body casing and is positioned by 4 lead strips soldered to the rim. No base cover has been recovered, but it is assumed that a conical shaped base cover of sheet metal fits into the tail end of the body cylinder in the same manner as the nose piece, and that the nose piece and base cover are prevented from falling outwards by 4 joining wires attached to fixed eyebolts on the rim at each end.
REMARKS	A complete specimen has not been recovered to date. It is thought this is the bomb referred to in Figure 6 shown in the Japanese Special Bomb Chart.

CONFIDENTIAL



**JAPANESE BOMB CONTAINER
FOR FIVE 7 KG. BOMBS**

JAPANESE NAVY BOMB CONTAINER

For Five 7 Kg. H.E. Bombs

Type 21 No. 6 Land Bomb
Model 5.

FUZES:

Nose: A-3(a) or nose plug.
Tail: No tail fuze used.

OVERALL LENGTH	42 in.
LENGTH OF BODY	37 in.
DIAMETER OF BODY	10 in.
THICKNESS OF WALL	4/50 in.
MATERIAL OF WALL	Sheet steel
TYPE OF SUSPENSION	Horizontal

CONSTRUCTION OF
SUSPENSION LUG Standard Navy type

COLOR & MARKINGS
ON BOMB AND TAIL Brown nose section, Light blue tail section and fins.

LENGTH OF TAIL 15-3/4 in.

WIDTH OF TAIL

WIDTH OF TAIL FINS 4-1/4 in.; Thickness: 1/16 in.

DIMENSIONS OF
TAIL STRUTS 1" x 8" x 1/16"

MATERIAL OF TAIL Sheet steel

TYPE OF FILLING Five 7 Kg. H.E. bombs

WEIGHT OF FILLING

TOTAL WEIGHT
OF BOMB 60 Kg. (approx.)

CHARGE/WEIGHT RATIO

CONSTRUCTION OF
BODY Steel nose and tail connected by a metal tube on the inside and two half cylinders of sheet steel on the outside. The two half cylinders are connected by four metal tabs riveted to each half of the cylinder on the inside. There are four notches 3/16 inches square and 90° apart in each end of the assembled cylinder. The notches fit around the four pins which are on the nose piece and tail piece. There is a spacer piece attached to the central tube.

CONSTRUCTION OF
TAIL Four (4) fins spot welded to tail cone and braced by a ring strut welded to tips of fins. The fins are curved so that a spinning motion is imparted to the container.

DESCRIPTION OF
7 Kg. H.E. BOMB No fuze or complete bomb has been found. The only information available on the bomb and fuze comes from a captured Japanese bomb chart.

The tail fins from several of the bombs have been found. The tail fins are painted grey. They are made up of two metal strips, the widest one has 4-1/4" slot which allows the narrower one to fit into it. The fins are spot welded at the extreme ends of the slot. The tail fins are braced by box-type struts welded to the aftermost end.

Dimensions:	Width	Length	Thickness
Wide Fin	4-1/4"	10-3/8" (approx)	1/16"
Narrow Fin	3-1/2"	10-3/8" (approx)	1/16"
Tail Struts	19/32"	2-3/4" (approx)	1/16"

REMARKS

Exact operation of the container is unknown. Available information indicated that the container is opened by centrifugal force exerted by the spinning container and that the central tube is used as a sixth bomb when fired with the A-3(a). The one Kg. H.E. bomb has been dropped from this container.

MISCELLANEOUS

PRACTICE BOMBS

GAS BOMBS

SEA FLARES

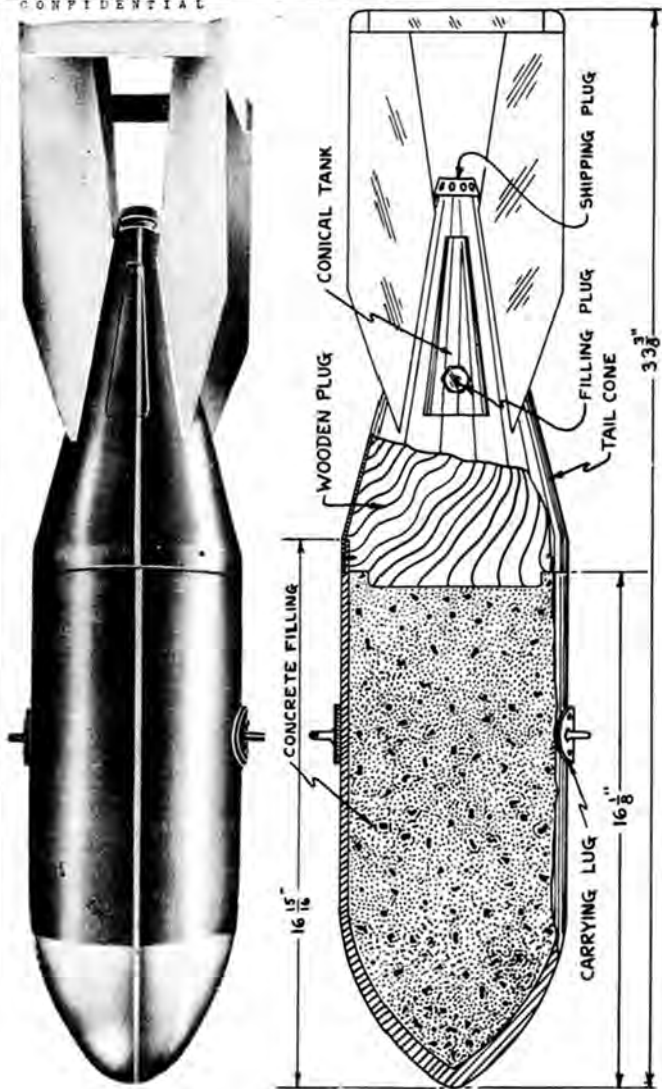
SEA MARKERS

SMOKE FLOATS

LAND FLARES

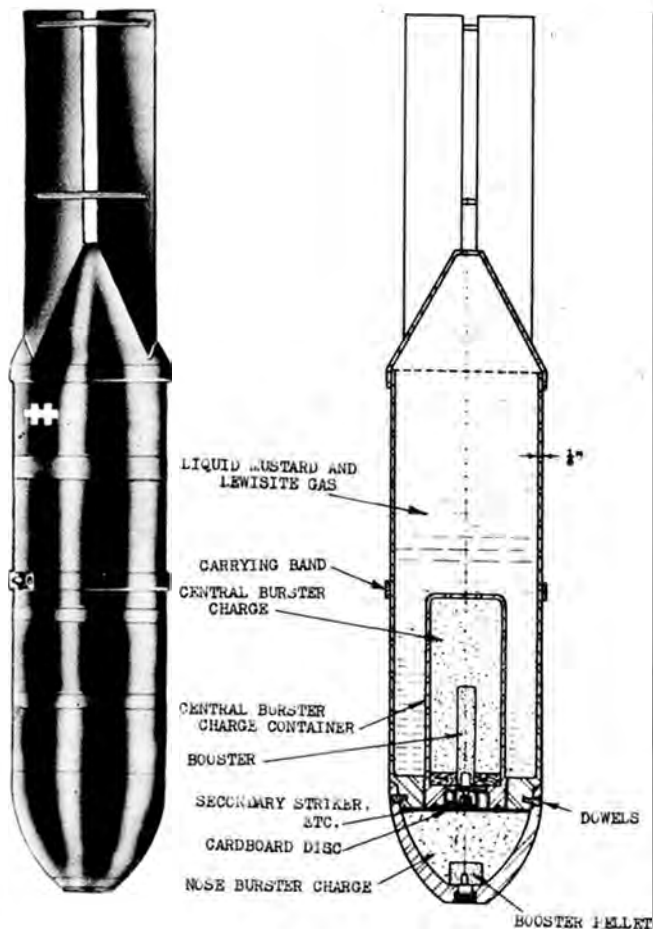
PAMPHLET CONTAINERS

OBJECTS FOR RECOGNITION



JAPANESE 31 KG. PRACTICE BOMB

PUBLICATION DATE: July 1944		CONFIDENTIAL	JAPANESE NAVY BOMB 31 KG. Practice
FUZES			
B-6(a)			
OVERALL LENGTH	33-3/8 in.		
LENGTH OF BODY	16-15/16 in.		
DIAMETER OF BODY	7 in.		
THICKNESS OF WALL	1/4 in.		
MATERIAL OF WALL			
TYPE OF SUSPENSION	Horizontal (Navy type)		
CONSTRUCTION OF SUSPENSION LUG	Two normal Navy suspension lugs 180 degrees apart, 11-1/4 inches from the nose of the bomb. The lugs are welded to circular plates which are riveted to the bomb.		
COLOR & MARKINGS ON BOMB AND TAIL	Bomb body painted black with exception of nose and two white or red stripes running length of body 90 degrees from suspension lugs. Believed that tail is painted white but condition of the specimen examined prevents accurate analysis.		
LENGTH OF TAIL	17-1/4 in.		
WIDTH OF TAIL	9-1/2 in.		
WIDTH OF TAIL FINS	3-7/8 in. Thickness, 1/16 in.		
DIMENSIONS OF TAIL STRUTS	Width, 1-3/16"; Length, 6-7/8"; Thickness, 1/16".		
MATERIAL OF TAIL			
TYPE OF FILLING	Concrete		
WEIGHT OF FILLING			
TOTAL WEIGHT OF BOMB	31 Kg.		
CHARGE/WEIGHT RATIO			
CONSTRUCTION OF BODY	One piece machine steel casing, 1/4 inch thick. Base is closed by a conical wooden plug projecting four inches from the base. A conical metal container is held against the wooden plug by the tail cone, which is held to the bomb body by screws. Four slots in the tail cone allow the smoke to escape when the picric exploder charge bursts the metal container.		
CONSTRUCTION OF TAIL	Hollow sheet steel cone. Four Navy-type fins are spot welded to the cone. The fins of 1/16 inch steel are supported by four sheet metal box-type struts at their extreme end. The tail cone has four openings cut in it, one between each set of fins. Within the tail cone is held the previously mentioned conical shaped container which contains, it is believed, a smoke producing liquid. A picric exploder charge 6" x 1" is fitted into the apex of the conical shaped container.		
OPERATION	On impact the fuze fires setting off the picric booster charge. The explosion of the picric booster charge ruptures the tank in the tail which contains a smoke producing liquid. The smoke produced escapes through four slots in the tail cone assembly.		



**JAPANESE GAS BOMB
50 KG. TYPE 92**

PUBLICATION DATE : July 1944

RESTRICTED

JAPANESE
ARMY BOMB

50 KG. GAS

Type 92

FUZES:

Nose - A-2(b)
Tail - None

OVERALL LENGTH

45.0 in.

LENGTH OF BODY

26.4 in.

DIAMETER OF BODY

7.5 in.

THICKNESS OF WALL

0.2 in.

MATERIAL OF WALL

Steel.

TYPE OF SUSPENSION

Horizontal (Army type)

CONSTRUCTION OF
SUSPENSION LUG

Normal Army suspension lug. (A rectangular steel swivel eye-hook is welded to a carrying band.)

COLOR & MARKINGS
ON BOMB AND TAIL

Army code: The bomb is grey-green with a red and blue band on the nose; two yellow bands with a white band between are stencilled around the body.

LENGTH OF TAIL

18.5 in.

WIDTH OF TAIL

9.2 in.

WIDTH OF TAIL FINS

DIMENSIONS OF
TAIL STRUTS

MATERIAL OF TAIL

Sheet iron.

TYPE OF FILLING

Chemical gas (50/50 Lewisite - Mustard gases).

WEIGHT OF FILLING

23 Kg.

TOTAL WEIGHT
OF BOMB

50 Kg.

CHARGE/WEIGHT RATIO

46 %

CONSTRUCTION OF
BODY

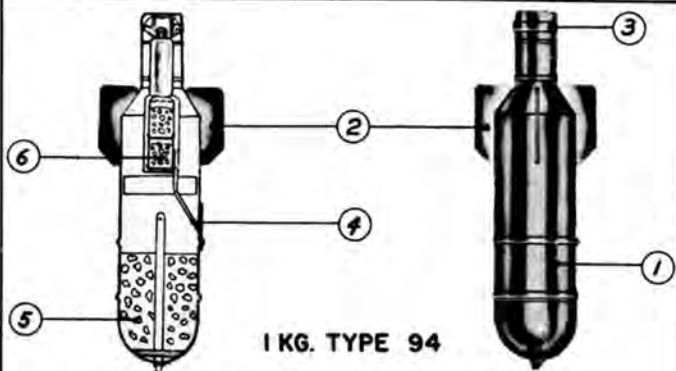
Army Construction: A steel nose is screwed to body and held by three screwed in dowel pins. Tail cone is welded to the body. The nose is fastened to a steel plate in which the burster tube is screwed. Two grub-screws secure the nose fuse.

CONSTRUCTION OF
TAIL

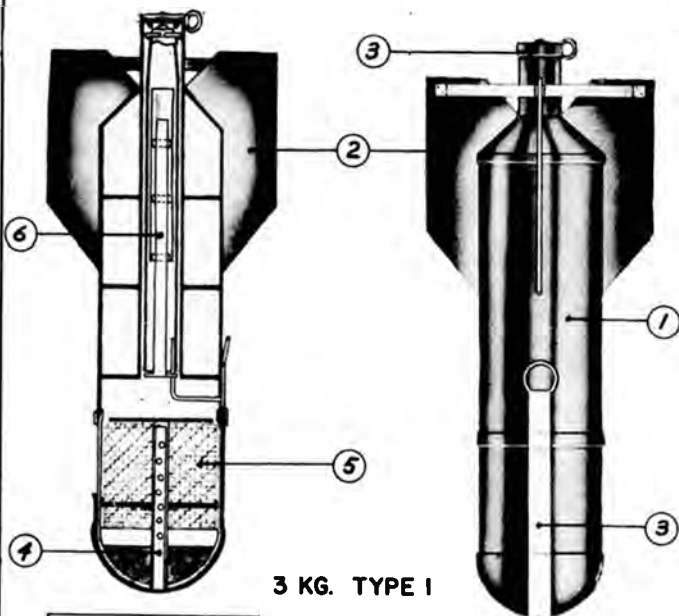
Four Army fins are welded to a tail cone which is welded to the body. Fins are supported by a double row of bar struts.

REMARKS

The A-2(a) nose fuse may be used or the A-2(c) may be used.



1 KG. TYPE 94



3 KG. TYPE I

LEGEND

- | | |
|----|-------------------|
| 1. | Body |
| 2. | Tail fins. |
| 3. | Tear Strips |
| 4. | Inlet tube |
| 5. | Calcium Carbide |
| 6. | Calcium Phosphide |

JAPANESE SEA FLARES

RESTRICTED

PUBLICATION DATE: July 1944		RESTRICTED		JAPANESE NAVY SEA FLARES
FUZES:		No fuzes. Tear-off strip is used.		
		1 Kg.(Type 94) 3 Kg.(Type I)		
OVERALL LENGTH	11.43 in.	21.75 in.		
LENGTH OF BODY	11.43 in.	21.75 in.		
DIAMETER OF BODY	2.8 in.	4.75 in.		
THICKNESS OF WALL	0.04 in.	0.04 in.		
MATERIAL OF WALL	Tin plate	Tin plate		
TYPE OF SUSPENSION		Clusters of Five		
CONSTRUCTION OF SUSPENSION LUG				
COLOR & MARKINGS ON BOMB AND TAIL	Gray. Red pull rings. One paper label.	Chrome yellow. Red pull rings. Two paper labels.		
LENGTH OF TAIL	2.75 in.	7.0 in.		
WIDTH OF TAIL	3.0 in. square	5.0 in. square.		
WIDTH OF TAIL FINS				
DIMENSIONS OF TAIL STRUTS				
MATERIAL OF TAIL	Tin plate	Tin plate.		
TYPE OF FILLING		Calcium Carbide and Calcium Phosphide.		
WEIGHT OF FILLING	Calcium Carbide -.5 lbs.	Calcium Carbide - 2.0 lbs.		
TOTAL WEIGHT OF BOMB	1 Kg.	3 Kg.		
CHARGE/WEIGHT RATIO	45%	33%		
CONSTRUCTION OF BODY	In both types, tin plate is rolled into a cylinder with soldered lapped joints. Lead weight in nose. Buoyancy chamber in nose. Nose is hemispherical tin plate soldered to body. Soldered cap at apex of tail cone.			
CONSTRUCTION OF TAIL	Four stabilizer fins welded to body. One row of box-type struts on Type I. No struts on Type '94. Tail cone secured by soldered strap.			
OPERATION	The tear strips are removed before dropping. After impact, water enters holes under tear strips and contacts calcium phosphide. The gas catches fire and ignites the gas which is evolved when water contacts calcium carbide. The flame comes out the tail cone and is about eight inches in height. Recovered specimens should be expended in water.			



TYPE 3



TYPE 4

JAPANESE SEA FLARES

PUBLICATION DATE: July 1944

R E S T R I C T E D

FUZZES:

None

JAPANESE NAVY
SEA FLARES

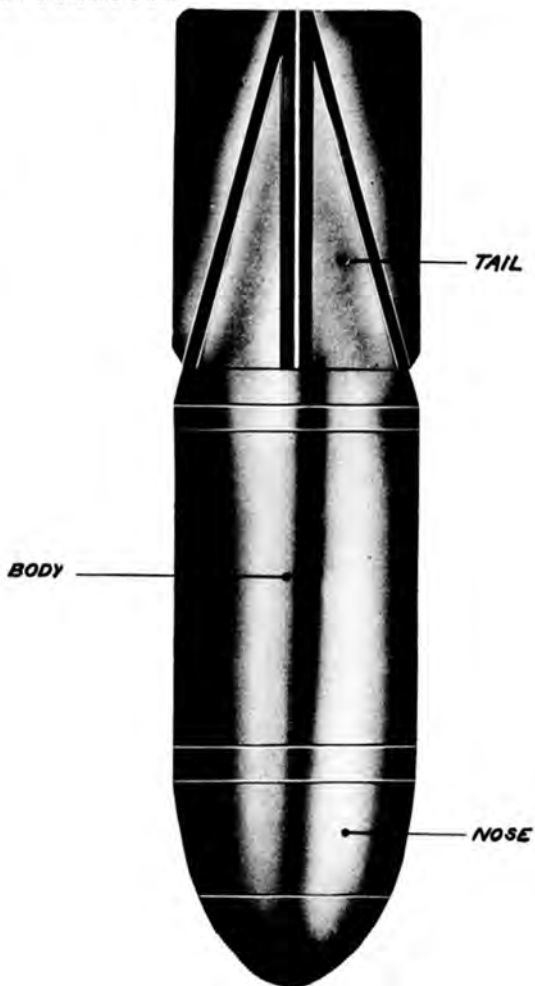
	Type III	Type IV
OVERALL LENGTH	13.8 in.	10 in.
LENGTH OF BODY	13.8 in.	10 in.
DIAMETER OF BODY	2.9 in.	2.4 in.
COLOR & MARKINGS ON BOMB AND TAIL	Gray overall with 2 labels on one side.	Gray overall, 2 labels 180° apart.

Type 3

Type 4

CONSTRUCTION &
OPERATION

Construction and operation are similar to the construction and operation of Type I and Type 94. Type III has four fins braced by struts, but Type IV has only three fins with no struts. Both flares have more pointed noses than Type I and 94.



**JAPANESE
SEA MARKER**

JAPANESE
SEA MARKER

FUZES

No fuses

	Metal Type	Paper Type
OVERALL LENGTH	12.25 in.	12.37 in.
LENGTH OF BODY	7.5 in.	7.75 in.
DIAMETER OF BODY	3.0 in.	2.8 in.
THICKNESS OF WALL	0.010 in.	
MATERIAL OF WALL	Sheet Steel	Cardboard
TYPE OF SUSPENSION	Dropped by hand	Dropped by hand

Metal Type

Paper Type

CONSTRUCTION OF
SUSPENSION LUGCOLOR & MARKINGS
ON BOMB AND TAIL

Aluminum color; Japanese inscription printed on a paper label which is glued to the body of the marker. (Instructions for operation of marker).

LENGTH OF TAIL

4.75 in.

4.6 in.

WIDTH OF TAIL

4.12 in.

2.9 in.

WIDTH OF TAIL PINS

DIMENSIONS OF
TAIL STRUTS

MATERIAL OF TAIL

Light tin
.008 inch.

Cardboard

TYPE OF FILLING

Aluminum powder containing 8.5% zinc. One ounce covers 118 square feet. No explosive of any sort.

WEIGHT OF FILLING

1.0 lb.

TOTAL WEIGHT
OF BOMB

3.5 lbs.

3.8 lbs.

CHARGE/WEIGHT RATIO

28%

CONSTRUCTION OF
BODYMetal Type:

Sheet steel cylindrical body fastened to the steel nose pieces by four punch marks. The tail cone and body are secured by a thin disc of light wood secured by four tacks in each component.

