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"BRITISH  
BOMBS AND FUZES  
PYROTECHNICS  
DETONATORS"



1 NOVEMBER, 1944

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# INTRODUCTION

This publication has been designed to present complete and accurate information on the subjects of British bombs, pyrotechnics, and bomb fuzes and pistols. Material included herein has been compiled from numerous official British publications and documents and from authoritative reports submitted by U.S. Naval Bomb Disposal personnel stationed in the United Kingdom.

The plan of this publication is as follows:

SECTION I: British Bombs and  
Pyrotechnics.

SECTION II: British Fuzes  
and Pistols.

APPENDIX I: British Detonators.

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# SECTION 1

## BRITISH BOMBS & PYROTECHNICS

General

In this publication British bombs are classified according to their type and usage, one section of the book dealing with each type of the bombs presently in service use. In addition, such obsolete ordnance as might be encountered in bomb disposal operations has been assembled in a separate section.

Designation and Classification of British Bombs

British bombs are designated by purpose, weight, and Mark number. British Mark numbers, always written in Roman numerals, correspond roughly to the modification numbers used by the U.S. Navy, while the British weight designation corresponds to the U.S. Naval Mark number. Minor changes in Marks of British bombs are indicated by various symbols, consisting of small letters, capital letters, or asterisks.

The classification according to purpose is generally indicated by the initials of the specific type. Thus, there is a series of anti-submarine bombs designated "A.S.", a series of general purpose bombs designated "G.P.", semi-armor piercing bombs designated "S.A.P.", aircraft depth charges designated "D.C.", etc. Occasionally, when no appropriate initials can be used, the complete name of the bomb type is employed in the designation, as "Smoke," "Practica", etc.

Therefore, in order to describe a British bomb completely, the use, weight class, and Mark number must be given in that sequence; e.g., G.P. 250 lb. Mark V; I.B. 30 lb. Mark IV; Smoke 500 lb. Mark I; S.A.P. 500 lb. Mark IIC.

The following are the type classifications of British Bombs and the initials used to indicate them:

|                           |          |                            |            |
|---------------------------|----------|----------------------------|------------|
| Fragmentation Bombs       | - P.     | Incendiary Bombs           | - I.B.     |
| General Purpose Bombs     | - G.P.   | Smoke Bombs                | - Smoke    |
| Medium Capacity Bombs     | - M.C.   | Practice Bombs             | - Practice |
| High Capacity Bombs       | - H.C.   | Target Illuminating Flares | - T.I.     |
| Semi-Armor Piercing Bombs | - S.A.P. | Buoyancy Bomb              | - B.       |
| Armor Piercing Bombs      | - A.P.   | Infantry Training Bombs    | - I.T.     |
| Anti-Submarine Bombs      | - A.S.   | Anti-Tank Bombs            | - A.T.     |
| Aircraft Depth Charges    | - D.C.   |                            |            |

Construction of British Bombs

British bombs generally are highly streamlined, although the latest designs, the M.C. bombs, are parallel sided, resembling the American G.P. bombs in external appearance. G.P. and M.C. bombs are usually of cast one-piece construction, although some M.C. bombs may be built up in welded sections of cast or forged steel. S.A.P. and A.P. bombs are always forged in one piece and heat treated for greater strength. The exteriors of these bombs are well machined. H.C. bombs are of 'boiler plate' construction.

Fillings of British Bombs

A great variety of fillers are used by the British. The most common, however, are the following: Amatol for G.P., M.C., and H.C. types; T.N.T. for S.A.P.; and 'Shellite' for A.P. T.N.T./R.D.X. combinations are commonly employed in M.C. and H.C. bombs. Current fillings are 80/40 Amatol for H.C. bombs; desensitized Pentolite or RDX/TNT for all others.

Suspension of British Bombs

British bombs are always suspended by a single suspension lug attached to the bomb body by machine screws. Later designs of British bombs, e.g. the M.C. series, are fitted with additional dual suspension lugs for carrying in American planes. Crutches or sway bars are used with larger size bombs.

British Tail Assemblies

A unique type of tail assembly is regularly employed by the British, consisting of a sheet steel cone with a cylindrical strut attached by means of four sheet steel fins. The unique feature is that the arming vanes are an integral part of the tail assembly, attached to the tail pistol by means of a reach rod, with a fork on its lower extremity engaging a similar fork on the tail pistol. A special short tail, originally designed for use in American built planes, is sometimes used to permit a greater bomb load. A third type tail assembly, rarely used, is designed to be used in conjunction with certain tail fuzes which have their own arming vanes. The arming vanes on the tail assembly are omitted, and the tail cone is truncated to give clearance to the vanes on the fuze.

RECOGNITION OF BRITISH BOMBS

In order to facilitate recognition and provide a ready means of identification of British bombs, the following tables have been devised:

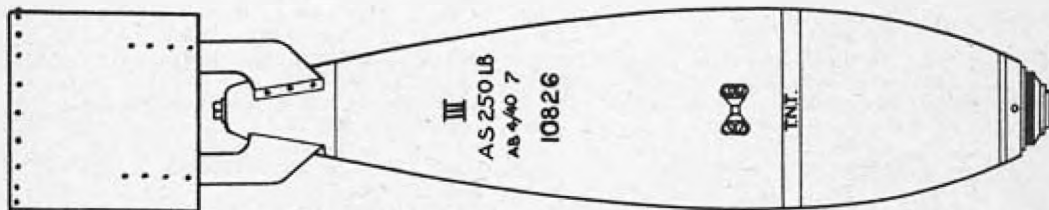
1. Color, markings, and stencilling
2. Tail numbers
3. Silhouettes

1. Color, Markings, and Stencilling of British Bombs

| <u>Bomb Type</u>                    | <u>Color &amp; Markings</u>   |
|-------------------------------------|---|
| *H.E. Bombs                         | Dark green overall.   |
| Loaded G.P.                         | Single red band near nose   |
| Loaded S.A.P.                       | Single red band near nose with single white band just forward of it.  |
| Loaded A.P.                         | Single red band near nose between two white bands   |
| All Bombs                           | Light green band, near maximum diameter, upon which filling type is stencilled.   |
| Incendiary Bombs                    | Dull brownish-red overall   |
| Practice Bombs                      | White overall   |
| Inert-loaded Bombs                  | Black overall   |
| Parachute Flares & Photoflash Bombs | Black overall with red bands  |
| Bombs fuzeed with a time fuze       | Tail fins and arming vanes will be painted red.   |
| L.C. (Chemical) Bombs               | Grey overall with colored bands to indicate type of chemical filler: black, tear gas; green, lung irritant; yellow, vesicant. |

\*H.E. bombs were originally painted yellow by the British. The change to dark green was made at about the same time that the United States changed to olive drab. Occasionally, where bomb stores in the field were issued before the change was made, yellow painted bombs may still be found. In some instances, only the exposed parts of bombs in stowage were sprayed dark green, resulting in a 'two-tone' combination of green on top and yellow below.

Complete information, including weight, type, mark number, filling, date filled, filling station, and lot number will be found stencilled on the outside of all British Bombs. Although the location of the various stencillings differs with different bombs, the following sketch will indicate the information to be found and its approximate location on the outside of the bomb body.



## 2. Tail Numbers of British Bombs

On bombs up to 1000 lb. types tail units are attached by means of a spring clip assembly. Tail units are attached by means of bolts to bombs of 1000 lb. and over. In either case the tail is likely to be torn away from the bomb on impact and found lying on or near the surface of the ground. Since each individual bomb is provided with its own specific tail unit, the tail unit number, which will be found stencilled on one of the tail fins, serves as a ready means of identifying the bomb to be dealt with. The following table lists the numbers of the tail units now in use and the bombs with which each is used.

| <u>Markings on<br/>Tail Units</u> | <u>Bomb With Which Used</u>   |
|-----------------------------------|---|
| No. 1 Mk I                        | S.A.P. 250 lb. Mk II & III<br>S.A.P. 500 lb. Mk II & III<br>A.P. 2000 lb. Mk I<br>T.I. 250 lb. Mk I             |
| No. 2 Mk II                       | G.P. 250 lb. Mk IV & V<br>M.C. 250 lb. Mk V   |
| No. 2 Mk I                        | G.P. 250 lb. Mk IV<br>G.P. 500 lb. Mk IV<br>M.C. 250 lb. Mk I<br>M.C. 500 lb. Mk IV                             |
| No. 4 Mk I                        | S.A.P. 500 lb. Mk IIC & IIIC  |
| No. 7 Mk II                       | A.S. 100 lb. Mk IV  |
| No. 8 Mk I                        | A.S. 250 lb. Mk IV  |
| No. 9 Mk I                        | A.S. 500 lb. Mk IV  |
| No. 10 Mk I                       | S.A.P. 250 lb. Mk V   |
| No. 11 Mk I                       | S.A.P. 500 lb. Mk V   |
| No. 13 Mk I                       | G.P. 1000 lb. Mk I - IV   |
| No. 14 Mk I                       | G.P. 1900 lb. Mk I  |
| No. 15 Mk I                       | A.P. 2000 lb. Mk II-III   |
| No. 23 Mk I                       | "B" 250 lb. Mk III  |
| No. 24 Mk I                       | H.C. 4000 lb. Mk II & IV  |
| No. 25 Mk I                       | M.C. 500 lb. Mk I - IV  |
| No. 26 Mk I                       | G.P. 500 lb. Mk IV-V<br>M.C. 500 lb. Mk IV<br>G.P. 500 lb. Mk IV & V  |
| No. 26 Mk II                      | S.A.P. 500 lb. Mk V   |
| No. 27 Mk I                       | M.C. 500 lb. Mk I - III   |
| No. 28 Mk I                       | G.P. 1000 lb. Mk I - IV   |
| No. 29 Mk I                       | L.C. 500 lb. Mk II  |
| No. 32 Mk I                       | H.C. 2000 lb. Mk I  |
| No. 33 Mk I                       | H.C. 8000 lb. Mk I & II   |
| No. 34 Mk I                       | G.P. 4000 lb. Mk I & II   |
| No. 35 Mk I                       | Seamarker 250 lb. No. 19 Mk I   |
| No. 36 Mk I                       | A.S. 600 lb. Mk I   |
| No. 37 Mk I                       | M.C. 1000 lb. Mk I  |
| No. 38 Mk I                       | M.C. 4000 lb. Mk I  |
| No. 39 Mk I                       | H.C. 2000 lb. Mk II & III   |
| No. 40 Mk I                       | I.B. 30 lb. Mk III & IV   |
| No. 41 Mk I                       | Smoke 120 lb. Mk I  |
| No. 42 Mk I                       | No. 14 Mk I Cluster Projectile  |
| No. 43 Mk I                       | No. 15 Mk I Cluster Projectile  |
| No. 44 Mk I                       | No. 4 Mk I Cluster Projectile   |
| No. 45 Mk I                       | No. 6 Mk I Cluster Projectile   |
| No. 47 Mk I                       | A.P. 2000 lb. Mk IV   |
| No. 52 Mk I                       | H.C. 8000 lb. Mk I & II<br>H.C. 12000 lb. Mk II<br>G.P. 500 lb. American (M64)<br>G.P. 1000 lb. American (M 65) |
| No. 54 Mk I                       | A.S. 100 lb. Mk VI  |
| No. 55 Mk I                       | T.I. 1000 lb. Mk I  |
| No. 56 Mk I                       | No. 17 Mk II Cluster Projectile   |
| No. 57 Mk I                       |   |
| No. 63 Mk I & II                  |   |

1 2 3 4 5 6 7 8 9 10 11  
F. 20 lb. Special Parachute - Page 17.

F. 20 lb. Stabilized- Page 13.

F. 20 lb. Parachute - Page 15.

G.P. 40 lb. Stabilized - Page 21.

G.P. 40 lb. Parachute - Page 23.

G.P. 250 lb. - Page 25.

G.P. 500 lb. - Page 27.

G.P. 1000 lb.  
Page 29.

G.P. 1900 lb.  
Page 31.

G.P. 4000 lb.  
Page 33.



M.C. 250 lb. - Page 37.



M.C. 500 lb. - Page 39.



M.C. 1000 lb. - Page 41.



M.C. 4000 lb. - Page 43.



H.C. 2000 lb. - Page 47.



H.C. 4000 lb. - Page 51.



H.C. 8000 lb. - Page 53.

