CONFIDENTIAL

TM E9-1983

TECHNICAL MANUAL

ENEMY
BOMBS AND FUZES

Prepared under direction of the
Chief of Ordnance

WAR DEPARTMENT,
Washington, November 12, 1942.

TM E9-1983. The purpose of this Manual is to provide in convenient form a text on Enemy Bombs and Fuzes. The information contained herein includes description, means of identification and operations of Enemy Bombs and Fuzes. From time to time addenda will be published for inclusion in this Manual.

(A.G. 062.11 (11-10-42).)

By ORDER OF THE SECRETARY OF WAR:

G.C. MARSHALL,
Chief of Staff.

OFFICIAL:

J.A. ULIO
Major General,
The Adjutant General.

FILING SYSTEM

To make possible the filing of the various intelligence issued from the Headquarters Ordnance Bomb Disposal School, a simplified Dewey Decimal System of Library Classification will be used.

1000 FOR BOMBS

ORIGIN	TYPE	WEIGHT
100. American	00. General	0. General
100.A Navy Bombs	10. Anti-personnel and Fragmentation	1. 0 - 9 Kg.
100.B Army Mk. Series	20. Incendiary	2. 10 - 49 Kg.
100.C Army M Series	30. Gas - Chemical	3. 50 - 99 Kg.
100.D Army-Navy Bombs	40. Flare	4. 100 - 249 Kg.
200 British	50. G.P. - H.E.	5. 250 - 499 Kg.
300 German	60. S.A.P. - H.E.	6. 500 - 999 Kg.
400 Italian	70. A.P. - H.E.	7. 1000 - 1999 Kg.
500 Japanese	80. Aircraft & Sea Mines, Depth Charges and Anti-submarine	8. 2000 - 2999 Kg.
600 French	90. Special; Booby Traps, Land Mines and Practice Bombs	9. 3000 - and over

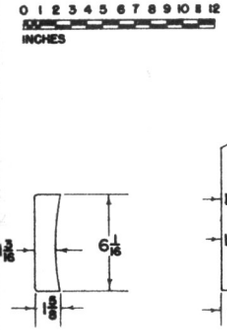
2000 FOR FUZES

ORIGIN	TYPE	CLASSIFICATION
100. American	00. General	0. General
100.A Navy Mk. Series	10. Mechanical	1. Impact
100.B Army M. Series	20. Electrical	2. Proximity and Aerial Burst
100.C Army-Navy Series	30. Chemical	3. Time (long delay)
200 British	40. Clockwork	4. Pyrotechnic
300 German		5. Anti-disturbance
400 Italian		6. Anti-withdrawal
500 Japanese		7. Hydrostatic
600 French		8. Magnetic
700 Russian		

3000 FOR EQUIPMENT & OPERATING INSTRUCTIONS

ORIGIN	EQUIPMENT	TYPE
100 American	10 Air Compressors	1
200 British	20 Boilers & Sterilizers	2
	30 Clock Stoppers	3
	40 Fuze Dischargers	4
	50 Fuze Extractors	5
	60 Power Earth Augers	6
	70 Pumps	7
	80 Stethoscope	8
	90 Trepanners	9
	Spanner Wrenches	

4000 FOR SAFETY PRECAUTIONS



IDENTIFICATION OF NAVY BOMB TAIL FINS			
1	800 KG.	S.A.P.	1566.10
2	800 KG.	A.P.	1576.10
3	800 KG.	G.P.	1556.30
4	250 KG.	G.P. (TYPE II)	1555.11
5	250 KG.	INC. SHRAPNEL	1525.10
6	300 KG.	A/S BOMB	1585.10
7	250 KG.	G.P. (TYPE I)	1555.10
8	250 KG.	S.A.P.	1565.10
9	250 KG.	G.P. (EXPLOSIVE TAIL)	1555.30
10	250 KG.	G.P.H.E.(STREAMLINED)	1555.12
11	60 KG.	A/S BOMB	1583.10
12	60 KG.	G.P. BOMB	1553.20
13	63 KG.	S.A.P.	1563.10
14	BOMB CONTAINER		1593.20
15	63 KG.	G.P. (STREAMLINED)	1553.22
16	31 KG.	PRACTICE BOMB	1592.20
17	32 KG.	G.P. (STREAMLINED)	1552.22
18	32 KG.	INC. SHRAPNEL	1522.10
19	AUXILIARY FIN		1522.10

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2	250 KG. TYPE 92 AND TYPE 1	1555.20-1555.22
3	100 KG. TYPE 94 (MOD.)	1554.11
4	100 KG. TYPE 94	1554.10
5	100 KG. TYPE 1	1554.12
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7	50 KG. TYPE 100	1523.15-1533.20-21
8	50 KG. TYPE 94	1553.10
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10	30 KG. TYPE 99	1552.10
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1 Kg.	Anti-Parked Aircraft	1511.11	Navy
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1 Kg.	Smoke-Incendiary, Anti-Personnel	1521.10	Army
32 Kg.	Incendiary (Shrapnel)	1522.10	Navy
50 Kg. Type '97	Incendiary (Phosphorus)	1523.10	Army
50 Kg. Type '100	Incendiary (Phosphorus)	1523.15	Army
60 Kg. Type '98	Incendiary (Solid [illegible])	1523.20	Navy
60 Kg. Type '98	Incendiary (Rubber Pellets)	1523.21	Navy
60 Kg. Type '97	Incendiary (Thermite)	1523.30	Navy
	Incendiary (Parachute)	1523.40	
250 Kg.	Incendiary (Shrapnel)	1525.10	Navy
50 Kg. Type '[illegible]	Gas	1533.10	Army
[illegible] Kg.	Flare (Sea)	1541.10	Navy
3 Kg.	Flare (Sea)	1541.20	Navy
	Flare (Land)	1541.30	Navy
[illegible]	Flare (Parachute)	1542.10	Navy
30 Kg	General Purpose (H.E.)	1552.10	Army
50 Kg.	General Purpose (H.E.)	1553.10	Army
100 Kg.	General Purpose (H.E.)	1554.10	Army
60 Kg. Type '97	General Purpose (H.E.)	1553.20	Navy
60 Kg. Type '98	General Purpose (H.E.)	1553.30	Navy
250 Kg.	General Purpose (H.E.)(Type I)	1555.10	Navy
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Gaines	2500.12	Navy Gaine Assemblies.
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	2522.N31	Navy Mechanical Aerial Burst Nose Fuze.
	2511.N90	Mechanical Aerial Burst Nose Fuze.
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C-3(a)	2533.N30	Army Chemical Long Delay Nose Fuze.
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D-2(a)	2542.T20	Navy Clockwork Long Delay Tail Fuze.
D-2(b)	2542.T21	Navy Clockwork Long Delay Tail Fuze.
D-2(c)	2542.T22	Navy Clockwork Long Delay Tail Fuze.

COPY NO. ______
FILE NO.: 1500

IDENTIFICATION CHART OF JAPANESE BOMBS

IDENTIFICATION OF TAIL PIECE OF BOMB						IDENTIFICATION OF BODY OF BOMB									OTHER INFORMATION				
COLOR	STRIPES AND LINES	LETTERS, NUMBERS, OTHER MARKINGS	WIDTH	LENGTH	MATERIAL AND CONSTRUCTION	COLOR	STRIPES AND BANDS: NOSE	STRIPES AND BANDS: BODY	LETTERS, NUMBERS, OTHER MARKINGS	DIAMETER	LENGTH	OVER-ALL LENGTH	MATERIAL AND METHODS OF CONSTRUCTION	TYPES AND METHODS OF SUSPENSION	FUZE POCKETS	FUZES - POSSIBLE TYPES	TYPE, PURPOSE AND IDENTIFICATION	REMARKS	FILE NUMBERS
WHITE			3.1"	4.3"	4 aluminum alloy fins fastened by three bayonet joints to body. Nose cap held on by screws.	BLACK				3.0"	9.05"	10.5"	Cast iron b[illegible] has rubber ball-like [illegible]; tail cone held [illegible] three bayonet joints to body.	Horizontally by eye-bo[illegible] on plate rivetted to body.		A-5(a) Nose	1 Kg. Anti-personnel.	Four figure number on head (i.e. 4692). Rubber ball-like nose.	1521.1
BLACK	ONE GREEN BAND ON FINS		9.0"	15.0"	4 sheet steel fins welded to cone; cone welded to body; supporting band around fins.	BLACK	Red band	One white band, one yellow band, (circumferential)	"168" or "158" near nose. "50K" on body "50K" on collar.	7.0"	33.0"	40.0"	Head welded on and held by three dowel screws, steel tube welded to ta[illegible] cone.	[illegible]lly by eye-bolt on [illegible]ate rivetted to bo[illegible] May have a car[illegible]ing band.	1	A-2(b) Nose	60 Kg. Incendiary and Anti-personnel. (Phosphorus-impregnated rubber)	Dangerous filling. Liquid and rubber discs inside.	1523.1
			9.5"	15.8"	4 sheet iron fins on cone welded to body.	BLACK	Red band	One white band, one yellow band (circumferential)	Date in Jap[illegible] near c[illegible]ying lug.	7.0"	24.0"	40.0"	Steel head screwed to steel body. Nose held in place by grub screw.	Horizont[illegible]y by [illegible]n lug rivet[illegible] body.	2	A-2(a) Nose B-1(a) Tail	50 Kg. G.P.		1554.1
			5.5"	11.0"	4 sheet iron fins, tail cone welded to bottom ring of shrapnel.	BLACK	Red band	One white band, one yellow band, (circumferential)		3.9"	14.25"	25.2"	Head screwed on to steel tube. Outer casing consists of 26 shrapnel rings (3/8" square).	Horiz[illegible] or vert[illegible]lly [illegible] eyebolt on b[illegible]y or e[illegible] of tail.	1	A-2(a) Nose	15 Kg. Anti-personnel.		1512.1
			13.3"	22.0"	Four 1/16" sheet iron fins welded to cone. Cone welded to body. Double set of box-type struts.	BLACK		One white band, one yellow band, (circumferential)		9.[illegible]	[illegible].0"	53.0"	Cast steel head screwed to body. Drawn steel tube welded to nose cap and cone.	Horizo[illegible]ally [illegible] swivel [illegible]le fastened to body.		A-2(a) Nose B-1(a) Tail	100 Kg. G.P.		1554.1
BLUE GREY (Includes Admiralty Grey and Grey)			9.2"	18.5"	4 sheet iron fins welded to cone. Double set of box-struts. Cone welded to [illegible].	BLUE GREY	Red band	Blue band near nose; one white band, two yellow bands.	[illegible]	7.5"	26.4"	[illegible]5.0"	Cast steel head fastened to steel tube by three grub screws. Cone welded to body.	Horizontally by eye-bolt on carrying band.	1	A-2(a) Nose	50 Kg. Gas		1533.1
			10.0"	13.8"	4 sheet iron [illegible] (2" wide)	BLUE [illegible]		One white band, two yellow bands.		5.9"	13.[illegible]	27.0"	Sheet iron casing.	Horizontally or vertically by eyebolt on body or tail. Tw[illegible] lugs on body.			33 Kg. Illuminating flare.	64.5" diameter parachute with 32 cords.	1542.1
			13.2"	21.0"	4 sheet iron fins (1/1[illegible] with box-type strut[illegible].65" square) cone rivetted to body (2 rows of 16 rivets).	BLUE GREY		Deep blue band. (circumferential)		9.4"	21.[illegible]	[illegible]	[illegible]t steel head, spot-welde[illegible] to steel tube (two r[illegible]s of 10 spots), or rive[illegible]ed.	Horizontally (two lugs on body diametrically opposite).	[illegible]	A-3(a[illegible]se or A-[illegible] Nose	60 Kg. G.P. Type 98		1553.1
	GREEN BAND		7.9"	15.0"	4 fins welded to cone; cone welded onto body. Fins held by steel straps (24 rivets, 28 screws).	[illegible]I-[illegible]ALTY GREY	Green nose	Two red lines [illegible]ngitudinally, [illegible]ametrically op-[illegible]site. Blue band		8.0"	21.9"	40.0"	Ca[illegible]steel [illegible]ad welded [illegible] held [illegible] 20 rivets.	Horizontally by suspension lug.	1	[illegible]1(a) Nose	63 Kg. G.P.		1553.2
			10.6"	18.3"	4 sheet iron fins (3/32") welded to cone; cone welded and held by screws to body.	[illegible] GREY		[illegible]lue band (2 red longitudinally directed bands [illegible]iametrically op[illegible]te.)		7.9"	21.8"	40.0"	Steel h[illegible] rivetted to body ([illegible]ets in two rows) Bod[illegible] fastened to tai[illegible] by 2[illegible] and 28 sc[illegible]	Horizontally by eye-bolt on plate rivetted to body.	1	A-3(a) Nose or A-1(a) Nose	60 Kg. G.P. Type 97		1553.1
			19.3"	37.1"	4 fins welded to cone with bar box-type struts; cone screwed to body with 32 screws (and 16 rivets).	BLUE GREY	G[illegible]n nos[illegible]	One [illegible] band		13.8"	35.5"	72.0"	Steel head welded and rivetted (16 rivets) sheet s[illegible]el cylin[illegible]	Horizontally by eye-bolt on plate rivetted to body.	2	A-3(a) or C-2(a) Nose. B-3(a) or C-1(a) Tail.			1555.1
	RED LINE ON TAIL		9.7"	18.2"	4 sheet iron fins welded to cone; cone rivetted and screwed to body.	LIGHT GREY				7.9"	28.2"	40.0"	Steel head [illegible]etted to steel body. [illegible]one screwed and rivetted [illegible] body.	Horizontally by eye-bolt on plate rivetted to body.	1	A-3(a) Nose	70 Kg. Incendiary (Thermite)	Tail supports painted red.	1523.3
			13.2"	16.4"	4 sheet iron fins with box-type struts; cone fastened to body by 2 rows of screws and 1 row of rivets.	GREY				9.5"	25.3"	42.5"	Steel head welded to steel tube. Cone screwed to body by 2 rows of screws and 1 row of rivets.	Horizontally by eye-bolt on plate rivetted to body.	1	A-3(a) Nose	60 Kg. Oil Incendiary	Red band on tail (3.5 cm. wide). May contain triangular rubber pellets instead of oil.	1523.2
GREEN			16¼"	28.0"	4 sheet steel fins. Three doors in cone of tail. Fins rivetted to cone; cone screwed to body.	GREEN				11.5"	39.75"	68.0"	One piece - forged steel.	Horizontally by eye-bolt on plate rivetted to body.	2	A-3(a) Nose B-2(a) Tail	250 Kg. S.A.P.		1565.1
									[illegible]s in h[illegible]d, 12.5" fr[illegible] nose	16.1"	48.3"		One piece forged, machined steel. Male filling plug with 2 fuze pockets. Plug held by 2 dowel screws on sides of bomb.	Horizontally by lug bolted to the body.	2	B-2(b) Tail (both fuses in base plate).	750 Kg. S.A.P. (or 800 Kg.)	Probably a 16" Artillery projectile.	1576.1

ENEMY

BOMBS AND FUZES

SECTION III

JAPANESE BOMBS

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1/2 Kg.	H.E. Cluster Bomb	1511.105	Army
1 Kg.	Anti-Parked Aircraft	1511.11	Navy
15 Kg.	Anti-Personnel - Type 92	1512.10	Army
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50 Kg.	Incendiary (Phosphorus) Type 97	1523.10	Army
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FILE NO.: 1500.00 INTRODUCTION TO JAPANESE BOMBS

There are two distinctive types of bombs employed by the Japanese. The Army uses one type while the Navy uses bombs of its own design.

1. Army Bombs.

a. Construction: - The G.P.H.E. and incendiary bombs are of three piece construction. The nose is usually threaded onto the body and held by two grub screws, or attached by means of three set screws in case of incendiaries while the tail cone is usually welded to the bomb body. A rectangular swivel eye-hook on a plate rivetted to bomb body is used for suspension.

b. Markings: - Army G.P.H.E. bombs are generally 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. Incendiaries and chemical bombs are usually gray overall with a red band around the nose.

c. Fuzes: - Only Army fuzes are used.

d. Filling: - Army H.E. bombs are generally filled from the nose end with an explosive filling comprised of 3 to 5 separate sections wrapped in wax paper, separated by cardboard, felt or both. In a few cases the filling is cast into the bomb.

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

e. Tail: - Army tail fins extend from beyond the apex of the cone to within an inch or two of the body-tail cone joint.