Paper Type:

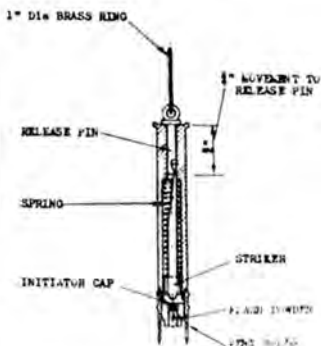
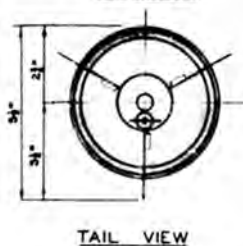
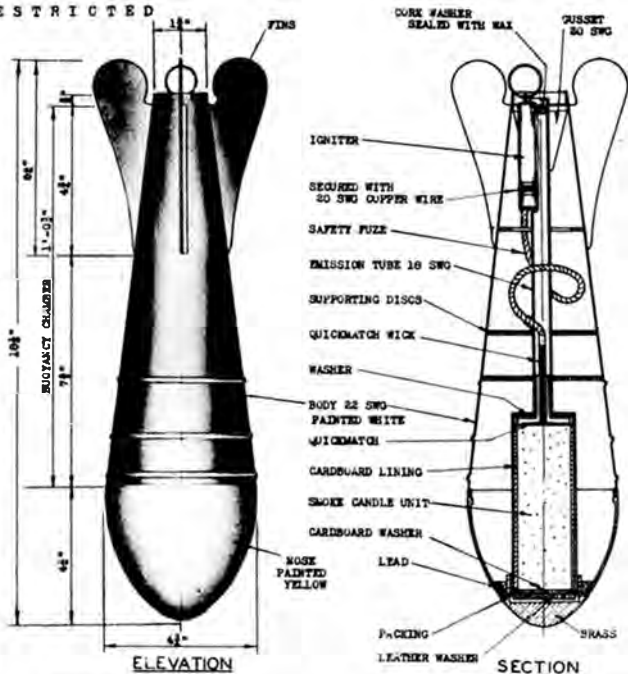
A paper body, reinforced with cardboard strips has the nose weighted with a hollow steel nose piece fastened with adhesive tape.

OPERATION

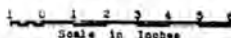
Metal Marker: - Situated in the hollow section of the steel nose piece is a wooden cylinder 1-7/16 inches in diameter fastened to this cylinder is a small wooden disc the same diameter as the inside of the body. Located between this nose disc and the wooden disc in the tail is a connecting wooden pin 4.75 inches long. On impact with the water, the plug in the nose is forced up through the marker, forcing the body and tail portion to be freed from the body, thereby scattering the aluminum powder.

Cardboard Marker: - Relies on impact with water to break container and spread contents.

RESTRICTED



IGNITER



JAPANESE 2 KG. SMOKE FLOAT

PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE SMOKE FLOAT 2 KG.
FUZES:		Full igniter	
OVERALL LENGTH	18-1/8 in.		
DIAMETER OF BODY	4-3/4 in.		
COLOR & MARKINGS	White except for yellow nose.		
TOTAL WEIGHT	4-3/4 lbs.		
DESCRIPTION	A cast brass nose piece weighted with lead is soldered to a conical shape body of 22 gauge sheet metal. A smoke candle unit screws into the nose. An emission tube, supported by 3 metal discs, passes lengthwise through the center of the body and has a cork plug in the tail end. The smoke candle unit consists of a casing of light alloy containing a smoke producing composition. A quickmatch wick and a length of safety fuse connects the candle with the igniter. The igniter casing contains a release pin, a spring loaded striker and an initiator cap pressed into a plug which screws into the end of the casing.		
OPERATION	The safety pin is removed, the release pin is withdrawn by pulling on the pull cord. The striker spring is compressed until the release pin is free of the casing and then the striker is released and strikes the cap thus igniting the safety fuse and quickmatch wick which ignites the smoke composition (after a short delay) which produces a yellow smoke. The marker is dropped by hand after the release pin is pulled.		

RESTRICTED

SILK PARACHUTE
AND CONTAINER

SHEET STEEL
CONTAINER

WOOD END PIECES
SAFETY WIRE EYELETS

TAIL FINS

FIBER PARACHUTE
CONTAINER

SILK PARACHUTE
AND SHROUDS

WIRE ROPE
ASBESTOS
STEEL PLATE
AND LUG.

BOLTED STRAP

SUSPENSION LUG
ARMY TYPE

FLARE COMPOSITION

FLARE COMPOSITION
CONTAINER
FELT WASHER

BLACK POWDER EXPELLING
AND IGNITION CHARGE

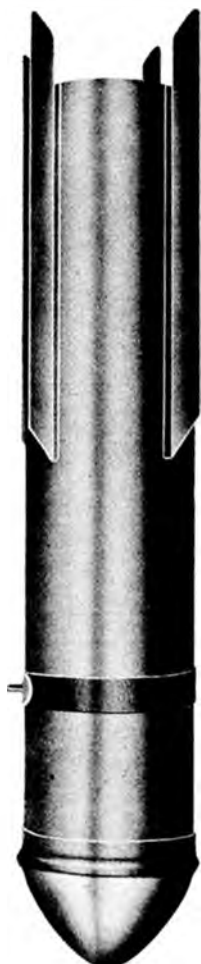
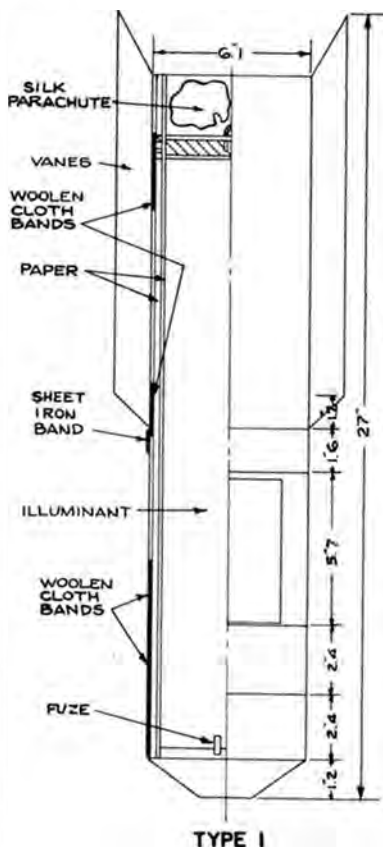
FELT WASHER

WOODEN NOSE PLUG
NOSE PLUG

WOODEN
PLUG

JAPANESE ARMY 12 KG. PARACHUTE FLARE

PUBLICATION DATE: July 1944		RESTRICTED		JAPANESE ARMY BOMB 12 KG. Parachute Flare
FUZES				
D-5(a)				
OVERALL LENGTH	34-1/8 in.			
LENGTH OF BODY	34-1/8 in.			
DIAMETER OF BODY	4-3/16 in.			
THICKNESS OF WALL	1/16 in.			
MATERIAL OF WALL	Cold rolled steel			
TYPE OF SUSPENSION	Horizontal			
CONSTRUCTION OF SUSPENSION LUG	Army type			
COLOR & MARKINGS ON BOMB AND TAIL	Black overall. Marked:  18.8  Tokyo, August 1942 and Symbol for illuminating flare.			
LENGTH OF TAIL	11-3/4 in.			
WIDTH OF TAIL	6-1/16 in. diameter			
WIDTH OF TAIL FINS				
DIMENSIONS OF TAIL STRUTS	None			
MATERIAL OF TAIL	Cold rolled steel.			
TYPE OF FILLING	Flare composition container & parachute container			
WEIGHT OF FILLING	Flare composition, 15 lb. 1 oz.			
TOTAL WEIGHT OF BOMB	26 lb. 5 oz.			
CHARGE/WEIGHT RATIO	57 %			
DESCRIPTION	Externally the flare is a 34 inch, black, parallel-sided tube of 18 gauge, cold rolled steel, with a conical shaped nose. An Army type carrying band with folding lug is bolted around the case 13 inches from the nose. Four fins protrude 7/8 inch from the body and are spot welded along the after two-fifths of the container. Internally the flare consists of two sections: the flare composition container and the parachute with its container. These are joined together by 63 inches of 1/8 inch wire rope. The flare composition is contained in an aluminum painted sheet steel cylinder with a lap rolled seam. The parachute is contained in a split, cylindrical, fiber housing with wooden closing plugs at each end. The parachute is of light weight white silk. It is 18 feet 2 inches in diameter (unfilled) and has sixteen peripheral shrouds and one central shroud. The shrouds are 13 feet 9 inches long.			
OPERATION	When the fuze initiates explosion of the black powder disc the resultant flash ignites the flare composition. The expanding gases cause both the parachute and the composition container to be expelled out the rear of the flare container. The parachute housing falls away allowing the parachute to be opened. While carried in the plane, a safety wire is passed through two eyelets at the tail end of the outside container, preventing the parachute from coming out until the flare has fallen free of the safety wire. It is possible that a tail plate, also held in by the safety wire, is missing.			
REMARKS	The flare composition is silvery gray and appears to be a hand pressed mechanical mixture of powdered magnesium asbestos flakes, and other ingredients to account for its weight. The composition burns a greenish white for 1-1/3 to 3 minutes (estimated). The flares come packed two per black wooden box marked:			

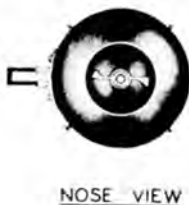
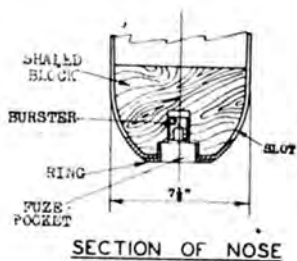


TYPE 2

JAPANESE PARACHUTE FLARES

PUBLICATION DATE : July 1944		R E S T R I C T E D		JAPANESE PARACHUTE FLARES Type I (Earlier Type) Type II (Later Type)
FUZES:		Type I - Unknown Type II - D-3(a)		
	Type I	Type II		
OVERALL LENGTH	27 in. *	34 in.		
LENGTH OF BODY	25 in.	31.5 in.		
DIAMETER OF BODY	6.1 in.	6.5 in.		
THICKNESS OF WALL		0.05 in.		
MATERIAL OF WALL	Sheet steel	Sheet steel		
TYPE OF SUSPENSION	Unknown	Horizontal		
CONSTRUCTION OF SUSPENSION LUG	Type II - Lug fastened to suspension band (approximately 1.5" wide).			
COLOR & MARKINGS ON BOMB AND TAIL	Type I: Bluish grey - marked - April 1939, Large type flare, Tech Dept. of Naval Air Force. Type II: Gray overall.			
LENGTH OF TAIL	Fins 14"	Fins 15.0" (approx.)		
WIDTH OF TAIL				
WIDTH OF TAIL FINS	2"	1.0" (approx.)		
DIMENSIONS OF TAIL STRUTS	None			
MATERIAL OF TAIL		18 Gauge steel plate		
TYPE OF FILLING	Illuminant	Illuminant		
WEIGHT OF FILLING	18 Kg.			
TOTAL WEIGHT OF BOMB	33 Kg.			
CHARGE/WEIGHT RATIO				
CONSTRUCTION	Type I: Inner and outer case of sheet iron. The inner case is filled with illuminant and attached to a parachute. The parachute is silk, 64.5 inches in diameter and has 32 cords. The inner case contains woolen bands around it, presumably to prevent the case from sticking when it is ejected from the outer case. Type II: The outer container consists of a cylindrical barrel of 18 gauge M.S. plate, with a nose piece of 16 gauge M.S. plate lap-jointed on. A wooden block is located in the nose. Four stabilizing fins are soldered to the rear end of the barrel. The exact nature of the end cap is not known, but it is held in position by spot soldering in four places, and sealed against moisture with a material resembling shellac. An inner casing (details unknown) slides into the container, and houses the candle with attached parachute			
REMARKS	The earlier type flare was described in an early Chinese pamphlet but has not been recovered to date. The later type was dropped over Port Moresby, New Guinea, from approximately 20,000 feet, drifting across the target at about 1200 feet. It burned for about 5 minutes.			

PUBLICATION DATE ; July 1944		CONFIDENTIAL	JAPANESE LAND FLARE
FUZES		Unknown	
OVERALL LENGTH	36.0 in.		
LENGTH OF BODY	24.0 in.		
DIAMETER OF BODY	24.0 in.		
THICKNESS OF WALL			
MATERIAL OF WALL			
TYPE OF SUSPENSION			
CONSTRUCTION OF SUSPENSION LUG			
COLOR & MARKINGS ON BOMB AND TAIL			
LENGTH OF TAIL			
WIDTH OF TAIL			
WIDTH OF TAIL FINS			
DIMENSIONS OF TAIL STRUTS			
MATERIAL OF TAIL			
TYPE OF FILLING		Waste impregnated with red phosphorus and benzine.	
WEIGHT OF FILLING			
TOTAL WEIGHT OF BOMB			
CHARGE/WEIGHT RATIO			
REMARKS		This bomb is dropped on land targets at night. The bright red glare emitted allows warships to bombard the targets.	



JAPANESE PAMPHLET CONTAINER

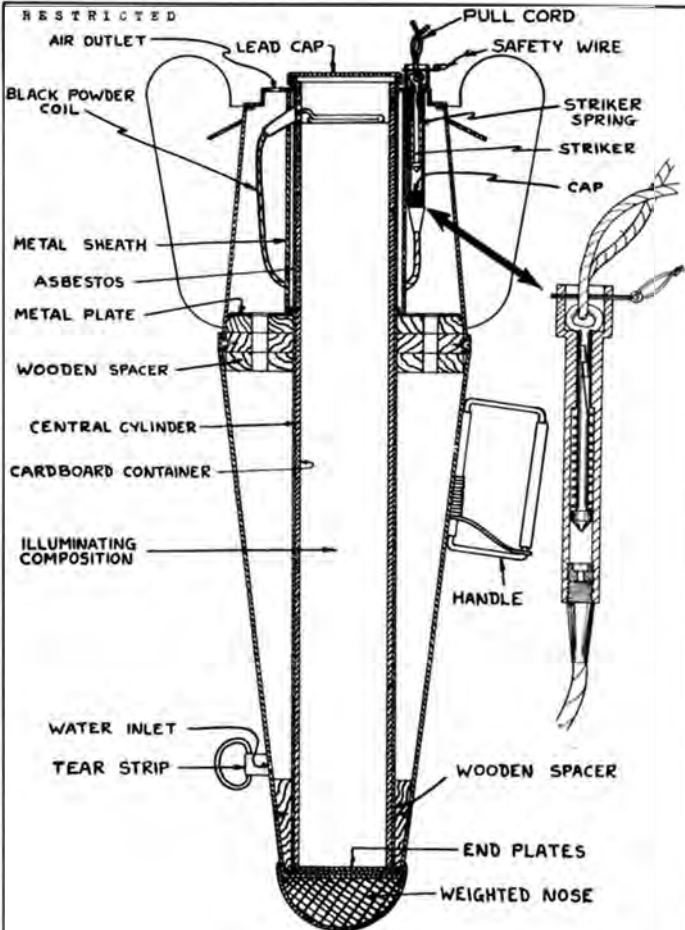
PUBLICATION DATE : July 1944

RESTRICTED

JAPANESE ARMY BOMB

PAMPHLET CONTAINER

FUZES		ARMY BOMB <
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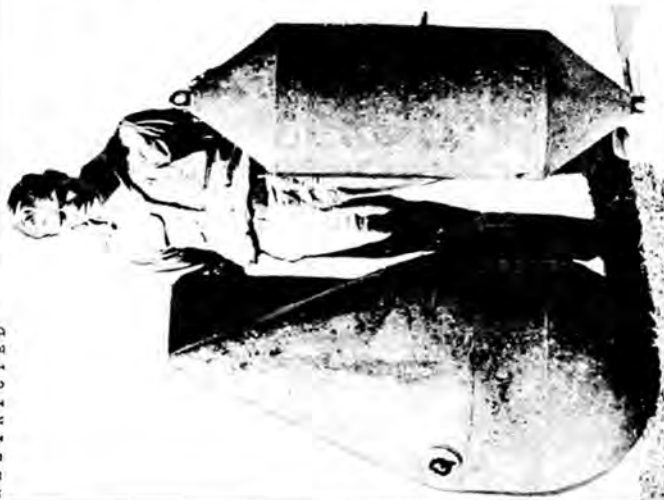


JAPANESE ILLUMINATING FLARE BOMB

PUBLICATION DATE : July 1944		RESTRICTED	JAPANESE FLARE BOMB ILLUMINATING
FUZES		Percussion igniter.	
OVERALL LENGTH	22-9/16 in.		
LENGTH OF BODY	15-1/16 in.		
DIAMETER OF BODY	6-1/4 in.		
THICKNESS OF WALL			
MATERIAL OF WALL			
TYPE OF SUSPENSION	Launched by hand.		
CONSTRUCTION OF SUSPENSION LUG			
COLOR & MARKINGS ON BOMB AND TAIL		Grey. Label just below carrying handles reads: "Manufacturing Date - September 1940. Naval Aerial Factory Illuminating Flare Bomb".	
LENGTH OF TAIL	7-1/8 in.		
WIDTH OF TAIL	2-1/4 in.		
WIDTH OF TAIL FINS			
DIMENSIONS OF TAIL STRUTS			
MATERIAL OF TAIL			
TYPE OF FILLING	Unknown.		
WEIGHT OF FILLING	5-1/8 lbs.		
TOTAL WEIGHT OF BOMB			
CHARGE/WEIGHT RATIO			
CONSTRUCTION OF BODY	Consists of three distinct parts - nose, body and tail. Nose is a solid metal weight which is hemispherical in shape. It is welded to the body. The body is of sheet metal construction and conical in shape. It is welded to the nose and secured to the tail portion by eight small screws. On the exterior of the body is a tear strip which covers a small water inlet hole. A pair of handles held flush against the sides by springs, is riveted to the body. Inside the body is a long central tube which extends the full length of the flare. This tube contains the illuminating composition. It is held in place by a large wooden spacer disc situated at the junction of the body and the tail with another wooden spacer at the junction of the body and the nose. Spacers are held in place by small screws, six at the nose and eight at the tail.		
CONSTRUCTION OF TAIL	Constructed of light sheet metal and has 4 fins soldered to it. A metal cap is soldered over the end of the tail and fits around the central cylinder. There is a small air outlet in the cap. A percussion igniter is inserted through a hole in the cap and soldered into position. Over the end of the central cylinder is a lead cap which is soldered to the end cap. This lead cap has a central disc of the same metal but much thinner. Central cylinder is surrounded by an asbestos liner covered by a metal sheath. This extends down to the wooden spacer, also covered by a metal disc.		
OPERATION	Before dropping - remove tear strip and safety wire and pull the percussion igniter catch out. When catch has been pulled out approximately 3/4" the spring loaded striker is released. The striker then impinges on the flash cap. A 10" safety fuze is ignited by the flash from the cap and after burning for 35 seconds the safety fuze ignites a coil of black powder. Resultant heat melts lead cap allowing flash to escape. Burns rapidly with brilliant greenish-white flame which lasts approximately 1 minute and 20 seconds.		

JAPANESE MINE SWEEP FLOATS

(For Identification
purposes only)





J-1
Diameter 34"
Height 48"



J-2

Diameter 34"
Height 46"



J-3
Diameter 33 1/2"



J-4
Diameter 34"

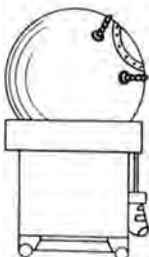


J-5

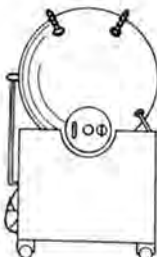
Diameter 32 1/2"
Height 33 1/2"



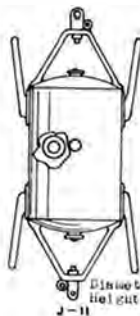
J-6
Diameter 20"
Height 27"



J-7
Diameter 41"
Height 40"



J-8
Diameter 34"
Height 34"



J-11
Diameter 8"
Height 10"



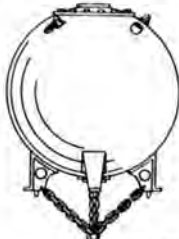
J-13
Diameter 20 1/2"
Height 10.02"



J-14
Diameter 28 5/16"
Height 9"



J-16 TENATIVE
Diameter 14.25"
Height 16.14"



J-15
Diameter 43"

**JAPANESE
NAVAL MINES**
For identification
purposes only

**JAPANESE
BOMB FUZES**

INTRODUCTION TO JAPANESE FUZESTypes of Fuzes

The Japanese Army and the Japanese Navy Air Forces each use a distinctive type of fuze, each group possessing definite identifying characteristics. Individual fuzes and gaines of each service are generally interchangeable for use with the bombs of that service, but are not interchangeable for use with ordnance of the other.

Army Fuzes

1. Arming vanes have holes for arming wires.
2. Safety forks are usually fitted over the vanes into holes in the top of the fuze body.
3. Most fuzes have the primer flesh cap as an integral part of the fuze.

Navy Fuzes

1. Arming vanes do not have holes for arming wires.
2. Safety forks or safety pins are usually inserted into the fuze body from the side.
3. The fuze seldom has the primer cap as an integral part of the fuze.

Nomenclature

The designation of Japanese Army and Navy fuzes is by letter and number. New fuzes, as recovered, are assigned designations by the Allied Forces in the Southwest Pacific in accordance with the basic standards previously adopted.