1 2 3 4 5 6 7 8 9 10 11



S.A.P. 250 lb. - Page 61.



S.A.P. 500 lb. - Page 63.



A.P. 2000 lb.  
Page 65.



A.S. 100 lb. - Page 69.



A.S. 250 lb. - Page 71.



A.S. 500 lb. - Page 73.



A.S. 600 lb. - Page 75.



D.C. 250 lb. - Pages 79 & 81.



I.B. 4 lb. - Pages 85 & 89.



I.B. 30 lb. - Page 91.



I.B. 30 lb. "J" - Page 93.



I.B. 45 lb. - Page 96.



"B" 250 lb. - Page 107.



Smoke 100 lb. - Page 101.



Smoke 120 lb. - Page 103.



Smoke 500 lb. - Page 105.



Practice 8 1/2 lb. - Page 109.



Practice 10 lb. - Page 111.



Practice 11 1/2 lb. - Page 113.



4" Training Flare - Page 119.



4.5" Reconnaissance Flare - Page 121.



5.5" Flare - Page 123.



7" Hooded Flare - Page 125.



4.5" Reconnaissance Flare - Page 127.



4.5" Photoflash Bomb - Page 129.



T.I. Bomb 250 lb. - Page 131.



T.I. Bomb 1000 lb. - Page 133.

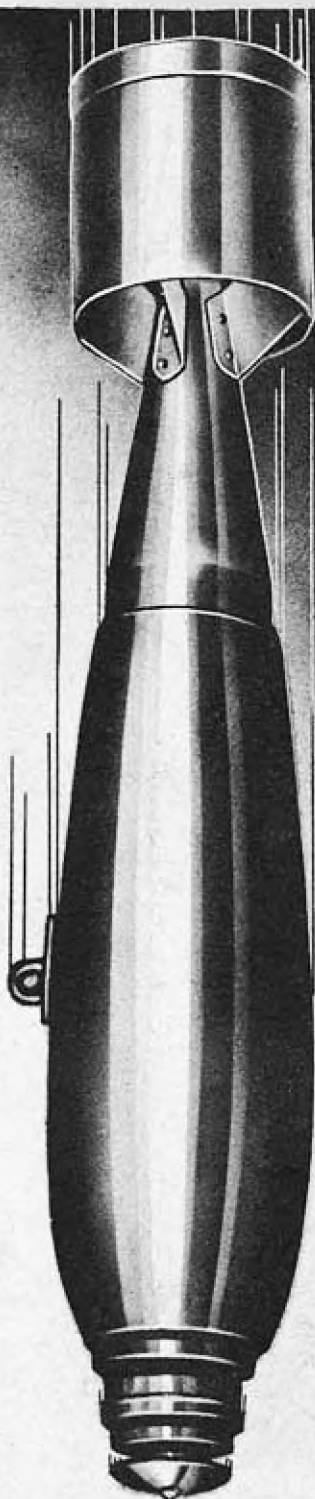


I.T. Bomb 6 lb. - Page 183.



I.T. Bomb 80 lb. - Page 185.

# FRAGMENTATION BOMBS



## HEALTHY GUARD

### USE

At the present time there is only one size of fragmentation bomb in use by the British: the 20 lb. F. bomb. This is a thick-walled bomb, similar in construction to the G.P. 40 lb. bomb, which itself is actually employed as a fragmentation bomb. The weapon is used principally against personnel.

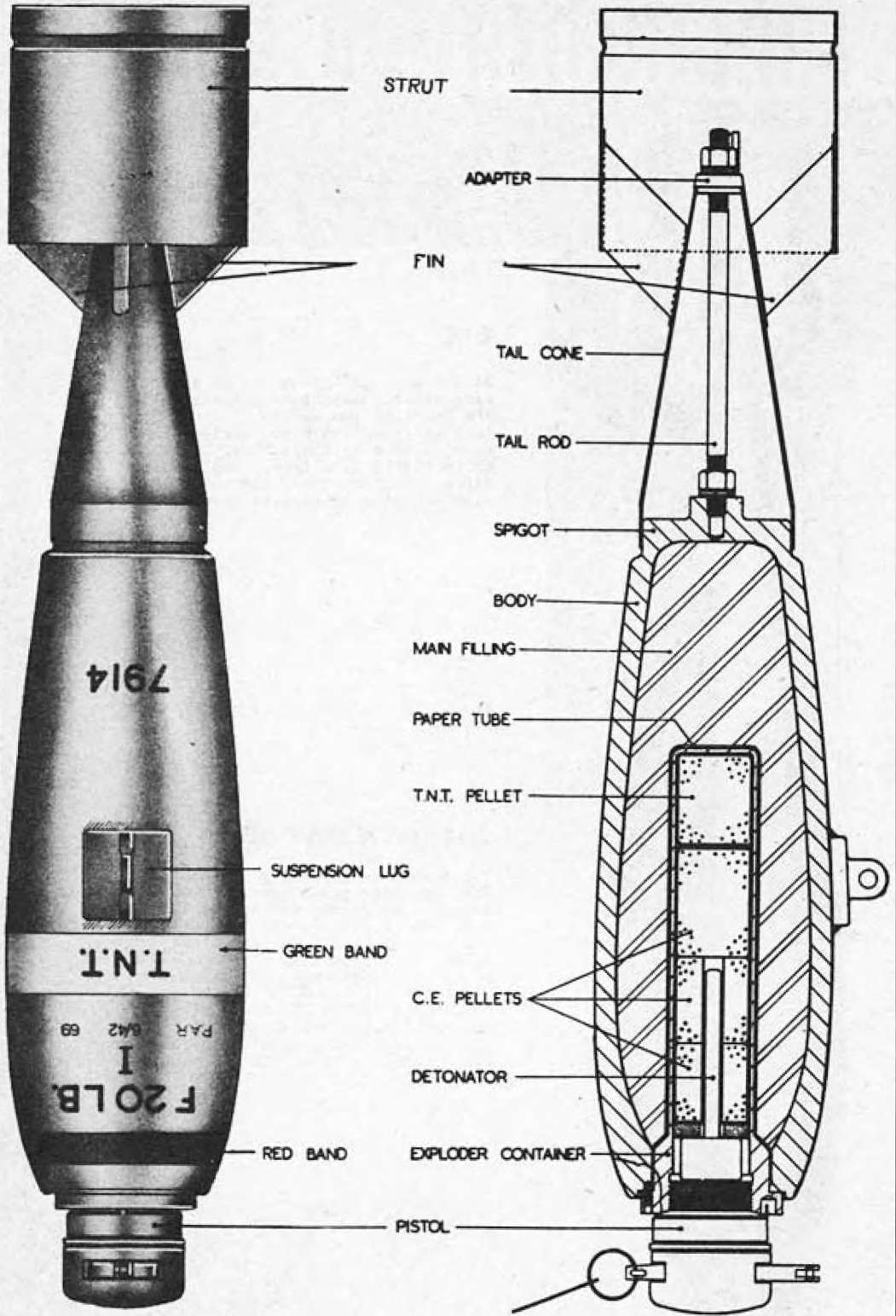
### FUZING

The F. 20 lb. bomb is always fuzed in the nose only.

### CHARACTERISTICS

These bombs are usually filled with TNT. They are dark green overall with a red and a light green band around the nose end. The 20 lb. F. may be fitted with a standard tail unit for stabilisation, or it may be fitted with either a standard parachute attachment or a special small parachute for use with the 500 lb. Cluster Projectiles No. 17, Mk II. The parachute attachments are designed to reduce the terminal velocity and so prevent the bomb's burying itself in the ground before exploding.

# 20 LB. FRAG. BOMB (STABILIZED)



FUZZING . . . . . Nose Pistol No. 29, 34, 38,  
 or 45, OR  
 Nose Fuze No. 873.  
 COLOR & MARKINGS . . . Dark green overall;  $\frac{1}{2}$ " red  
 band around nose, 1" light  
 green band approx. 4" from  
 nose.  
 TAIL NO. . . . .  
 OVERALL LENGTH . . . . . 21.8"  
 BODY LENGTH . . . . . 11.9"  
 MAX. BODY DIAMETER . . . . . 3.95"  
 WALL THICKNESS . . . . . 0.35"  
 TAIL LENGTH . . . . . 9"  
 TAIL WIDTH . . . . . 3.83"  
 TOTAL WEIGHT . . . . . 20 lbs. (approx. with pistol)  
 CHARGE/WEIGHT RATIO . . . 15 %

## BRITISH ACMB

## 20LB. FRAG.

(STABILIZED)

Mks I &amp; II (Obsolescent)

Mk III (Service)

*Mk IV (obsolete)*

**BODY CONSTRUCTION:** Streamlined one piece cast steel, with nose end open to take  
 exploder container. Rear end reduced to form a spigot for  
 taking tail assembly, with the boss on the spigot tapped and  
 threaded to receive tail securing rod. Exploder container cemented in position and  
 locked by a locking screw.

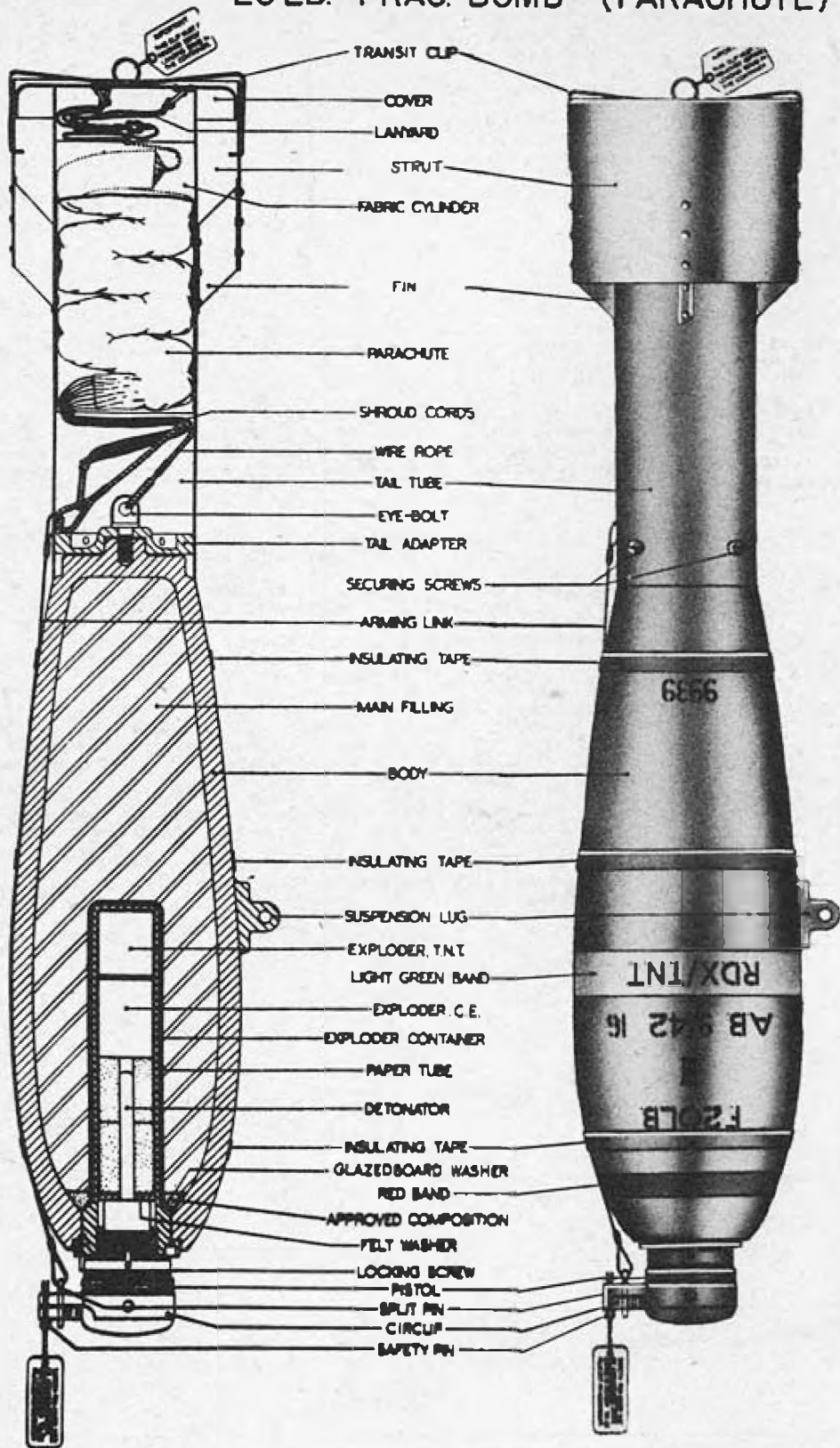
**TAIL CONSTRUCTION:** Cylindrical strut attached to tail cone by four fins. Tail se-  
 cured to body by a tail rod screwed into a boss on the body  
 spigot, and passing through a threaded adapter on the narrow end  
 of the tail cone. Locking nut and spring washer at both the outer and inner ends of  
 the rod lock it in position.