2. Navy Bombs.

a. Construction: - G.P.H.E. bombs are usually constructed of three pieces. The nose piece is usually welded and/or rivetted to the body while the tail assembly is welded and/or rivetted to a collar which fits into the base of the bomb body and is secured by screws. An eyebolt welded to a circular plate which is rivetted to bomb body by four rivets comprises the suspension lug.

S.A.P. and A.P. bombs have a thicker case and are made in two sections. The tail cone is secured by screws to a base plate which threads into base of bomb body.

b. Markings: -

1. Old: G.P.H.E. bombs - gray overall, green nose, green tail struts, two longitudinal red lines, and a blue band around the body in back of the suspension lug. S.A.P. and A.P. are the same without the blue band.

Incendiaries are generally blue gray overall with two red lines diametrically opposite running the entire length of the bomb and a silver or red band on nose and/or red tail struts.

2. New: G.P.H.E., S.A.P. - gray overall, brown nose tipped in green, gray tail struts.

Anti-Submarine: gray with blue nose tipped in green and gray struts.

A.P.: gray overall, white nose tipped in green, gray struts.

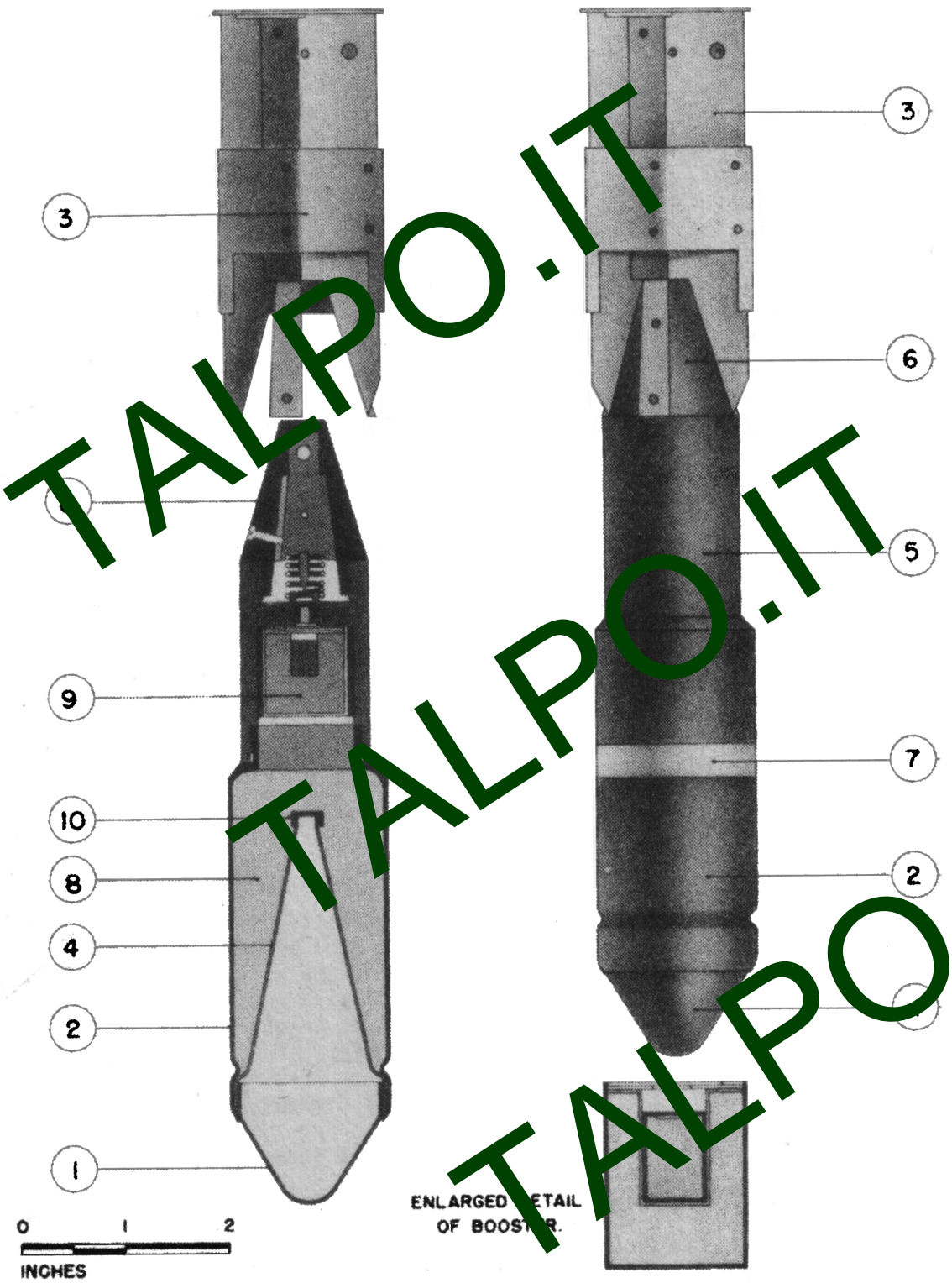
c. Fuzes: - Only Navy type fuzes are used.

d. Filling: - Navy type bombs are generally filled from the tail end. G.P. bombs have fillings in two sections (body and tail), S.A.P. and A.P. bombs have filling in the body section only, the tail cone being empty. 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.

e. Tail: - Navy tail fins extend approximately half way up the tail cone. They are not rounded, but come to a definite point on the exterior side.

BOMB DATA: FILE NO.: 1511.10

NATIONALITY: JAPANESE	INFORMATION DATE: October 1943
SIZE: 1/3 Kg.	ARMY TYPE Anti-Parked Aircraft
TARGET: Grounded aircraft, bomber formations, materiel.	ARMY FUZES: B-5(a)



LEGEND

1. OGIVE.
2. BODY.
3. TAIL ASSEMBLY.
4. HOLLOW CONE.
5. GAINE HOLDER.
6. TAIL FUZE.
7. YELLOW BAND.
8. FILLING.
9. GAINE.
10. CONE CAP.

FILE NO.: 1511.10

JAPANESE ARMY 1/3 KG. ANTI-PARKED AIRCRAFT BOMB

DESCRIPTION:

Overall length	-	10.25 inches.
Length of body & tail cone	-	7.45 inches.
Length of body	-	4.60 inches.
Diameter of body	-	1.58 inches.
Thickness of wall	-	0.03 inches.
Length of tail	-	6.0 inches.
Length of tail fin	-	4.0 inches.
Width of tail (diagonal)	-	1.75 inches.
Width of tail (square)	-	1.5 inches.
Width of tail fin	-	.8 inches.
Weight of filling	-	0.12 Kg.
Total weight of bomb	-	0.33 Kg.
Charge/weight ratio	-	32.0 %
Material of body	-	Steel.
Material of tail	-	Magnesium alloy or lacquered steel.
Type of filling	-	Old type: T.N.T. 58.0%
		Cyclonite 42.0%
		Modified: T.N.T. 50.0%
		Cyclonite 50.0%
		(Mark 2 explosive, Tanoyaku)

FUZES:

Nose: None
Tail: B-5(a)

CONSTRUCTION OF BODY:

The body (4) is clamped around the ogive (1) and screwed to a gaine holder (5) to which the fuze (6) is screwed. The tail assembly (3) is held by screws to the fuze. A hollow cone (4) gives a shaped charge effect.

TYPE OF SUSPENSION:

Carried in clusters of 76 or 30 bombs per container.

COLOR AND MARKINGS:

Black body with yellow band around body and either aluminum or golden lacquered tail assembly.

CONSTRUCTION OF TAIL:

Three tail fins are held on to fuze by screws. The fuze is screwed into the gaine holder. Old type has a tail brake plate soldered to end of fins. A 3/16 inch strut at the extreme end of the fins has been substituted for the plate on the modified type.

REMARKS:

On the modified type the arming spindle is 1/8 inch longer allowing the cup shaped vanes of the fuze to protrude further into the wind stream. The body is that of a Japanese anti-tank rifle grenade and this bomb can pierce armor plate because of the shaped charge principle of explosion.

JAPANESE ARMY ANTI AIRCRAFT BOMB

FILE NO.: 1511.101

JAPANESE ARMY PARACHUTE ANTI-AIRCRAFT BOLO BOMB

DESCRIPTION:

Overall length	-	7.0 inches.
Length of body	-	2.0 inches.
Diameter of body	-	2.5 inches.
Thickness of wall	-	0.093 inches.
Weight of filling	-	241 grams.
Total weight of bomb	-	3 pounds 13 ounces.
Charge/weight ratio	-	60.7 %
Material of body	-	Cast steel.
Type of filling	-	Cyclonite/TNT (40/60)

FUZE:

The fuze, an almost exact copy of the Italian K fuze, has an aluminum body and contains a floating firing mechanism. This mechanism consists of a brass cylinder with a small detonator in one end and a weighted firing pin in the other. The two are separated by a small creep spring. The safety feature consists of a small brass pin which is screwed into one side of the fuze body and passes through a hole in the weighted firing pin head, thus making it impossible for the latter to touch the detonator until the pin is withdrawn. A single aluminum vane on the outer end of the brass arming pin rotates as the bomb falls and unscrews the arming pin from the fuze, thus leaving the floating mechanism free to function on the slightest impact.

CONSTRUCTION OF BODY:

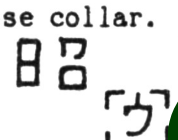
The entire bomb, complete with parachute and cable, is packed in a gray can, 7 inches high by 3-1/2 inches in diameter. The can is constructed in two halves, hinged across the bottom and with a screw top. The bomb proper is a simple cylinder closed at both ends. The walls and base are made in one piece 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 a protruding threaded collar welded onto the disc. The cable attachment is attached to the base plug. The nose collar is threaded to take the fuze. The bomb is filled from the nose.

TYPE OF SUSPENSION:

There is no visible means of suspending this bomb in the plane. It may be that they are dropped from containers in which they could be stacked with the tops removed and the safety pins pulled.

COLOR AND MARKINGS:

Black overall with red band around nose collar. Stencilled in white at middle of the body:



(February 1943)

Symbol for place of filling.

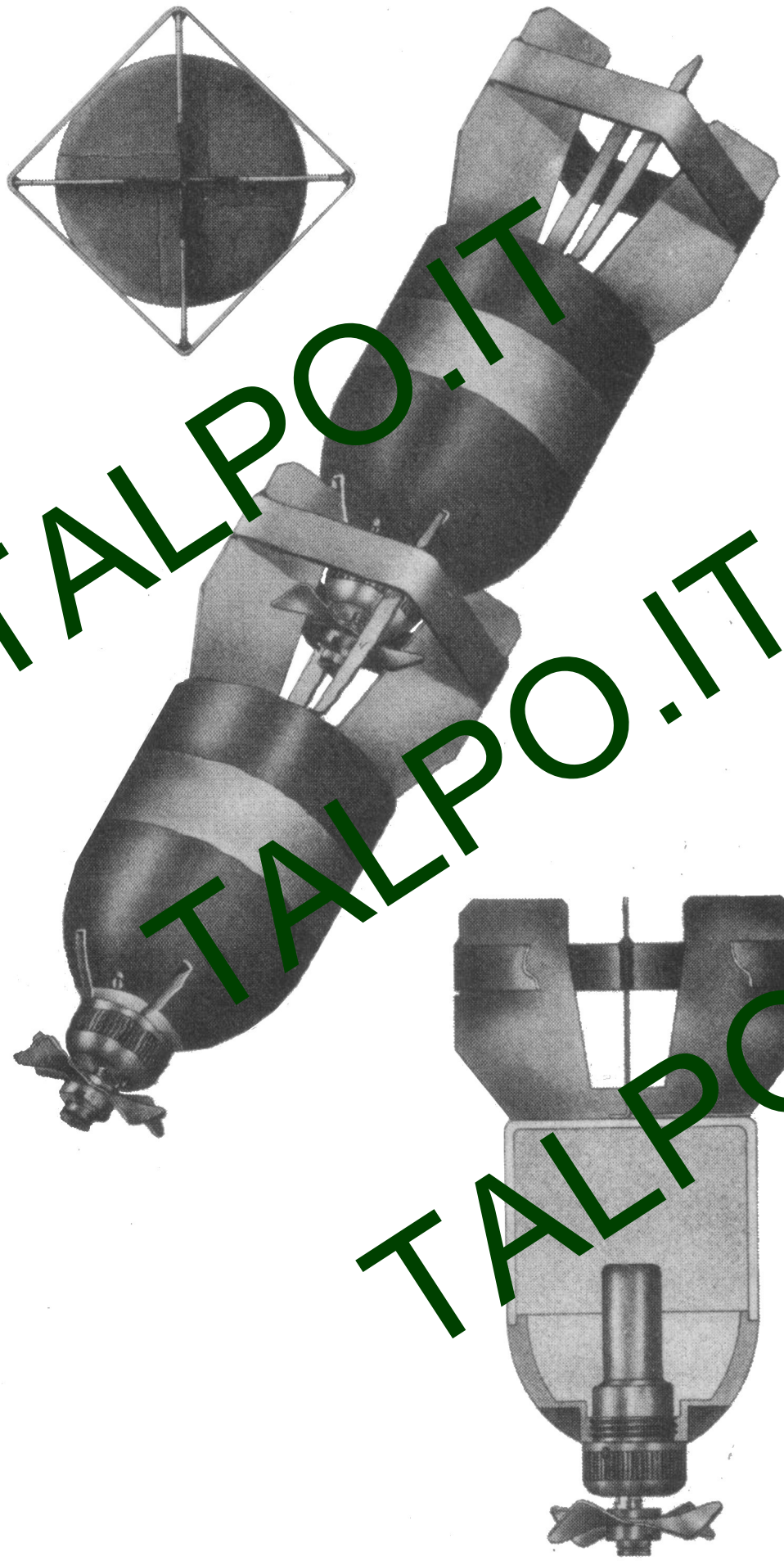
CONSTRUCTION OF PARACHUTE ASSEMBLY:

This assembly consists of the main parachute, attached to the auxiliary parachute, which is attached to the reel containing 164 feet of 1/16 inch diameter steel cable, which is connected to the cable attachment on top of the bomb. The small auxiliary parachute is 13-1/2 inches in diameter unfilled, and is attached to the top of the reel by nine 15 inch silk shrouds. The main parachute is 36-1/2 inches in diameter unfilled. Thirteen silk shrouds, 37-1/2 inches long, are attached to a cord leading out of the top of the auxiliary parachute by 8-1/2 inches of double bungee cord.

ACTION:

As the can drops and fills with air it will open up and release the contents of the can. The parachutes will open and the coil of wire will unwind. An aircraft contacting any portion of the cable might cause the bomb to swing upward and detonate. 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 result.

JAPANESE ARMY ½ KG.
H.E. CLUSTER BOMB



FILE NO.: 1511.105 JAPANESE ARMY 1/2 KG. H.E. CLUSTER BOMB

DESCRIPTION:

Overall length	-	4.75 inches.
Length of body	-	2.75 inches.
Diameter of body	-	2.12 inches.
Thickness of wall	-	0.05 inches.
Length of tail	-	2.0 inches.
Width of tail	-	2.0 inches (square)
		2.88 inches (diagonal)
Weight of filling	-	0.20 Kg.
Total weight of bomb	-	0.41 Kg.
Charge/weight ratio	-	45.0 %
Material of body	-	Drawn steel.
Material of tail	-	Sheet steel.
Type of filling	-	57.7 % TNT.
		42.3 % Cyclonite.
		Also found loaded with sand.

FUZES:

Nose: A-6(a), A-6(b)
Tail: None

CONSTRUCTION OF BODY:

The body is similar to the mortar grenade projectile except for length. The cast steel nose is welded to the drawn steel body. Four slots cut in nose allow the bomb next in line to fit closely. There is a grub screw in the nose to hold the fuze securely.

TYPE OF SUSPENSION:

Carried in containers.