- "A" series: Mechanical Impact Nose Fuzes.
- "B" series: Mechanical Impact Tail Fuzes.
- "C" series: Long Delay Time Fuzes
- "D" series: Aerial Burst Fuzes.

The numbers indicate the different types of fuzes within each of the above named groups; the small letter following the number indicates modifications of the existing fuze.

JAPANESE FUZES

Our Designation

Japanese Designation

A-2(a)

Type 93, Impact Fuze, Mk 2
九三式衝信管二號

A-3(a)

Type 97, Mk 2, Impact Fuze, Model 2
九七式二號衝信管二型

B-1(a)

Type 98, Tail Bomb Fuze
九八式尾爆單信管

B-3(a)

Type 0, Model 2, Bomb Tail Fuze,
Improvement 1
〇式二型爆單尾信管一改良

D-2(a)

Type 2, No. 3 (probably Mk 3) Bomb
Fuze, Model 2
二式三號爆單信管二型

D-2(b)

Type 99, No. 3 (probably Mk 2) Bomb
Fuze
九九式三號爆單信管

D-2(c)

Type 99, No. 3 (probably Mk 1) Bomb
Fuze, 14 Test Model.
九九式三號爆單信管一四試型

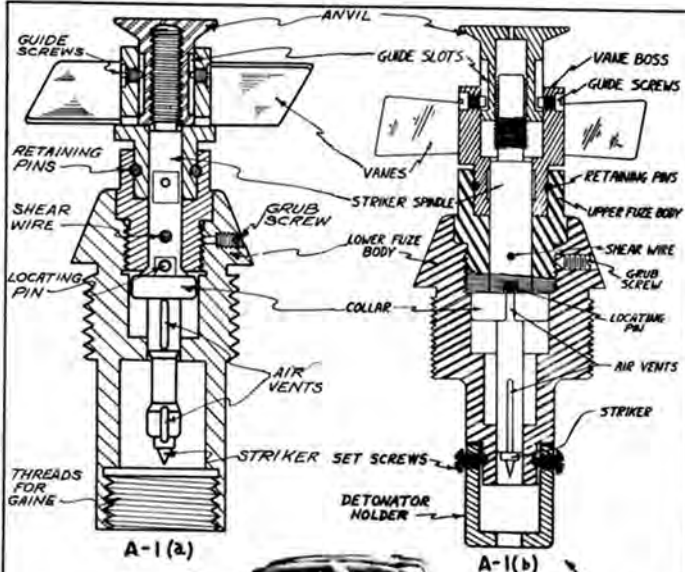
D-5(a)

Flare Fuze

Type 1 Bomb Nose Time Impact Fuze
一式投下彈頭著火信管

Bomb Fuze

Type 1 Bomb Nose Time Fuze
一式投下彈頭着火信管



JAPANESE A-1 NOSE FUZES



10 9 8 7 6 5 4 3 2 1

CONFIDENTIAL

PUBLICATION DATE : July 1944

BOMBS USED IN

- A-1(a) - Probably interchangeable with A-3(a)
 A-1(b) - 32 Kg. Incendiary
 A-1(c) - Unknown

MARKINGS

A-1(a)- ㊦ 2638
 A-1(b) 昭 末 日 16 年 3 月
 A-1(c)- ㊦ 334 功 九

JAPANESE

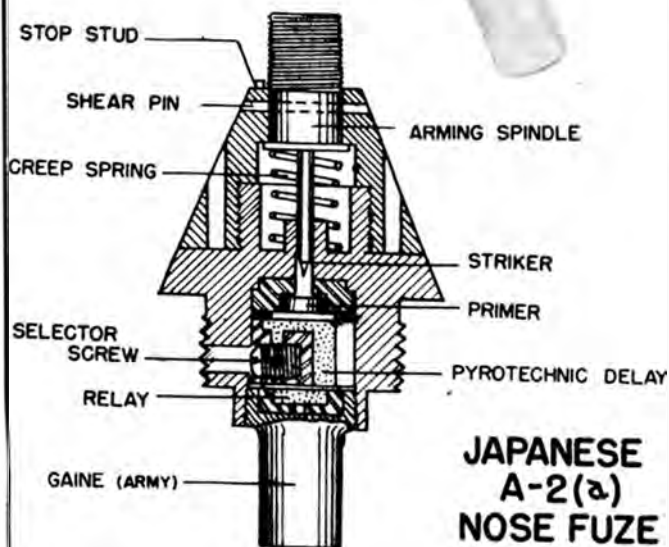
A-1(a)

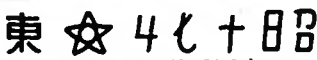
A-1(b)

A-1(c)

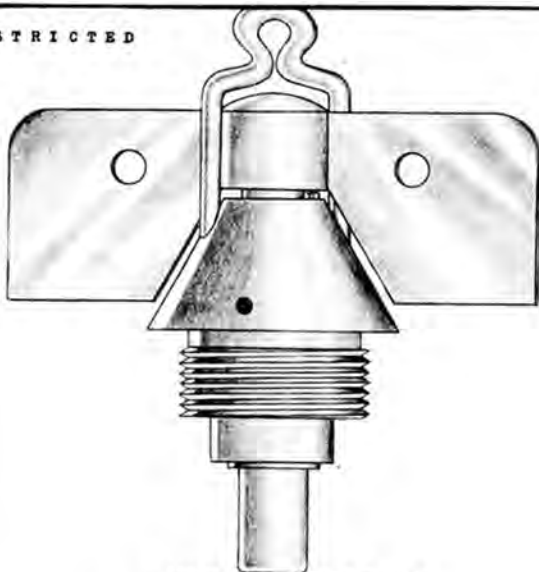
NAVY MECHANICAL IMPACT
NOSE FUZES

Data	A-1(a)	A-1(b)	A-1(c)
COLOR	Natural brass	Natural brass	Brass upper body. Lac- quered lower body.
OVERALL LENGTH	6.0 in.	6.0 in.	7.6 in.
OVERALL WIDTH	2.25 in.	2.25 in.	2.3 in.
MATERIAL OF CONSTRUCTION	Brass	Brass	Brass except for steel setscrew, striker pin, & locating pin.
POSITION & METHOD OF FIXING IN BOMB	Threaded into nose of bomb.		
COMPONENTS OF EXPLOSIVE TRAIN	Standard Navy Gaine	Primer and Detonator	Standard Navy Gaine.
FUZES LIKELY TO BE FOUND WITH	Navy tail fuze except C-1(a)	Possibly D-2(b)	B-3(b) or possibly B-2 series.
DELAY TIMES	Probably none.		
THREADS	All three fuzes 1-7/8" diameter 10 TPI		
DESCRIPTION	The upper portion of the body houses the vane nut, which is secured by retaining pins, is free to rotate, and is threaded into the lower body and held by a grub screw. Through the upper and lower bodies passes the striker threaded to the anvil which is keyed to the vane nut. The anvil will turn when the vane nut is rotated and it threads up the striker until the keys shoulder in the partial keyways. Through the striker passes a shear wire which breaks on impact and a locating pin which slides out of a slot in the upper body on impact.		
OPERATION	On release, the arming pins are pulled out, the vanes and vane nut turn the anvil which threads upward and away from the fuze (due to left-handed threads). The vanes do not come off because the vane nut to which they are attached, is held by retaining pins and can only rotate. The anvil is stopped by keys when it reaches the limit of its partial keyways. Impact pushes anvil back. Spindle is forced downward. Shear wire is sheared, and the striker impinges on the primer.		
REMARKS	A-1(a): May arm in 5 revolutions of the arming vanes. Fragments of this fuze were found in India and on Midway Island. It is reported to be used in a 500 Kg. G.P.H.E. Probably obsolete. A-1(b): This fuze was found in a 32 Kg. Incendiary (Phosphorus) Bomb which was buried tail down on beaches in the Munda Area between gun positions. The fuze was armed. About 540 lbs. pressure is necessary to shear the shear wire. Thus the fuze was used in a 32 Kg. bomb employed as an anti-vehicle mine in beach defenses against landing forces attempting a seaward invasion. A-1(c): This fuze is similar to the A-1(a). It differs in that the fuze body below the thread is substantially longer while the fuze body above the threads is only slightly longer than that of the A-1(a). The striker spindle is longer, the diameter of the anvil head is larger, and the arming vanes are longer. The safety device is somewhat similar to the fork used for the A-3(a).		

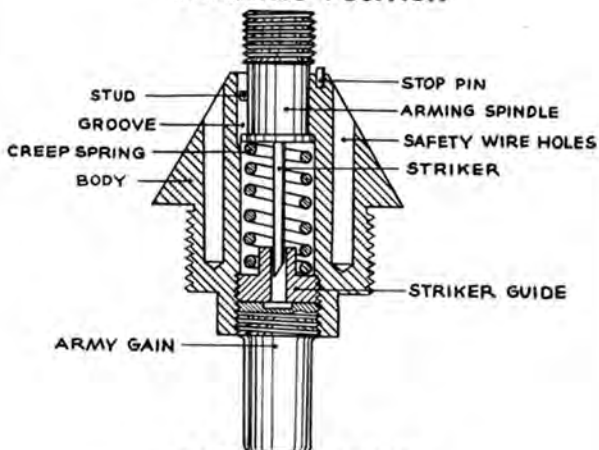


PUBLICATION DATE July 1944 RESTRICTED		JAPANESE A-2(a) Army Mechanical Impact Nose Fuze
BOMBS USED IN 30 Kg. G.P.H.E. 50 Kg. G.P.H.E. 100 Kg. G.P.H.E.		
MARKINGS  (TOKYO - April, 1942.)		
Date		
COLOR	Natural brass	
OVERALL LENGTH	2.75 inches	
OVERALL WIDTH	1.65 inches	
MATERIAL OF CONSTRUCTION	Brass except steel spring and steel firing pin.	
POSITION & METHOD OF FIXING IN BOMB	Nose fuze screwed in by hand and tightened by spanner wrench.	
COMPONENTS OF EXPLOSIVE TRAIN	Primer flash cap ignites a short delay train, or passes through the selector to give instantaneous action by igniting a relay which sets off the mine.	
FUZES LIKELY TO BE FOUND WITH	B-1(a) Tail Fuze	
DELAY TIMES	Short delay time (unknown)	
THREADS	1-5/32 in. diameter 13 TPI	
DESCRIPTION	The upper body portion houses the striker and arming spindle while the lower body portion contains the selector mechanism for instantaneous or short delay. A shear wire and creep spring hold the arming spindle after the vanes fall away. A U-shaped safety wire fits over the vanes into the holes. A selector screw is fitted in the fuze body and can not be changed while the fuze is fitted within the bomb. A stop/stud on the body and one on the vane cap prevent the arming vane assembly from jamming too tightly. The regular Army mine is fitted to the fuze.	
OPERATION	The arming wire is withdrawn from the vanes upon release of the bomb and after 10 revolutions, the vanes fall free. On impact, the wire is sheared and the striker is forced inward against the action of the creep spring. If the selector screw is set for instantaneous action, the flash from the primer passes directly through a hole in the selector screw to fire a relay which fires the mine. If set for delay action, the flash from the primer ignites the delay in the selector screw and this delay fires a relay which in turn fires the mine.	
REMARKS	If the fuze is found with the arming spindle depressed, the striker is probably imbedded in the primer and a slight movement may free it, and the creep spring will force the striker back. This friction may be sufficient to set off the primer, thereby igniting the exploder system. Could be used in 15 Kg. Anti-personnel, 50 Kg. Incendiary, and 50 Kg. Gas bomb.	

RESTRICTED



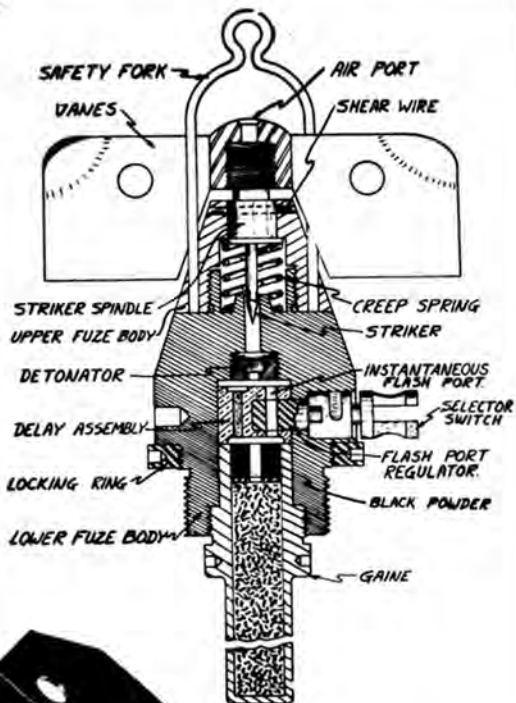
UNARMED POSITION



ARMED POSITION

JAPANESE A-2 (b) NOSE FUZE

PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE A-2(b) Army Mechanical Impact Nose Fuze
BOMBS USED IN		15 Kg. Anti-Personnel 50 Kg. Incendiary (Phosphorus) 50 Kg. Gas Bomb	
MARKINGS 阪 2 六 + 昭 (OSAKA - February, 1941.)			
Data			
COLOR	Natural brass.		
OVERALL LENGTH	2.25 inches (with vanes), (less gaine).		
OVERALL WIDTH	1.67 inches.		
MATERIAL OF CONSTRUCTION	Brass except steel spring and steel firing pin.		
POSITION & METHOD OF FIXING IN BOMB	The fuze is screwed into the nose of the bomb and tightened with a spanner wrench. A grub-screw is usually present in the nose also.		
COMPONENTS OF EXPLOSIVE TRAIN	This fuze has an Army gaine with the primer in the gaine. The striker enters the gaine, pierces the primer and sets off the exploder assembly.		
FUZES LIKELY TO BE FOUND WITH	Probably none; may be fitted to bomb with an Army tail fuze.		
DELAY TIMES	None.		
THREADS	1-5/32 in. diameter 13 TPI		
DESCRIPTION	The fuze body houses the arming vane assembly to which the striker is attached. No shear wire is used. After arming, the striker is kept away from the gaine by means of a creep spring. A U-shaped wire secures the vanes during transit, and it is removed only after the fuze is in the plane. A stop-stud is found on the body and on the vane cap, and these prevent the vanes from being jammed against the fuze body.		
OPERATION	Upon release from the plane, an arming wire is withdrawn from the holes in the vanes and the latter rotate and fall free. Upon impact with the ground, the arming spindle is pushed in against the action of the spring and the striker pierces the primer which is located in the gaine.		
REMARKS	1. Could be used in the 30 - 50 - 100 Kg. G.P.H.E. bombs. 2. Fuze generally used in bombs requiring detonation at ground level such as incendiary, anti-personnel, and gas.		



**JAPANESE
A-2(c)
NOSE FUZE**

CONFIDENTIAL

JAPANESE

PUBLICATION DATE: July 1944

A-2(c)

BOMBS USED IN

30 Kg. G.P.H.E. 50 Kg. Dual Purpose
 50 Kg. G.P.H.E. 50 Kg. (Type 92) Gas Bomb
 100 Kg. G.P.H.E.

Army Mechanical Impact Nose Fuze

MARKINGS

阪 11 6 + 昭

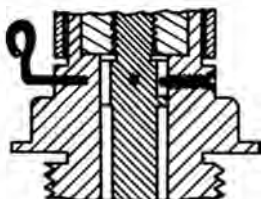
Instantaneous — 目 目 目 目 目 — Delayed

Date	
COLOR	Brass; coated with yellowish green varnish or steel colored.
OVERALL LENGTH	3-3/8 in. (less gains)
OVERALL WIDTH	1-19/32 in.
MATERIAL OF CONSTRUCTION	Brass throughout except for steel striker and steel creep spring; copper shear wire, upper part of fuze body may be made of steel.
POSITION & METHOD OF FIXING IN BOMB	Screwed into nose of bomb. Locking ring is then tightened to insure tight fit. Locking ring contains spanner holes.
COMPONENTS OF EXPLOSIVE TRAIN	Detonator cap, a selective pyrotechnic assembly, and a gains.
FUZES LIKELY TO BE FOUND WITH	
DELAY TIMES	Short delay or instantaneous.
THREADS	1-3/32 in. diameter 13 TPI
DESCRIPTION	This fuze is of similar construction to the A-2(a) except for the selective pyrotechnic assembly. The selective pyrotechnic assembly consists of one channel containing a pyrotechnic train for short delay and one open channel for instantaneous action. Choice of instantaneous action or delay action is made by turning the selective switch to the vertical position for instantaneous and horizontal for delay. Japanese characters and a red arrow indicate the setting.
OPERATION	Before release, fuze is made safe by U-shaped safety fork which prevents vanes from turning. On release from the plane, the fork is withdrawn. The vanes rotate ten times and fall off. On impact the striker spindle is forced inward, breaking the shear wire, and overcomes the creep spring. The striker thus pierces the detonator cap above the delay assembly and initiates the delay train. If the instantaneous flash port is open, i.e., with the fuze set for instantaneous action, the flash would reach the gains thus firing the gains before the delay train burns through.
REMARKS	Fuze armed after six (6) rotations of vanes, vanes will fall off after 10 rotations. An adaptation of this fuze has been recovered. It is identical with the brass bodied A-2(c) except that the upper fuze body is made of steel. Crashed Aircraft Intelligence (India) have found a fuze changing mechanism with each bomb release mechanism on Army bombers. Operation of the fuze changer causes a projecting telescopic arm to rotate approximately 90°. The forked end of this arm will fit into slot of selector switch and therefore the fuze changer mechanism may be the means by which Japanese bombardiers can select between instantaneous or slight delay during flight.

RESTRICTED



A-3 (a)



PORTION OF A-3 (a) FUZE
90° FROM CROSS SECTION
OF A-3 (b) FUZE DRAWN
BELOW.

ARMING VANE
ASSEMBLY

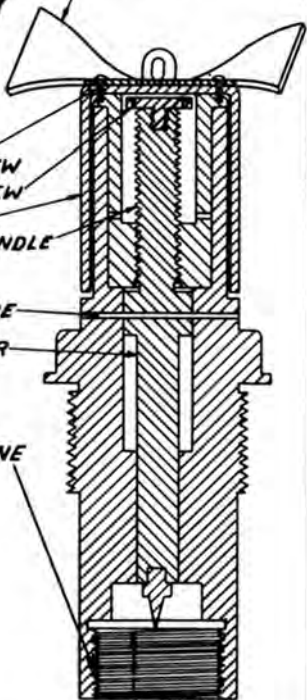
SCREW
STOP SCREW
NOSE CAP
STRIKER SPINDLE

SHEAR WIRE

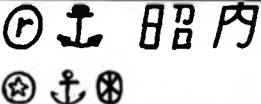
STRIKER

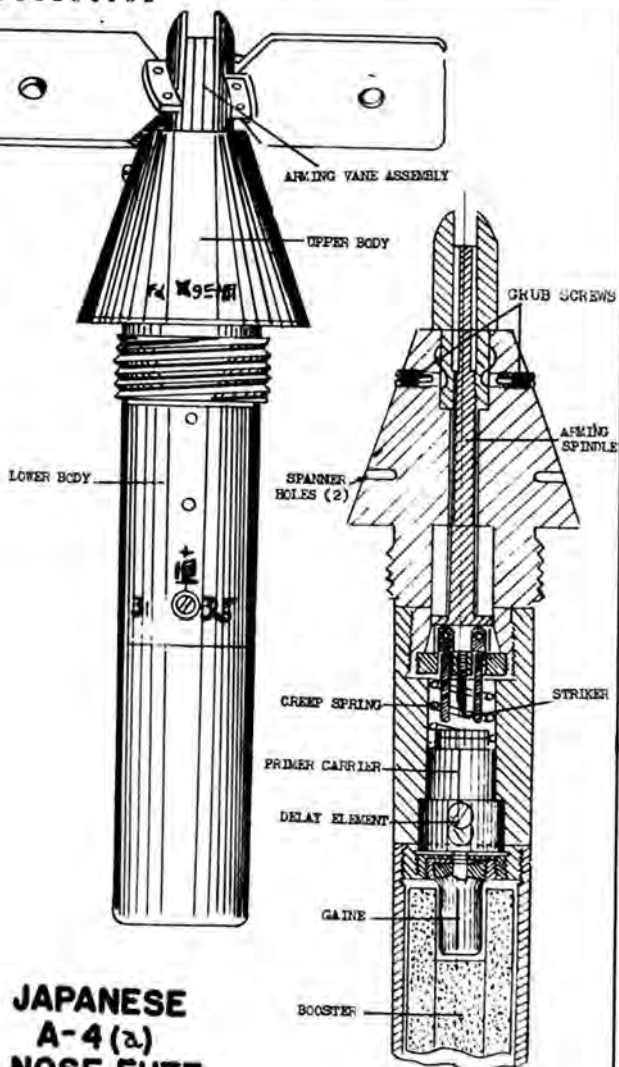
THREADS FOR GAIN

JAPANESE
A-3
NOSE FUZES



A-3 (b)

PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE A-3(a) A-3(b) Navy Mechanical Impact Nose Fuze	
BOMBS USED IN: 60 Kg. Incend. (Solid Oil) 60 Kg. Incend. (Thermite) 250 Kg. Incend. (Shrapnel)		60 Kg. G.P.H.E. 250 Kg. G.P.H.E. 63 Kg. S.A.P. 250 Kg. S.A.P.		
MARKINGS: A-3(a) A-3(b)				
Date	A-3(a)		A-3(b)	
COLOR	Natural brass			
OVERALL LENGTH	5.5 inches	6.37 inches		
OVERALL WIDTH	2.06 inches.	2.06 inches		
MATERIAL OF CONSTRUCTION	Brass except steel arming vanes and striker point.			
POSITION & METHOD OF FIXING IN BOMB	Nose tightened in nose of bomb by a wrench fitting the wrench flats on body.			
COMPONENTS OF EXPLOSIVE TRAIN	Employs standard Navy gains or magazines.			
FUZES LIKELY TO BE FOUND WITH	B-2(a), B-3(a)			
DELAY TIMES	None			
THREADS	1-13/16 in. diam. 10 TPI			
DESCRIPTION	The upper body portion is not visible. It is hidden under nose cap and screws up the arming spindle during downward flight of bomb. Lower body portion contains shaft for striker. A shear wire passes through body and spindle. The body is threaded for standard Navy gains or magazine. Four vanes are secured by four screws to nose cap and to upper body.			
OPERATION	On release from the plane, the arming wire is withdrawn from the wire loops, allowing the nose cap to rotate, thus screwing itself up and away from the striker. When the body reaches the stop screw, the cap jams, and on impact, the cap and spindle are driven inward, and the striker pierces the gains after shearing wire.			
REMARKS	The A-3(b) fuze differs as follows from the A-3(a):- 1. The nose cap is .87 inches larger in the A-3(b) and the arming assembly is correspondingly larger. 2. The striker spindle threads are 28 per inch as compared to 8 per inch in the A-3(a) 3. The body portion is more heavily constructed than that of the A-3(a). (The A-3(b) was found in the rubber pellet incendiary bomb dropped in America.)			