**SUSPENSION:**
  
 Mk I - Carried 12 in Small Bomb Containers, or on Light Series  
 bomb carrier if fitted with suspension lug.
   
 Mk II - Carried 12 in Small Bomb Containers, or on Light Series  
 bomb carrier if fitted with suspension lug or band.
   
 Mk III - Suspension lug welded on bomb body at center of gravity  
 for carrying on Light Series bomb carrier; can be  
 carried 12 in S.B.C.

**EXPLOSIVE COMPONENTS:** Detonators - (See Appendix I, page 309)  
 Exploders - C.E. and T.N.T. pellets (C.E. only being used now).  
 Filling - 3.3 lb. T.N.T. or R.D.X./T.N.T. (When R.D.X./T.N.T.  
 is used, a 1/4" - 3/8" topping of T.N.T. is put in  
 nose.

**REMARKS:**
  
 (1) Small Bomb Container, 160 lb., contains 8 of these bombs;  
 Small Bomb Container, 250 lb., will hold 12 of these bombs.
   
 (2) No longer being manufactured; however, they may be en-  
 countered in the field. Are being replaced by the 6 lb.  
 Frag.

# 20 LB. FRAG. BOMB (PARACHUTE)



BRITISH BOMB

FUZZING . . . . . Nose Pistol No. 33  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red  
 band around body  $\frac{1}{2}$ " from  
 nose; 1" light green band  $\frac{1}{2}$ "  
 from nose.  
 TAIL NO. . . . .  
 OVERALL LENGTH . . . . . 21.8"  
 BODY LENGTH . . . . . 11.9"  
 MAX. BODY DIAMETER . . . . . 3.95"  
 WALL THICKNESS . . . . . 0.35"  
 TAIL LENGTH . . . . . 10"  
 TAIL WIDTH . . . . . 3.9"  
 TOTAL WEIGHT . . . . . 20 lb. (approx.)  
 CHARGE/WEIGHT RATIO . . . . . 15 %

## 20LB. FRAG.

(PARACHUTE)

Mks I &amp; II (Obsolete)

Mk III (Service)

**BODY CONSTRUCTION:** Streamlined one piece cast steel, with nose end open to take exploder container. Rear end reduced to form a spigot for taking tail adapter, with the boss on the spigot tapped and threaded to receive tail adapter securing bolt. Exploder container cemented in position and locked by a locking screw.

**TAIL CONSTRUCTION:** Parachute tail unit consists of a tail tube with a cylindrical strut connected to its rear portion by four fins. Parachute, housed in a fabric cylinder, is contained in tail tube. Loose fitting metal cover in aft end of tube is attached to fabric cylinder, and parachute cords are connected to a wire rope secured to eyebolt which connects tail adapter and body. Tail adapter secured in front end of tail tube by four screws. When dropped, metal end cover in tube is blown out by air slip and pulls fabric cylinder out and free of parachute, after it is inflated.

**SUSPENSION:**

Mk I - Carried 12 in Small Bomb Containers, or on Light Series bomb carrier if fitted with suspension lug.

Mk II - Carried 12 in Small Bomb Containers, or on Light Series bomb carrier if fitted with suspension band.

Mk III - Suspension lug welded on bomb body at center of gravity for carrying on Light Series bomb carrier; can be carried 12 in S.B.C.

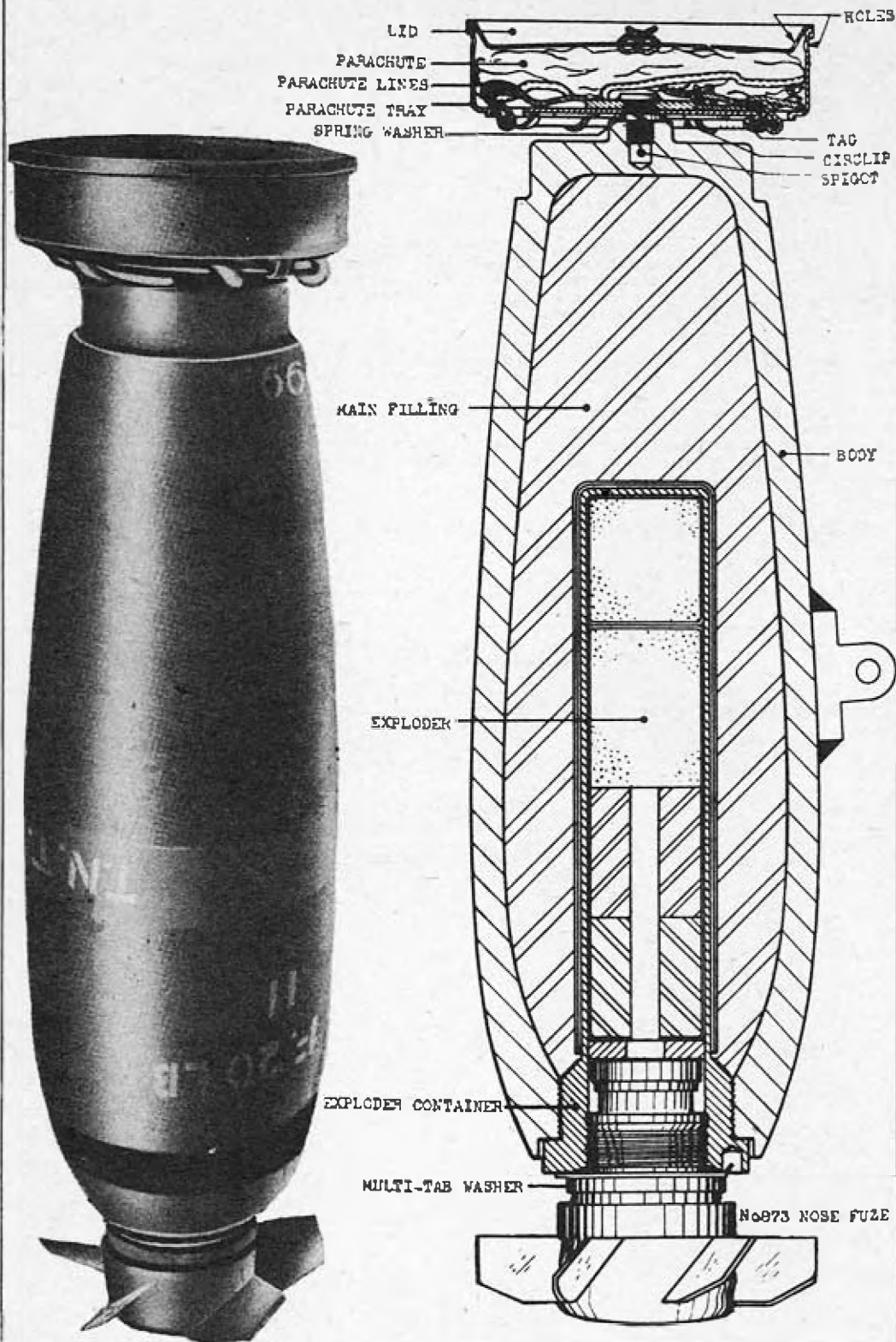
**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploder: C.E. and T.N.T. pellets.  
 Filling: Mk III, 3 lb. approx. R.D.X./T.N.T.  
 Mk I & Mk II, 3.3 lb. T.N.T.

**REMARKS:**

(1) Small Bomb Container, 160 lb., contains 8 of these bombs.  
 Small Bomb Container, 250 lb., contains 12 of these bombs.

(2) No longer being manufactured; however, they may be encountered in the field. Being replaced by the 8 lb. Frag.

# 20 LB. FRAG. BOMB



BRITISH BOMB**20 LB. FRAG.**

For No. 17 Mk II Cluster Only

(Service)

FUZZING . . . . . No. 873 Nose Fuze  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red  
 band around nose; 1" light  
 green band around body  
 TAIL NO. . . . . No. 15 Mk I or No. 16 Mk I  
 parachute attachments.  
 OVERALL LENGTH . . . . . 14.5"  
 BODY LENGTH . . . . . 11.9"  
 MAX. BODY DIAMETER . . . . . 3.9"  
 WALL THICKNESS . . . . . 0.35"  
 TOTAL WEIGHT . . . . . 20 lb. (approx.)  
 CHARGE/WEIGHT RATIO . . . . . 16 %

**BODY CONSTRUCTION:** Streamlined one piece cast steel, with nose end open to take exploder container; rear end reduced to form a spigot for taking parachute attachment. Spigot is tapped and threaded to receive securing stud of parachute attachment. Exploder container is cemented and locked in position. The No. 873 nose fuze is locked in position by a multi-tab washer.

**TAIL CONSTRUCTION:** No tail is used with this bomb, which is especially designed to be used only in the No. 17 Mk II cluster. It has a short parachute attachment, secured to body spigot by a threaded stud. The parachute tray houses an 8" diameter fabric parachute with six pairs of rigging lines, each pair terminating in a whipped eye. These eyes pass through holes in the tray and are threaded on to a metal circlip which is secured on the underside of the tray. A lid over the parachute in the tray is held in position by the fuze of the bomb behind it. When the cluster opens, the airship displaces the lid, which pulls the chute free of the tray.

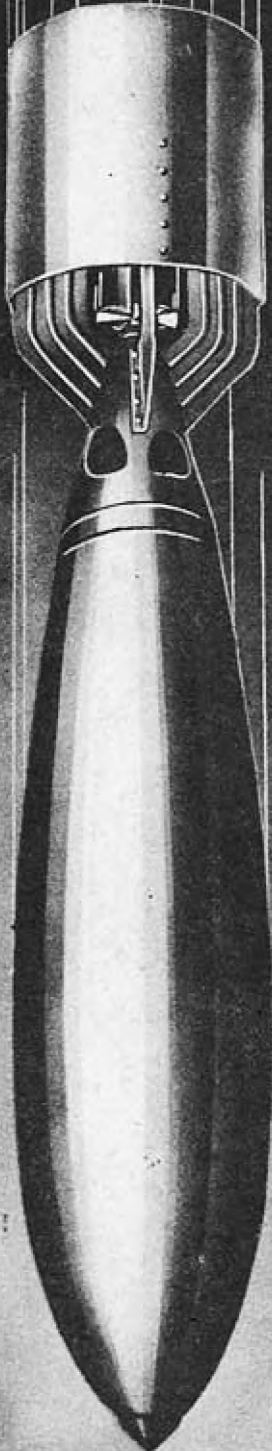
**SUSPENSION:** Has no suspension lugs, being used only in the No. 17 Mk II cluster.

**EXPLOSIVE COMPONENTS:** Exploder: Two T.N.T. and two perforated C.E. pellets.  
 Filling: 3.1 lb. (approx.) of T.N.T.

**REMARKS:** The bomb is issued only in clustered form, and when clustered, the fuze has no safety pin fitted. Hence, care should be exercised in dealing with any individual bombs which might break loose from a cluster in handling.

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# GENERAL PURPOSE BOMBS



## USE

General Purpose bombs are heavy-cased bombs ranging in weight from 40 lb. to 4000 lb. The smaller bombs are used mainly as anti-personnel bombs, while the larger ones are used for general bombardment purposes.