COLOR AND MARKING:

Black overall with red band on nose and 9/16 inch yellow band one half inch forward of base. Stamped on body: Osaka Army Arsenal, November 193[illegible]

CONSTRUCTION OF TAIL:

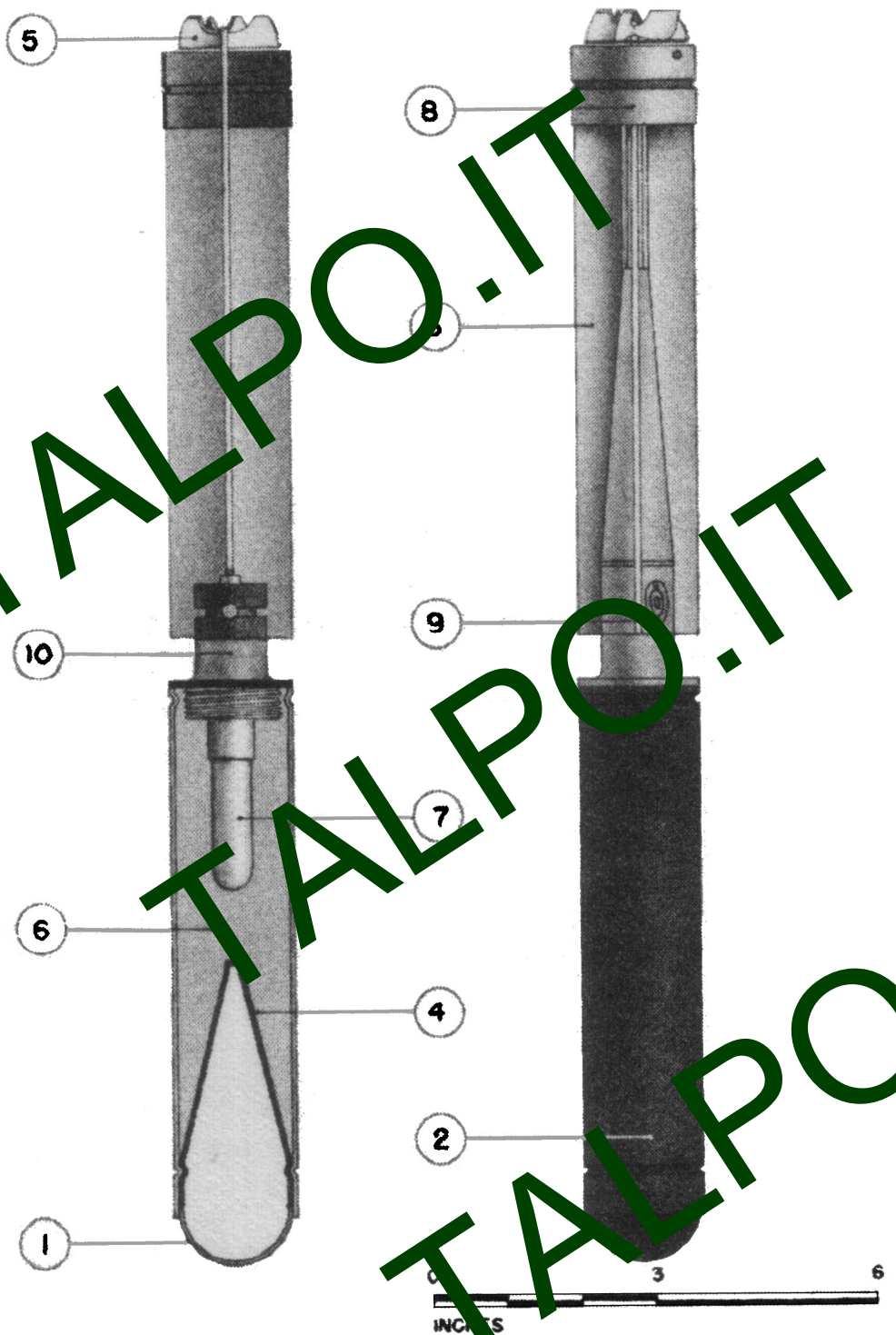
Four metal fins are spot-welded to the base of the bomb. The fins are supported by a 3/8 inch box-type strut welded to the fins.

REMARKS:

The construction of these bombs permits fitting the nose of one bomb into the tail of another. This feature serves two purposes: (1) It prevents the fuze vanes from rotating; (2) it decreases the length of the space needed to contain two fuzed bombs by one inch.

BOMB DATA: FILE NO.: 1511.11

NATIONALITY: JAPANESE	INFORMATION DATE: October 1943
SIZE: 1 Kg.	NAVY TYPE: Anti-Parked aircraft
TARGET: Parked aircraft	NAVY FUZES: B-5(b)



LEGEND	
1. OGIVE.	6. EXPLOSIVE CHARGE.
2. BODY.	7. GAINE.
3. TAIL ASSEMBLY.	8. STRUT.
4. HOLLOW CONE.	9. ARMING WIRE GROOVE.
5. ARMING VANES.	10. FUZE AND GAINE HOLDER.

FILE NO.: 1511.11

JAPANESE NAVY 1 KG. ANTI-PARKED AIRCRAFT BOMB

DESCRIPTION:

Overall length	-	17.63 inches.
Length of body	-	10.0 inches.
Diameter of body	-	1.75 inches.
Thickness of wall	-	0.062 inches.
Length of tail	-	8.37 inches.
Length of tail fin	-	8.0 inches.
Width of tail	-	1.75 inches.
Width of tail fin	-	1.12 inches.
Weight of filling	-	31[illegible] grams.
Total weight of bomb	-	1.0 Kg.
Charge/weight ratio	-	[illegible].0
Material of body	-	Steel.
Material of tail	-	Sheet steel.
Type of filling	-	TNA (70/30) with tetryl booster.

FUZES:

Nose: None

Tail: B-5(a)

CONSTRUCTION OF BODY:

The tubular body (2) is of seamed construction with a hollow cone (4) in its nose to give the shaped charged effect. An ogive (1) of aluminum is pressed into the forward end of the body. The fuze and gaine holder (10) screws into the base of the body.

TYPE OF SUSPENSION:

Carried in a cluster of 40 bombs per container.

COLOR AND MARKINGS:

Bomb body is unpainted with an aluminum tail assembly stenciled in purple to indicate Navy.

CONSTRUCTION OF TAIL:

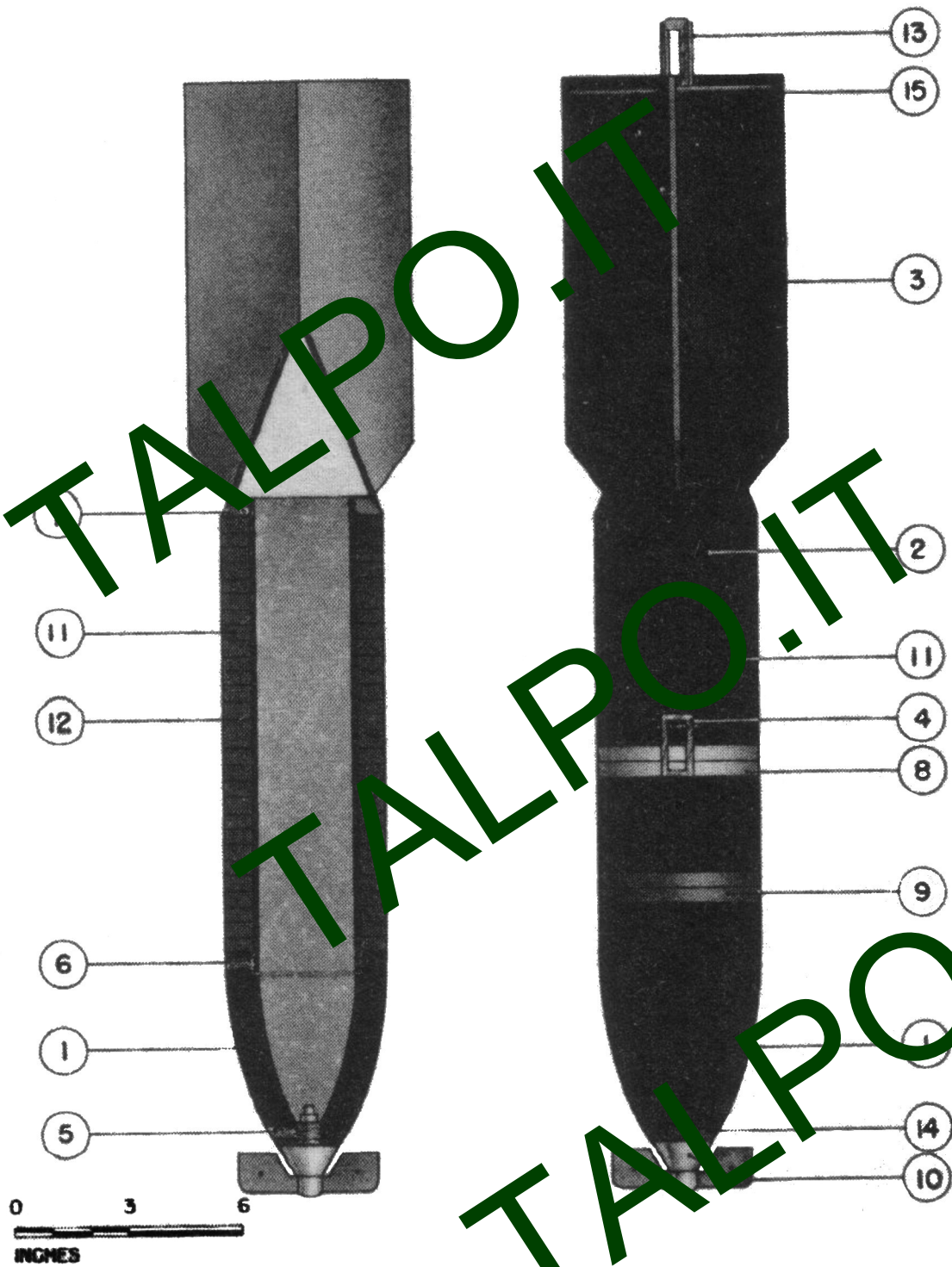
Four fins are soldered to the tail cone and braced by a circular ring strut. Tail cone is secured to fuze and gaine holder by four screws.

OPERATION:

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 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.

BOMB DATA: FILE NO.: 1512.10

NATIONALITY: JAPANESE	INFORMATION DATE: October 1943
SIZE: 15 Kg.	ARMY TYPE: Anti-Personnel H.E. Bomb.
TARGET: Personnel, motorized equipment.	ARMY FUZES: A-2(b)



LEGEND

1. NOSE PIECE.
2. BODY.
3. TAIL ASSEMBLY.
4. SUSPENSION LUG.
5. GRUB SCREW (NOSE FUZE).
6. GRUB SCREW (NOSE).
7. GRUB SCREW (TAIL).
8. WHITE BAND.
9. YELLOW BAND.
10. NOSE FUZE.
11. SHRAPNEL RINGS (26).
12. INNER CASING.
13. VERTICAL SUSPENSION LUG.
14. RED BAND.
15. BLACK STRUTS.

FILE NO.: 1512.10

JAPANESE ARMY 15 KG. ANTI-PERSONNEL H.E. BOMB (Type 92)

DESCRIPTION:

Overall length	-	25.37 inches.
Length of body & tail cone	-	19.75 inches.
Length of body	-	14.625 inches.
Diameter of body	-	3.87 inches.
Thickness of wall	-	0.53 inches.
Length of tail	-	10.75 inches.
Length of tail fin	-	10.0 inches.
Width of tail (diagonal)	-	.5 inches.
Width of tail fin	-	2.75 inches.
Weight of filling		4.4 Kg.
Total weight of bomb	-	15.0 Kg.
Charge/weight ratio	-	30.0 %
Material of body	-	Steel rings (26).
Material of tail	-	Steel.
Type of filling	-	Picric acid in 3 preformed blocks or TNT cast into bomb.

FUZES:

Nose: A-2(b), D-5(a)
Tail: None

CONSTRUCTION OF BODY:

Cast steel nose is threaded to tubular steel body and secured by grub screw. Twenty-six steel rings are shrunk around body. Rings are 3/8 inches square and fit very closely. Nose fuze is secured by grub screw.

TYPE OF SUSPENSION:

Horizontally or vertically. Normal Army type (rectangular steel swivel eye-hook on plate rivetted to body with four rivets). Assimilar swivel eye-hook is fastened to end of tail fins. May be found only with horizontal suspension.

COLOR AND MARKINGS:

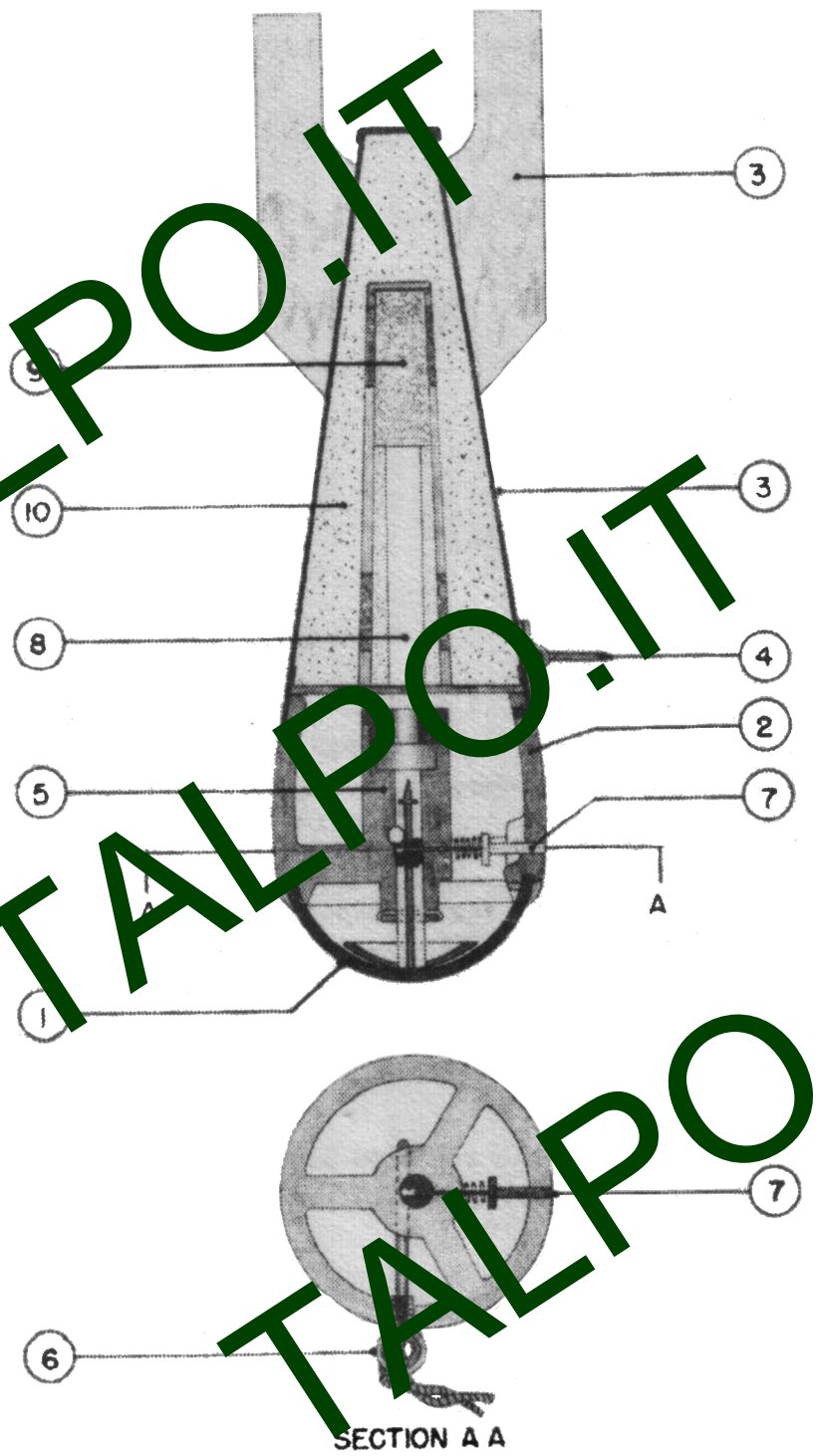
Black overall with red band on nose. 3/4 inch white and yellow bands forward of suspension lug. "15 K" stencilled near nose.

CONSTRUCTION OF TAIL:

Four Army fins welded to tail cone and braced by single row of struts. Tail cone is threaded to base of bomb body and secured by grub screw. Vertical suspension lug secured at end of tail fins.

BOMB DATA: FILE NO.: 1521.10

NATIONALITY: JAPANESE	INFORMATION DATE: October 1943
SIZE: 1 Kg.	NAVY TYPE: Smoke-Incendiary, Anti-Personnel.
TARGET: In conjunction with demolition bombs as a marker.	NAVY FUZES: A-5(a)



LEGEND

1. NOSE (RUBBER).
2. BODY.
3. TAIL.
4. SUSPENSION LUG.
5. FUZE.
6. SAFETY PIN.
7. SAFETY PLUNGER.
8. BURSTER.
9. WADDING.
10. PHOSPHORUS.