PUBLICATION DATE: July 1944

CONFIDENTIAL

JAPANESE

A-4(a)

BOMBS USED IN

Probably 250 Kg. Army G.P.H.E.

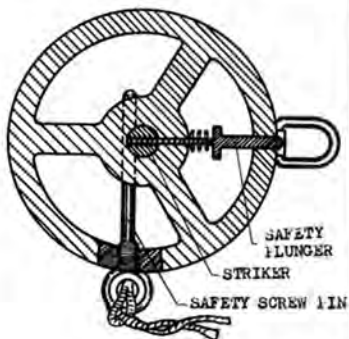
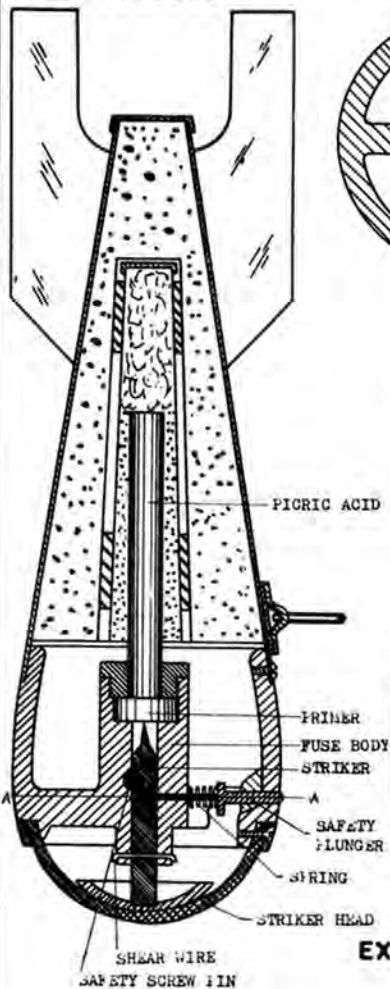
Army Mechanical Impact Nose
Fuze

MARKINGS

B5 & 95 + 88

(OSAKA - September, 1940)

Date	
COLOR	Natural brass.
OVERALL LENGTH	7.1 inches (less booster)
OVERALL WIDTH	2.4 inches.
MATERIAL OF CONSTRUCTION	Brass except steel spring and steel striker.
POSITION & METHOD OF FIXING IN BOMB	The fuze is screwed into the nose of the bomb and tightened with a spanner wrench.
COMPONENTS OF EXPLOSIVE TRAIN	A primer sets off a delay element which fires a gainie which in turn sets off the booster.
FUZZES LIKELY TO BE FOUND WITH	Probably B-4(a)
DELAY TIMES	Not known (short delay only).
THREADS	1-5/8 in. diameter 8 TPI
DESCRIPTION	The upper portion of the fuze body houses the arming vane assembly. The lower portion of the fuze body houses the striker which is attached to a plug, and the two safety plungers which protrude beyond the point of the striker. The vanes are rivetted to a sleeve which is screwed to the arming spindle. The vanes are free to rotate, but two grub-screws prevent their falling off. A creep spring keeps the striker away from the primer, after the fuze is armed, until impact with the target. A selector unit permits a delay to be set. The standard Army gainie is surrounded by a booster. Spanner holes are present. A U-shaped safety wire is also probably used.
OPERATION	Upon release from the plane, an arming wire is withdrawn from the holes in the vanes and the vanes rotate, but do not fall free. The arming spindle is screwed upward by the vanes, raising the two safety plungers with it. This allows the striker point to protrude below the plungers. On impact, the primer carrier moves against the spring and hits the striker to set off the explosive system.



SECTION A-A

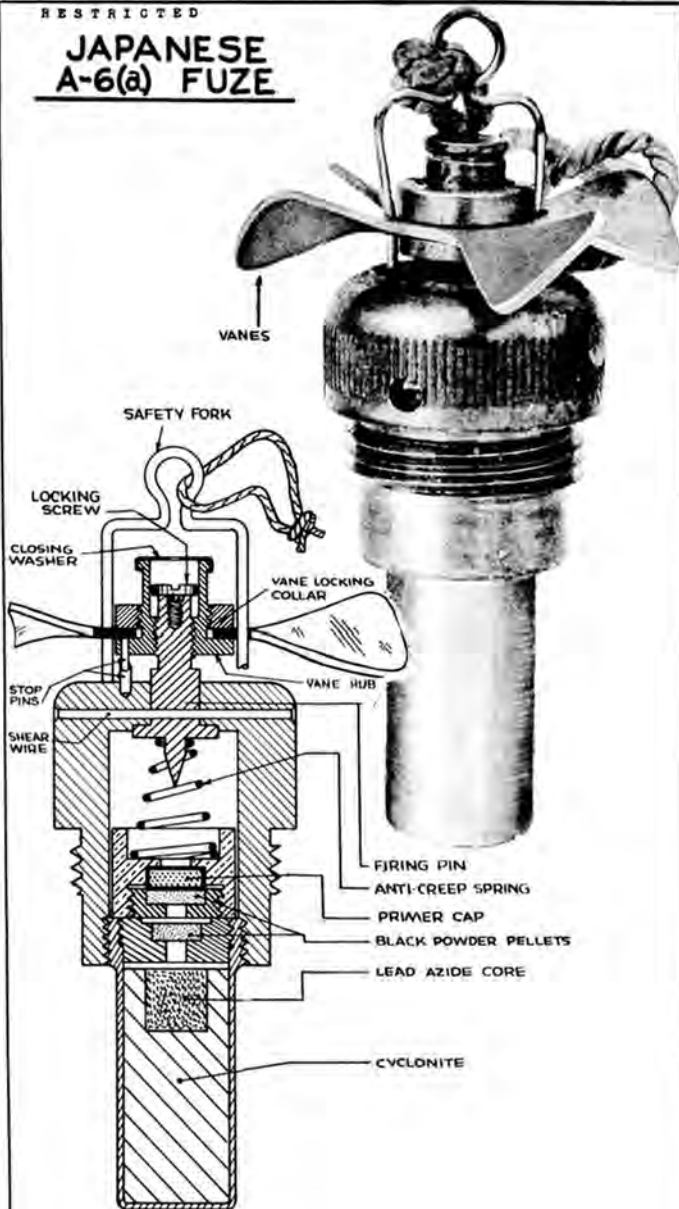


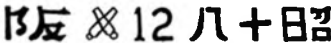
EXTERNAL VIEW OF FUZE

JAPANESE A-5(A) NOSE FUZE

CONFIDENTIAL PUBLICATION DATE: July 1944		JAPANESE A-5(A) Navy Mechanical Impact Nose Fuze
BOMBS USED IN: 1 Kg. Incendiary - Smoke - Anti- Personnel.		
MARKINGS "6503" (Four digit number on striker head)		
Date		
COLOR	Black. May have brass band.	
OVERALL LENGTH	2.8 in. (less booster)	
OVERALL WIDTH	3.0 in. (including fuze housing).	
MATERIAL OF CONSTRUCTION	Cast iron.	
POSITION & METHOD OF FIXING IN BOMB	Fixed in the nose of the bomb.	
COMPONENTS OF EXPLOSIVE TRAIN	A primer and a booster are present.	
FUZES LIKELY TO BE FOUND WITH	None	
DELAY TIMES	None	
DESCRIPTION	The fuze is inside the nose of the bomb and can not be seen. The fuze body is part of the nose of the bomb. A striker head has the striker point fastened on the same spindle. In the unarmed position, a safety plunger holds the striker along with a safety pin which is withdrawn on release. A shear wire is sheared on impact. A primer and booster constitute the exploder assembly.	
OPERATION	On release from the plane, the safety wire is withdrawn. The safety plunger is forced out by the spring and on impact, the wire is sheared. The striker is forced into the primer to start the explosion.	
REMARKS	This fuze has no creep spring. If the bomb has been dropped, the striker may be imbedded in the primer. Any slight movement may be sufficient to disturb the striker and to set off the bomb.	

JAPANESE A-6(a) FUZE



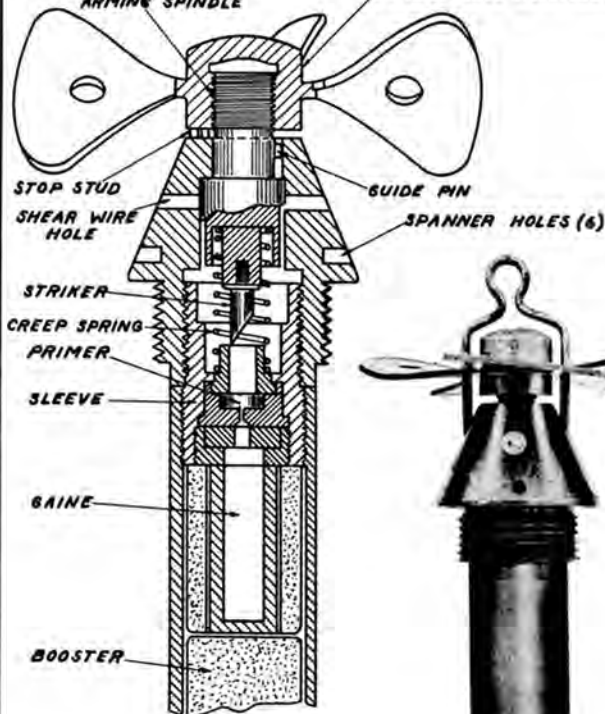
RESTRICTED		JAPANESE A-6(a) Army Mechanical Impact Nose Fuze
PUBLICATION DATE: July 1944		
BOMBS USED IN: 1/2 Kg. Cluster Bomb		
MARKINGS  (OSAKA Army Arsenal, December 1943).		

Date	
COLOR	Natural brass.
OVERALL LENGTH	1.45 in.
OVERALL WIDTH	1.0 in.
MATERIAL OF CONSTRUCTION	Brass except steel spring and firing pin and copper shear wire and nose cap.
POSITION & METHOD OF FIXING IN BOMB	Screwed into nose. Secured by a grub screw.
COMPONENTS OF EXPLOSIVE TRAIN	Primer rimmed cap, two (2) relay pellets or black powder, cyclonite grain with lead azide cone.
FUZES LIKELY TO BE POUND WITH	None
DELAY TIMES	Instantaneous
THREADS	1-3/16 in. diameter 16 TPI
DESCRIPTION	The steel striker is held in the brass body by a soft copper shear wire. A creep spring is positioned between the striker and the primer. The vane hub screws down on the portion of the striker that extends above the fuze body. A locking screw in the top of the striker prevents the vane assembly from falling away.
OPERATION	The vanes rotate, screwing the vane assembly to the top of the striker where it is stopped by the locking screw head. The fuze is now armed. On impact the shear wire is broken and the striker is driven into the primer, overcoming the resistance of the creep spring.
REMARKS	The fuze is armed after 4 1/2 turns of the vanes.

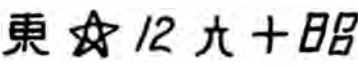
RESTRICTED

ARMING SPINDLE

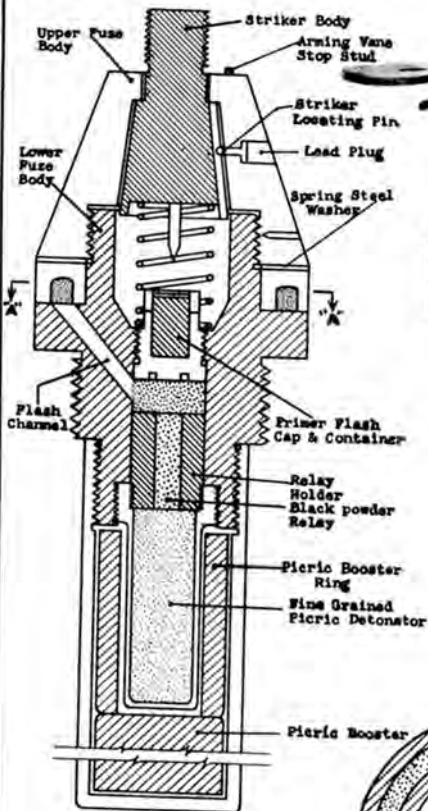
ARMING VANE ASSEMBLY



**JAPANESE
B-1(a)
TAIL FUZE**

PUBLICATION DATE: July 1944 RESTRICTED		JAPANESE B-1(a) Army Mechanical Impact Tail Fuze
BOMBS USED IN: 30 Kg. G.P.H.E. 50 Kg. G.P.H.E. 100 Kg. G.P.H.E.		
MARKINGS:  (Tokyo - December 1941)		
Date		
COLOR	Natural brass	
OVERALL LENGTH	2.85 inches (less booster)	
OVERALL WIDTH	1.55 inches	
MATERIAL OF CONSTRUCTION	Brass except steel spring and firing pin	
POSITION & METHOD OF FIXING IN BOMB	Fuze is screwed into tail of bomb and tightened with a spanner wrench.	
COMPONENTS OF EXPLOSIVE TRAIN	Primer, standard Japanese Army tail gaine and booster.	
FUZES LIKELY TO BE FOUND WITH	A-2(a), A-2(c) or possibly A-2(b)	
DELAY TIMES	None	
THREADS	1-5/32 in. diameter 13 TPI	
DESCRIPTION	The fuze body houses the arming vane assembly which is secured by a U-shaped wire. The striker is screwed into the arming spindle and is kept away from the primer by a creep spring. Six spanner holes are present, along with a hole for a shear wire. No shear wire is fitted, however, a guide pin prevents the arming spindle from rotating with the vanes. A sieve permits the tail booster to be connected to the body. Stop-studs are found on the vane cap and on the fuze body to prevent the vanes from being screwed down too tightly.	
OPERATION	On release from the plane, an arming wire is withdrawn from the holes in the vanes, allowing the latter to rotate and fall free. On impact, the spindle is forced inward, against the action of the creep spring, to pierce the primer and set off the exploder system.	
REMARKS		

RESTRICTED



SECTION
"A" - "A"

Gas Escape
Hole -
Covered with
small disc

Delay Train
Ring

Delay
Train

Flash hole through
main body and delay
train ring to allow
passage of flash
from cap

**JAPANESE
B-1(b)
TAIL FUZE**

PUBLICATION DATE: July 1944

RESTRICTED

JAPANESE

B-1(b)

BOMBS USED IN:

30 Kg. G.P.H.E.
50 Kg. G.P.H.E.
100 Kg. G.P.H.E.

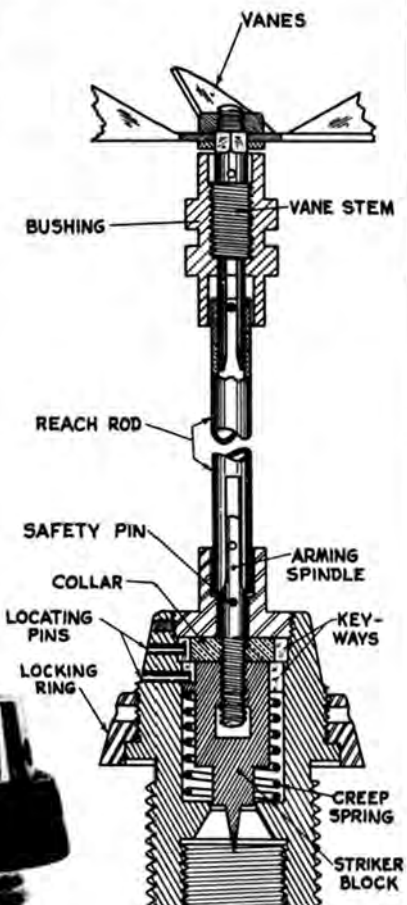
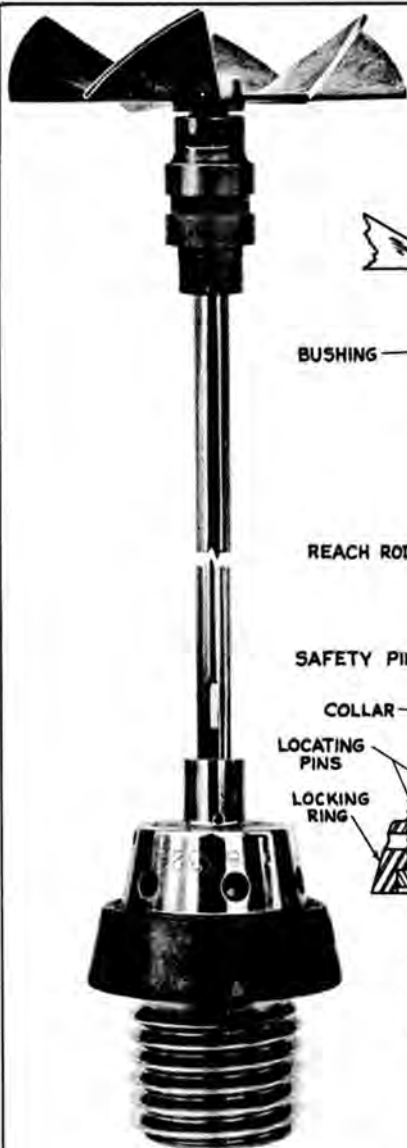
MARKINGS

反 X 5 t + 88

(OSAKA - June 1942)

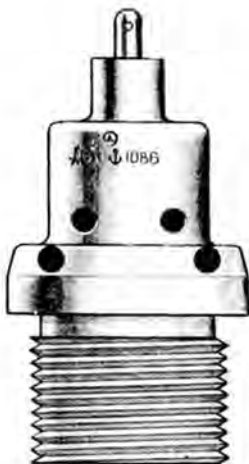
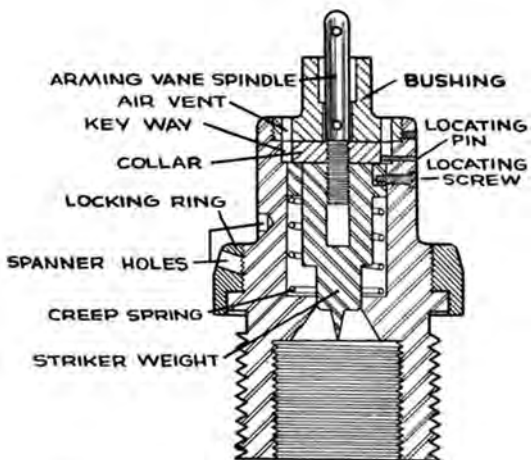
Army Mechanical Impact Tail
Fuze

Data	
COLOR	Natural brass
OVERALL LENGTH	5.4 inches (less booster)
OVERALL WIDTH	1.27 inches
MATERIAL OF CONSTRUCTION	All brass except spring and firing pin.
POSITION & METHOD OF FIXING IN BOMB	Screwed into tail cone with spanner wrench fitting in holes.
COMPONENTS OF EXPLOSIVE TRAIN	Flash cap, delay train, black powder relay, standard Army gaine, and picric booster.
FUZES LIKELY TO BE FOUND WITH	Will generally be used alone; however, bombs are designed to use and may have nose fuze.
DELAY TIMES	Not known.
THREADS	1-5/32 in. diameter 13 TPI
DESCRIPTION	Upper fuze body houses striker assembly, the upper end of which is threaded for the arming vanes which are prevented from rotating during shipment by U-shaped safety fork fitting into holes. A lead plug fits into groove of coming spindle preventing rotation during arming time. The lower fuze body contains primer flash cap, delay train, flash channel and black powder relay. The creep spring prevents striker from moving down on primer flash cap after fuze is armed.
OPERATION	On release, arming wire is withdrawn allowing vanes to rotate and fall free in eleven turns. On impact, the striker moves in against the spring and pierces the cap. The flash passes through channel and ignites delay train, the gas from burning powder escaping through escape hole. The delay train burns around the periphery to flash channel, ignites powder relay, which in turn sets off the gaine and booster.