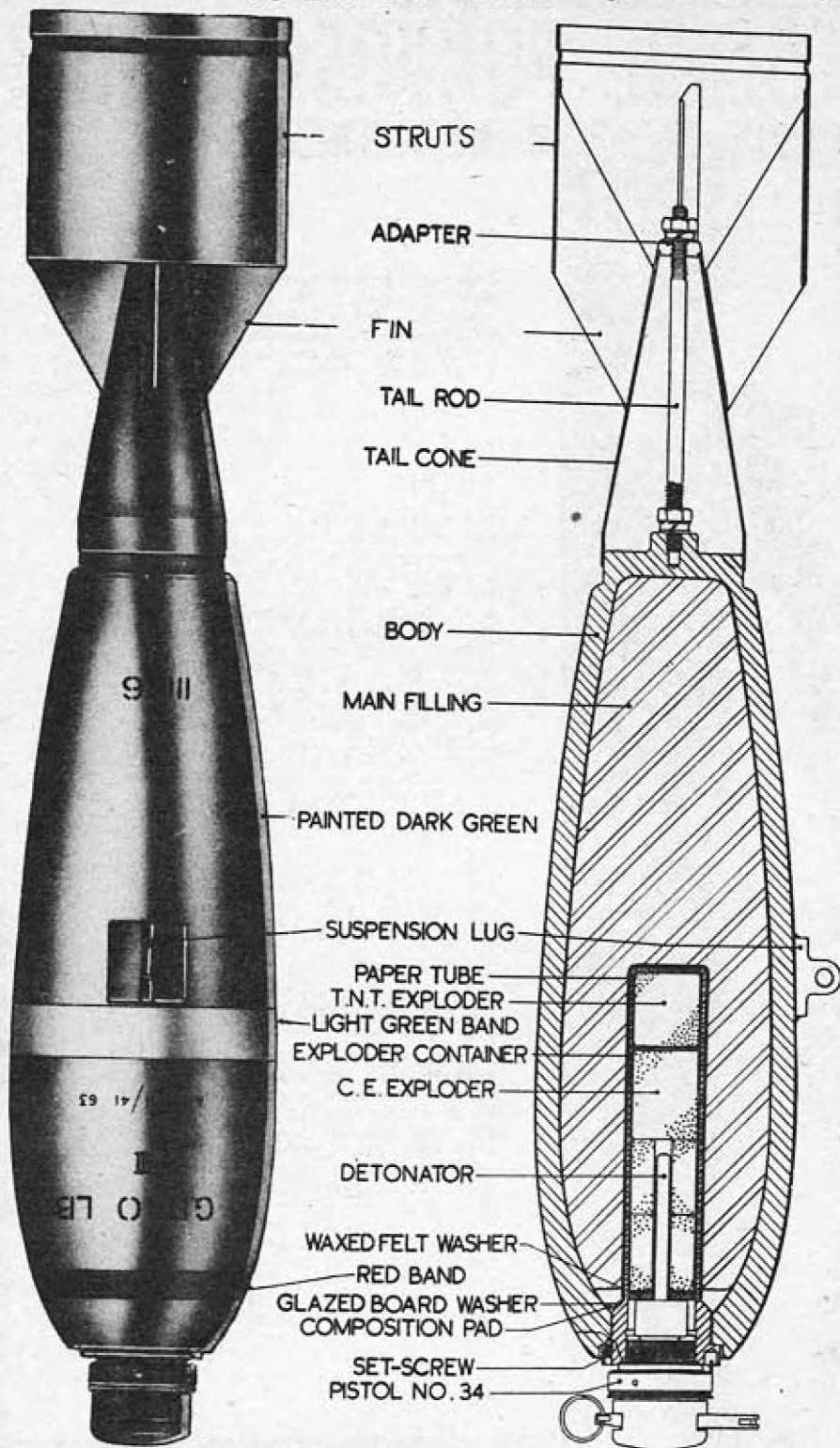
## FUZING

The earlier marks of the bombs are fitted with central tubes to take the exploding components, but later marks are fitted with exploder containers at the nose end or at the nose and tail ends. Bombs with central tubes or with exploder containers at each end may be fuzed at both ends or at either end, depending on the operational requirements. Bombs fuzed at the nose only are fitted with instantaneous detonators, while bombs fuzed at the tail are usually fitted with delay detonators. If bombs are fuzed at both the nose and the tail with instantaneous detonators, the nose assembly will function first, due to the direct action of the nose pistol. The general practice is to ship General Purpose bombs with a tail pistol in place, but without detonators, altering the fuzeing as may be desired prior to loading the bombs on the planes.

## CHARACTERISTICS

Common characteristics of British General Purpose bombs include the following: streamlined shape; dark green color with one-half inch red band at the nose and one inch light green band with the filler stencilled on; cast in one piece; male base plate; tail unit that clips on for bombs under 1000 lb; tail unit secured by wing bolts for bombs 1000 lb. and over; T.M.T., Amatol or R.D.X./T.M.T. main filling; charge/weight ratio of approximately thirty per cent; and transit bases to facilitate handling having the same diameter as the maximum diameter of the bomb.

# 40 LB. G.P. BOMB (STABILIZED)



BRITISH BOMB

FUZING . . . . . Nose Pistol No. 29, 34, 38,  
or 45; Nose Fuze No. B73

COLOR & MARKINGS . . . . . Dark green overall,  $\frac{1}{2}$ " red  
band 1" from nose; 1" light  
green band  $5\frac{1}{2}$ " from nose.

TAIL NO. . . . .

OVERALL LENGTH . . . . . 27.25"

BODY LENGTH . . . . . 15.90"

MAX. BODY DIAMETER . . . . . Mk. I: 5.01"  
II, III: 5.05"

WALL THICKNESS . . . . . 0.47"

TAIL LENGTH . . . . . 11.4"

TAIL WIDTH . . . . . 4.88"

TOTAL WEIGHT . . . . . 38.5 lb. (Mk. III)

CHARGE/WEIGHT RATIO . . . . . 17 %

**40 LB. G.P.**

(STABILIZED)

Mks I, II, III

(Service)

**BODY CONSTRUCTION:** Bomb body made of cast steel, the nose end open and threaded internally to receive an exploder container, which is screwed and cemented in position and locked by a set-screw. Rear end of the bomb is closed and reduced in diameter to form a spigot, and a boss on the spigot is drilled and tapped to receive the forward threaded end of a tail rod. The exploder container is in the form of a tube, closed at one end, the open end threaded internally to take the pistol.

**TAIL CONSTRUCTION:** Cylindrical strut attached to a tail cone by four fins, secured to body by tail rod extending axially through the tail cone. Forward end of rod screws into central boss on spigot at rear of bomb body, locked by a spring washer and a lock-nut. Rear end of tail cone is fitted with an internally threaded flanged adapter, which screws on the rear threaded end of tail rod, correctly locating tail cone on the bomb body. Tail locked in position by a spring washer and lock-nut screwed against the adapter.

**SUSPENSION:**

Mk I: Normally carried 8 in the 250 lb. Small Bomb Container, although limited number have single suspension lug.

Mk II: Normally carried 8 in 250 lb. Small Bomb Container; may be fitted with suspension band.

Mk III: Has suspension lug, and may be carried 6 in 250 lb. Small Bomb Container or on Light Series bomb carrier.

**EXPLOSIVE COMPONENTS:**

Detonator: (See Appendix 1, page 309)

Exploder: TNT (1 oz. 7 dr.) and C.E. (4 oz. 6 dr.) retained by a waxed felt washer.

Filling:

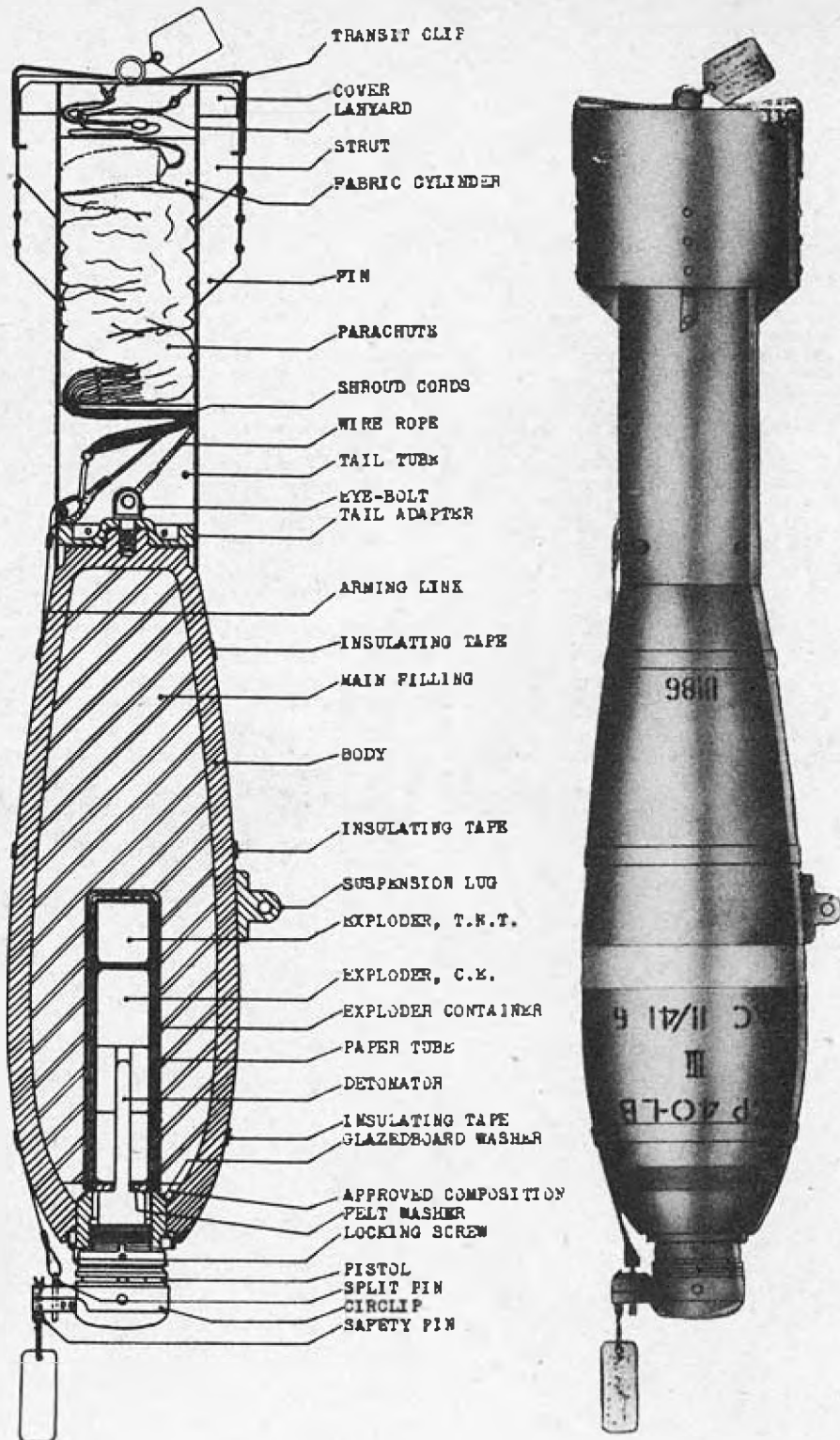
Mk I - 6.3 lb. Amatol 80/20

Mk II - 6.5 lb. T.N.T. or 6.7 lb. R.P.X./T.N.T. 60/40.

Mk III - 8.5 lb. Amatol 60/40 or 6.7 lb. of R.D.X/T.N.T. 60/40.

**REMARKS:** Usually used as a fragmentation bomb, being almost identical to the 20 lb. fragmentation bomb except for size.

# 40 LB. G.P. BOMB (PARACHUTE)



FUZING . . . . . Nose Pistol No. 33 Mk I.  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red  
 band 1" from nose; 1" light  
 green band  $5\frac{1}{2}$ " from nose.  
 TAIL NO. . . . .  
 OVERALL LENGTH . . . . . 27.25"  
 BODY LENGTH . . . . . 15.90"  
 MAX. BODY DIAMETER . . . . . Mk I: 5.01"  
 II & III: 5.05"  
 WALL THICKNESS . . . . . 0.47"  
 TAIL LENGTH . . . . . 11.4"  
 TAIL WIDTH . . . . . 4.88"  
 TOTAL WEIGHT . . . . . 38.5 lb.  
 CHARGE/WEIGHT RATIO . . . . . 17%

## BRITISH BOMB

40 LB. G.P.

(PARACHUTE)

Mks I, II, III

(Service)

**BODY CONSTRUCTION:** Cast steel body, nose end fitted with an exploder container which is screwed and cemented in position and locked by a locking screw. Exploder container is threaded to take the pistol. Rear end of bomb body is closed; reduced in diameter to form a spigot with a central boss, which is drilled and tapped to receive an eyebolt to secure the parachute tail unit to the body.