FILE NO.: 1521.10

JAPANESE NAVY 1 KG. SMOKE-INCENDIARY, ANTI-PERSONNEL BOMB (1 Kg. Exercise Bomb, Mod. 3, Smoke Explosive, May 1941)

DESCRIPTION:

Overall length	-	10.5	inches.
Length of body & tail cone	-	9.0	inches.
Length of body	-	3.75	inches.
Diameter of body	-	3.0	inches.
Thickness of wall	-	0.025	inches.
Length of tail	-	7.5	inches.
Length of tail fin	-	4.3	inches.
Width of tail (diagonal)	-	3.1	inches.
Width of tail fin	-	1.0	inches.
Weight of filling	-		
Total weight of bomb	-	1.0	Kg.
Charge/weight ratio	-		
Material of body	-	Steel.	
Material of tail	-	Steel.	
Type of filling	-	Picric burster; red phosphorus is the main charge.	

FUZES:

Nose: A-5(a)
Tail: None

CONSTRUCTION OF BODY:

A hemispherical rubber nose (1) closes the forward end of the one-piece, cast iron body (2) to which the tail cone (3) is attached by four screws. A swivel suspension lug (4) is rivetted to the body (2). A mushroom head fuze (5) is fitted inside the nose (1) and a burster (8) filled with picric acid and cotton wadding (9) are contained in a central tube which is surrounded by a red phosphorus filling (10). A safety pin (6) is screwed into position to release. A safety plunger (7) is depressed while the bomb is in the container.

TYPE OF SUSPENSION:

Horizontally or in clusters. A rectangular steel swivel eye-hook on a plate is rivetted to body with four rivets.

COLOR AND MARKINGS:

White rubber nose, black body, white tail cone and fins. Brass band in back of rubber nose.

CONSTRUCTION OF TAIL:

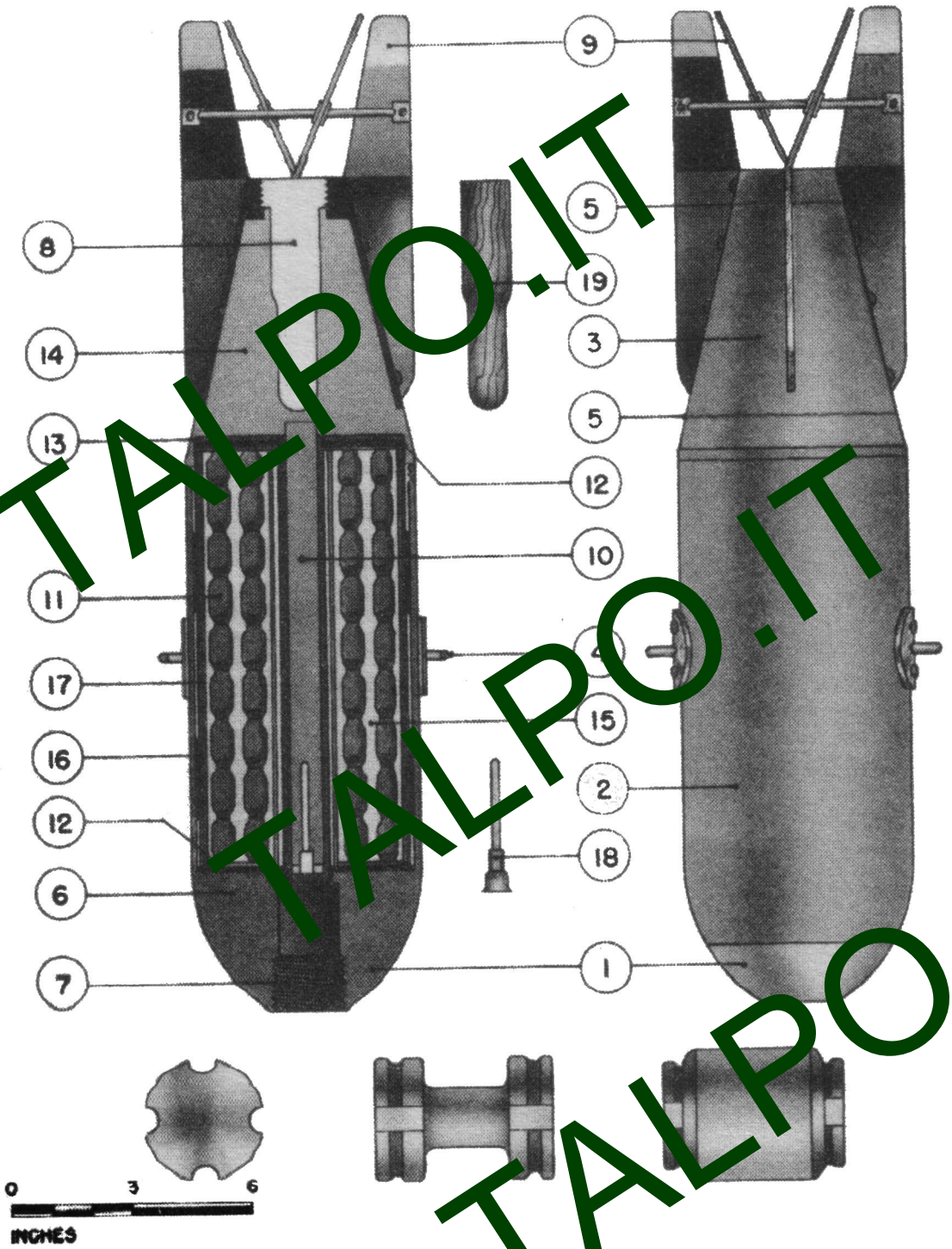
Four fins are welded to a sheet metal tail cone which is fastened to the body with four screws.

REMARKS:

Captured documents list this bomb as being a practice type. Shrapnel from the body on exploding is dangerous to personnel.

BOMB DATA: **FILE NO.:** 1522.10

NATIONALITY: JAPANESE	**INFORMATION DATE:** October 1943
SIZE: 32 Kg.	**NAVY TYPE:** Incendiary (Shrapnel)
TARGET: Personnel-Vehicle groups, also used as anti-vehicle mine.	**NAVY FUZES:** Nose: A-1(b), A-3(c) Tail: D-2(a), D-2(b), D-2(c)



LEGEND

1. NOSE.
2. BODY.
3. TAIL CONE.
4. SUSPENSION LUG.
5. WELD.
6. SOLID NOSE.
7. NOSE FUZE POCKET.
8. TAIL FUZE POCKET.
9. BENT TAIL FINS.
10. BURSTER.
11. PELLETS (STEEL).
12. FELT WASHERS.
13. STEEL RETAINER PLATE.
14. PICRIC FILLER.
15. PHOSPHORUS.
16. CARDBOARD SPACER.
17. CANNISTER.
18. DETONATOR.
19. WOODEN GAINE.

FILE NO.: 1522.10 JAPANESE NAVY 32 KG. INCENDIARY (SHRAPNEL)
(Type 99 No. 3 Mk. 3)

DESCRIPTION:

Overall length	-	24.5 inches.
Length of body & tail cone	-	21.0 inches.
Length of body	-	13.5 inches.
Diameter of body	-	5.75 inches.
Thickness of wall	-	0.19 inches.
Length of tail	-	11.0 inches.
Length of tail fins	-	9.5 inches.
Width of tail (diagonal)	-	6.5 inches.
Width of tail (square)	-	5.0 inches.
Width of tail fin	-	1.62 inches.
Weight of filling	-	7.5 pounds (Picric Acid).
Total weight of bomb	-	32.0 Kg.
Charge/weight ratio	-	
Material of body	-	Steel.
Material of tail	-	Steel.
Type of filling	-	Cannister containing 198 or 169 white phosphorus filled steel pellets. Picric Acid in tail cone.

FUZES:

Nose: A-1(b) or A-3(c).
Tail: Solid plug, D-2(a), D-2(b) or D-2(c).

CONSTRUCTION OF BODY:

A forged, steel body (2) with a solid nose (4) is fitted with a cannister (17). The picric burster (10), is in a steel rod screwed into the nose, and running the entire length of the body. The cannister is filled with 198 phosphorus-filled steel pellets (18). Tail cone is screwed into the body, and held by two grub-screws. A grub-screw is present in the nose fuze pocket.

TYPE OF SUSPENSION:

Horizontal. 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 AND MARKINGS:

Navy Incendiary Code: Old--gray overall, silver nose, silver band on tail fins, and two red lines diametrically opposite running from nose to tail. New--Gray overall, silver nose tipped in green, red stripe.

CONSTRUCTION OF TAIL:

Four fins (0.06 inch) 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:

The fins are bent at approximately 19 degrees, thus imparting a rotary action to the bomb and allowing use of the D-2 series aerial-burst fuzes.

A modification of this bomb has been recovered. It is the same with the following exceptions:

(1). Four auxiliary fins set at 30 degree angle to the longitudinal axis of bomb body are welded directly to the body near the horizontal suspension lug.

(2). The upper section of the tail fins are bent at an angle of approximately 22 degrees.

These features will provide greater rotation in flight thus facilitating better arming of the aerial-burst fuze.

JAPANESE ARMY INCENDIARY BOMBS
(PHOSPHORUS PELLET)

FILE NO.: 1523.10 & 1523.15

JAPANESE ARMY 50 KG. PHOSPHORUS PELLET INCENDIARY BOMBS (Type 100 & Type 97)

DESCRIPTION:	Type 100	Type 97
Overall length	40.5 inches.	45.0 inches.
Length of body & tail cone	33.0 inches.	32.75 inches.
Length of body	26.4 inches.	26.4 inches.
Diameter of body	7.25 inches.	7.5 inches.
Thickness of wall	0.125 inches.	0.125 inches.
Length of tail	16.5 inches.	19.25 inches.
Length of tail fin	15.0 inches.	17.0 inches.
Width of tail (diagonal)	9.75 inches.	9.5 inches.
Width of tail (square)		6.75 inches.
Width of tail fin	4.5 inches.	4.5 inches.
Weight of filling		
H.E. Charge	2.1 Kg.	2.5 Kg.
Chemical Filling	16.5 Kg.	17.0 Kg.
Total weight of bomb	43.5 Kg.	46.0 Kg.
Charge/weight ratio	44.0 %	12.0 %
Material of body	Steel.	Steel.
Material of tail	Steel.	Steel.
Type of filling	Chemical filling: Black rubber bungs (one inch long by one inch in diameter) impregnated with phosphorus dissolved in carbon disulphide. H.E. Charge: Separate preformed paper wrapped Picric acid nose and burster tube charges.	

FUZES:

Nose: A-2(a), A-2(b), D-5(a).
Tail: None.

CONSTRUCTION OF BODY:

A steel nose is held onto a steel sealing plate by three set screws. This plate is welded to the tubular steel body. A burster tube threads into the sealing plate and the joint is made airtight by a lead washer at the thread seat and a filler lead poured around the external thread section. Sealing plates of alternate thicknesses of 1" and 1-3/4" are used in the Type 100. Tail cone is welded to the base of bomb body.

TYPE OF SUSPENSION:

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

COLOR AND MARKINGS:

Blue-gray overall with a white or a white and a yellow band forward of suspension lug and a red band around the nose when H.E. is inserted. White stencilled markings include: the incendiary symbol, the weight classification, the date, and a weight discrepancy mark.

CONSTRUCTION OF TAIL:

Type 100: Four Army type fins are welded to tail cone and braced by one row of box-type struts welded to fins.

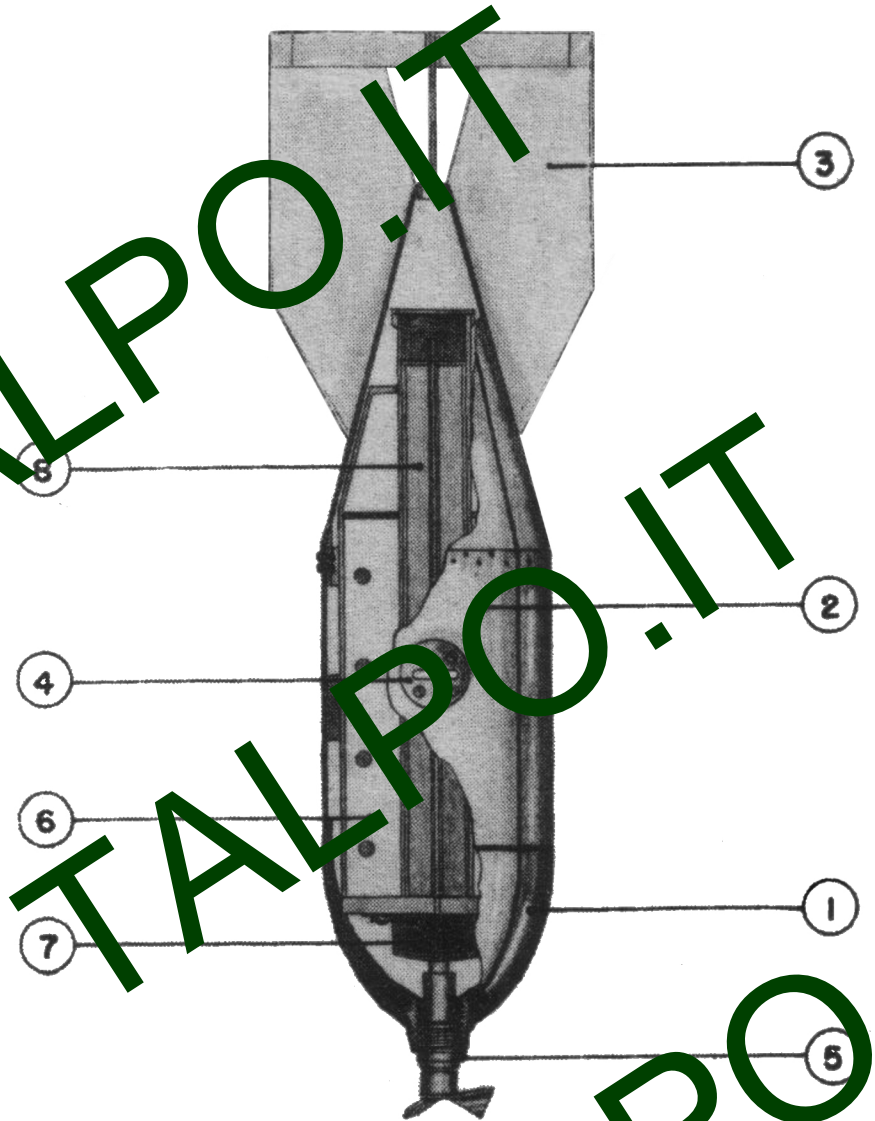
Type 97: Four Army type fins cut sharply at forward end are welded to tail cone and braced by two sets of tubular struts welded to tail cone.

REMARKS:

The Type 97 is the gas bomb casing with an incendiary filling.

BOMB DATA: FILE NO.: 1523.20 and 1523.21

NATIONALITY: JAPANESE	INFORMATION DATE: October 1943
SIZE: 70 Kg.	NAVY TYPE: Incendiary (Solid Oil).20) or (Rubber Pellets) .21)
TARGET: Frame structures and in conjunction with demolition bombs.	NAVY FUZES: A-3(a) or A-3(b)



0 6 12
INCHES

LEGEND	
1. NOSE.	5. NOSE PLUG.
2. BODY.	6. FILLING.
3. TAIL.	7. EXPELLING CHARGE.
4. SUSPENSION LUG.	8. THERMITE.

FILE NO.: 1523.20 & 1523.21

JAPANESE NAVY 70 KG. INCENDIARY (SOLID OIL OR RUBBER PELLETS)

(Type - No. - Mk. 6 & Type 1 No. 7 Mk. 6 Mod. 3)

DESCRIPTION:

Overall length	-	42.5 inches.
Length of body & tail cone	-	34.75 inches.
Length of body	-	25.3 inches.
Diameter of body	-	9.5 inches.
Thickness of wall	-	0.15 inches.
Length of tail	-	20.75 inches.
Length of tail fin	-	16.0 inches.
Width of tail (diagonal)	-	13.25 inches.
Width of tail fin	-	5.8 inches.
Weight of filling	-	20.0 pounds (Inflammable Mixture),
		7.5 pounds (Thermite).
Total weight of bomb	-	132.0 pounds.
Charge/weight ratio	-	22.0 %
Material of body	-	Steel.
Material of tail	-	Steel.
Type of filling	-	(a) A central thermite core surrounded by a solidified oil mixture.
		(b) Rubber pie-shaped pellets impregnated with thermite surround a central tube of H.E. bursting charge.