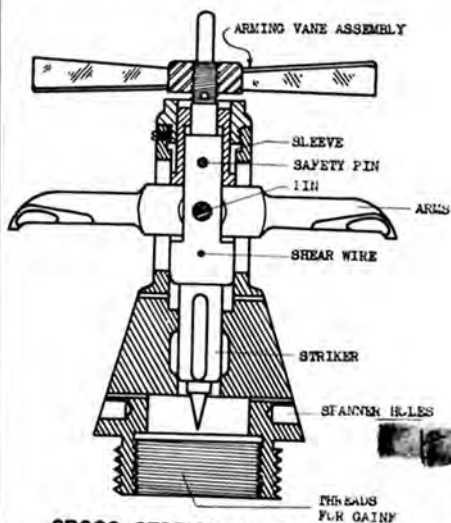
**JAPANESE
B-2(a)
TAIL FUZE**

PUBLICATION DATE: July 1944		RESTRICTED		JAPANESE B-2(a) Navy Mechanical Impact Tail Fuze	
BOMBS USED IN:					
Navy 250 Kg. S.A.P.					
MARKINGS 					
Date					
COLOR		Chromium plated			
OVERALL LENGTH		4.5 inches (without the arming spindle extension).			
OVERALL WIDTH		2.55 inches.			
MATERIAL OF CONSTRUCTION		Steel, except locking ring, safety collar and spindle.			
POSITION & METHOD OF FIXING IN BOMB		The fuze is screwed into the tail of the bomb and tightened with a spanner wrench. A locking ring is then screwed down to secure the fuze. Used as a base plate.			
COMPONENTS OF EXPLOSIVE TRAIN		The standard Japanese gainie is employed.			
FUZES LIKELY TO BE FOUND WITH		Navy nose fuze (A-3(a)).			
DELAY TIMES		Incorporated in the Navy gainies.			
THREADS		2-9/64 in. diameter 4 TPI			
DESCRIPTION		The fuze body houses the safety collar, the striker, the arming spindle and the creep spring. Six spanner holes are found in both the body and the locking ring. The arming assembly consists of a long reach rod connecting the arming spindle and the vanes. The lower end of the spindle screws through the top of the fuze body and the safety collar into the striker.			
OPERATION		On release from the plane, the vanes rotate, unscrewing the arming spindle from the striker. On impact, the striker moves against the action of the creep spring and pierces the primer in the gainie to set off the exploder system.			
REMARKS		This fuze has only been recovered from the 250 Kg. S.A.P. Navy bomb.			



**JAPANESE
B-2(b)
TAIL FUZE**

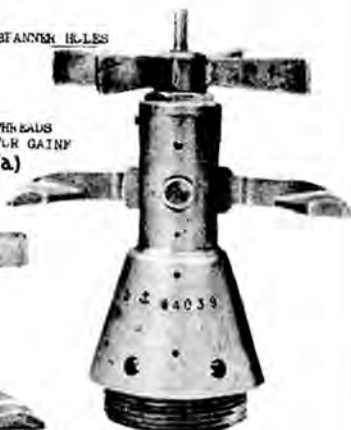
PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE B-2(b) Navy Mechanical Impact Tail Fuze
BOMBS USED IN		800 Kg. A.P.	
MARKINGS		肉丸 ⊕ 患 1086	
Data			
COLOR	Unpainted steel.		
OVERALL LENGTH	6.0 inches (approximately)		
OVERALL WIDTH	3.0 inches (with locking ring)		
MATERIAL OF CONSTRUCTION	Steel, except arming spindle and safety collar which are brass.		
POSITION & METHOD OF FIXING IN BOMB	Two fuzes are screwed into the base plate of an 800 Kg. A.P. bomb and held there by locking rings.		
COMPONENTS OF EXPLOSIVE TRAIN	Primer, gun powder delay and picric detonator are all incorporated in a large Jap gains filled with picric acid as the booster charge.		
FUZES LIKELY TO BE FOUND WITH	One other B-2(b)		
DELAY TIMES	Slight delay only.		
THREADS	2-17/32 in. diameter 4 TPI		
DESCRIPTION	A heavily constructed steel body is secured in the base plate by a locking ring with spanner wrench holes for tightening down. The arming spindle passes through a steel retaining collar and screws through a safety collar and ends in the striker. A locating screw keeps the striker from rotating.		
OPERATION	On release from the aircraft, the arming vanes (assumed) rotate and the arming spindle is unscrewed from the striker thus freeing it for downward movement. On impact, the striker moves against the creep spring and pierces the primer in the gains.		
REMARKS	This fuze takes an oversize Jap gains in which the primer, slight delay, detonator and booster are all incorporated. It was recovered from the 800 Kg. A.P. bomb at Pearl Harbor, Hawaii. It is believed that the arming vane assembly is similar to that in the B-2(a).		



CROSS SECTION OF B-3(a)



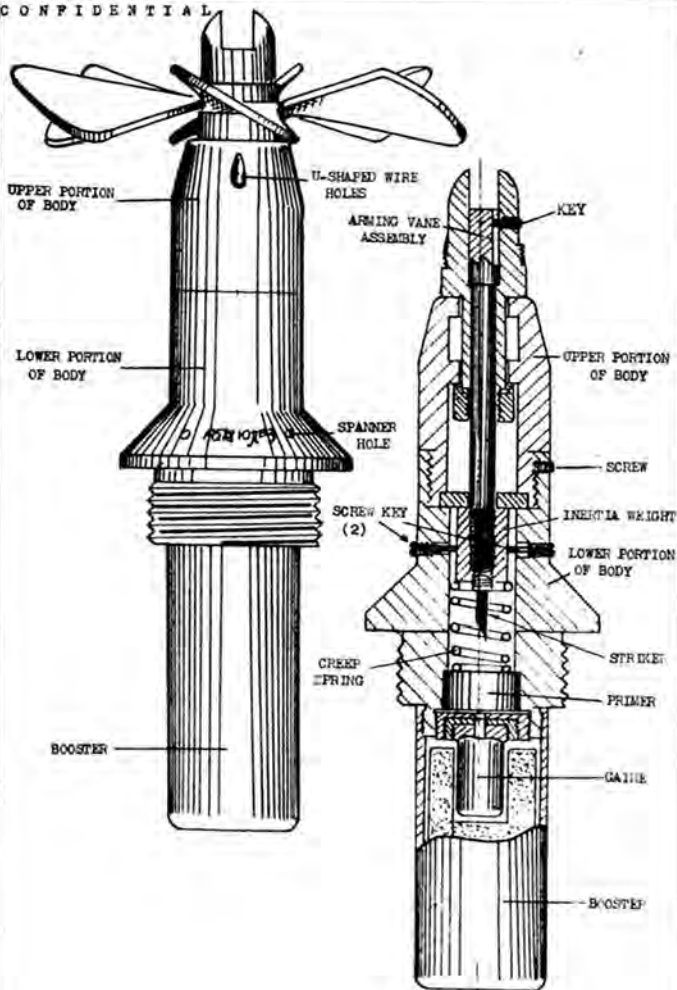
B-3 (b)



B-3 (a)

JAPANESE
B-3
TAIL FUZES

PUBLICATION DATE July 1944		RESTRICTED
BOMBS USED IN B-3(a) - 250 Kg. G.P.H.E. B-3(b) - Probably in 800 Kg. G.P.H.E.		JAPANESE B-3(a) B-3(b) Navy Mechanical Impact Tail Fuze B-3(a)-Type O, Model 2, Improvement 1.
MARKINGS  		
Date	B-3(a)	B-3(b)
COLOR	Brass	Brass
OVERALL LENGTH	5.6 in.	7.2 in.
OVERALL WIDTH	2.4 in.	3.5 in.
MATERIAL OF CONSTRUCTION	Brass except for steel sleeve, steel pivot for arms, and steel striker.	
POSITION & METHOD OF FIXING IN BOMB	Threaded into tail cone. Tightened with spanner wrench.	
COMPONENTS OF EXPLOSIVE TRAIN	Standard Navy gaine.	
FUZES LIKELY TO BE FOUND WITH	A-3(a) in nose	Probably A-1(c)
DELAY TIMES	Instantaneous or short delay only.	
THREADS	B-3(a) - 1-31/32 in. diameter 12 TPI B-3(b) - 3 in. diameter 8 TPI	
DESCRIPTION	Principal parts are the body, the bushing which threads into the upper end of the body, the sleeve housed within the bushing, the striker stem which is threaded to take the vanes, and the arms which pivot on a steel pin extending through the body. When unarmed, the striker stem is prevented from moving down by the vanes which are threaded on, the safety pin, and the shear wire. The sleeve can not move up and free the arms until the vanes have unthreaded. Safety fork prevents the vanes from rotating until the bomb is released. The fuze is internally threaded for the standard Navy gaine. Six spanner holes are drilled in the body.	
OPERATION	On loading in the plane, safety pin is removed. On release, safety fork is withdrawn. The vanes rotate up and off leaving the sleeve free to rise. The striker stem is held up by shear wire only. On impact, inertia forces the arms down against the shoulder of the striker stem, shear wire is sheared and striker pierces the primer. Because both arms pivot about the stationary pin and extend through the body, pressure upward against the arms would force the short ends down against the striker stem and shear the shear wire. Two-way action is thus achieved.	
REMARKS	After impact, a slight movement of the arms is liable to force the striker into the primer. B-3(b): The fuze is similar to the B-3(a) except that all parts are larger and, secondly, it lacks one minor safety pin hole at the top of the striker spindle. The diameter of the threads for the fuze pocket is larger than that of any other Japanese Navy fuze, but the fuze is internally threaded to take the standard Navy gaine. The fuze appears designed for use in large G.P. bombs - probably 500 Kg. and over. Increased size of the fuze may provide greater certainty of arming and of firing despite the greater disruptive force of impact of the larger bomb.	



JAPANESE B-4 (a) TAIL FUZE

PUBLICATION DATE: July 1944

CONFIDENTIAL

JAPANESE

B-4(a)

BOMBS USED IN

Probably 250 Kg. Army G.P.H.E.

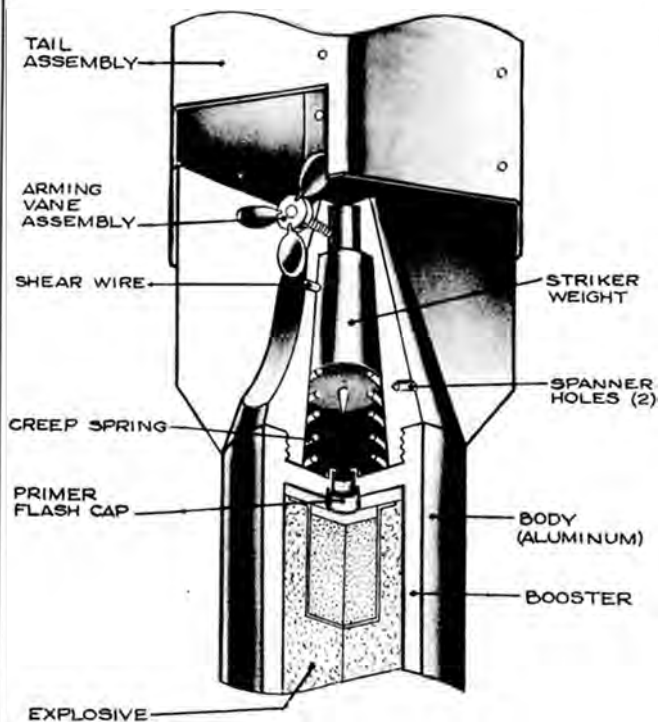
MARKINGS

B反 X 10 九 B反

(OSAKA - December 19__)

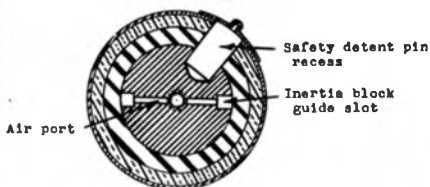
Army Mechanical Impact Tail
Fuze

Data	
COLOR	Natural brass.
OVERALL LENGTH	5.9 inches (less booster)
OVERALL WIDTH	2.4 inches.
MATERIAL OF CONSTRUCTION	Brass except steel spring and striker.
POSITION & METHOD OF FIXING IN BOMB	The fuze is screwed into the bomb and tightened with a spanner wrench.
COMPONENTS OF EXPLOSIVE TRAIN	A primer fires the Army gains which detonates the booster.
FUZES LIKELY TO BE FOUND WITH	Probably A-4(a)
DELAY TIMES	None.
THREADS	1-25/32 in. diameter 8 TPI
DESCRIPTION	The upper portion of the body houses the arming vane assembly. The arming spindle is threaded at the lower end to screw into the inertia weight which is located in the lower portion of the body. A grub-screw causes the spindle to rotate with the arming vanes. Two grub-screws keep the inertia weight from rotating as the spindle is unscrewed. The striker is kept away from the primer by a creep spring. A grub-screw holds the body screwed into the lower portion. Two holes are present for the U-shaped safety wire. Six spanner holes are located in the body. A booster screws into the lower body portion.
OPERATION	On release from the plane, the arming wire is withdrawn from the holes in the vanes and the latter rotate, unscrewing the spindle from the inertia weight. The vanes will not fall free because they are held on by a lock-nut on the vane boss collar. On impact, the inertia weight moves downward, and the striker enters the primer, overcoming the resistance of the creep spring.
REMARKS	This fuze is reported to have no shear wire.

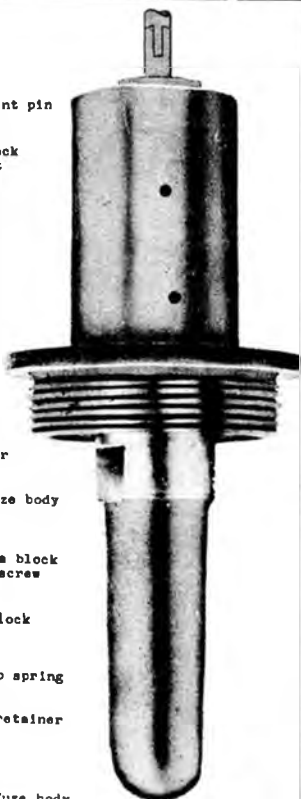
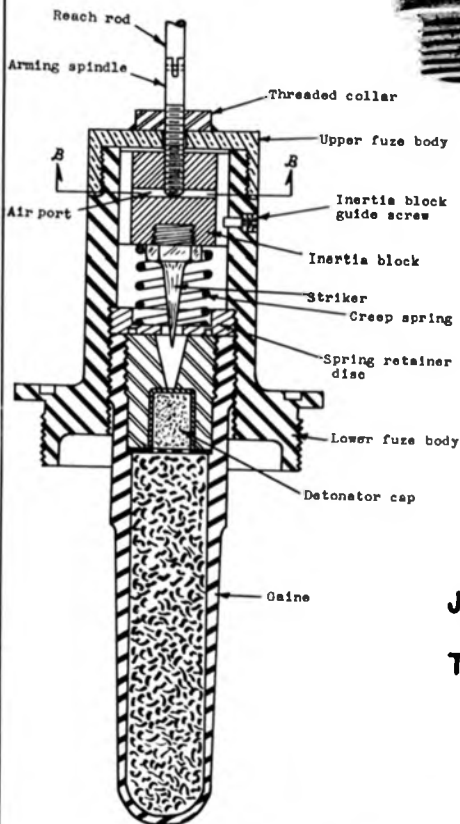


JAPANESE B-5(a) TAIL FUZE

PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE B-5 (a) Army Mechanical Impact Tail Fuze
BOMBS USED IN:		1/3 Kg. Anti-Aircraft	
MARKINGS		None	
Data			
COLOR	Aluminum.		
OVERALL LENGTH	3.37 inches (including tail extension).		
OVERALL WIDTH	1.3 inches		
MATERIAL OF CONSTRUCTION	Aluminum		
POSITION & METHOD OF FIXING IN BOMB	Tail fuze held under tail cone with vanes and arming spindle protruding perpendicular to side of bomb body.		
COMPONENTS OF EXPLOSIVE TRAIN	Lead azide primer, cyclonite detonator and T.N.T. Cyclonite main filler.		
FUZES LIKELY TO BE FOUND WITH	None		
DELAY TIMES	None		
DESCRIPTION		Fuze body houses an inertia striker which is secured by the arming vane assembly which protrudes from the side of the body. The arming vanes are cup-shaped. A copper shear wire is present and a guide key keeps the striker from turning. A creep spring keeps the striker away from the primer flash cap after the arming vane assembly falls away. The tail assembly hides the fuze to a great extent.	
OPERATION		The arming vane assembly unscrews and falls away after the bomb is released from the container. The striker has a tendency to creep up to the top of the primer flash cap. This is prevented by the creep spring and shear wire. On impact, inertia causes the striker to move downward against the creep spring. The shear wire is sheared and the striker pierces the primer and the exploder system is set into operation.	



SECTION B-B



**JAPANESE
B-5(b)
TAIL FUZE**

CONFIDENTIAL

JAPANESE

PUBLICATION DATE: July 1944

BOMBS USED IN:

1 Kg. Anti-Aircraft

B-5(b)

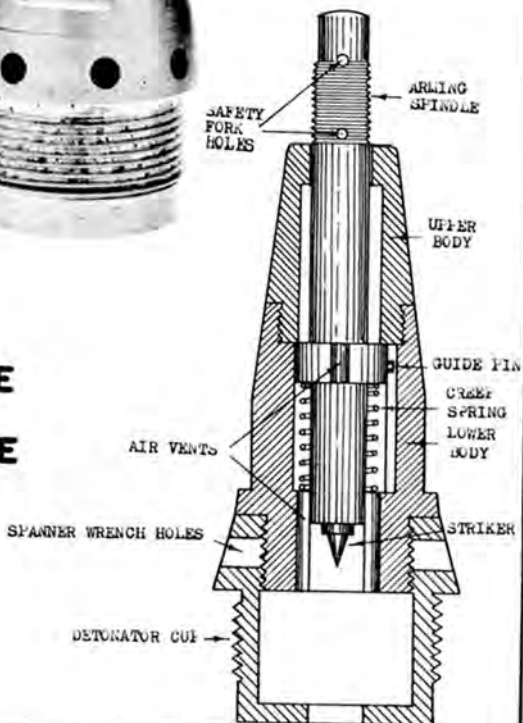
Navy Mechanical Impact Tail
Fuze

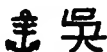
MARKINGS

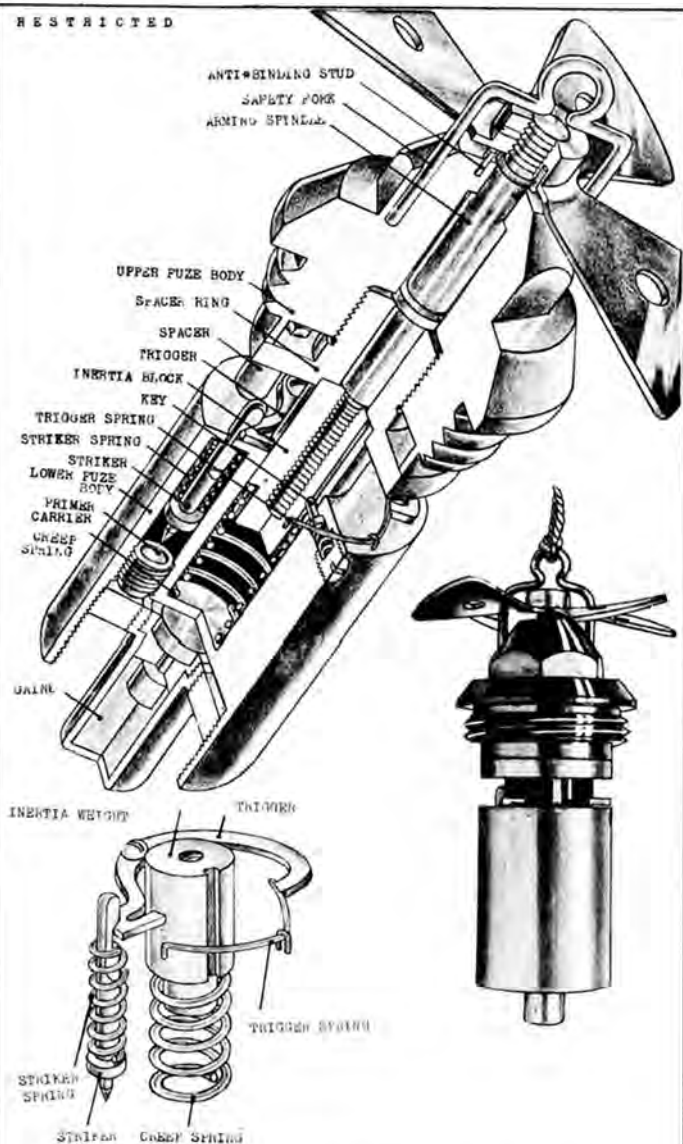
Date	
COLOR	Aluminum
OVERALL LENGTH	2.3 inches (less booster)
OVERALL WIDTH	1.75 inches
MATERIAL OF CONSTRUCTION	Steel
POSITION & METHOD OF FIXING IN BOMB	Screwed into base of bomb body.
COMPONENTS OF EXPLOSIVE TRAIN	Gaine similar to Navy Type I with primer, detonator, booster.
FUZES LIKELY TO BE FOUND WITH	None
DELAY TIMES	Instantaneous
THREADS	
DESCRIPTION	Lower fuze body which houses striker is externally threaded at the base to screw into bomb body and externally threaded at the top for the upper body cap. The upper body cap screws onto the lower body section and is threaded to receive arming spindle which screws into the inertia weight and holds striker in position. There are three grooves in the inertia weight, two of which act as air vents and one as a guide. In the un-armed position, the striker is held in the safe position by safety detent or jump out pin and the arming spindle. An arming wire passes through vanes preventing rotation and extends down to lock the safety detent against the pressure of the safety detent spring. A thin metal disc attached to arming wire and lying just over the vanes inside the circular tail brace, acts as a drogue to withdraw the arming wire when bomb falls. When armed, the striker is held away from primer by shear wire and creep spring.
OPERATION	When bomb is released from container, the pressure of air against drogue forces it from bomb and withdraws the arming wire. The safety detent spring then ejects the safety detent from side of fuze. The vanes rotate and unscrew the threaded arming spindle, freeing the inertia weight. (This spindle is threaded with a left hand thread). On impact, inertia weight carries forward and drives the striker into the primer.
REMARKS	Refer drawing 1 Kg. bomb.