**TAIL CONSTRUCTION:** Parachute tail unit consists of a cylindrical strut attached to the rear and of a tail tube by four fins. The parachute is packed in a fabric cylinder which is closed at its rear end and fits inside the tail tube. The rear end of the fabric cylinder is connected by pilot lanyards to a flanged cover which fits loosely in the cylindrical strut and is retained in position, closing the rear end of the tube, by a wire transit clip.

**SUSPENSION:**

Mk I: Normally carried 6 in 250 lb. Small Bomb Container, though limited number have single lug.

Mk II: Normally carried 6 in 250 lb. Small Bomb Container, may be suspended from a band around body.

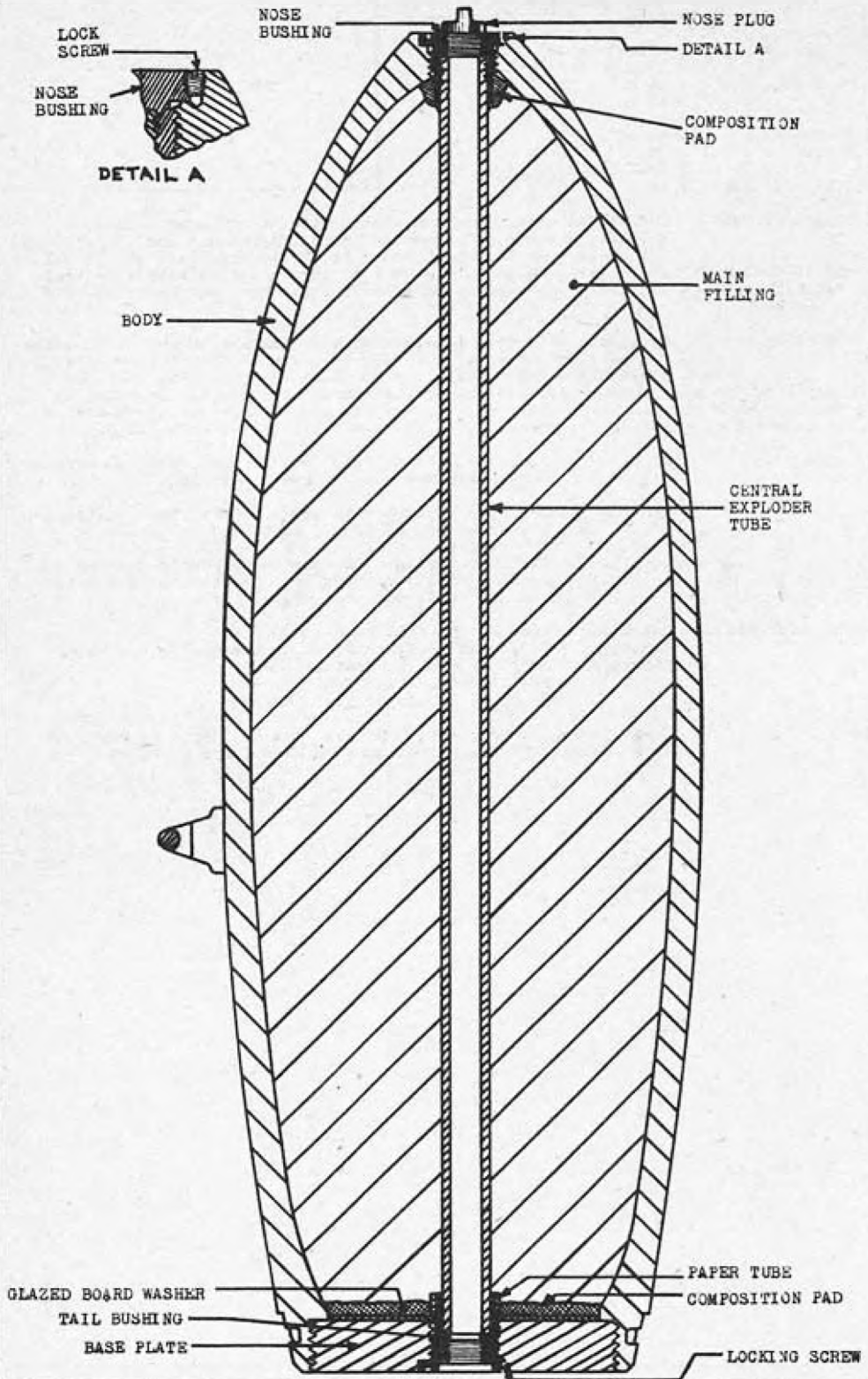
Mk III: Single lug welded to body for use when carried on Light Series bomb carrier. Can be loaded 6 into 250 lb. Small Bomb Container.

**EXPLOSIVE COMPONENTS:**

Detonator: (See Appendix I, page 309)  
 Exploder: T.N.T. and C.E. retained by a waxed felt washer.  
 Filling: Mk I - 6.3 lb. Amatol (80/20)  
 Mk II - 6.5 lb. T.N.T.  
 Mk III - 6.5 lb. Amatol (60/40)

**REMARKS:** Usually used as fragmentation bomb, and is identical with the 20 lb. parachute fragmentation bomb except for size.

# 250 & 500 LB. G.P. BOMBS



## 250 LB. G.P.

## FUZZING:

Mk IV - Nose Pistol No. 27, 42, or 44.

Tail Pistol No. 28, 30, or 37.

Mk V - Tail Pistol No. 17 (Long Delay) only.

Mk VI - (See REMARKS).

COLOR & MARKINGS . . . Dark green overall.  $\frac{1}{2}$ " red band 1" from nose; 1" light green band 5" from nose. 1" x  $\frac{1}{2}$ " white line on the body base indicates that bomb has been filled.

TAIL NO. . . . . No. 2 Mk II (early Mk IV has No. 2 Mk I).

OVERALL LENGTH . . . . . 56.00"

BODY LENGTH . . . . . Mk IV: 25.60"

Mk V: 27.6"

MAX. BODY DIAMETER . . . . . 10.2"

WALL THICKNESS . . . . . 0.52"

TAIL LENGTH . . . . . 27.7"

TAIL WIDTH . . . . . 10.2"

TOTAL WEIGHT . . . . . 230 lb.

CHARGE/WEIGHT RATIO . . . . . 29 %

Mks IV, V, VI

(Service)

(Mk VI - See Remarks)

## BODY CONSTRUCTION:

Mk IV - Hollow steel casting open at each end. Nose and internally threaded to house exploder container which is locked in position by a locking screw. Tail end shaped to take the tail cone, provided with four equally spaced supports which locate the spring clips on the tail. A filling plug (male base plate) threads into the tail end of the body having two holes threaded to receive transit base plate.

Mk V - The Mk V is the same externally as the Mk IV but is fitted with a central exploder tube instead of the exploder container at the nose and tail. This bomb does not take a nose pistol, using only the No. 17 long delay pistol. The nose opening is filled with a nose plug with a cross out.

## TAIL CONSTRUCTION:

No. 2 Mk I - Sheet metal tail attached to body by four spring clips. Tail consists of a tail cone with a cylindrical tail strut attached to it by four fins. The spring clips are fitted to the base of the cone, which is slotted to engage with the locating pin and the bomb body. At the apex of the tail cone is fitted a bush, which locates one end of arming spindle, supported at the opposite end by a diaphragm at the base of the tail cone. The rear end of the arming spindle has attached to it an arming fork which engages with the arming fork of the No. 28 or other tail pistol of the bomb.

## SUSPENSION:

Suspended by a single suspension lug, secured by four counter-sunk screws to the bomb body.

## EXPLOSIVE COMPONENTS:

Detonators: (See Appendix I, page 309)

Exploder: T.N.T. and C.E.

Filling: 67.75 lbs. T.N.T. or 87 lbs. Amatol 60/40.

## REMARKS:

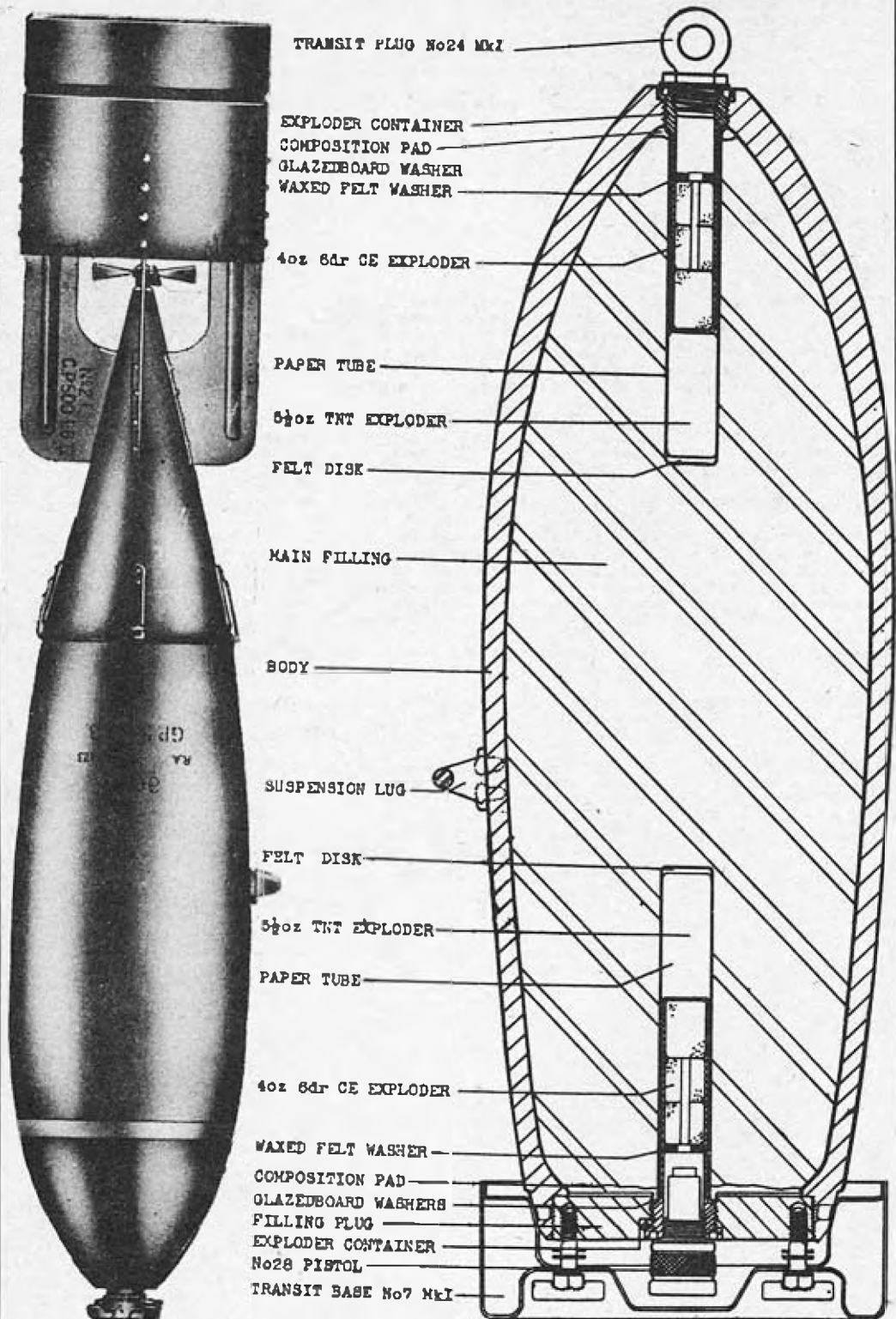
(1) Mk V bomb was manufactured to use up existing stocks of the No. 17 (long delay) pistol, which is too long to fit in the Mk IV bomb.

(2) The No. 845 anti-disturbance fuse, formerly incorporated in the nose when the tail pistol No. 37 was used, is now obsolete.

(3) Tail fins usually painted red when time pistol is used.

(4) The Mk VI bomb is made in the U.S. and uses fuzes manufactured there to British designs. Nose Fuse Mk VII, M3; Tail Fuse Mk V, M1.

## 250 &amp; 500 LB G.P. BOMBS



## 500 LB. G.P.

Mks IV, V, VI

(Service)

## FUZING:

Mk IV - Nose Pistol No. 27, 42, or 44.  
Tail Pistol No. 29, 30, or 37.

Mk V - Tail Pistol No. 17 (long delay) only.

Mk VI - See REMARKS below.