FUZES:

Nose: A-3(a), A-3(b)
Tail: None.

CONSTRUCTION OF BODY:

Cast steel nose welded to tubular steel body. A grub screw holds the nose fuze. A steel cylindrical inner casing divided into six interconnected compartments and housing a central steel tube holds the incendiary filling.

TYPE OF SUSPENSION:

Horizontal. Normal Navy suspension lug (eyebolt welded to circular plate which is rivetted to bomb body with four rivets).

COLOR AND MARKINGS:

Old: Red nose, gray body, red tail struts. Two red stripes diametrically opposite run length of body and tail cone.

New: Red nose tipped in green, gray body, red tail struts.

CONSTRUCTION OF TAIL:

Four Navy fins (0.06 inches thick) welded to metal strips which are rivetted (fourteen rivets each) to tail cone. Cone is welded to tail collar which is held by two rows (sixteen per row) of screws to base of bomb body. Single row of box-type struts (1.4 inches wide) rivetted to fins.

OPERATION:

Impact actuates fuze whose magazine explodes a black powder charge blowing the inner casing out of bomb body. Simultaneously a length of quickmatch ignites thermite which in turn ignites incendiary filling which burns as a compact mass. If rubber pellets are used, the explosive train detonates the H.E. burster tube.

JAPANESE NAVY 70 KG. INCENDIARY BOMB

FILE NO.: 1541.60 JAPANESE ARMY PARACHUTE FLARE (Type 90)

DESCRIPTION:

Overall length of flare container	28.00	inches
Diameter of flare case	2.60	inches
Length of flare body	12.12	inches
Diameter of central tube	0.60	inches
Length of igniter body	4.13	inches
Diameter of igniter body	0.472	inches
Length of ignition tube	7.874	inches
Weight of flare (less igniter & end caps)	2.02	Kg.
Weight of main filling	1.73	Kg.
Weight of ignition charge	0.0423	Kg.
Weight of igniter complete	0.100	Kg.
Material of body	Sheet steel.	

Type of filling - The main filling extends from the wooden spacer down to the ignition charge and is pressed into the flare case. Several coils of copper wire around the central tube prevent the filling from falling out of the base when the flare is burning in the air. The ignition charge is packed unevenly below the main filling. The main filling consists of magnesium and metal salts.

FUZE:

A pull type igniter is activated by the initial jerk at the opening of the parachute.

CONSTRUCTION OF BODY:

The flare body is formed from varnished sheet steel, rolled and soldered into the form of a cylinder. The case of the flare (furthest from the parachute) is serrated and the teeth crimped over the perforated disc. Two fibre washers and a steel cap held on by tape protect the network of powder strips. The end of the central tube passes through a hole in the center of the perforated disc and is crimped over it. An aluminum casting fits into the central tube and guides some of the powder strips in the disc through grooves in its face over the strips within the ignition tube. At the top of the flare is a wooden spacer drilled centrally to accommodate the central tube. A steel closing disc rests on the spacer and is soldered to the end of the central tube. The case is crimped over this disc. A conical cap with a hole in the apex to accommodate the pull wire is fastened to the case and spacer with three wood screws.

TYPE OF SUSPENSION:

The flare is packed in a split cardboard cylinder. At one end the cylinder halves are hinged by means of a piece of cloth. On the other, they are held together by a cardboard cap. Two lengths of cotton tape hold the cap in place, and another is tied around the container body. When used, the tape is untied and the cap is removed. The cardboard container with the flare inside is then thrown over the side.

CONSTRUCTION OF PARACHUTE:

The parachute is made up of three strips of cotton cloth sewn together. Sixteen shrouds and a line attached to the center of the chute are woven into a single line which leads to the pull wire of the igniter.

COLOR AND MARKINGS:

Each flare is packed in a hermetically-sealed, tinned steel cylindrical container which is opened by a tear-off strip. The containers are painted blue and have a printed label of instructions, pasted on the side.

OPERATION:

The tapes holding the cap and container are untied and the cardboard container with the flare inside is thrown from the plane by hand. The container opens to release the parachute and flare. The pull of the parachute on opening, lifts the striker release upward, further compressing the striker spring. When the release is free of the igniter body, the arms open outward freeing the striker which then impinges on the cap, igniting the black powder magazine below it and the powder strips. The flash from the strips passes down the ignition tube to the network of powder strips in the base of the flare, igniting the ignition charge and the flare.

REMARKS:

The flare burns for 2 minutes and 40 seconds with an intense greenish-white flame.

FILE NO.: 1542.05 JAPANESE ARMY 12 KG. PARACHUTE FLARE
(Type 1)

DESCRIPTION:

Overall length	34.125 inches.
Length of body	34.125 inches.
Diameter of body	4.87 inches.
Thickness of wall	0.062 inches (18 gauge).
Length of tail	11.75 inches.
Width of tail	6.162 inches (maximum diameter of flare).
Weight of filling	Flare composition - 15 lbs. 1 oz.
Total weight of bomb	26 pounds, 5 ounces.
Charge/weight ratio	57.0 %
Material of body	Sheet steel.
Material of tail	Sheet steel.
Type of filling	Flare composition.

FUZES:
Nose: D-5(b)
Tail: None.

CONSTRUCTION OF BODY:
The flare is a 34 inch, black, parallel-sided tube of 18 gauge, cold rolled steel, with a conical shaped nose. Internally the flare consists of two sections: The flare composition container and the parachute with its container. These two sections are joined together by 53 inches of 1/8 inch wire rope. The flare composition is contained in an aluminum painted sheet steel cylinder with a lap rolled seam. One end is closed by a steel plate to which the cylinder walls are rivetted. The wire rope is attached to a lug rivetted to this plate. A thin layer of abestos protects the steel plate from the heat. The opposite end of the container is flanged over a wooden plug. Between this and the flare composition is a wire screen disc filled with black powder; the disc being 5/32 inch thick. This serves both to ignite the composition and to expel it from the case. 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 and has sixteen (16) peripheral shrouds and one central shroud. The shrouds are 13 feet, 9 inches long.

TYPE OF SUSPENSION:
Horizontal. An Army type carrying band with folding lug is bolted around the case 13 inches from the nose.

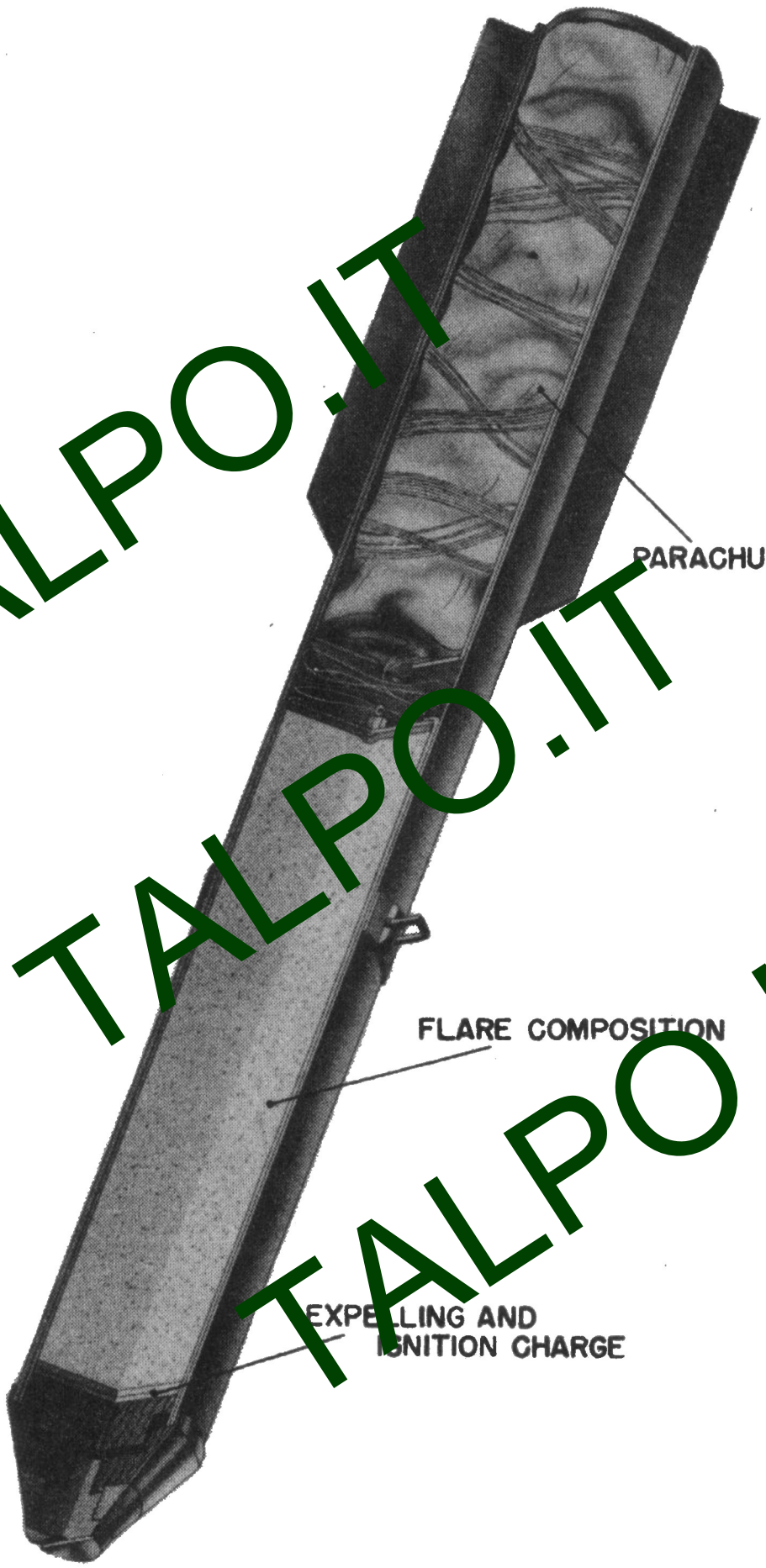
COLOR AND MARKINGS:
The outside container is marked: "Tokyo, August 1943" Ⓕ 18.8 and ✈ (Symbol for illuminating flare). The flares come packed two per black wooden box. The box examined bore: — ㊸ ⑬ (meaning not understood); and  = Quantity 2.

CONSTRUCTION OF TAIL:
Four sheet steel fins protrude 7/8 inch from the body and are spot welded to the rear of the container.

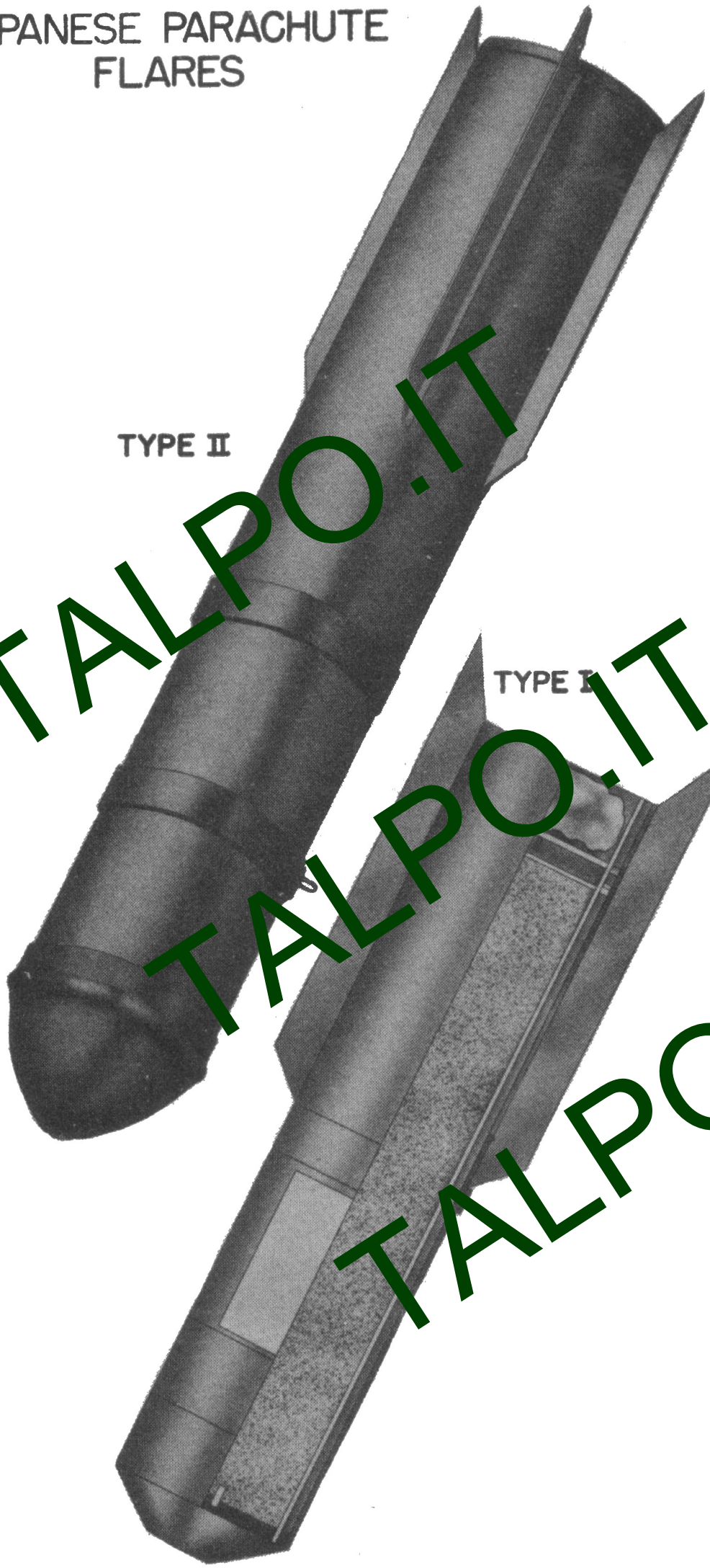
OPERATION:
When the fuze initiates the black powder disc, the resultant flash ignites the flare composition. The expanding gases cause both the parachute and the composition container to be expelled out the rear of the flare container. The parachute housing falls away allowing the parachute to be opened. 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.

REMARKS:
The composition is silvery gray and appears to be a hard pressed mechanical mixture of powdered magnesium, asbestos flakes, and other ingredients to account for its weight. The composition, outside of its container, burned for one minute and twenty seconds. Suspended vertically and inside a container, the burning time would probably be increased to about three minutes. The burning color was greenish white. The action was very violent

JAPANESE ARMY 12 KG. PARACHUTE FLARE



JAPANESE PARACHUTE FLARES



FILE NO.: 1542.10 & 1542.11

JAPANESE PARACHUTE FLARES TYPE I & II

DESCRIPTION:	TYPE I	TYPE II
Overall length	27.0 inches.	39.5 inches.
Length of body	25.0 inches.	37.5 inches.
Diameter of body	6.1 inches.	6.62 inches.
Thickness of wall		0.05 inches.
Length of tail fins	14.0 inches.	15.0 inches.
Width of tail fins	2.0 inches.	1.25 inches.
Weight of filling	18.0 Kg.	49 lbs. 1 oz.
Total weight of bomb	33.0 Kg.	79 lbs. 10 oz.
Charge/weight ratio	54.0 %	62.0 %
Material of body	Sheet Steel.	Sheet Steel.
Material of tail		18 Gauge steel plate.
Type of filling	Illuminant.	Illuminant.

FUZES:

Type I - Unknown.

Type II - #3(a).

CONSTRUCTION OF BODY:

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 has woolen bands around it to prevent the case from sticking while being ejected from the outer case.

Type II: A cylindrical barrel of 18 gauge mild steel plate has a nose piece of 16 gauge mild steel plate lap-jointed to it. A wooden block is located in the nose. The inner case (details unknown) has woolen bands around it to prevent the case from sticking while being ejected. This inner casing slides into the container, and houses the candle with attached parachute. The parachute cable is attached to an eyebolt rivetted to the end cap of the inner case. The end cap is held to the inner casing by sheet metal screws. The outer end cap is held in position by spot soldering in four places and material resembling shellac seals it against moisture.

TYPE OF SUSPENSION:

Type I - Unknown.

Type II: - Navy type lug fastened to suspension band (approximately 1.5 inches wide) welded to outer casing 13 inches in back of nose.

COLOR AND MARKINGS:

Type I: - Bluish-gray - marked April 1939, Large Type Flare, Tech. Dept. of Naval Air Force.