JAPANESE B-6(a) TAIL FUZE



PUBLICATION DATE: July 1944		RESTRICTED	JAPANESE B-6(a) Navy Mechanical Impact Tail Fuze
BOMBS USED IN:		31 Kg. Practice Bomb	
MARKINGS			
Date			
COLOR	Brass		
OVERALL LENGTH	3.6 inches.		
OVERALL WIDTH	1.25 inches. Vane width: 2.3 inches.		
MATERIAL OF CONSTRUCTION	Brass except steel striker point and creep spring.		
POSITION & METHOD OF FIXING IN BOMB	Screwed into tail fuze pocket and tightened with spanner wrench.		
COMPONENTS OF EXPLOSIVE TRAIN	Not known.		
FUZES LIKELY TO BE FOUND WITH	None		
DELAY TIMES			
THREADS	1-3/64 in. diameter 20 TPI		
DESCRIPTION	The upper portion of the body acts as a guide for the arming spindle. The lower portion of the body contains the light creep spring. The striker point is screwed into the end of the spindle. The lower portion of the fuze has a combination spanner ring and detonator cup screwed to it. Around the striker point, four air vents are drilled. Two vents are also located on the striker collar. These vents allow the striker to move against the primer on impact without any cushion effect caused by the air in the striker channel. The arming vane assembly has eight vanes.		
OPERATION	On release from the aircraft, a U-shaped safety fork is withdrawn from the two holes in the arming spindle. The vanes rotate twelve times and fall free, leaving the striker held back by the light creep spring. The arming spindle is prevented from rotating by a small guide pin which fits in a groove in the lower portion of the fuze body. On impact, inertia causes the striker to move against the spring and to pierce the primer.		



JAPANESE BOMB FUZE B-7 (a)

RESTRICTED

PUBLICATION DATE: July 1944

JAPANESE

BOMBS USED IN:

Possibly 250 Kg. G.P.H.E. Army Bomb

B-7(a)

Army Mechanical Impact Tail
Fuze

MARKINGS:

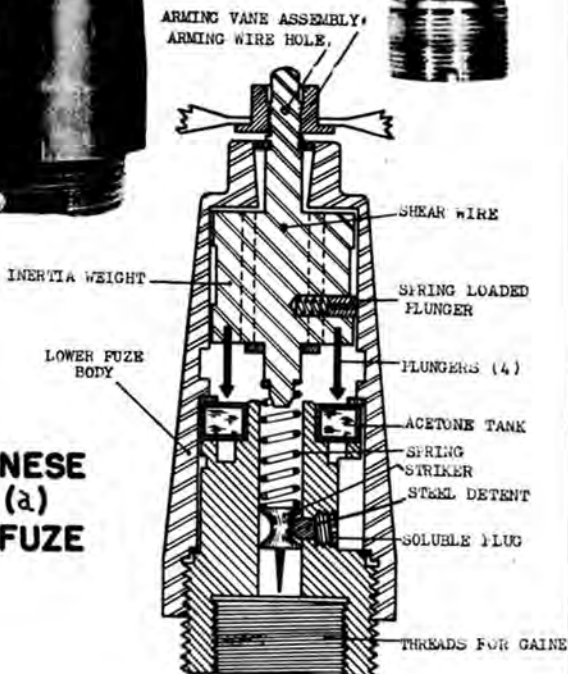
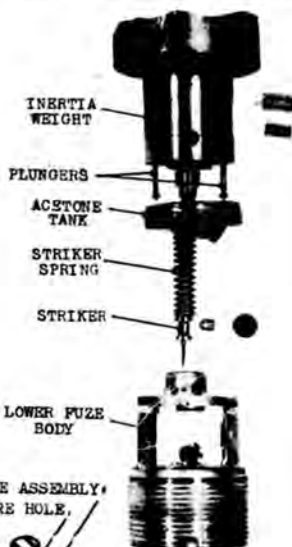
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(Osaka Army Arsenal, July 1943)

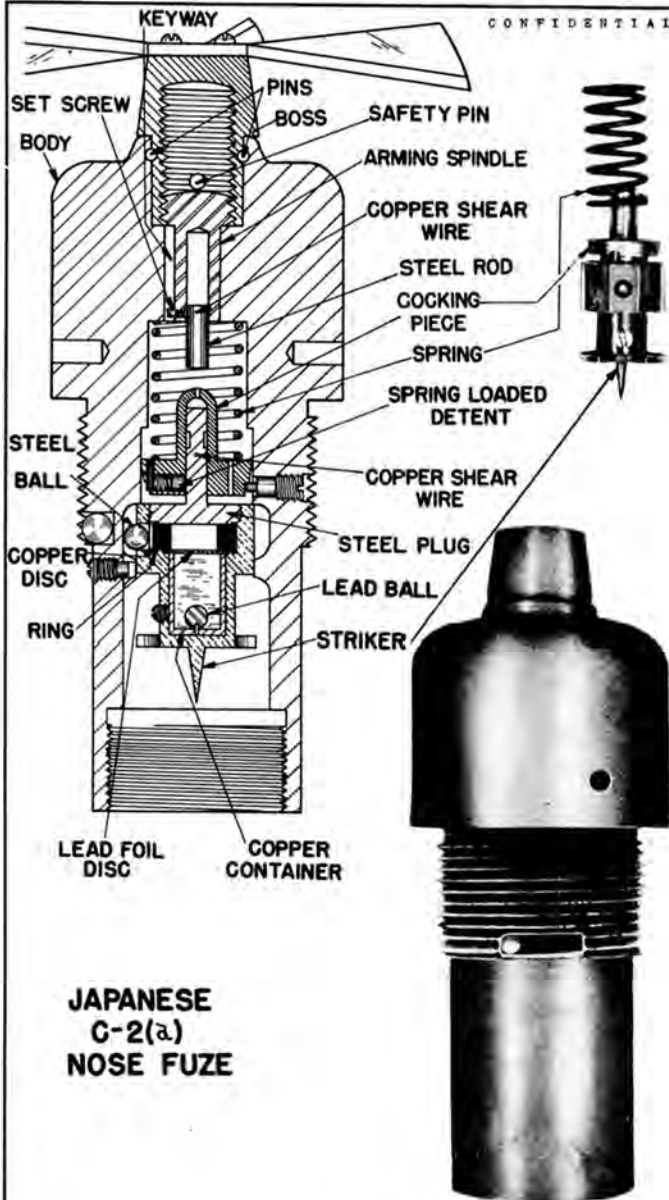
Data	
COLOR	Brass
OVERALL LENGTH	4-5/8 in. (with gaine)
OVERALL WIDTH	2 in.
MATERIAL OF CONSTRUCTION	Striker, springs, screws, anti-binding studs, trigger and 3 spacers made of steel. All other parts made of brass.
POSITION & METHOD OF FIXING IN BOMB	
COMPONENTS OF EXPLOSIVE TRAIN	Primer and standard Army type gaine.
FUZES LIKELY TO BE FOUND WITH	
DELAY TIMES	No delay
THREADS	1-13/16 in. diameter 8 TPI
DESCRIPTION	The vanes, similar to those of the B-1(a) are locked to the arming spindle by a set screw. The arming spindle, housed in the conical shaped upper fuze body, is a round shaft threaded at the top with right-hand threads to attach to the vanes and at the bottom with finer left-hand threads to fit into the inertia block. The spacing ring screws into the upper fuze body and is secured by screws to the lower fuze body. It serves to hold the inertia block part way down against the creep spring. The lower fuze body houses the firing mechanism and the primer cap. The trigger and the trigger spring are mounted on top of the lower fuze body. The trigger is pivoted on a screw threaded into the top of the lower fuze body. One end bears against the trigger spring; the other in the cocked position fits on the striker notch, preventing the spring loaded striker from firing. The trigger is revented from pivoting by the inertia block against which it rests.
OPERATION	On release from the plane, the vanes rotate the arming spindle clockwise, unscrewing it from the inertia block, which is keyed to prevent rotation. The fuze is now armed. The flange of the arming spindle prevents the spindle and vanes from falling away. On impact, the inertia block moves down against the creep spring. As soon as the top of the block is flush with the top of the lower fuze body, the trigger is freed and pivots out of the striker notch under the influence of the trigger spring and the camming action of the bevelled striker notch. This movement of the trigger releases the striker and permits the firing spring to fire the striker into the primer.



JAPANESE C-1(a) TAIL FUZE



PUBLICATION DATE: July 1944 RESTRICTED		JAPANESE C-1(a) Navy Chemical Long Delay Tail Fuze
BOMBS USED IN: Navy 250 Kg. G.P.H.E.		
MARKINGS: Three digit number "151" on one fuze "385" on another fuze		
Date		
COLOR	Steel.	
OVERALL LENGTH	6.1 inches	
OVERALL WIDTH	2.45 inches	
MATERIAL OF CONSTRUCTION	Steel throughout except copper chemical tank.	
POSITION & METHOD OF FIXING IN BOMB	The fuze is screwed into the tail of the bomb. A steel locking ball prevents removal.	
COMPONENTS OF EXPLOSIVE TRAIN	Standard Navy gaine.	
FUZES LIKELY TO BE FOUND WITH	None. A plug is placed in the nose fuze pocket.	
DELAY TIMES	Varies from 1/2 to 125 hours.	
THREADS	1-61/64 in. diameter 12 TPI	
DESCRIPTION	The outer portion of the body houses the arming vane assembly, the inertia weight and the inner body portion. Rotation of the inertia weight is prevented by a shear wire. At the base of the inertia weight are fastened four piercing pins and a lug to which is fastened a heavy spring which bears against the striker located in the inner body portion. A torus-shaped copper tank is located directly under the piercing pins. Bearing against the concave portion of the firing pin is a chemical composition plug, spring-loaded.	
OPERATION	On release from the plane, the arming wire is withdrawn and the vanes unscrew and fall free, leaving the inertia weight to be held back by the shear wire which is sheared on impact. The inertia weight, moving down after impact, is locked in the down position by the spring loaded plunger. The acetone from tank contacts the soluble plug. At the moment that the inertia weight moved down and the plungers pierced the tank, the spring was compressed; the striker is then under pressure. When the plug dissolves, the striker moves forward under spring pressure and pierces the gaine. A steel ball locks the fuze in the pocket to prevent withdrawal.	
REMARKS	Anti-withdrawal. A steel ball in the threads of the fuze locks the fuze when an attempt is made to withdraw it.	



PUBLICATION DATE: July 1944		CONFIDENTIAL	JAPANESE C-2(a) Navy Chemical Long Delay Nose Fuze
BOMBS USED IN: 60 Kg. G.P.H.E.; 60 Kg. Type 96; 250 Kg. G.P.H.E.			
MARKINGS: None			
COLOR	Cadmium plated.		
OVERALL LENGTH	5.9 in.		
OVERALL WIDTH	2.3 in.		
MATERIAL OF CONSTRUCTION	Steel except brass inertia weight.		
POSITION & METHOD OF FIXING IN BOMB	The fuze is screwed into the nose of the bomb. A steel locking ball prevents removal.		
COMPONENTS OF EXPLOSIVE TRAIN	A standard Japanese Navy gaine is screwed into the base of the fuze.		
FUZES LIKELY TO BE FOUND WITH	C-1(a) Navy chemical long delay tail fuze.		
DELAY TIMES	Up to 125 hours.		
THREADS	1-61/64 in. diameter 12 TPI		

DESCRIPTION

The fuze consists of a steel body in which are housed the arming assembly and the delay assembly. The arming assembly, which is housed in the upper end of the body, consists of the arming vane which are attached to the arming vane boss by three small screws. The arming vane boss is internally threaded at the lower end to receive a short, hollow arming spindle and an arming piece which is held in the base of the spindle by a copper shear wire. A small screw key inserted in the spindle engages in the keyway of the fuze body and prevents the spindle from rotating but permits upward or downward movement. The boss is retained in the fuze body by two pins but these pins permit the boss to rotate. A safety pin engages in the fuze body and the boss. The delay assembly, which is housed toward the lower end of the body, is actuated by a spring after the delay period has expired. Screwed into the top of the striker assembly is a steel plug with a cutaway striker assembly stem on which a brass cocking piece rides. In one side of this cocking piece is a small brass spring-loaded detent; on the opposite side is an assembly screw. The cocking piece and striker assembly stem are held in position by a copper shear wire. Under the steel plug is a soluble cellulose ring outside of which is a copper disc and a steel ball set into a drilled hole. This ball prevents the downward movement of the striker assembly as the ball rests on a shoulder of the fuze body. A lead foil disc is fitted over a copper container which is filled with acetone. A solid lead ball with a small copper stud on its side is placed in the container.

OPERATION

When the bomb is released, safety pin withdrawn, allowing the arming vane and boss to rotate. This action screws the arming spindle and the arming piece into the arming vane boss, clear of cocking piece. On impact, the cocking piece shears wire and moves forward, compressing striker assembly stem and is locked down by the detent, thus holding the striker unit under compression of spring. Simultaneously, the solid ball in the acetone container fractures the lead foil cover, allowing the solvent to escape into the space above and dissolve the celluloid ring. After a period of time, in which the soluble ring has become softened, the steel ball, due to the pressure of the striker spring, is forced away from the shoulder of the fuze body. The striker assembly, under compression of the spring, is forced downward with the striker detonating the cap.

REMARKS

If the vane fail to rotate, the inertia of the cocking piece may be sufficient to shear the shear wire and to drive the arming piece into the provided recess in the spindle and thus permit the fuze to arm if dropped from sufficient altitude. Thus the fuze may be armed despite the presence of the safety pin.

ANTI-WITHDRAWAL

A steel ball in the threads of the fuze locks the fuze when an attempt is made to withdraw it.



TOP VIEW WITHOUT NOSE CAP

**JAPANESE
C-3 (a)
NOSE FUZE**



**STRIKER SPINDLE
INERTIA WEIGHT ASSEMBLY
UNARMED**



**STRIKER SPINDLE
INERTIA WEIGHT ASSEMBLY
ARMED**

CONFIDENTIAL

PUBLICATION DATE : July 1944

BOMBS USED IN

50 Kg. & 100 Kg. G. P. H. E.

MARKINGS

東 ☆ 47 + 82

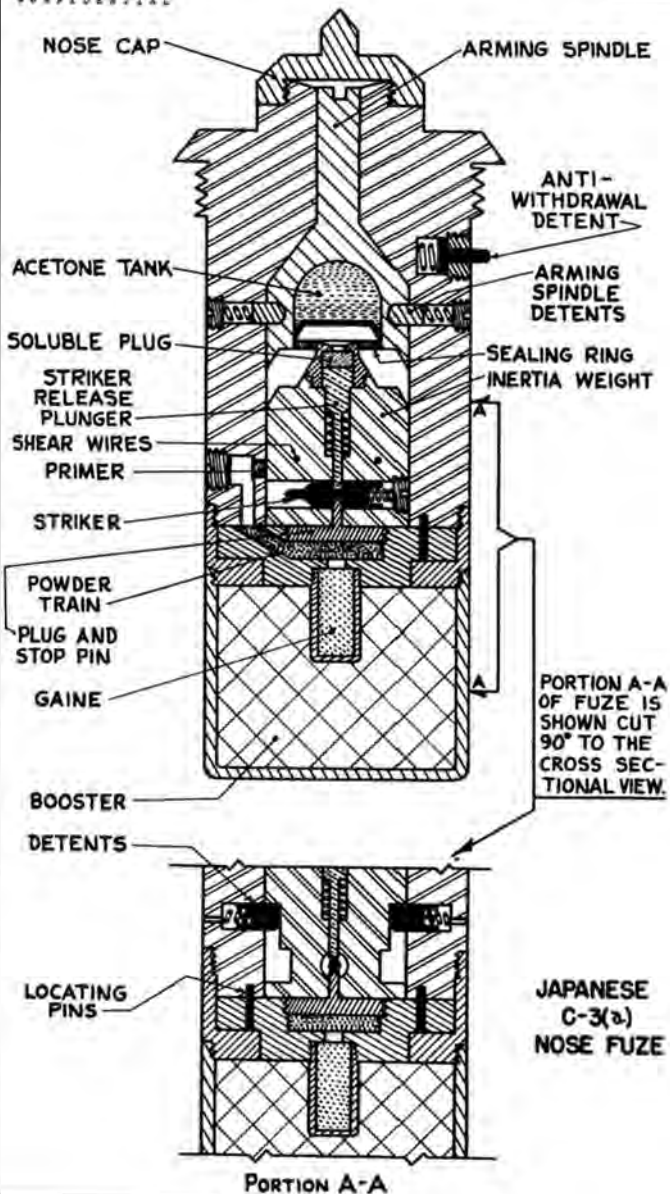
TOKYO - April 1942.

JAPANESE

C-3(a)

Army Chemical Long
Delay Fuse

Date	
COLOR	Unpainted steel.
OVERALL LENGTH	7.78 in. (visible length 1.54 in.)
OVERALL WIDTH	3.5 in.
MATERIAL OF CONSTRUCTION	Steel body, brass inside.
POSITION & METHOD OF FIXING IN BOMB	Screwed into modified nose of 50 Kg. G.P.H.E. army bomb. (Right hand thread). Anti-withdrawal device is fitted to prevent removal.
COMPONENTS OF EXPLOSIVE TRAIN	Primer; Powder train relay; gaine and booster.
FUSES LIKELY TO BE FOUND WITH	None. (Plastic plug in tail fuse pocket).
DELAY TIMES	Two hours to twenty-four hours. (May be shorter or longer).
THREADS	2-31/32 in. diameter 12 TPI
DESCRIPTION	The fuse consists of the fuse body, a nose cap which will not usually be found on a UXB, and a collar which joins the booster to the body. An anti-withdrawal detent prevents the fuse from being unscrewed by hand. An arming spindle is hollowed out to house a copper tank filled with acetone. The arming spindle is held in place by two spring-loaded plungers. A screwdriver slot in the top of the spindle allows it to be turned from the safe (→) position to the armed position (←) marked in red meaning "firing point". The rotation of the spindle is regulated by the length of the grooves into which the spring-loaded plungers are fitted. When in the armed position, the four cut-away segments of the spindle are in line with the cut-out portions of the inertia weight, thus allowing the latter to move up on impact. The inertia weight is held by two shear wires which are sheared on impact. In the section B-B; the bottom of the inertia weight is shown, rotated through 90 degrees. Two spring-loaded plungers hold the inertia weight as shown in the position before impact. On impact, the inertia weight moves up toward the top of the fuse, and is locked in this position by plungers. This insures that the firing pin is in line with the primer. When the inertia weight moves up to the armed position, the safety detent remains behind, leaving the firing pin held only by the striker-release pin bearing against the soluble plug. When this plug dissolves, the detent moves up, freeing the striker and allowing it to be pushed into the detonator by the spring behind the striker. A rubber sealing plug keeps the solvent from running throughout the fuse after the acetone tank is pierced.
OPERATION	Nose cap is removed. The arming spindle is turned to the firing point (←) as shown in the view of the fuse. This turns the spindle so that the inertia weight is free to move down on impact. The spindle is locked in position by spring detents. The nose cap may be replaced. On impact, the inertia weight shears the shear wires and moves down. The striker is lined up with the primer and is moved away from the stop pin. The acetone tank is pierced and the inertia weight is locked down by spring



C O N F I D E N T I A L

JAPANESE C-3(a) NOSE FUZE - continued.

OPERATION
(cont'd)

detents. (See portion A-A). After the acetone has softened the soluble plug, the striker release pin moves out under spring action thus releasing the striker which fires the primer.

REMARKS

a) Once the arming spindle is turned through 45 degrees to the firing point, it cannot be turned back to safe. The spring-loaded plungers prevent this. Also, after impact, the inertia weight has moved on to the spindle and will prevent rotation.