COLOR & MARKINGS . . . Dark green overall;  $\frac{1}{2}$ " red band 1" from nose; 1" light green band  $\frac{1}{2}$ " from nose. 1" x  $\frac{1}{4}$ " white line on body base indicates bomb has been filled.

TAIL NO. . . . . No. 2 Mk I or No. 26 Mk I or II.

OVERALL LENGTH . . . . With No.2 Tail: 70.6"  
With No.26 Tail: 55.6"

BODY LENGTH . . . . . Mk IV - 37.2"  
Mk V - 36.4"

MAX. BODY DIAMETER . . . 12.9"

WALL THICKNESS . . . . . 0.72"

TAIL LENGTH . . . . . No. 2 Mk I - 33.4"  
No. 26 Mk I - 20.4"

TAIL WIDTH . . . . . 12.9"

TOTAL WEIGHT . . . . . 470 lbs. (with long tail)

CHARGE/WEIGHT RATIO . 31 % (Approx.)

## BODY CONSTRUCTION:

Mk IV - Hollow steel casting, open at each end. Nose end internally threaded to house an exploder container, which is locked in position by a locking screw. The tail end is shaped to take the tail cone and is provided with four equally spaced slots which locate the spring clips on the tail. A filling plug (male base plate) threads into the tail end of the body, having two holes threaded to receive the transit base bolts.

Mk V - This bomb is externally the same as the Mk IV, but has a central exploder tube instead of the exploder pockets at either end. The fuzeing is in the tail only, and the nose is closed with a bung which has a cross cut in the end, not a ring as in the Mk IV bombs.

## TAIL CONSTRUCTION:

500 lb. No. 2 Mk I - This tail differs from the 250 lb. No. 2 Mk I tail only in the weight and dimensions. Sheet metal tail attached to body by four spring clips. Tail consists of a tail cone with a cylindrical tail strut attached to it by four fins.

500 lb. No. 26 Mk I - This tail assembly is similar to the 500 lb. No. 2 Mk I tail, differing mainly in weight and dimensions. It is used on the Mk IV or Mk V 500 lb. G.P. bombs when carried externally on high speed fighter aircraft, or internally on fighter bombers of the Mosquito type. The tail and fins are shorter, and it has a two-bladed arming vane instead of the 4-bladed arming vane used on the No. 2 Mk I tail.

## SUSPENSION:

Suspended by a single lug slightly aft of center of gravity, secured by four countersunk screws to the bomb body.

## EXPLOSIVE COMPONENTS:

Detonators: (See Appendix I, page 309)

Exploders: Mk IV - T.N.T. and C.E.

Mk V - Has one central exploder tube instead of the nose and tail exploder containers. The exploder consists of C.E. pellets & T.N.T.

Filling: 144.5 lb. of T.N.T. or 143 lb. Amatol 60/40.

## REMARKS:

- (1) Mk V bomb was manufactured to use up existing stocks of No. 17 (long delay) pistols, which are too long to fit into the Mk IV bomb.
- (2) The No. 845 anti-disturbance fuze, formerly incorporated in the nose when the Tail Pistol No. 37 was used, is now obsolete.
- (3) Tail fins usually painted red when time pistol is used.
- (4) The Mk VI bomb is made in the U.S. and uses fuzes manufactured there to British designs: Nose Fuze Mk VII, M3; Tail Fuze Mk V, M1.

# 1000 LB. G.P. BOMBS



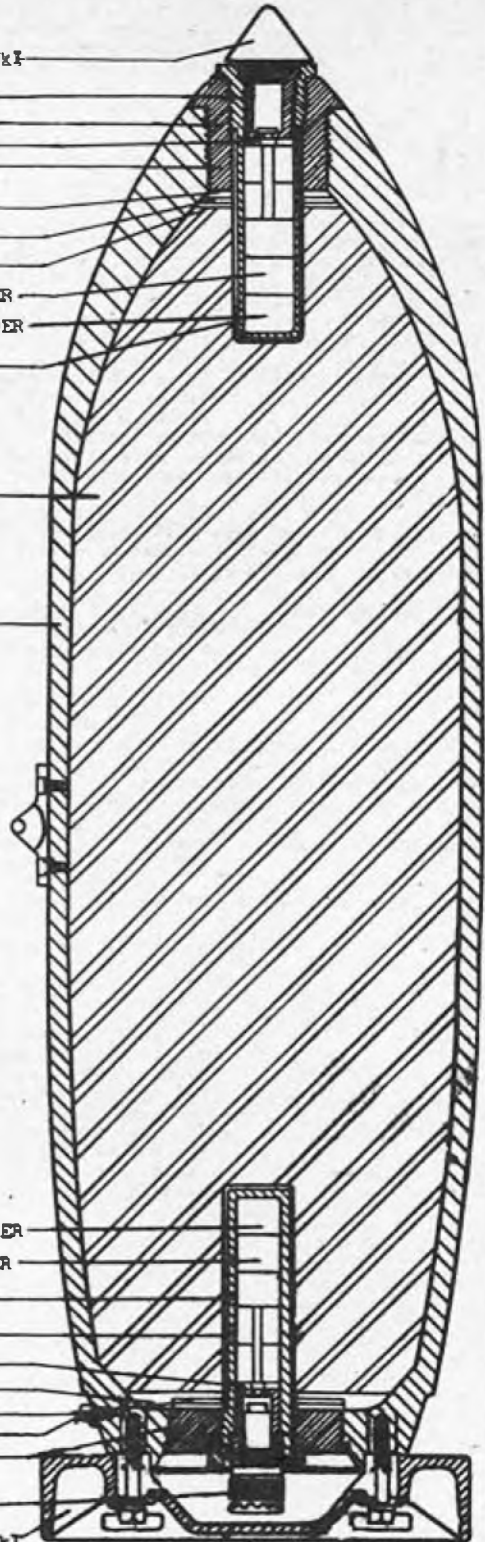
- TRANSIT PLUG No29 Mk1
- DETONATOR HOLDER
- EXPLODER CONTAINER
- FELT WASHER
- NOSE BUSH
- COMPOSITION PAD
- FELT WASHER
- LAYER OF TNT
- 11oz 2dr CE EXPLODER
- 2oz 14dr TNT EXPLODER
- PAPER TUBE

- MAIN FILLING
- BOMB BODY

- 2oz. 14dr TNT EXPLODER
- 11oz 2dr CE EXPLODER
- EXPLODER CONTAINER
- PAPER TUBE
- FELT WASHER
- LAYER OF TNT
- FELT WASHERS
- LOCATING PIN
- FILLING PLUG

- LIGHT GREEN BAND
- RED BAND
- TAIL PISTOL

- TRANSIT BASE No24 Mk1



1000 LB. G.P.

Mks I - IV

(Service)

## FUZING:

Mk I & II - Nose Pistol No. 27, 42, or 44.  
Tail Pistol No. 28, 30, or 37.

Mk III & IV - Tail Pistol No. 28, 30, or 37.

COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red band 2" from nose; 2" light green band 9 $\frac{1}{2}$ " from nose.

TAIL NO. . . . . No. 13 Mk I or No. 29 Mk I.  
BODY LENGTH . . . . . 52.5"  
MAX. BODY DIAMETER . . . . . 16.16"  
WALL THICKNESS . . . . . 0.77"  
TAIL LENGTH . . . . . No. 13 Mk I - 35.5"  
No. 29 Mk I - 20"

TAIL WIDTH . . . . . 16"  
OVERALL LENGTH: . . . . . With No. 13 Mk I Tail - 86.5"  
With No. 29 Mk I Tail - 71.0"

TOTAL WEIGHT . . . . . 1072 lbs. (with short tail & Amatol filled)  
CHARGE/WEIGHT RATIO , 33 %

**BODY CONSTRUCTION:** Mk I - Hollow steel casting open at each end with nose internally threaded to house a nose bush, which is screwed and cemented in position, and is bored and threaded for part of its length to take an exploder container screwed and cemented in position. The exploder container is threaded internally in the open end to house a detonator holder, cemented in position and locked with a locking screw. The detonator holder is threaded internally in the open end to take a pistol or a transit plug. The tail end of the bomb body is shaped externally to take a tail and is provided with a locating pin to locate the tail when in position on the bomb. A filling plug (male base plate) screws into the tail end of the body, cemented in position. The filling plug is bored and threaded internally to receive an exploder container which houses the detonator holder and is inserted and locked in the same manner as that used in the nose end.

Mk II - Similar to Mk I, except that the spigot on the tail end of the bomb body for locating the transit base, and the seating on the bomb body for the suspension lug, are omitted.

Mk III - Similar to Mk I, except that the exploder container and the detonator holder are not fitted, the nose being plugged with a special adapter and transit plug which are welded in position.

Mk IV - Similar to Mk II body, except that the nose is permanently plugged in a similar manner to the Mk III.

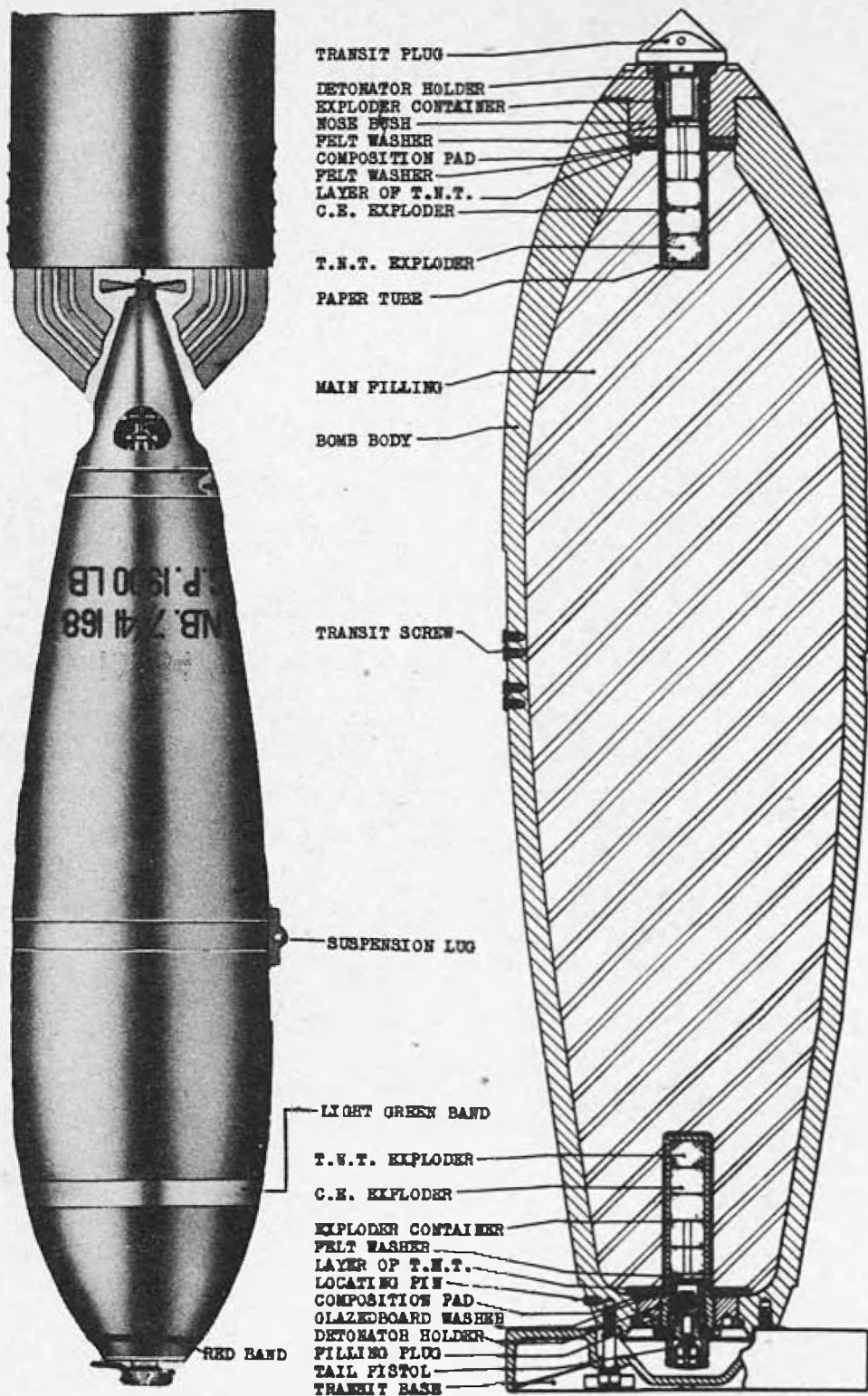
**TAIL CONSTRUCTION:** No. 13 Mk I - Consists of a tail cone and a cylindrical strut attached to the cone by 4 corrugated fins, and an arming mechanism for arming the tail pistol. A tail ring near the base of the tail cone is drilled to house 4 wing bolts used for attaching the tail to the bomb body. Arming mechanism consists of an arming spindle at one end of which is attached the fork which engages with the arming fork of the tail pistol.  
No. 29 Mk I - Similar to the No. 13 Mk I, differing only in dimensions, having a shorter tail strut and fins. The fins are not corrugated. Arming vanes protrude beyond cylindrical strut.