Type II: - Gray overall - no markings.

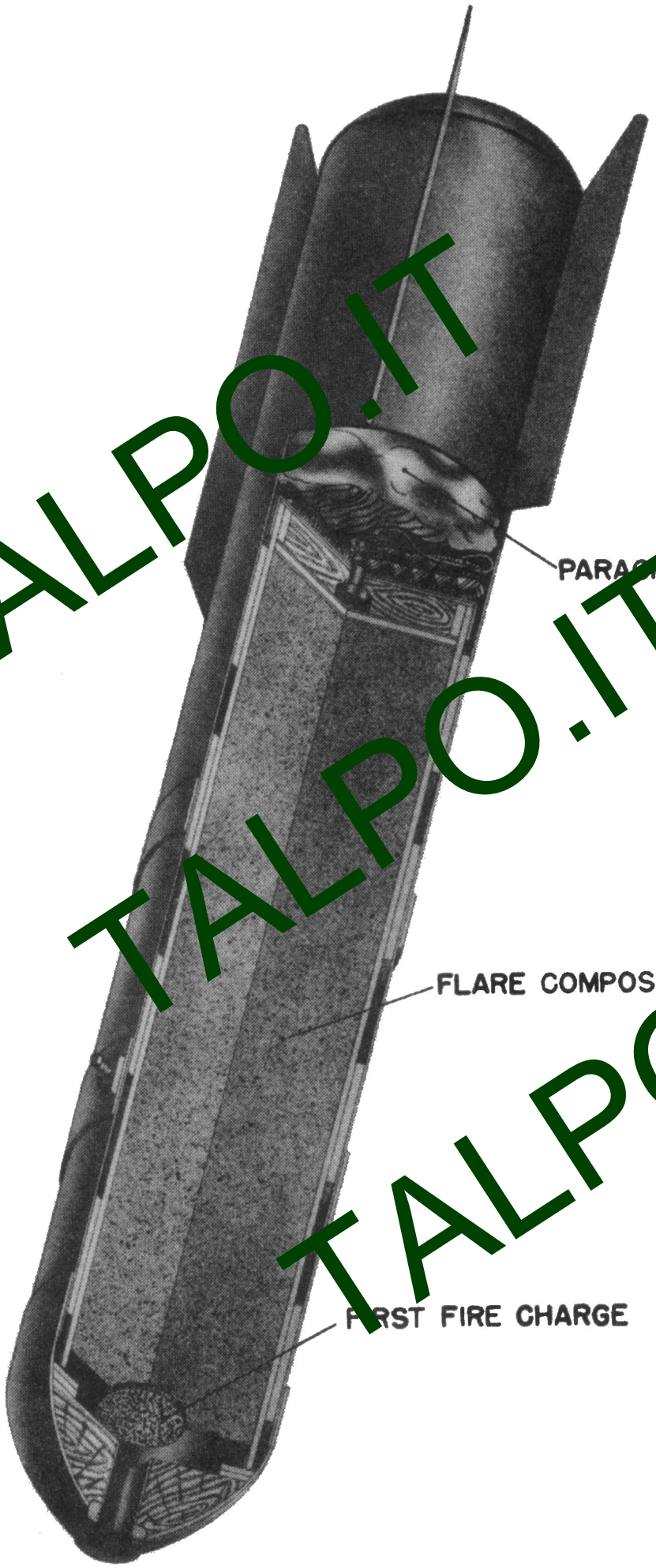
CONSTRUCTION OF TAIL:

Four sheet metal stabilizing fins are soldered to the rear end of the barrel.

REMARKS:

The earlier type flare was described in an early Chinese pamphlet but has not been recovered to date. The later type was dropped from approximately 20,000 feet, drifting across the target at about 1200 feet. It burned for about 5 minutes.

JAPANESE NAVY PARACHUTE FLARE
(TYPE 0)



FILE NO.: 1542.20

JAPANESE NAVY PARACHUTE FLARE
(Type 0 Model 1)

DESCRIPTION:

Overall length	42.5 inches.
Diameter of body	7.0 inches.
Length of end cap	3.0 inches.
Thickness of wall	0.05 inches.
Length of tail fins	15.0 inches.
Total weight of flare	38.0 Kg.
Weight of outside container	8.6 Kg.
Weight of flare composition	23.6 Kg.
Weight of parachute	3.2 Kg.
Length of illuminant container	25.5 inches.
Length of illuminant	23.25 inches.
Diameter of illuminant	5.5 inches.
Type of filling	Illuminant composition of powdered magnesium, asbestos flakes and other filler.

FUZES:

Nose: D-3(a), D-4(a)
Tail: None

CONSTRUCTION OF BODY:

The outer container consists of three sections: A nose piece, the body and the end cap. The nose piece is soldered securely to the body and the end cap is spot soldered in four places.

A cardboard inner canister containing the illuminant is covered with a sheet brass plate. The rear end is closed by a steel plate screwed to the cylinder. The wire rope attached to the parachute is secured to this plate by means of a shackle. The forward end of the inner canister is open and fits against a wooden block in the nose piece. Four felt bands around the exterior of the canister prevent sticking during ejection from the body.

TYPE OF SUSPENSION:

Horizontal. Normal Navy suspension lug (eyebolt welded to a circular plate which is riveted onto a carrying band).

COLOR AND MARKINGS:

Blue-gray overall with a 1/4 inch red band below the end piece.

CONSTRUCTION OF PARACHUTE:

The parachute of light weight white silk is packed compactly in the rear end of the body. A layer of cardboard between the flare case and the parachute insures easier and smoother ejection. The parachute is 11 feet 10 inches in diameter, has 32 peripheral shrouds and 8 central shrouds each 12 feet 3-14 inches long. The inner canister and parachute are joined together by 65 1/2 inches of wire rope. At the junction of the parachute shrouds and wire rope is a shock absorber of 3/8 inch bungee strands.

OPERATION:

Functioning of the aerial burst fuze ignites the flare composition. The expanding gases cause the end cap to be blown off and eject the parachute and inner canister containing the illuminant.

REMARKS:

The burning time of the illuminant is approximately 3 minutes, 40 seconds. It casts a bright white light.

BOMB DATA: FILE NO.: 1552.10, 1553.10, 1554.10

NATIONALITY: JAPANESE	INFORMATION DATE: October 1943
SIZE: 30, 50 & 100 Kg.	ARMY TYPE: G.P.H.E.
TARGET: Troops, vehicles, small emplacements, industrial centers.	ARMY FUZES: Nose: A-2(a), A-2(b) or C-3(a). Tail: B-1(a) or B-1(b).

LEGEND

1. NOSE PIECE.
2. BODY (BLACK).
3. TAIL ASSEMBLY (BLACK).
4. SUSPENSION LUG.
5. GRUB SCREW (NOSE FUSE).
6. GRUB SCREW (TAIL FUSE).
7. RED BAND.
8. WHITE BAND.
9. YELLOW BAND.
10. NOSE FUZE.
11. TAIL FUZE.
12. 7 MM CASING.
13. WELD.
14. STRUTS

FILE NO.: 1552.10, 1553.10 & 1554.10

JAPANESE ARMY 30, 50, 100 KG. G.P.H.E. BOMBS

DESCRIPTION:

	30 Kg. (Type 99)	50 Kg. (Type 94)	100 Kg. (Type 94)
Overall length	33.5 "	40.5 "	52.5 "
Length of body & tail cone	28.25"	34.75"	46.0 "
Length of body	19.7 "	24.4 "	31.12"
Diameter of body	5.87"	7.0 "	9.5 "
Thickness of wall	0.29"	0.27"	0.4 "
Length of tail	13.25"	16.1 "	21.75"
Length of tail fins	13.25"	16.0 "	21.25"
Width of tail (diagonal)	8.25"	9.5"	13.25"
Width of tail (square)	6.[illegible]"	7.0 "	9.5 "
Width of tail fin	[illegible].[illegible]"	4.0 "	5.43"
Weight of filling	11.7[illegible] Kg.	19.6 Kg.	(a) 46.0 Kg.
		19.1 Kg.	(b) 44.7 Kg.
Total weight of bomb	[illegible]0.0 Kg.	50.0 Kg.	100.0 Kg.
Charge/weight ratio	[illegible]0 %	39.0 %	(a) 41.5 %
			(b) 42.4 %
Material of body	Tubular Steel.	Tubular Steel.	Tubular Steel.
Material of tail	Steel.	Steel.	Steel.

Type of filling: 30 Kg.: Cyclonite - 48.5%, TNT - 51.5% in 3 preformed blocks.
50 Kg.: Picric Acid in 3 preformed blocks or Ammonium Nitrate - 77.5%, Cyclonite - 22.5% cast into bomb.
100 Kg.: a) Picric Acid in 4 preformed Blocks. b) Picric Acid - 77.8%, TNT 22.2% in 4 preformed blocks or Ammonium Nitrate - 77.6% Cyclonite - 22.4% cast into bomb.

FUZES:

Nose: A-2(a), A-2(b), A-2(c)
Tail: B-1(a), B-1(b), D-[illegible]

CONSTRUCTION OF BODY:

Army Construction: A steel nose is threaded into the body and fastened by one or two grub screws. Tail cone is welded to body. A fuze adapter is welded at the apex of tail cone. The nose and tail fuzes are held by one or two grub screws.

TYPE OF SUSPENSION:

Horizontal. Normal Army suspension lug (a rectangular steel swivel eye-hook on plate rivetted to body with four rivets)

COLOR AND MARKINGS:

Army Code: Black overall with red tipped nose, one yellow and one white band forward of suspension lug. "30K", "50K" or "100K" stencilled near nose.

CONSTRUCTION OF TAIL:

Four Army fins are 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. bomb.

REMARKS:

生寺 "Special" when present indicates Ammonium Nitrate filling.
茶黄 "Picric/TNT" when present indicates filling

When Ammonium Nitrate filled it is difficult to remove nose piece as it binds with the cast explosive.

JAPANESE NAVY G.P. H.E. BOMBS
(STREAMLINED)

32 KG.

63 KG.

FILE NO.: 1552.22 & 1553.22

JAPANESE NAVY 32 KG. & 63 KG. G.P.H.E. BOMBS
(Type - No. 3 Ordinary & Type - No. 6 Ordinary)

DESCRIPTION:	32 Kg.	63 Kg.
Overall length	33.0 inches.	42.5 inches.
Length of body	19.75 inches.	25.5 inches.
Diameter of body	7.56 inches.	9.0 inches.
Thickness of wall	0.25 inches.	
Length of tail	13.25 inches.	17.0 inches.
Width of tail (diagonal)	7.25 inches.	9.75 inches.
Width of tail (square)	5.3 inches.	
Weight of filling		30.0 Kg.
Total weight of bomb	32.0 Kg.	63.1 Kg.
Charge/weight ratio		48.0 %
Material of body	Steel.	Steel.
Material of tail	Sheet Steel.	Sheet Steel.
Type of filling	Picric Acid.	Picric Acid.

FUZES:

Nose A-1(a), A-3(a), or A-3(b)

CONSTRUCTION OF BODY:

One piece machined steel casting with a streamlined tear drop shape. A male base plate threads into the body and is held by two grub screws. Interior of body is lacquered.

TYPE OF SUSPENSION:

Horizontal. Two normal Navy suspension lugs are diametrically opposite (eyebolt welded to circular plate which is rivetted to body with four rivets).

COLOR AND MARKINGS:

Old: Gray overall, green stripe on nose, green band on tail fins, two red stripes run diametrically opposite the length of body and tail cone.

New: Gray overall, brown nose tipped in green, gray tail fins.

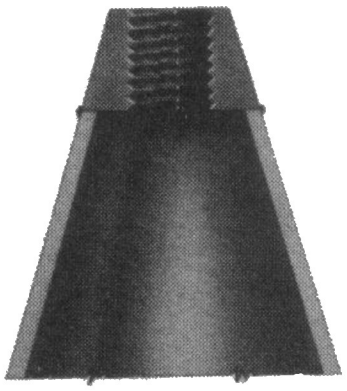
CONSTRUCTION OF TAIL:

The tail consists of four sheet steel sections rivetted to an internally threaded ring. The edges of each section have a turned up flange to which the tail fins are secured by spot welds. There are no struts on the fins. The tail cone ring threads to the base plate and is secured by two grub screws.

REMARKS:

These bombs contain no explosive in the tail cone and closely resemble British bombs in its streamlining.

JAPANESE MODIFIED 50 KG, 100 KG, AND 250 KG. BOMBS



TAIL FUZE POCKET

NOSE FUZE POCKET

FILE NO.: 1553.11, 1554.11 & 1555.21

JAPANESE ARMY G.P.H.E. (MODIFIED) BOMBS

DESCRIPTION:	Type 94 (mod) 50 Kg.	Type 94 (mod) 100 Kg.	Type 92 (mod) 250 Kg.
Overall length	39.8 in.	52.0 in.	75.5 in.
Length of body & tail cone	33.75 in.	45.0 in.	59.0 in.
Length of body	23.2 in.	30.25 in.	
Diameter of body	7.12 in.	9.5 in.	11.75 in.
Thickness of wall	0.28 in.	0.4 in.	0.25 in.
Length of tail	16.6 in.	21.75 in.	
Length of tail fins	16.0 in.	21.0 in.	29.0 in.
Width of tail (diagonal)	9.5 in.	13.25 in.	
Width of tail fins	3.5 in.		
Weight of filling	19.6 Kg.	46.0 Kg.	104.3 Kg.
Total weight of bomb	50.0 Kg.	107.7 Kg.	250.0 Kg.
Charge/weight ratio	39.0 %	43.6 %	42.9 %
Material of body	Steel	Steel	Steel
Material of tail	Steel	Steel	Steel
Type of filling	Picric Acid in 3 pre-formed blocks	Picric Acid in 4 pre-formed blocks	Picric Acid in 4 pre-formed blocks

FUZES:

Nose: C-3(a)
Tail: B-1(a), B-1(b)
B-4(a) (250 Kg. only)

CONSTRUCTION OF BODY:

A steel nose is threaded into the tubular steel body and fastened by one or two grub screws. Tail cone is welded to body. Fuze adapter welded at apex of cone. The nose piece has a 3 inch orifice to admit the C-3(a) fuze. Nose and tail fuzes have one or two grub screws.

TYPE OF SUSPENSION:

Horizontal. Normal Army suspension lug (a rectangular steel swivel eye-hook on a plate rivetted to body with four rivets).

COLOR & MARKINGS:

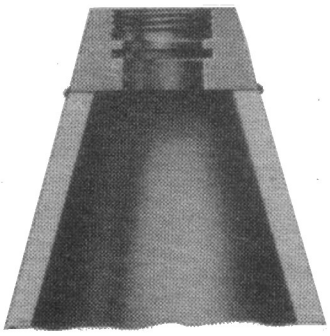
Black overall, red tipped nose. One yellow and one white band forward of suspension lug. "50K", "100K", or "250K" stenciled near nose.

CONSTRUCTION OF TAIL:

Four Army fins are spot-welded to cone and braced by single row box-type struts on 50 Kg. bomb and double row on 100 Kg. and 250 Kg. bombs. Tail brake on 50 Kg. and 100 Kg. bombs.

REMARKS:

JAPANESE TIME BOMBS
(TYPE I)



TAIL FUZE POCKET

NOSE FUZE POCKET

FILE NO.: 1553.12, 1554.12 & 1555.22

JAPANESE ARMY 50 KG., 100 KG., 250 KG. (TYPE I) TIME BOMBS.

DESCRIPTION:	50 Kg.	100 Kg.	250 Kg.
Overall length	39.8 in.	51.75 in.	75.5 in.
Length of body & tail cone	33.75 in.	44.25 in.	58.5 in.
Length of body	23.2 in.	30.25 in.	45.5 in.
Diameter of body	7.12 in.	9.5 in.	11.75 in.
Thickness of wall	0.27 in.	0.4 in.	0.25 in.
Length of tail	16.6 in.	21.75 in.	30.0 in.
Length of tail fins	16.0 in.	21.0 in.	29.0 in.
Width of tail (diagonal)	9.75 in.	13.25 in.	16.5 in.
Width of tail fin	[illegible] in.	5.43 in.	8.25 in.
Weight of filling	19.6 Kg.	46.0 Kg.	103.4 Kg.
Total weight of bomb	[illegible] Kg.	107.7 Kg.	239.6 Kg.
Charge/weight ratio	[illegible] %	41.5 %	43.1 %
Material of body	Tubular Steel	Tubular Steel	Tubular Steel
Material of tail	Steel	Steel	Steel
Type of filling	Picric Acid in 3 pre-formed blocks.	Picric Acid in 4 pre-formed blocks.	Picric Acid in 4 pre-formed blocks.