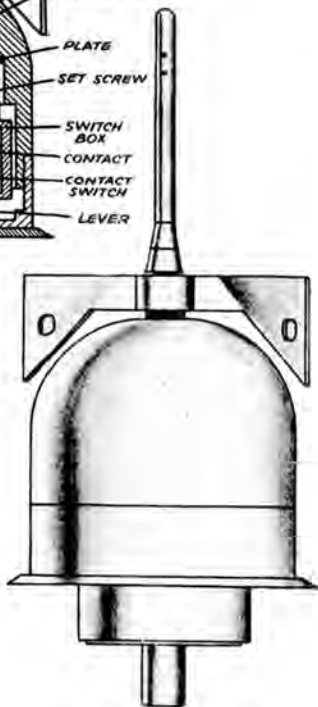
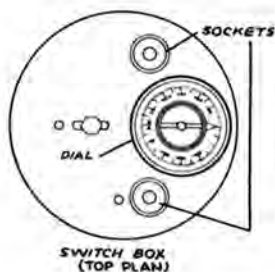
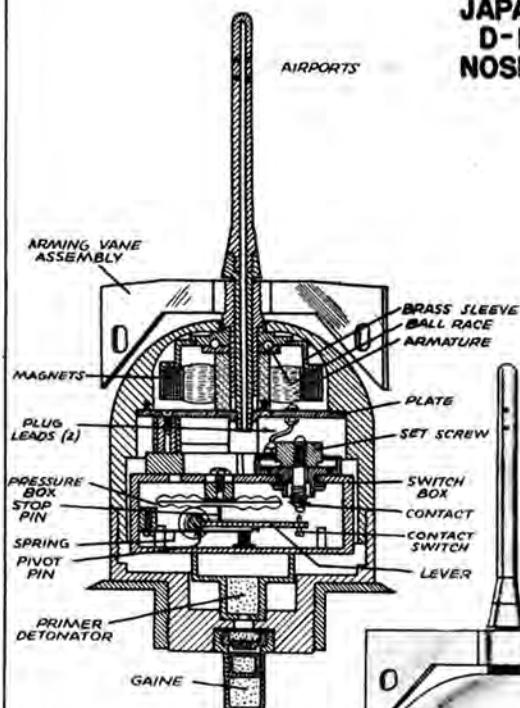
b) If the cap is found on a UXB, the fuse may have been armed and the cap may have been replaced.

c) The anti-withdrawal will usually prevent the fuse from being removed from the bomb. If the fuse is removed, the booster and gains may be set off if the fuse operates later. Therefore, unscrew the booster and gains immediately after withdrawing the fuse.

d) This fuse may be fitted in the 100 Kg. G.P.H.E. Army bomb and possibly the 250 Kg. G.P.H.E. Army bomb.

JAPANESE D-1(a) NOSE FUZE

AIRPORTS



PUBLICATION DATE: July 1944

BOMB USED IN:

Pamphlet Container Bomb (50 Kg.)

D-1(a)

MARKINGS:

Three digit number on collar

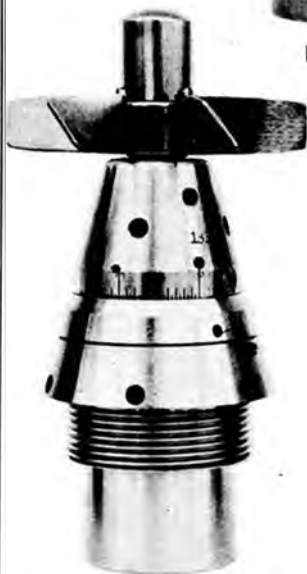
(i.e. "182")

Date	
COLOR	Lamp Black
OVERALL LENGTH	7.4 in.
OVERALL WIDTH	3.3 in. (Vanes); 3.05 in. (Body)
MATERIAL OF CONSTRUCTION	Aluminum body, brass vanes
POSITION & METHOD OF FIXING IN BOMB	None
COMPONENTS OF EXPLOSIVE TRAIN	The detonator ignites the gains which in turn ignites the gunpowder bursting charge.
FUSES LIKELY TO BE FOUND WITH	None
DELAY TIMES	None
DESCRIPTION	The three essential parts of this fuse are the generator, circuit, and pressure box (aneroid). The generator consists of an armature secured to the closing plate and four quarter-section magnets encased within a brass sleeve which rides on a ball race seated on the armature and is threaded externally to take the vanes. The vanes do not come off but are threaded on securely, and, in rotation, turn the magnets about the armature, generating current. The circuit consists of two plug leads which conduct the current through the sockets into the switch box, one lead passing the current to the adjustable contact, the other to the contact switch which is on the end of a lever pivoting about a pin and being forced toward the adjustable contact by the leaf spring. A stop pin is soldered onto the pressure box and holds the contact switch on the lever away from the adjustable contact. By rotating the setting screw the adjustable contact may be moved toward or away from contact switch. (See REMARKS). 12 small air ports permit air to enter and pass down the hollow spindle into the fuse.
OPERATION	On release an arming wire is withdrawn from the vanes which then rotate, causing the magnets to turn about the armature, inducing current. As the bomb falls the atmospheric pressure in the switch box increases and the width of the pressure box is slightly decreased. The stop pin recedes slightly and the lever and contact switch move inward toward the adjustable contact under the influence of the spring. After the bomb has fallen a given distance, according to the setting of the adjustable contact, the contact switch moves in and completes the circuit, the current flowing directly through the detonator, which fires the gains. A gunpowder bursting charge splits the casing and scatters the pamphlets or propaganda leaflets.
REMARKS	The mode of operation of the dial is not apparent. The scale itself is fitted into a housing, the sides of which are knurled. The adjustable contact is not affected by rotation of the dial. It may be that the screw is turned to give the required adjustment, but this is not certain, and it is suspected that some part of this portion of the fuse may have been missing. Two modifications of the aluminum fuse have been found - one in which the aluminum housing is 3-7/8", the other 4-3/8"; this being the only apparent difference. In addition, this same fuse has been found with a bakelite body instead of aluminum, but is otherwise the same. The air pressure box may have pervious portions, allowing slow leakage of air.

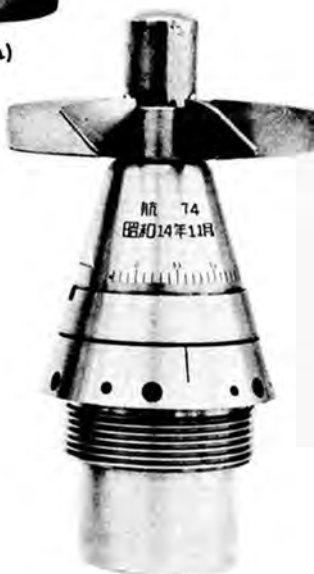
JAPANESE D-2 TAIL FUZES



D-2 (a)



D-2 (b)



D-2 (c)

RESTRICTED

RESTRICTED

PUBLICATION DATE: July 1944

BOMBS USED IN :

D-2(a)- 250 Kg.(possibly 32 Kg.) Incendiary.
 D-2(b)- 32 Kg.(possibly 250 Kg.) Incendiary.
 D-2(c)- 32 Kg. (possibly 250 Kg.) Incendiary.

MARKINGS

- D-2(a)



- D-2(b)

- D-2(c)

JAPANESE

D-2(a)

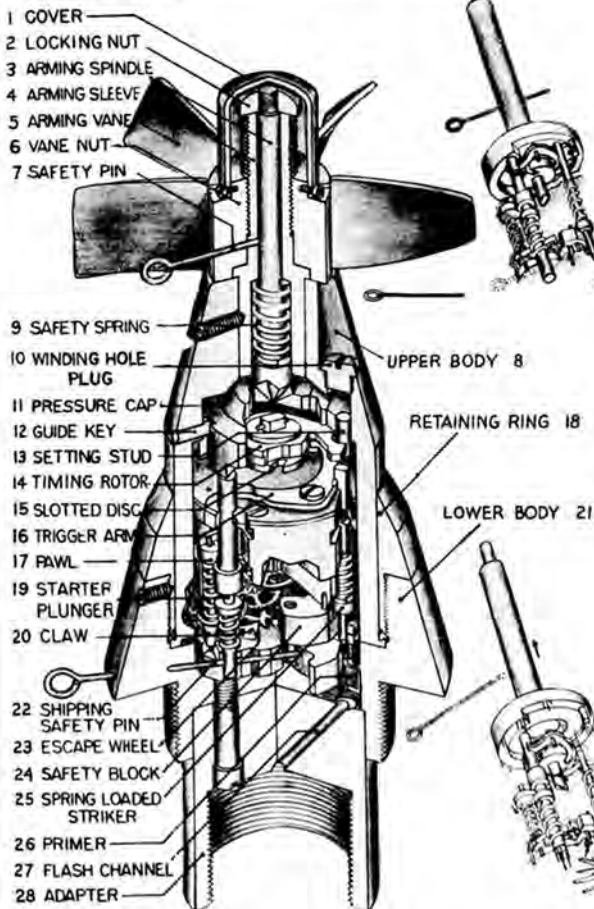
D-2(b)

D-2(c)

Navy Clockwork Delay
 Aerial Burst, Tail Fuzes

Date	D-2(a)	D-2(b)	D-2(c)
COLOR	Brass	Cadmium Plated	Cadmium plated
OVERALL LENGTH	5.75 in.	5.75 in.	5.75 in.
OVERALL WIDTH	2.44 in.	2.5 in.	2.5 in.
MATERIAL OF CONSTRUCTION	Brass except for a few internal parts of steel.		
POSITION & METHOD OF FIXING IN BOMB	Screwed into adapter ring at apex of tail cone.		
COMPONENTS OF EXPLOSIVE TRAIN	A primer detonator is fitted in the fuse. The flash from it sets off a standard Japanese gain.		
FUZES LIKELY TO BE FOUND WITH	Probably A-3(a) nose fuse.		
DELAY TIMES	0 to 50 sec.	5 to 20 sec.	0 to 20 sec.
THREADS	1-15/16 in. diam. 12 TPI	1-15/16 in. diam. 12 TPI	1-15/16 in. diam. 12 TPI
DESCRIPTION	These fuzes are all similar in design, construction and operation. The clockworks in all three fuzes is almost exactly identical with the clock in a Japanese Artillery Projectile and with the fuse in a German Artillery Projectile for the 88 mm gun. All of the fuzes require a rotation of 1000 R.P.M. before they can function. The parts of the fuse can be broken down into five principal categories according to their functions: (A) The Body, (B) The Arming Mechanism, (C) The Timing Mechanism, (D) The Firing Mechanism, and (E) The Safety Features. (A) The Body consists of an upper part and a lower part held together by a retaining ring which fits over the upper body and threads into the lower body. The upper body has a lip on its lower edge which is held under the retaining ring, permitting rotation of the upper body for setting the time. An adapter fits into the lower body, secured by two screws. (B) The Arming Mechanism consists of six vanes press-fitted into the vane nut and an arming sleeve externally threaded to take the vane nut. The arming sleeve houses the arming spindle which is secured at the base to the pressure cap. The top end of the arming spindle is externally threaded (left-handed) to take the locking nut. A cover is secured to the vane nut with three grub screws. (C) The Timing Mechanism consists of a spring-driven clockwork which turns a timing rotor and slotted disc at a predetermined rate. The pressure cap is keyed to the upper body and has a setting stud which engages the notch in the timing rotor. The parts of the timing mechanism which start the clockwork are the spring-loaded starter plunger, the spring-loaded pawl, the claw, and the escape wheel. (D) The Firing Mechanism consists of the spring-loaded striker which has a beveled shoulder that bears against a beveled edge on the trigger arm. (E) The Five Safety Features are: safety pin; safety spring; safety block which overcomes the pressure of its spring (not shown in the drawing) and swings out from under the striker by centrifugal force; shipping safety pin which both locks the starter plunger and prevents the safety block from swinging out during shipping.		

RESTRICTED



D-2(a)

JAPANESE CLOCKWORK DELAY AERIAL BURST TAIL FUZE

RESTRICTED

JAPANESE D-2(a), D-2(b), and D-2(c) FUZES - continued.

DESCRIPTION (cont'd)	and the locking of the trigger arm by the starter plunger until it rises during flight and presents a notch through which the end of the trigger arm can pass.
OPERATION	The fuse is set by rotating the upper body, which is calibrated up to 50 seconds, and matching the desired setting with a line on the retaining ring. The setting stud in the pressure cap - which is keyed to the upper body - is thus rotated, turning the timing rotor - in which it is engaged - and the slotted disc so that the slot of the disc is positioned with respect to the trigger arm. At the expiration of the set time, after the bomb has been dropped, the disc will have rotated so that the slot will be opposite the trigger arm. Shipping safety pin is pulled when bomb is loaded in plane. On release safety pin is pulled, vanes and vane nut rotate up. Initial impact of the vane nut against the locking nut, plus the continued rotation of the vanes and vane nut, lifts the pressure cap, overcoming the resistance of the safety spring and freeing the setting stud from the timing rotor. As the pressure cap is lifted, the spring-loaded starter plunger rises until the spring-loaded pawl slips into the groove in the plunger. This action of the pawl rotates the rod to which it and the claw are keyed, freeing the claw from the escape wheel and starting the clockwork. The clockwork turns the slotted disc so that the slot is rotated toward the trigger arm. The pawl locks the starter plunger up so that the notch in the plunger is opposite the end of the trigger arm. The starter plunger no longer obstructs the end of the trigger arm, since it can now pass through the notch when the trigger is forced into the slot of the disc. Angled fins on the bomb cause rotation which, when 1000 R.P.M. is attained, is sufficient to swing the safety block out from under the spring-loaded striker by centrifugal force. The spring-loaded striker is now held by the edge of the trigger arm only. After the set time has elapsed in slot of the disc comes opposite the trigger, which is forced into the slot by the pressure of the beveled shoulder of the striker on the beveled edge of the trigger arm. The spring-loaded striker impinges on the primer, sending a flash through the flash channel which sets off the mine.
REMARKS	The time of delay is set before leaving the ground, and the bomb must be dropped from a specific height above the target. The bomb usually explodes about 100 to 175 feet above ground. The fuzes D-2(b) and D-2(c) were not recovered from UXB's but were found in ammunition dumps. The D-2(c) is the earliest model of the clockwork fuzes - as indicated by the early date of manufacture and the lack of an external means of winding the clock.

JAPANESE D-3(a) NOSE FUZE

SAFETY
DEVICE

ARMING SPINDLE

STOP STUDS

SPRING

LOCK NUT

STEEL BALL

STRIKER

PRIMER FLASH CAP

POWDER TRAIN

LOCK NUT

BALL RACE

SPRING

LOADED PIN

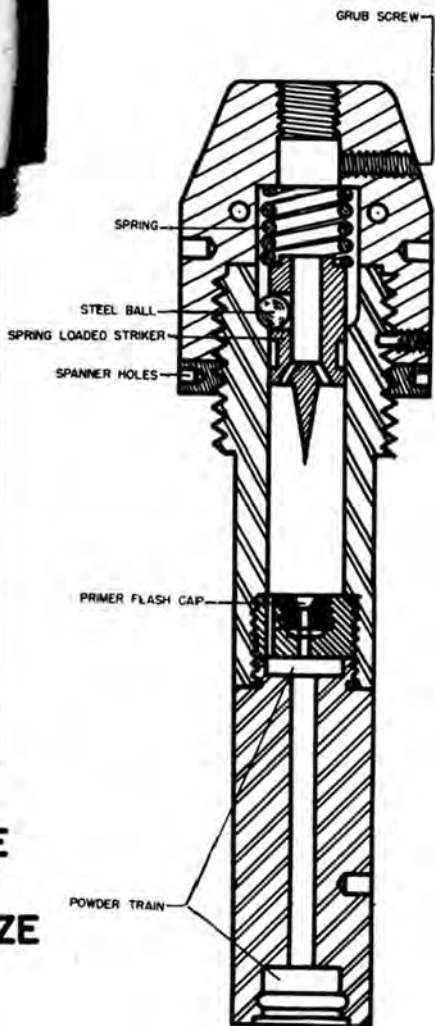
LOCKING
WIRE HOLE

PUBLICATION DATE: July 1944 CONFIDENTIAL		JAPANESE D-3(a) Navy Mechanical Aerial Burst Nose Fuze
BOMBS USED IN: 33 kg. Illuminating (Parachute Flare)		
MARKINGS 16 D 752		

Data	
COLOR	Natural brass.
OVERALL LENGTH	4.53 inches
OVERALL WIDTH	1.75 inches
MATERIAL OF CONSTRUCTION	Brass except for steel striker and steel locking balls.
POSITION & METHOD OF FIXING IN BOMB	The fuze is located in the nose of the flare case and is secured by lock nut.
COMPONENTS OF EXPLOSIVE TRAIN	Flash cap directly over a powder pellet and a powder train (assumed).
FUZES LIKELY TO BE FOUND WITH	None
DELAY TIMES	In specimen recovered, possible delayed train or flash powder elements were not present.
THREADS	1-3/32 in. diameter 15 TPI
DESCRIPTION	The upper body portion houses the arming vane assembly and the spring loaded pin used for holding the safety wire firmly in its holes. A ball race is also present to provide smooth operation surface for the vanes (not shown). The lower body portion contains the arming sleeve into which three steel balls are fitted and which lock the striker when in the unarmed position (as shown). A primer flash cap and a powder relay comprise the explosive train.
OPERATION	The lock nut is tightened over the vanes which rest on the ball race. On release from the aircraft the safety wire is withdrawn from its holes, allowing the vanes to rotate, thus screwing the arming spindle downward. The arming spindle is prevented from rotating by the guide keys. The stop stud prevented the arming vane sleeve from being tightened down too far during fuze assembly. As the arming spindle moves downward, the striker and its spring move also until the striker forces the balls to move into the groove cut into the lower body, (the striker is under spring pressure). As the balls move outward, the striker moves downward, under spring action, and pierces the primer to initiate the explosive train.
REMARKS	The lock nut is used for fastening the fuze securely in the body of the bomb.

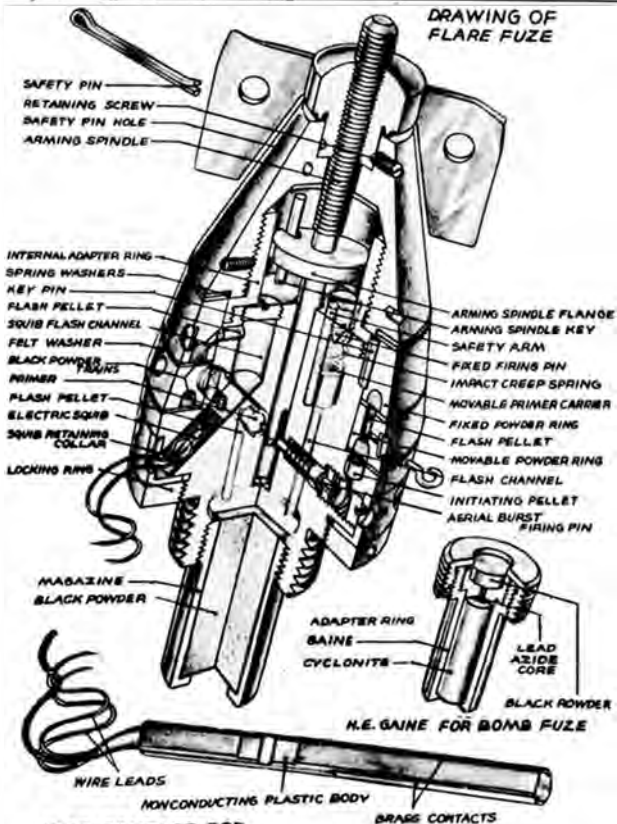


**JAPANESE
D-4(A)
NOSE FUZE**



PUBLICATION DATE: July 1944 RESTRICTED		JAPANESE D-4(A) Navy Aerial Burst Nose Fuze
BOMBS USED IN : Bomb container for 1 Kg. H.E. Bombs Bomb container (60 Kg.) for 5 Parachute Bombs.		
MARKINGS Three digit number "404"		
Data		
COLOR	Natural brass.	
OVERALL LENGTH	5.1 inches (without arming vane assembly)	
OVERALL WIDTH	1.5 inches.	
MATERIAL OF CONSTRUCTION	Brass except for steel striker retaining ball and creep spring.	
POSITION & METHOD OF FIXING IN BOMB	Located in the nose of the bomb container and secured by the lock nut.	
COMPONENTS OF EXPLOSIVE TRAIN	Primer flash cap sets off delay train.	
FUZES LIKELY TO BE FOUND WITH	None	
DELAY TIMES	Not known	
THREADS	1-3/32 in. diameter 15 TPI	
DESCRIPTION	The fuze consists of three parts: The upper body contains the arming spindle; the lower body contains the steel striker; and the powder relay container which screws into the lower body portion. The spring loaded striker is held in position by a steel ball which rests on the shoulder in the lower body portion, and is prevented from moving inward by the arming spindle. A primer flash cap is located in the lower body portion.	
OPERATION	On release from the aircraft, the arming vanes rotate and fall clear. The arming spindle is withdrawn from the striker, allowing the locking ball to fall inward. The striker now moves forward under spring action and pierces the flash cap, setting off the powder train which eventually sets off bursting charge.	