**SUSPENSION:** Single suspension lug 30° from nose plug tip, consisting of a rectangular stop plate to which is welded a lug. The plate is secured to the bomb body by two screws.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
Exploders: T.N.T. and C.E., with a wax-filled washer between the C.E. and the detonator holder.  
Filling: 357 lbs. Amatol 60/40 or 378 lbs. R.D.X/T.M.T. 60/40

**REMARKS:** (1) The Mks I and II may be fused at nose or tail or both. Mks III & IV are fused in the tail only. The No. 845 anti-disturbance fuze, formerly incorporated in the nose when the Tail Pistol No. 37 was used, is now obsolete.  
(2) Tail fins usually painted red when time pistol is used.

## 1900 LB. G.P. BOMB



FUZZING . . . . . Nose Pistol No. 27,42, or 44.  
 Tail Pistol No. 28,30, or 37.  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{4}$ " red  
 band 2" from nose; 2" light  
 green band  $1\frac{1}{2}$ " from nose.  
 TAIL NO. . . . . No. 14 Mk I.  
 OVERALL LENGTH . . . . . 98"  
 BODY LENGTH . . . . . 63.2"  
 MAX. BODY DIAMETER . . . . . 18.7"  
 WALL THICKNESS . . . . . 1.15"  
 TAIL LENGTH . . . . . 35.3"  
 TAIL WIDTH . . . . . 18.7"  
 TOTAL WEIGHT . . . . . 1785 lbs.  
 CHARGE/WEIGHT RATIO . . . . . 26%

## BRITISH BOMB

1900 LB. G.P.

Mks I &amp; II

(Service)

**BODY CONSTRUCTION:** Mk I - Hollow steel casting open at each end, with nose and threaded internally to house a nose bush which is screwed and cemented in position and is bored centrally and threaded for part of its length to take an exploder container. The exploder container is locked to the nose bush by a locking screw, and is threaded internally at the open end to house a detonator holder which takes a pistol or transit plug. The tail end of the bomb body is shaped externally to take the tail and provided with a locating pin to locate the tail when in position on the bomb. A filling plug (male base plate) screws into the base of the body and is cemented in position. It is bored and threaded internally to receive an exploder container, which houses a detonator holder in the same manner as that at the nose. A flat seating at the center of gravity is drilled and tapped to take 4 screws to secure a suspension lug when required.

Mk II - Similar to Mk I except the spigot on the tail end of the body for locating the transit base, and the seating on the bomb body for the suspension lug, are omitted.

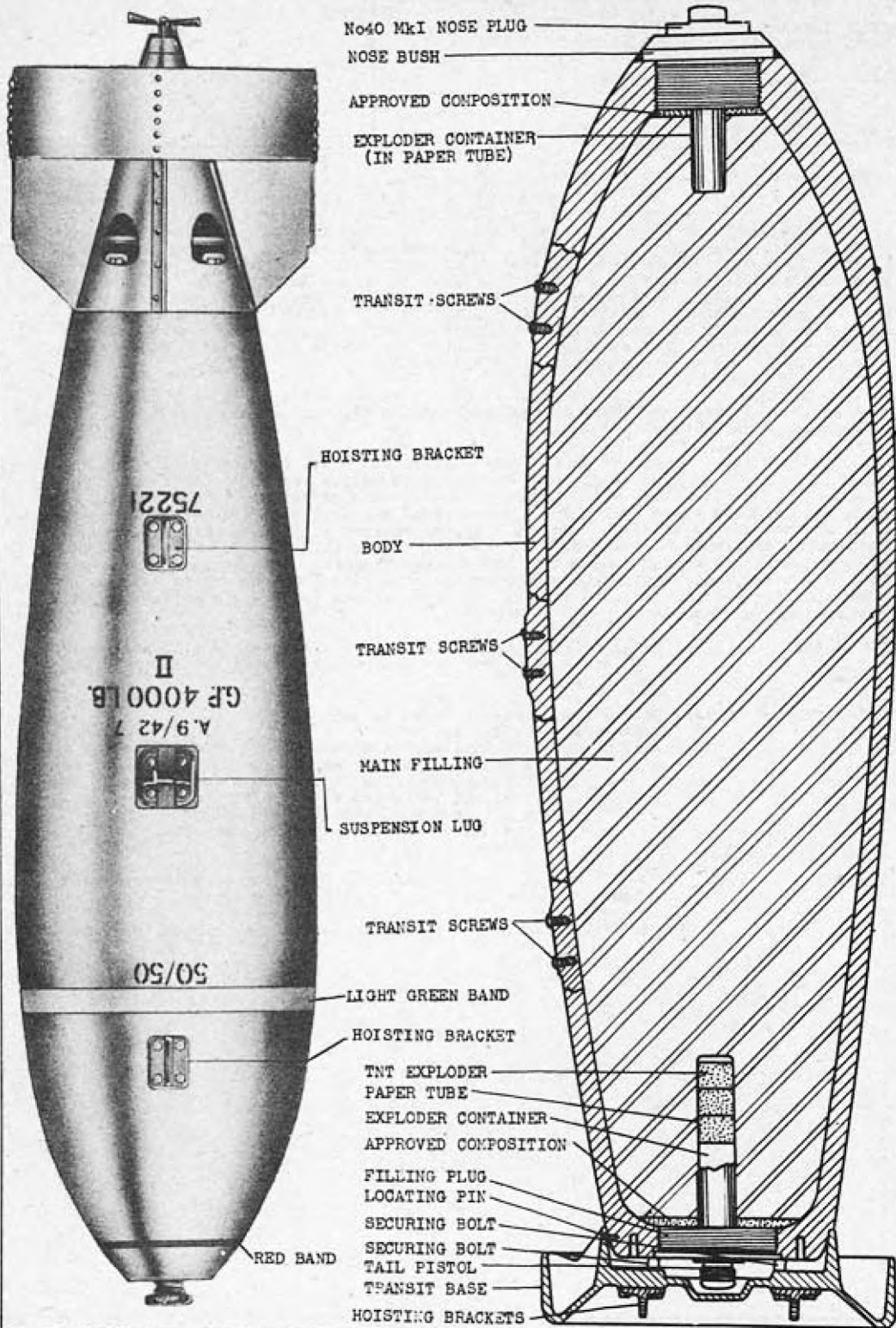
**TAIL CONSTRUCTION:** No. 14 Mk I consists of a tail cone, a cylindrical strut attached to the cone by four fins and an arming mechanism for arming the tail pistol. The tail cone is secured to the body by a tail ring, which houses 4 wing bolts which thread into the body base. Attached to the tail cone, to the rear of the tail ring, is a spider in form of a cross that supports the fork end of the arming mechanism. The rear end of the tail cone is closed by a bush which supports the arming vane and of the arming mechanism. The arming spindle has a fork on one end, which engages the fork in the tail pistol and an arming vane on the other end, secured by a nut and washer. The arming vane and spindle are prevented from rotating during transit by a safety clip.

**SUSPENSION:** Single suspension in the form of a stop plate with an integral lug, and 4 holes for the securing screws in attaching to the bomb body.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploders: T.N.T. and C.E.  
 Filling: 470 lbs. Amatol 80/40, sealed at the nose end with a pad of approved composition and a  $\frac{1}{4}$ " layer of T.N.T. into which is pressed a felt washer. The tail end is sealed with a  $\frac{3}{16}$ " layer of T.N.T., a pad, and a glazedboard washer. The exploder containers are protected from the filling by paper tubes.

**REMARKS:** (1) The No. 845 anti-disturbance fuse, formerly incorporated in the nose when the Tail Pistol No. 37 was used, is now obsolete.  
 (2) Tail fins usually painted red when time pistol is used.

# 4000 LB. G.P. BOMB



No.40 Mk I NOSE PLUG

NOSE BUSH

APPROVED COMPOSITION

EXPLODER CONTAINER  
(IN PAPER TUBE)

TRANSIT SCREWS

HOISTING BRACKET

BODY

TRANSIT SCREWS

MAIN FILLING

SUSPENSION LUG

TRANSIT SCREWS

LIGHT GREEN BAND

HOISTING BRACKET

TNT EXPLODER

PAPER TUBE

EXPLODER CONTAINER

APPROVED COMPOSITION

FILLING PLUG

LOCATING PIN

SECURING BOLT

SECURING BOLT

TAIL PISTOL

TRANSIT BASE

HOISTING BRACKETS

RED BAND

75221  
II  
GF 4000 LB.  
A.9/42 7

50/50

BRITISH BOMB

FUZION . . . . . Nose Pistol No. 27,42, or 44.  
 Tail Pistol No. 28,30, or 37.  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red  
 band around nose; 2" light  
 green band around maximum  
 diameter.  
 TAIL NO. . . . . No. 34 Mk I  
 OVERALL LENGTH . . . . . 108.5"  
 BODY LENGTH . . . . . 79.3"  
 MAX. BODY DIAMETER . . . . . 24.5"  
 WALL THICKNESS . . . . . 1.35"  
 TAIL LENGTH . . . . . 23.5"  
 TOTAL WEIGHT . . . . . 3587 lb.  
 CHARGE/WEIGHT RATIO . . . . . 30 %

4000 LB. G.P.

Mks I &amp; II

(Service)

**BODY CONSTRUCTION:** Mk II - Hollow steel casting open at each end, with six strengthening beams welded inside the nose end. Nose bush screwed and welded in nose and filling plug (male base plate) and filling plug, secured by locking screws. Exploder containers threaded in nose bush and rear end of body shaped to receive the tail. Rear face of body has 2 sets of 4 threaded holes for wing bolts of tail and transit base.

Mk I - Similar, with exception of two side fuze pockets near rear end of body, afforded by two adapters welded into the body and fitted with exploder containers extending in at a 45° angle to the axis of the bomb.

**TAIL CONSTRUCTION:** Cylindrical strut supported by four fins from the tail cone, which is fitted with an arming mechanism for the tail pistol. Forward end of arming spindle has a fork which engages fork of tail pistol, and rear end fitted with four-bladed arming vane. Arming vanes protrude beyond cylindrical strut.

**SUSPENSION:** Bomb body has three sets of tapped holes for the securing screws of a central suspension lug and fore and aft hoisting brackets. Suspension lug is secured by four bolts at center of gravity.

**EXPLOSIVE COMPONENTS:** Detonator: (See Appendix I, page 308)  
 Exploder: T.N.T. and C.E.  
 Filling: 1070 lbs. Amatol 60/40 or 1018 of Amatex 51/40/9.

**REMARKS:** (1) The No. 845 anti-disturbance fuze, formerly incorporated in the nose when the Tail Pistol No. 37 was used, is now obsolete.  
 (2) Tail fins usually painted red when time pistol is used.

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# MEDIUM CAPACITY BOMBS

RESTRICTED

## USE

These bombs are designed for general operational use as alternatives to the corresponding G.P. bombs. They are comparable to the U.S. G.P. series with a loading factor of approximately 80%, parallel sides, and ogival nose.