FUZES:

Nose: C-3(a)

Tail: E-1(a)

CONSTRUCTION OF BODY:

A steel nose is threaded into the body and fastened by one or two grub screws. Tail cone is welded to body. The nose piece has a three inch orifice to admit the C-3(a) fuze.

TYPE OF SUSPENSION:

Horizontal. Normal Army suspension lug (rectangular steel swivel eye-hook on a plate rivetted to body with four rivets).

COLOR & MARKINGS:

Army Code: Black nose, body and tail. Red band on nose, one yellow and one white band forward of suspension lug. "50K", "100K", or "250K" stenciled near the nose. Weight discrepancy markings in rear of suspension lug.

CONSTRUCTION OF TAIL:

Four Army type fins are welded to tail cone. Single row of box type struts on the 50 Kg. bomb, double row of box type struts on the 100 Kg. and 250 Kg. bomb, brace the fins. A tail brake is fitted on the 50 Kg. and 100 Kg. bombs. A fuze adapter is welded at the apex of the tail cone. The tail fuze pocket has three threads followed by an annular groove.

REMARKS:

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

FILE NO.: 1553.21

JAPANESE NAVY 60 KG. G.P.H.E. BOMB
(Type 3 No. 6 Mk. 23 Mod. 1)

DESCRIPTION:

Overall length	40.7 inches.
Length of body & tail cone	32.7 inches.
Length of body	21.75 inches.
Diameter of body	7.85 inches.
Thickness of wall	0.28 inches.
Length of tail	18.5 inches.
Length of tail fins	15.5 inches.
Width of tail (diagonal)	10.6 inches.
Width of tail (square)	7.[illegible] inches.
Width of tail fin	4.[illegible]7 inches.
Weight of filling	23.0 Kg.
Total weight of bomb	65.0 Kg.
Charge/weight ratio	[illegible].0 %
Material of body	Steel.
Material of tail	Steel.
Type of filling	Picric Acid or TNA-HND (70/30)

FUZES:

Nose: [illegible]-2(a)
No tail fuze is used.

CONSTRUCTION OF BODY:

A cast steel nose is rivetted, with two rows of ten rivets each, and welded to a tubular steel body. The tail cone is held by one row of twenty-four rivets and a continuous weld to a collar which is held in the base of the bomb by two rows of screws (fourteen per row). An iron kopfring (outer diameter: 7-7/8 inches; maximum thickness: 1-3/4 inches) is welded around the nose to retard penetration.

TYPE OF SUSPENSION:

Horizontal. Normal Navy suspension lug (eyebolt welded to circular plate which is rivetted to the body with four rivets).

COLOR AND MARKINGS:

Grey overall, green band on nose forward of kopfring, brown band behind the green band.

CONSTRUCTION OF TAIL:

Four Navy fins welded to tail cone and supported by box-type struts. A retarding plate (9-7/8 inches square; .076 thick) with a hole 3-15/16 inches in diameter in the center is welded onto the fins and struts.

REMARKS:

A bomb of this same type was reported to have two longitudinal red assembly stripes and green tail struts with a picric filling.

JAPANESE NAVY 60 KG. G.P. H.E. BOMB

FILE NO.: 1553.20

JAPANESE NAVY 60 KG. G.P.H.E. BOMB
(Type 97 No. 6 Land)

DESCRIPTION:

Overall length	-	40.0 inches
Length body & cone	-	32.0 inches
Length of body	-	21.8 inches
Diameter of body	-	7.85 inches
Thickness of wall	-	0.28 inches
Length of tail	-	18.2 inches
Length of tail fins	-	15.75 inches
Width of tail	-	10.6 inches (diagonal
		7.62 inches (across)
Width of tail fin	-	4.75 inches
Weight of filling	-	23 Kg.
Total weight of bomb	-	59 Kg.
Charge/weight ratio	-	41 %
Material of body	-	Steel
Material of tail	-	Steel
Type of filling	-	Type 98 (HND 30%, TNA 70%)

FUZES:

Nose Fuze: A-3(a), A-3(b), A-1(a)

CONSTRUCTION OF BODY:

A cast steel nose is riveted with two rows of ten rivets each and with or without a continuous weld to a tubular steel body. The tail cone is held by one row of twenty-four rivets and welded to a collar which is held in the base of the bomb by two rows of screws (fourteen per row).

TYPE OF SUSPENSION:

Horizontal. Normal Navy suspension lug (Eyebolt welded to circular plate rivetted to body with four rivets).

COLOR & MARKINGS:

Old: Gray overall, green nose, green tail struts, two longitudinal red lines, and a circumferential blue band on body in rear of suspension lug.

New: Gray overall, brown nose tipped in green, and gray tail struts.

CONSTRUCTION OF TAIL:

Four Navy fins welded to cone held by rivets to collar. Fins are braced by box type struts.

REMARKS:

This bomb is also used as an incendiary with a thermite filling.

JAPANESE ARMY
100 KG. G.P. H.E. BOMB
(TYPE 3)

JAPANESE ARMY 100 KG. BOMB.
(TYPE 3)

FILE NO.: 1554.13

DESCRIPTION:

Overall length	- 52.5 inches
Length of body & tail cone	- 45.75 inches
Length of body	- 31.00 inches
Diameter of body	- 9.5 inches
Thickness of wall	
Length of tail	- 21.50 inches
Length of tail fins	- 20.25 inches
Width of tail (diagonal)	- 13.25 inches
(square)	
Width of tail fin	
Weight of filling	- 51.0 Kg.
Total weight of bomb	- 108 Kg.
Charge/Weight Ratio	- 47.0 %
Material of body	- Steel
Material of tail	- Steel
Type of filling	- Picric Acid in 5 preformed blocks Two tail cone blocks.

FUZES:

Nose: A-2(a), A-2(c)
Tail: B-1(a), B-1(b), D-5(a)

CONSTRUCTION OF BODY:

A steel nose is welded to tubular steel body and the tail cone is externally threaded to screw into the bomb body. Grub screws hold nose and tail fuzes.

TYPE OF SUSPENSION:

Horizontal. Normal Army suspension lug. (Rectangular steel swivel eye-hook on a plate rivetted to body with four rivets.)

COLOR & MARKINGS:

Black overall with red tipped nose. One yellow and one white band forward of suspension lug. May be found only with the yellow band.

CONSTRUCTION OF TAIL:

Four Army type fins spot-welded to cone. Fins braced by double set of box type struts. Fuze adapter welded at apex of cone.

REMARKS:

Explosive filling is sealed in with TNT instead of paraffin making blocks difficult to remove.

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

FILE NO.: 1555.10 & 1555.11 JAPANESE NAVY 250 KG. G.P.H.E. BOMBS (Type ? No. 25 Land and Type 98 No. 25 Land)

DESCRIPTION:

		Type I	Type II
Overall length	-	72.0 inches	72.0 inches
Length of body & tail cone	-	58.5 inches	58.1 inches
Length of body	-	35.6 inches	39.6 inches
Diameter of body	-	13.8 inches	12.0 inches
Thickness of wall	-	0.25 inches	0.5 inches
Length of tail	-	37.1 inches	32.4 inches
Length of tail fins	-	27.0 inches	27.5 inches
Width of tail (diagonal)	-	19.3 inches	19.3 inches
(square)	-	12.5 inches	12.5 inches
Width of tail fin	-	7.65 inches	7.65 inches
Weight of filling	-	140 Kg.	95 Kg.
Total weight of bomb	-	258. Kg.	238 Kg.
Charge/weight Ratio	-	56.0 %	39 %
Material of body	-	Steel	Steel
Material of tail	-	Sheet iron (.09 inch)	Sheet iron (.09 inch)
Type of filling	-	Type 98 (HND 30%, Trinitroanisole 70%) or Picric Acid.	

FUZES:

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

CONSTRUCTION OF BODY:

Type I: A cast steel nose is plug welded and rivetted with eighteen rivets to the steel tubular body. A collar is held in base of bomb by sixteen rivets. The tail cone is held to the collar by one row of thirty-two screws. A grub screw is present in nose and tail fuze pockets.

Type II: A cast steel nose is held to a steel tubular body by twelve plug welds and a continuous weld. The tail cone is held by one row of eighteen plug welds and a continuous weld to a collar which is attached to the body by two rows of twenty screws each. A grub screw is present in the nose and tail fuze pockets.

TYPE OF SUSPENSION:

Horizontal. Normal Navy suspension lug (Eyebolt welded to circular plate which is rivetted to body with four rivets.)

COLOR & MARKINGS:

Old: Gray body and tail, green nose, green tail struts, two longitudinal red lines, blue band around body in back of the suspension lug.

New: Gray body and tail, brown nose banded in green, and gray tail struts.

CONSTRUCTION OF TAIL:

Four Navy fins spot welded to tail cone fastened to collar on base of bomb. Fins are braced by box type struts rivetted to fins.

JAPANESE NAVY 250 KG. G.P. BOMB
(STREAMLINED)

FILE NO.: 1555.12

JAPANESE NAVY 250 KG. G.P.H.E. BOMB
(Type No. 25 Ordinary Model 2)

DESCRIPTION:

Overall length	71.4	inches.
Length of body & tail cone	56.9	inches.
Length of body	41.9	inches.
Diameter of body	14.1	inches.
Thickness of wall	0.60	inches.
Length of tail	27.0	inches.
Length of tail fin	24.7	inches.
Width of tail (diagonal)	14.0	inches.
Width of tail (square)	10.0	inches.
Width of tail fin	4.99	inches.
Weight of filling	104.0	Kg.
Total weight of bomb	253.0	Kg.
Charge/weight ratio	41.0	%
Material of body	Steel.	
Material of tail	Steel.	
Type of filling	Picric Acid (cast)	

FUZES:

Nose: A-3(a)
Tail: B-3(a)

CONSTRUCTION OF BODY:

One piece cast or forged steel streamlined body.

TYPE OF SUSPENSION:

Horizontal. One normal lug type suspension lug (eyebolt welded to circular plate which is rivetted to body with four rivets).

COLOR AND MARKING:

Old: Green nose, gray body, green tail struts. Two red stripes run diametrically opposite on bomb body and tail cone.

New: Brown nose tipped in green, gray body, gray tail fins.

CONSTRUCTION OF TAIL:

Four sheet steel fins are welded to the tail cone and braced by box-type struts spot welded to tail fins. Tail cone is threaded to screw into base of bomb and is secured by grub screw.

REMARKS:

The tail cone of this bomb is explosive filled. Some specimens were recovered filled with concrete.

JAPANESE ARMY 250 KG. AND 500 KG. G.P. H.E. BOMBS
(TYPE 92)

250 KG.

500 KG.

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

FILE NO.: 1555.20 & 1556.20 (TYPE 92)

DESCRIPTION:

	250 Kg.	500 Kg.
Overall length	- 76.25 Kg.	99.75 Kg.
Length of body & tail cone	- 59.25 inches	77.0 inches
Length of body	- 46.0 inches	58.25 inches
Diameter of body	- 11.75 inches	15.0 inches
Thickness of wall	- 0.25 inches	0.56 inches
Length of tail	- 30.0 inches	41.0 inches
Length of tail fins	- 29.0 inches	40.0 inches
Width of tail (Square)	- 11.75 inches	14.75 inches
Width of tail (diagonal)	- 16.5 inches	20.75 inches
Width of tail fin	- 8.12 inches	10.31 inches
Weight of filling	104.3 pounds	223.31 pounds
Total weight of bomb	- 250 Kg.	500 Kg.
Charge/weight Ratio	- 42.9 %	46.4 %
Material of body	- Tubular Steel	Tubular Steel
Material of tail	- Steel	Steel
Type of filling	- Picric Acid in 4 preformed Blocks.	Picric Acid in 5 Preformed Blocks. Two tail cone blocks.

FUZES:

Nose: A-4(a)
Tail: B-4(a)

CONSTRUCTION OF BODY:

A steel nose piece is threaded into a tubular steel body. The tail cone is welded to the body. A threaded fuze adapter is welded at the apex of the tail cone. A grub screw is fitted to the tail fuze.

TYPE OF SUSPENSION:

Horizontal. Normal Army type (a rectangular steel swivel eye-bolt on a plate riveted to body with four rivets.)

COLOR & MARKINGS:

Black nose, body and tail. One yellow and one white band (one inch) are forward of suspension lug. One inch red band on top of nose. Weight stencilled four inches in back of nose screw in inch. Weight discrepancy markings in rear of the suspension lug.

CONSTRUCTION OF TAIL:

Four Army fins are spot welded to tail cone and braced by two sets of box-type struts.

REMARKS:

The tail fins of the 500 K. bomb are similar to the Navy bombs in that they come to a definite point on the exterior side as compared to the characteristic curve on the fins of the Army bombs.

JAPANESE NAVY 250 KG. G.P. BOMB

(EXPLOSIVE FILLED TAIL)

TAIL VIEW

FILE NO.: 1555.30 JAPANESE NAVY 250 KG. G.P. BOMB
(Explosive-filled tail) (Type 3 No. 25 Mk. 8 Model 1)

DESCRIPTION:

Overall length	67.4	inches.
Length of body & tail cone	48.35	inches.
Length of body	39.5	inches.
Diameter of body	12.0	inches.
Thickness of wall	0.5	inches.
Length of tail	27.4	inches.
Length of tail fin	25.2	inches.
Width of tail (diagonal)	19.3	inches.
Width of tail fin	6.375	inches.
Width of tail fin base	2.5	inches.
Weight of filling	105.0	Kg.
Total weight of bomb	281.0	Kg.
Charge/weight ratio	37.0	%
Material of body	Steel.	
Material of tail	Steel.	
Type of filling	TNA and HND (70/30)	

FUZES:

Nose: Probably A-3(a), A-3(b) or C-2(a)
No tail fuze is used.

CONSTRUCTION OF BODY:

A cast steel nose is welded to the body by a continuous weld and twelve large plug welds. The tail cone is held by one row of eighteen plug welds and a continuous weld to a collar which is attached to the body with forty screws in two rows of twenty each. A grub screw is present in the nose fuze pocket.

TYPE OF SUSPENSION:

Horizontal. Normal Navy suspension lug (eyebolt welded to circular plate which is riveted to the body with four rivets).

COLOR AND MARKINGS:

Gray overall, brown nose tipped in green.

CONSTRUCTION OF TAIL:

The normal tail cone has been cut off 8-3/4 inches behind the junction with the bomb body proper and to this, cylinder, 6-5/8 inches in diameter by 18-5/8 inches in length, of 3/16 inch drawn steel tubing is welded. This cylinder is filled with TNA and HND 60/40. Four triangular shaped tail fins braced internally, of 1/8 inch mild steel, are welded to the explosive-filled cylinder and shortened tail cone. The end of the fins is closed by a steel plate welded in place. There is no tail fuze pocket.

REMARKS:

The construction of the tail assembly with its internal bracing designed to shear into fragments and the increased explosive charge added in the tail cylinder suggests that this bomb is intended to give a heavier fragmentation when bombing air strips containing parked air craft.

JAPANESE NAVY 800 KG. G.P. BOMB

FILE NO.: 1556.30 JAPANESE NAVY 800 KG. G.P. BOMB
(Type No. 80 Land and Type No. 80 Land Mod. 1)

DESCRIPTION:

Overall length	111.3 inches.
Length of body & tail cone	94.7 inches.
Length of body	69.4 inches.
Diameter of body	17.7 inches.
Thickness of wall	0.5 inches.
Length of tail	41.9 inches.
Length of tail fins	35.8 inches.
Width of tail (diagonal)	24.6 inches.
Width of tail (square)	13.5 inches.
Weight of filling	190.0 Kg.
Total weight of bomb	796 Kg.
Charge/weight ratio	49.%
Material of body	Steel.
Material of tail	Steel.
Type of filling	No. 80 Land - Picric Acid.
	Mod. 1 - TNA - HND (70/30)

FUZES:

Nose: A-1(c), A-3(d), A-3(a)
Tail: B-3(b)

CONSTRUCTION OF BODY:

A cast steel nose is attached by a continuous weld and three rows of rivets to a tubular steel body. An adapter ring is held to the base of the bomb by two rows of screws. The tail cone is attached to the ring by two rows of rivets.