DRAWING OF FLARE FUZE



JAPANESE D-5(a) NOSE FUZE

RESTRICTED

PUBLICATION DATE: July 1944

JAPANESE

BOMBS USED IN:

Flare Fuze - 12 Kg. Parachute Flare
Bomb Fuze - H.E. Bombs (size unknown)

D-5 (a)

MARKINGS

昭十八七 東 ☆

Flare Fuze
(July 1943, Tokyo
Army Arsenal)

昭十八 11 阪 ✕

Bomb Fuze
(November 1943,
Osaka Army Arsenal)

Army Aerial Burst (or Impact)
Nose Fuze
(Electrically Initiated)

DATA	FLARE FUZE
COLOR	Brass
OVERALL LENGTH	4 in.
OVERALL WIDTH	2 in.
MATERIAL OF CONSTRUCTION	Brass except for steel firing pins, spring, spring washers and retaining screws.
POSITION & METHOD OF FIXING IN BOMB	Screwed into nose.
COMPONENTS OF EXPLOSIVE TRAIN	Black powder magazine.
FUZES LIKELY TO BE FOUND WITH	None
DELAY TIMES	3 to 40 seconds
THREADS	1-3/16" diameter 13 TPI

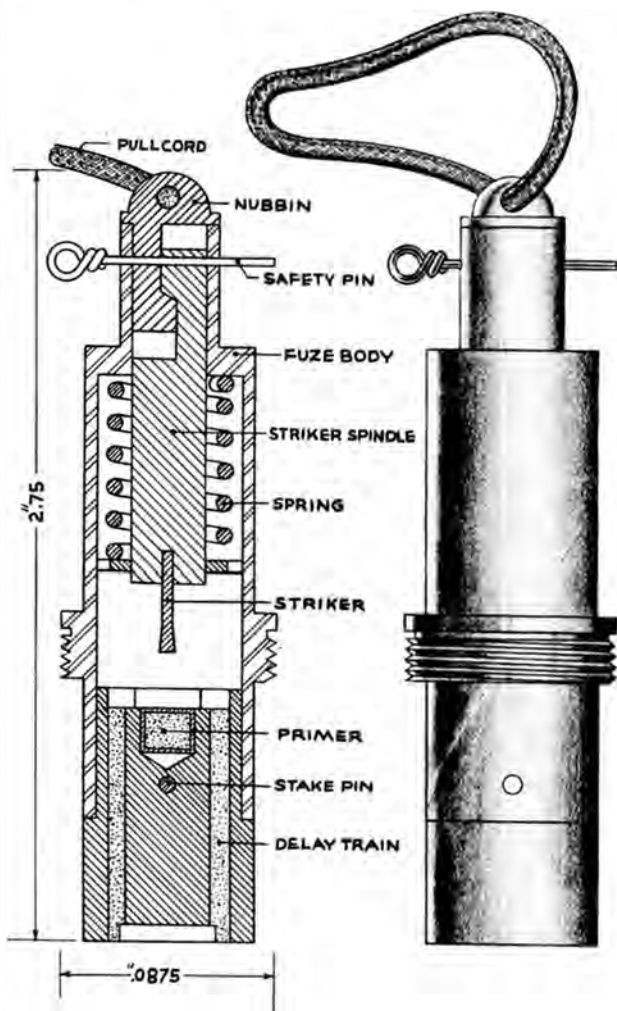
DESCRIPTION

The fuze body is made up of eight parts. The vane hub is secured to the upper fuze body by two retaining screws. These allow the vanes to rotate yet prevent the vanes from falling away. The upper fuze body screws onto an internal adapter ring which in turn screws around the lower fuze body. The upper powder train is fixed, being locked to the upper fuze body by a key pin. Two spring steel washers between the upper fuze body and the fixed powder train keep a working friction between the powder rings. The lower movable powder train is separated from its adjacent parts by two felt washers. Both the upper and lower powder train rings slip down over the lower fuze body. The squib retaining collar is an "L" shaped ring that fits around the lower fuze body. The knurled locking ring threads on the lower fuze body and serves to lock the fuze into the bomb. The magazine is filled with large grained powder and has a 3/8" hole through its base to allow the flash to reach the ignition charge of the flare proper. The arming spindle is 3-7/16" long. The upper portion is threaded for 1-3/4" to turn through the vane hub. At the end of the threaded portion is a 3/4" flange. The tip of the lower portion of the spindle is split (forked). The gas operated, aerial burst, firing pin shoulders on the forked tip of the arming spindle which denies it access to the primer until the spindle is raised (armed). In the unarmed position the arming spindle flange holds the impact (movable) primer carrier down and away from its fixed firing pin by bearing against the safety arm of the carrier. The 5/8" long electric squib fits into the lower fuze body. Two five foot insulated single strand copper wires, and a forty inch cord are attached.

OPERATION

On release, the wipe contact rod is pulled through the plane's contact points, firing the squib and thus initiating the powder train rings. The vanes rotate, turning the spindle up thus freeing the striker, and the impact primer carrier. When the powder train has burned its course, the gas generated by the initiating pellet drives the firing pin forward against the creep spring and into the primer. A flash pellet relays this to the black powder magazine or gain. If the aerial burst feature fails, the primer carrier moves against the fixed firing pin on impact.

NOTE: The bomb fuze differs from the flare fuze in that it has an H.E. gain and adapter ring instead of a magazine, and the impact firing feature is left out.



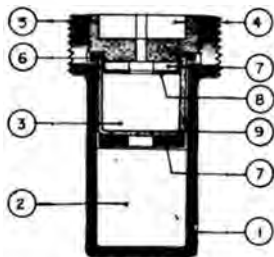
**JAPANESE FLARE FUZE
(PROBABLE)**

PUBLICATION DATE: July 1944 CONFIDENTIAL		JAPANESE FLARE FUZE (Probable)
BOMBS USED IN:		
Hand thrown flare		
MARKINGS		
Four digit number. 2311		
Date		
COLOR	Natural brass	
OVERALL LENGTH	2.75 inches	
OVERALL WIDTH	0.875 inches	
MATERIAL OF CONSTRUCTION	Brass	
POSITION & METHOD OF FIXING IN BOMB	Screwed into bomb.	
COMPONENTS OF EXPLOSIVE TRAIN	The cap is set off and its flash ignites the short-delay powder trains which in turn ignite the main <u>filing</u> .	
FUZES LIKELY TO BE FOUND WITH	None	
DELAY TIMES	Unknown	
THREADS		
DESCRIPTION	The fuze body houses striker spindle under spring pressure. The spindle is locked by the nubbin whose tongue engages with the spindle. A screw-driver-shaped striker is secured in the spindle. The primer cup is present in the fuze and is connected to the delay trains by flash chambers. A safety pin is also present. The fuze is believed to be not visible in the bomb. The pull cord is attached to nubbin.	
OPERATION	The safety pin is first removed. When the missile is hurled, the cord which is held in the hand, pulls out the nubbin. Immediately the striker moves forward under spring pressure, striking the primer cap. The flash ignites the delay. If nubbin is present in fuze when found in UXB, the fuze is safe.	

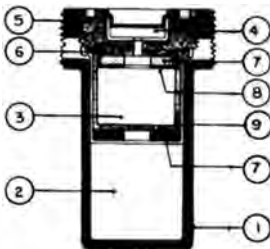
JAPANESE GAINES

ARMY GAINES

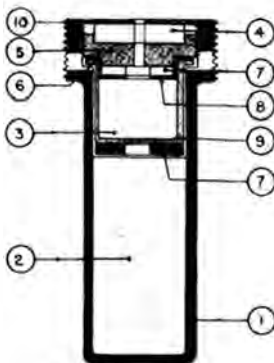
Army fuzes employ different gaines from those used in Navy fuzes. All Army fuzes use one of the three types shown below or variations of a slightly different shape but of similar construction. Types I and II are used in nose fuzes only, while Type III is used only in the tail fuzes. The latter type is approximately twice as long as Types I and II (see scale). Types I and III are ignited by a flash from a primer cap in the fuze, while Type II is pierced by the striker. Type I is used in all Army nose fuzes except A-2(b). This fuze uses Type II and is used only in bombs which do not have H.E. as the main charge (15 Kg. Anti-personnel is an exception, and employs the A-2(b) fuze). Type III only is used in all Army tail fuzes. These gaines are usually surrounded by a booster (see A-4(a), B-1(a) and C-3(a) as examples).



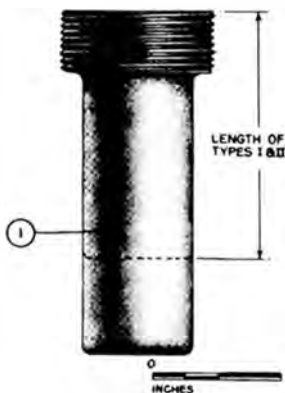
TYPE I



TYPE II



TYPE III



LEGEND

Type I

1. Container
2. Tetryl
3. Fulminate of Mercury (6 gr.)
4. Black powder mixture
5. Copper plug
6. Copper cup cover
7. Felt washer
8. Tin Foil strip
9. Copper cup

Type II

1. Container
2. Tetryl
3. Fulminate of Mercury (6 gr.)
4. Cap
5. Copper plug
6. Copper cup cover
7. Felt washer
8. Tin Foil strip
9. Copper cup

Type III

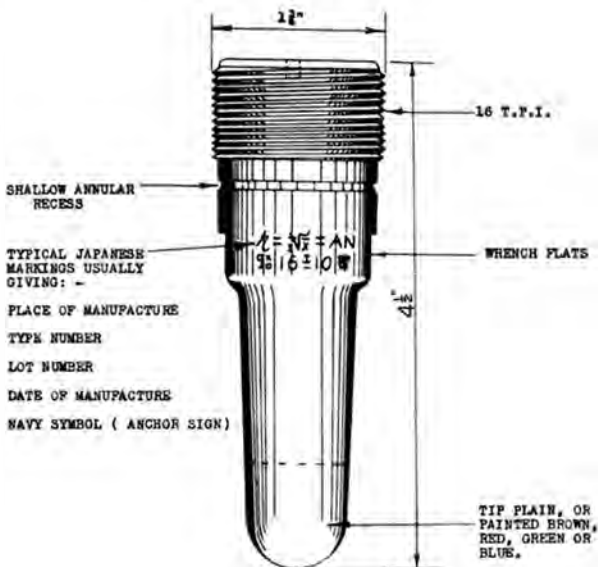
1. Container
2. Tetryl
3. Fulminate of Mercury (6 gr.)
4. Black powder mixture
5. Copper plug
6. Copper cup cover
7. Felt washer
8. Tin Foil strip
9. Copper cup
10. Metal washer cover

NAVY GAINES

There are four main types of Navy gaines, all similar in external shape but differing in internal construction. All standard Navy gaines fit most Navy fuzes and are screwed (right hand threads) into the fuze hand tight. Japanese Navy gaines contain all necessary explosive to initiate an explosion. The component internal parts of Navy gaines are: Primer plugs (screwed in and staked), Delay plugs (slip fit) and detonator plugs (screwed in, or slip fit). The striker impinges on the primer which initiates the delay (if any), thereby firing the detonator and in turn the picric booster.

The four main types of Navy gaines are: Type A, B, C, & D. Types A & D are used for delay, while Types B & C are used for instantaneous action.

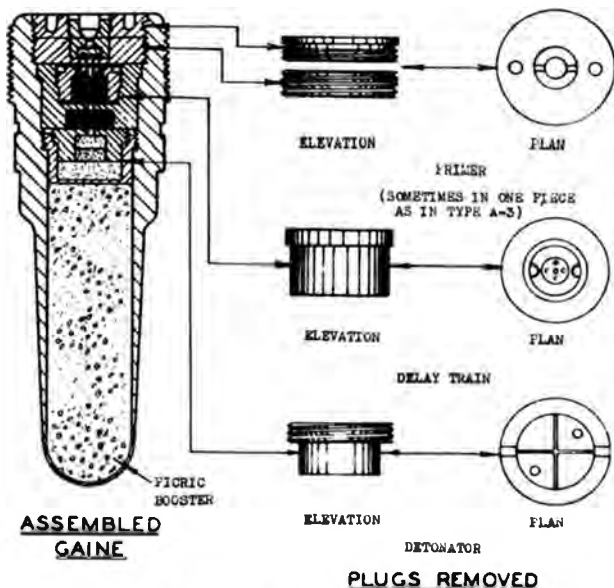
Navy gaines are made of brass, cadmium plated, and finished a dull lacquer and may have the tip of the gaine painted. Type A-4 gaine (blue tipped) is an exception in that it is made of steel.



TYPICAL ELEVATION

TYPE A-1	CONFIDENTIAL	PUBLICATION DATE: July 1944
Japanese designation: "Temporary Name Type 99 Ordinary Bomb Fuse C. Fuse cap explosive M 26. 九七式通常式手引火薬単信管		Brown tipped
		.014 seconds delay
	PRIMER Detonating composition over gunpowder	
		DELAY Flash powder over pressed meal gunpowder over flash powder.
		DETONATOR Lead azide over tetryl
TYPE A-2 Japanese designation: "Type 97 Land Use Bomb Fuse B. (Fuse cap explosive M 60) 九七式陸用水薬単信管	FICRIC BOOSTER	
		Red tipped
	.017 seconds delay	
		Explosive Components are the same kind as for Type A-1

TYPES A-1 & A-2, SLIGHT DELAY



SCALE IN INCHES

TYPE A-3

CONFIDENTIAL

PUBLICATION DATE: July 1944

Green tipped

Japanese designation:
Type 97 Land Use Fuze A.
(Fuze cap explosive M 71)

.025 seconds delay

Explosive components are the same
kind as for Type A-1

九七式陸用火暴單信管甲

TYPE A-4

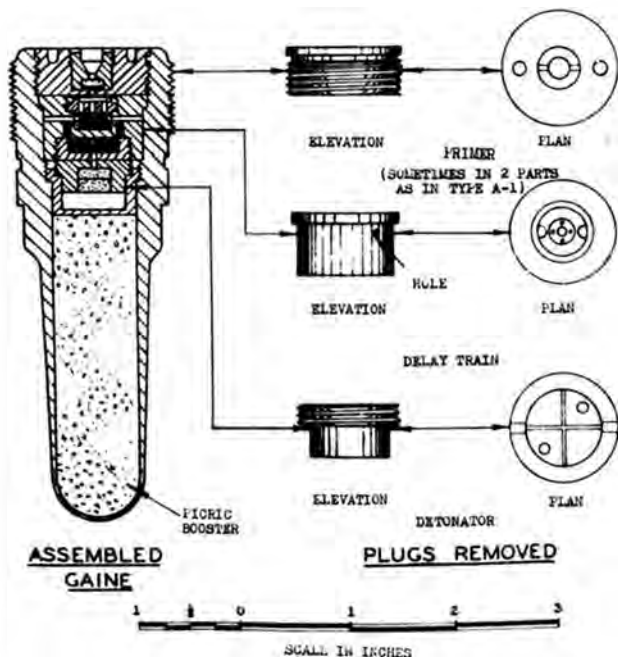
Japanese designation:
Temporary name type 99 Bomb
Fuze A. (Fuze cap explosive
M 21)

Blue tipped

.031 seconds delay

Explosive components are the same
kind as for Type A-1

甲管信單火暴九火毒假个

TYPES A-3 & A-4, SLIGHT DELAY

TYPE B

CONFIDENTIAL

PUBLICATION DATE: July 1944

Tip not colored

Japanese designation:
Type 96

Instantaneous

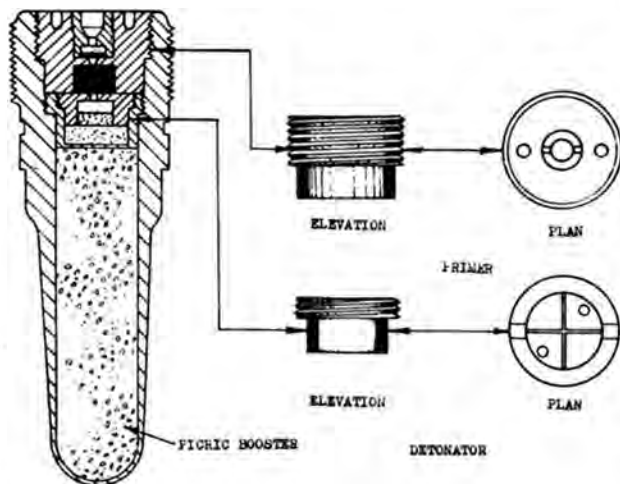
PRIMER
Detonating composition over gunpowder.

No delay

DETONATOR
Lead Azide over Tetryl

PICRIC BOOSTER

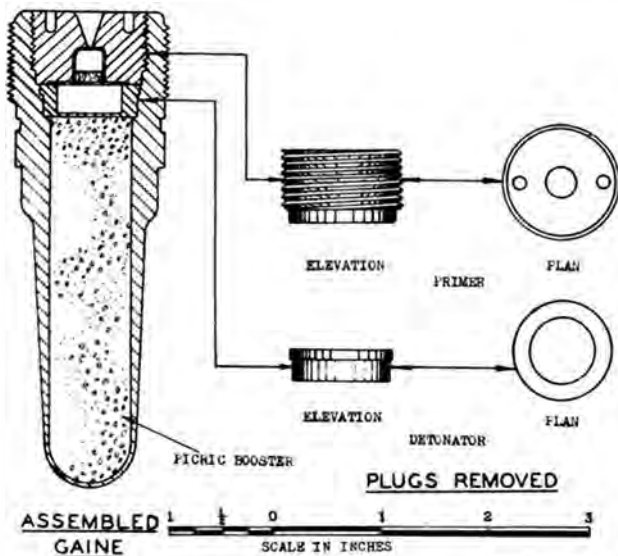
九六式

TYPE B , INSTANTANEOUS**ASSEMBLED
GAINÉ****PLUGS REMOVED**

SCALE IN INCHES

TYPE C CONFIDENTIAL Japanese designation: "Type 92 Land Use Bomb Fuse, Improvement 2. (Fuse cap explosive M 26) 九二式陸用水雷単信管甲	PUBLICATION DATE: July 1944
	Tip not colored
	Instantaneous
	PRIMER Mercury Fulminate over Tetryl in an inverted copper cup.
	No delay
	DETONATOR Tetryl
	PICRIC BOOSTER

TYPE C, INSTANTANEOUS



TYPE D

CONFIDENTIAL

PUBLICATION DATE: July 1944

Tip not colored

Japanese designation:
"Type No. 16"

Selective delay from fractional to 1.5 seconds.

PRIMER
Detonating composition over gunpowder

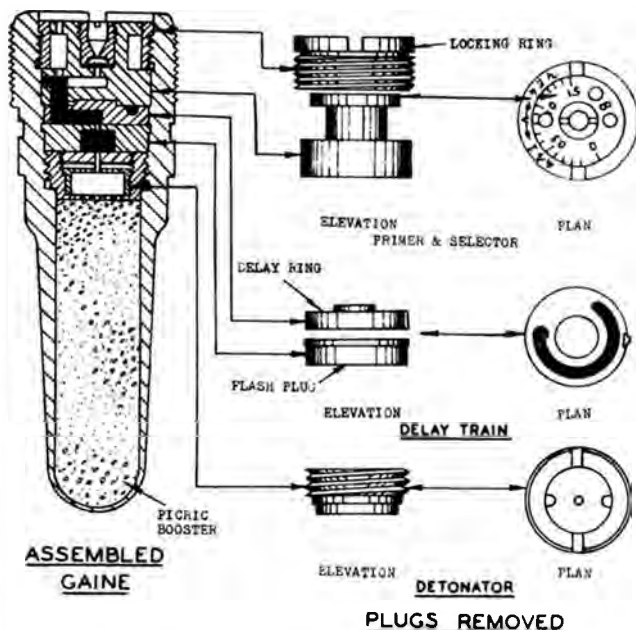
DELAY
Pressed meal gunpowder in a semi-circular channel.

DETONATOR
Shallow plug of lead azide over tetryl

PICRIC BOOSTER

式一五番

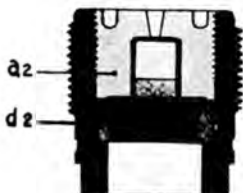
TYPE D, SELECTIVE DELAY



NAVY MAGAZINES

Magazines are used only in NAVY fuzes, used to initiate Low Explosives such as black powder. They are never used with H.M. filled bombs. Magazines can be fitted to any fuze which takes a standard Navy gaine. Up till now, however, only A-3(a) and A-3(b) have been used with magazines. Only an instantaneous magazine with two plugs and a slight delay magazine with three plugs have been found to date. The "d" type plugs contain a large amount of gunpowder and are not used in gaine. Plugs "a" and "b" are used in gaine as well as magazines. The magazine explosive is initiated by the fuze striker piercing plug "a 1" or "a 2".

INSTANTANEOUS



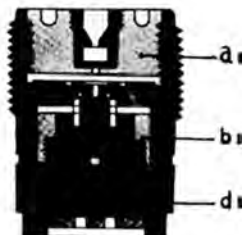
a 2 Primer



d 2 Flash plug



SLIGHT DELAY



a 1 Primer



b 1 Delay train



d 1 Flash plug