COLOR AND MARKINGS:

Old: Green band on nose, gray body, green tail struts. Two longitudinal red stripes diametrically opposite run from the nose to the apex of the cone. A circumferential blue band around bomb body.

New: Brown nose tipped in green, gray body, gray tail struts.

CONSTRUCTION OF TAIL:

Four fins are spot welded to the tail cone and are supported by box type struts rivetted to fins. The tail cone is rivetted to free end of the adapter ring.

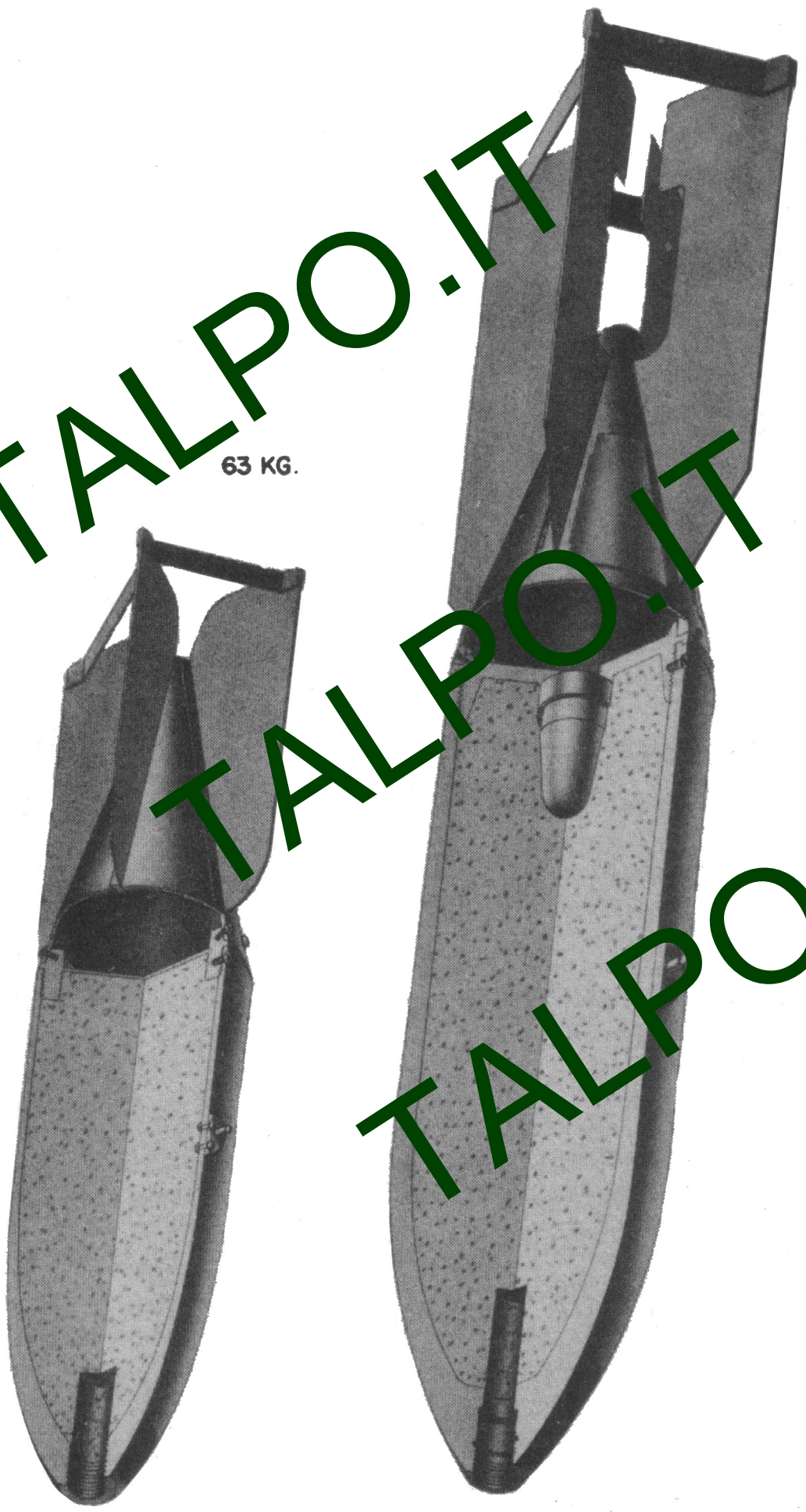
TYPE OF SUSPENSION:

Two rectangular shaped lugs (no eyebolt attachment) are screwed to the bomb body at the center of gravity and positioned 180 degrees apart. One lug runs longitudinally, the other, transversely.

JAPANESE NAVY S.A.P. BOMBS

250 KG.

63 KG.



FILE NO.: 1563.10 FILE NO.: 1565.10

JAPANESE NAVY 63 KG. (TYPE 99 NO. 6 ORDINARY) & 250 KG. (TYPE 99 NO. 25 ORDINARY) S.A.P. BOMBS.

DESCRIPTION:

	63 Kg.	250 Kg.
Overall length	- 42.25 inches	68.0 inches
Length of body	- 25.5 inches	39.75 inches
Diameter of body	- 8.9 inches	11.5 inches
Thickness of wall	- 0.25 inches	0.75 inches
Length of tail	- 16.88 inches	28.0 inches
Width of tail	- 12.25 inches	16.25 inches
Weight of filling	- 32 Kg.	133 pounds
Total weight of bomb	- 63 Kg.	540 pounds
Charge/Weight Ratio	- 50 %	25 %
Material of body	- Steel	Steel
Material of tail	- Steel	Steel
Type of filling	- Picric Acid or Trinitroanisol Hexanite	Trinitroanisol wrapped in felt

FUZES:

63 Kg. - A-3(a), A-3(b)
250 Kg. - A-3(a), A-3(b) and B-2(a)

CONSTRUCTION OF BODY:

Navy construction: A machined forged steel body is drilled for the nose fuze and fitted with a right hand threaded male type base plate. The body and nose are of one piece construction. Sheet steel tail cone is held by screws to base plate. A grub screw in nose and tail holds nose fuze and base plate securely.

TYPE OF SUSPENSION:

Horizontally by normal Navy suspension lug (Eyebolt welded to circular plate which is riveted to body with four rivets.)

COLOR AND MARKINGS:

Navy Code: Gray body and tail with longitudinal diametrically opposite thin red lines. Green Band on nose and on tail struts. Recently recovered bombs have had a brown nose tipped in green with gray body and gray struts.

CONSTRUCTION OF TAIL:

63 Kg.: Four Navy type fins riveted to tail cone which is attached to base plate of bomb by ten screws. Box type struts rivetted to tail fins.

250 Kg.: Four Navy type fins welded to tail cone which is attached to base plate of bomb by six screws. Box type struts welded to tail fins. Three access doors for insertion of fuze.

Note: Tail cone of both bombs is empty.

JAPANESE NAVY 800 KG. S.A.P. BOMB

FILE NO.: 1566.10

JAPANESE NAVY 800 KG. S.A.P. BOMB
(Type - No. 80 Model 1)

DESCRIPTION:

Overall length	-	111.5 inches.
Length of body & tail cone	-	85.25 inches.
Length of body	-	62.0 inches.
Diameter of body	-	17.5 inches.
Thickness of wall	-	0.75 inches.
Length of tail	-	49.5 inches.
Length of tail fin	-	43.7 inches.
Width of tail (diagonal)	-	24.5 inches.
Width of tail fin	-	10.5 inches.
Weight of filling	-	350.0 Kg.
Total weight of bomb	-	820.0 Kg.
Charge/weight ratio		41.0 %
Material of body	-	Steel.
Material of tail	-	Steel.
Type of filling	-	Trinitroanisol.

FUZES:

Nose: A-3(a), A-1(c), A-3(d).
Tail: B-3(b).

CONSTRUCTION OF BODY:

One piece forged steel body. No coupling ring is used to hold tail cone to body.

TYPE OF SUSPENSION:

Horizontal. Two flat lugs screwed to bomb body 180° apart. One is in the longitudinal axis, the other in the vertical axis. A regular Navy type eyebolt welded to a steel band is placed at the center of gravity and held in place by the two rectangular lugs on the bomb body.

COLOR AND MARKING:

Old: Green nose, gray body, green tail struts. Two thin red stripes running diametrically opposite length of bomb body and tail cone.

New: Brown nose tipped in green, gray body, gray tail struts. Significance of a two inch green band just in back of the guide stud is unknown.

CONSTRUCTION OF TAIL:

Four 1/8 inch steel fins are spot welded to the steel tail cone and are supported by box-type struts 2.5 inches wide. Tail cone is fitted directly into barrel by interrupted thread and held by thirty screws.

REMARKS:

Tail cone is explosive-filled.

JAPANESE NAVY 800 KG. A.P. BOMB

FILE NO.: 1576.10

JAPANESE NAVY 800 KG. A.P. BOMB (TYPE 99 NO. 80 MK. 5 MOD. 1)

DESCRIPTION:

Overall length	- 93.5 inches
Length of body	- 49.5 inches
Diameter of body	- 16.06 inches
Thickness of wall	- 20.1 inches (nose)
	2.9 inches (tail)
Length of tail	- 44.0 inches
Width of tail	- 22.12 inches
Weight of filling	- 66.5 pounds
Total weight of bomb	1641.5 pounds
Charge/Weight Ratio	- 4.0 %
Material of body	- Forged Steel
Material of tail	- Pressed Steel
Type of filling	- Trinitroanisol

FUZES:

Two B-2(b) tail fuzes, no nose fuzes.

CONSTRUCTION OF BODY:

The single piece forged, machined steel body is probably made from a 16 inch armor piercing projectile. Eight recesses are cut around the nose to secure a windshield if it were used as a projectile. A base plate screws into the bomb body and two tail fuzes will fit into the base plate.

TYPE OF SUSPENSION:

Two rectangular shaped lugs (no eyebolt attachment) are screwed to the bomb body at the center of gravity, and positioned 180 degrees apart. One lug runs longitudinally, the other, transversely.

COLOR AND MARKINGS:

The body and tail are gray, a white nose tipped in green, and gray struts.

CONSTRUCTION OF TAIL:

Four tail fins are spot welded to a sheet steel tail cone and are supported by 2.75 inch box-type struts. Two of the fins, 180 degrees removed from each other, are formed from a single sheet of metal. The other two fins are separate and are welded at 90 degrees to the double fin piece. Three fuze access doors are located in the tail cone and two vane assembly supporting rings are welded to the apex of the cone to permit the arming vanes of the fuze to protrude. These vanes rotate in a 10 inch opening in the center of the fin assembly. The cone is held to the body by twelve equally spaced screws.

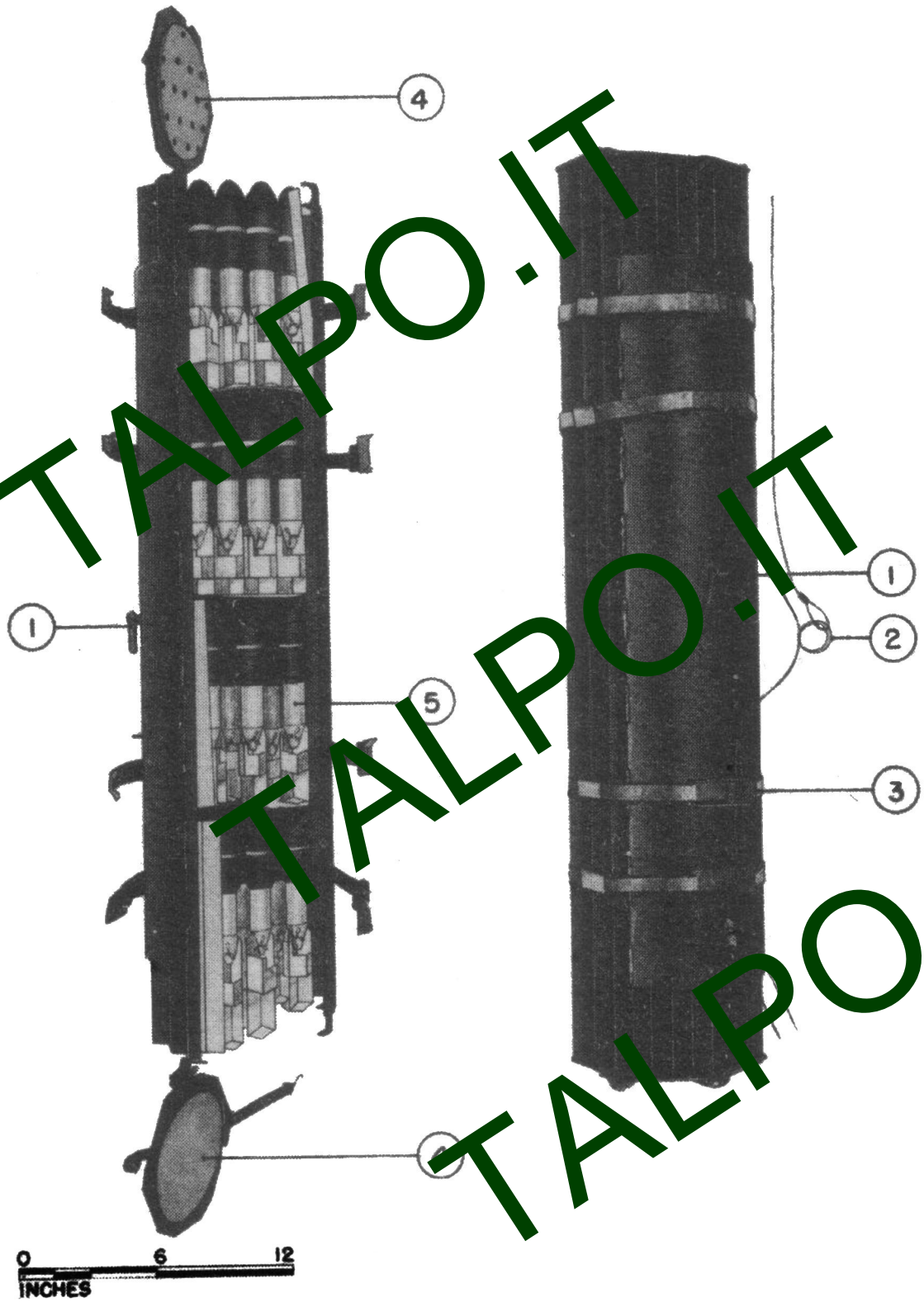
REMARKS:

A solid aluminum cushioning plug is placed in the bomb cavity between the explosive charge and the nose to protect the charge by absorbing the shock of impact.

JAPANESE NAVY 60KG. A/S BOMB

BOMB CONTAINER: FILE NO.: 1592.30

NATIONALITY: JAPANESE	INFORMATION DATE: March 1944
SIZE: 35 Kg.	TYPE: 1/3 Kg. Bomb Container



LEGEND

1. ARMY TYPE SUSPENSION LUG.
2. ARMING WIRE.
3. RETAINING STRAPS.
4. END PLATE.
5. 1/3KG. BOMBS.

BOMB CONTAINER: FILE NO.: 1592.30

NATIONALITY: JAPANESE	INFORMATION DATE: March 1944
SIZE: 35 Kg.	TYPE: 1/3 Kg. Bomb Container
DATA	
OVERALL LENGTH	41.5 inches
DIAMETER OF BODY	8 inches
THICKNESS OF WALL	0.05 inches (16 gauge)
CONSTRUCTION OF BODY	The body is formed of three interlocking lengths of corrugated sheet steel. The end plates (4) are hexagonal steel plates. Four retaining straps (3) hold the corrugated sheets together. The straps are secured by clips which are prevented from opening by the arming wires (2). Three cords are attached to one end plate. A steel hook is fastened on the end of each cord.
MATERIAL OF WALL	Corrugated sheet metal.
TYPE OF SUSPENSION	Horizontal (Army Type)
CONSTRUCTION OF SUSPENSION LUG	Normal Army Suspension Lug. (A rectangular steel swivel eye-hook is welded to the body.)
COLOR & MARKINGS ON CONTAINER	Black
METHOD OF OPENING	When the container is released, the arming wires (2) are withdrawn and the clips on the retaining straps (3) spring open. This allows the retaining straps to fall away, and the three pieces of the container separate, allowing the bombs to fall individually.
BOMBS CARRIED	76
WEIGHT OF CONTAINER (Empty)	20.25 lbs.
WEIGHT OF CONTAINER (Loaded)	35 Kg. (78.0 lbs.)
WEIGHT OF INDIVIDUAL BOMBS	1/3 Kg.
REMARKS	No explosive bursting charge is used to open the container.