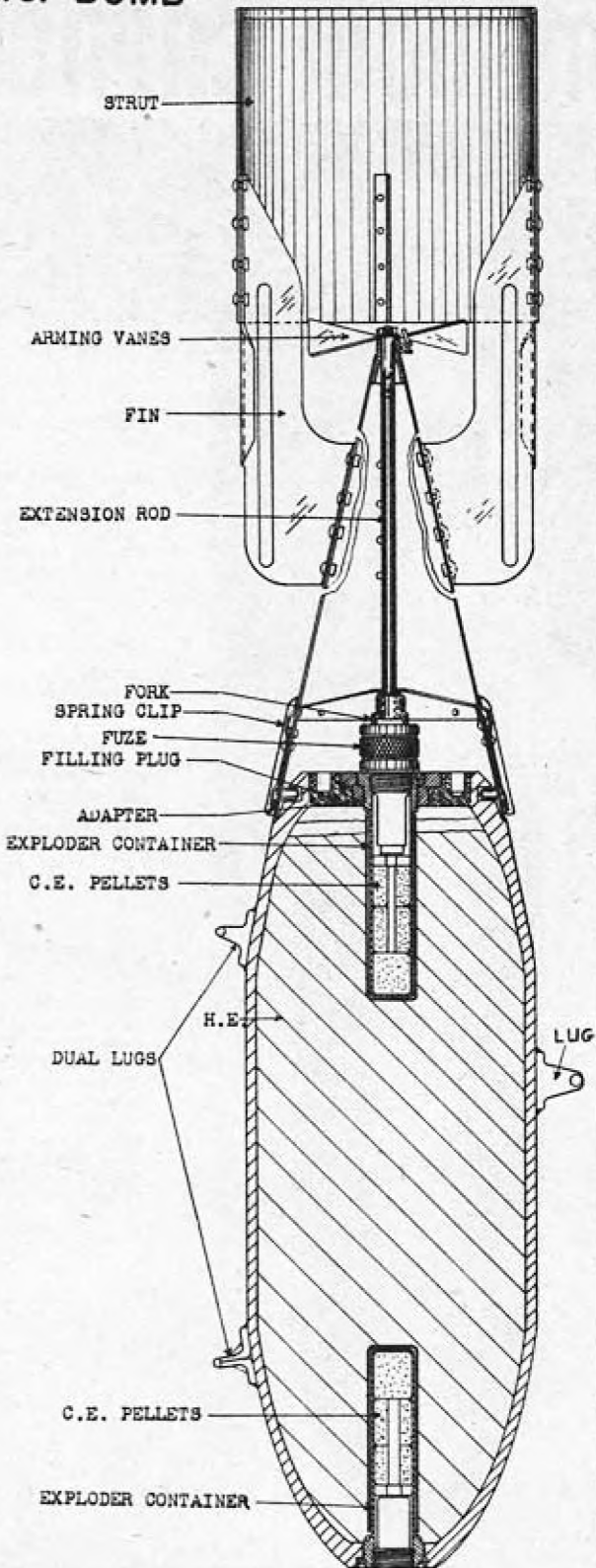
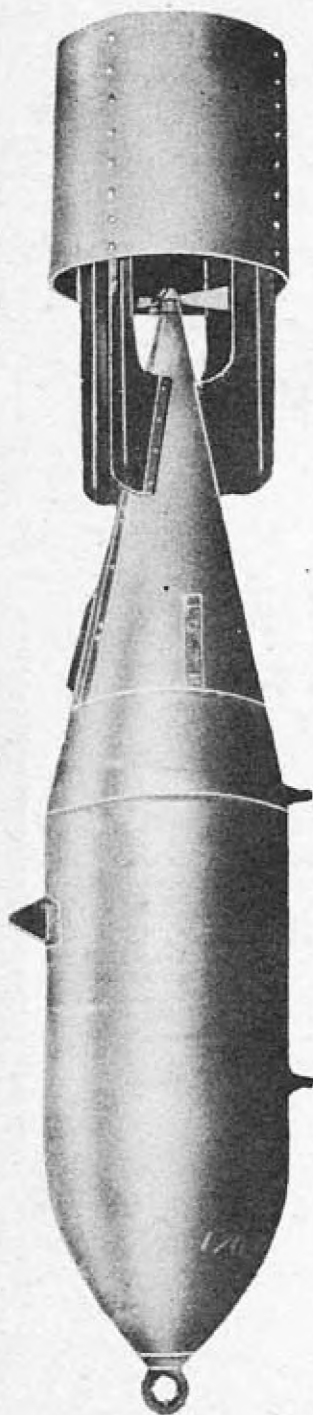
## FUZING

They may be fuzed at the nose and tail, or at the nose or tail only if so desired. When shipped, they are plugged at the nose and fitted with a No. 28 or No. 30 tail pistol (without detonators), the pistol acting as a tail transit plug.

## CHARACTERISTICS

These bombs are painted dark green overall, with a red band around the bomb body near the nose denoting that the bomb has been filled, and a light green band around the nose end indicating its H.E. nature. The type of filling is stencilled around the bomb body, as is the monogram of the filling station, date of filling, etc. These bombs are supplied fitted with transit bases, and the larger bombs have transit rings in addition.

# 250 LB. M.C. BOMB



FUZING . . . . . Nose Pistol No. 27,42, or 44  
 Tail Pistol No. 28,30, or 37  
 COLOR & MARKINGS . . . Dark green overall;  $\frac{1}{2}$ " red  
 band around nose, 1" light  
 green band around base of  
 ogive.  
 TAIL NO. . . . . No. 2 Mks I or II  
 OVERALL LENGTH . . . . . 55.5"  
 BODY LENGTH . . . . . 27.5"  
 MAX. BODY DIAMETER . . . . . 10"  
 WALL THICKNESS . . . . . 0.3"  
 TAIL LENGTH . . . . . 27" (approx.)  
 TAIL WIDTH . . . . . 10"  
 TOTAL WEIGHT . . . . . 225 lbs. (approx.)  
 CHARGE, WEIGHT RATIO . . . . . 50 % (approx.)

BRITISH BOMB

250 LB. M.C.

Mks I &amp; II

(Service)

**BODY CONSTRUCTION:** Solid drawn or rolled steel barrel. Exploder containers screw into nose and base filling plug (male base plate). Parallel sides with ogival nose and slight rear taper, similar in construction to U. S. General Purpose Bombs.

**TAIL CONSTRUCTION:** Cylindrical tail strut secured to tail cone by four fins. Secured to body by four spring clips, which engage in slots in the tail end of the body. A reach rod through the tail cone, having arming vanes attached to the aft end, engages the arming fork in the tail pistol

**SUSPENSION:** Mk I - Single suspension lug welded to bomb body.

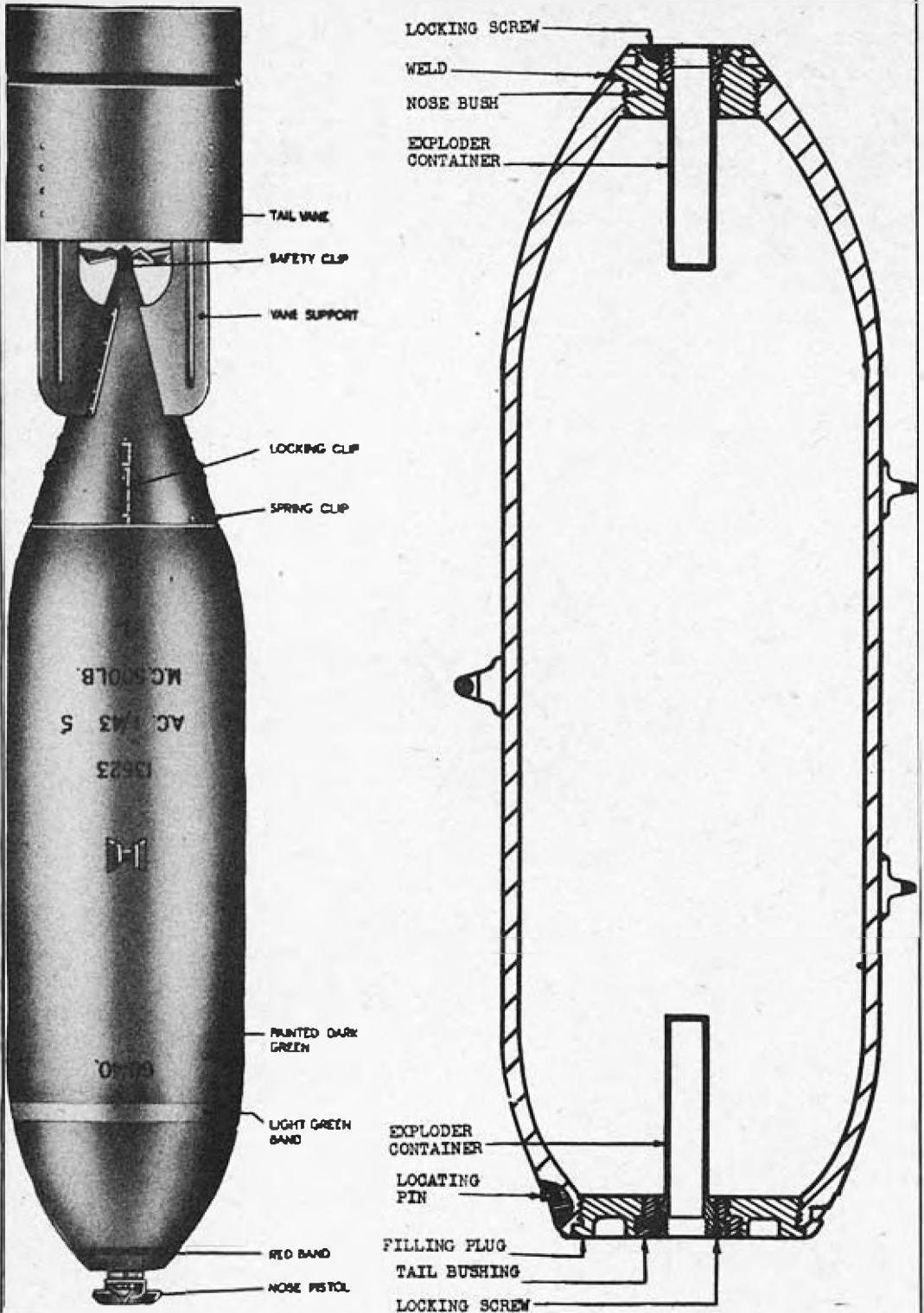
Mk II - Dual lugs welded to case for suspension from U. S. aircraft in addition to single lug.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 308)  
 Exploders: C.E. pellets  
 Filling: Amatol or Pentolite.

**REMARKS:**

- (1) This bomb is supplied with a No. 28 or No. 30 tail pistol, and may or may not be fuzed in the nose.
- (2) Anti-disturbance fuze No. 845, formerly incorporated in the nose of bombs fuzed with No. 37 tail pistol, is obsolete.
- (3) Tail fins usually painted red when time pistol is used.

# 500 LB. M.C. BOMB



## BRITISH BOMB

## 500 LB. M.C.

FUZZING . . . . . Nose Pistol No. 27,42, or 44  
Tail Pistol No. 28,30, or 37  
COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red  
band around nose, 1" light  
green band around base of  
ogive.  
TAIL NO. . . . . No. 2 Mk I; No. 25 Mks I or  
II; No. 28 Mk I; or No. 28  
Mk I.

Mks I - V: Obsolescent  
Mks VI-XII: Service

OVERALL LENGTH . . . . . 70.6" (with long tail)  
57.8" (with short tail)  
BODY LENGTH . . . . . 41"  
MAX. BODY DIAMETER . . . . . 12.9"  
WALL THICKNESS . . . . . 0.3" (Mks I, II, VI, VII)  
0.42" (Mks III, IV, V, VIII-XII)  
TAIL LENGTH . . . . . No. 25 Mks I, II: 28"  
No. 28 Mks I, II: 14"  
TAIL WIDTH . . . . . 12.9"  
TOTAL WEIGHT . . . . . Mk VIII with short tail: 499 lb. Amatol 60/40  
511 lb. R.D.X./T.N.T. 60/40  
521 lb. Torpex 2

CHARGE/WEIGHT RATIO . 50 %

BODY CONSTRUCTION: Parallel sides with ogival nose and slight rear taper, similar  
in construction to U.S. General Purpose bombs. With excep-  
tions as given below, exploder containers screw into nose and  
base plate. Mk I: fabricated; rolled steel sheet, welded with nose and tail welded  
on. Mk II: drawn tube, nose formed by "bottling" process, tail welded on. Mk III:  
cast. Mk IV: cast to 500 lb. G.P. dimensions. Mk V: same as Mk III, but center  
of gravity was off so all declared obsolescent immediately; used only with long tail  
unit. Mks VI, VII, VIII, and IX are same as Mks I, II, III, IV respectively with  
American dual suspension lugs added. Mk X: forged body, solid nose, fuzed only in  
tail. Mk XI: Mk VII with solid nose. Mk XII: Mk VII with improved welds at after  
end and fuzed both nose and tail.

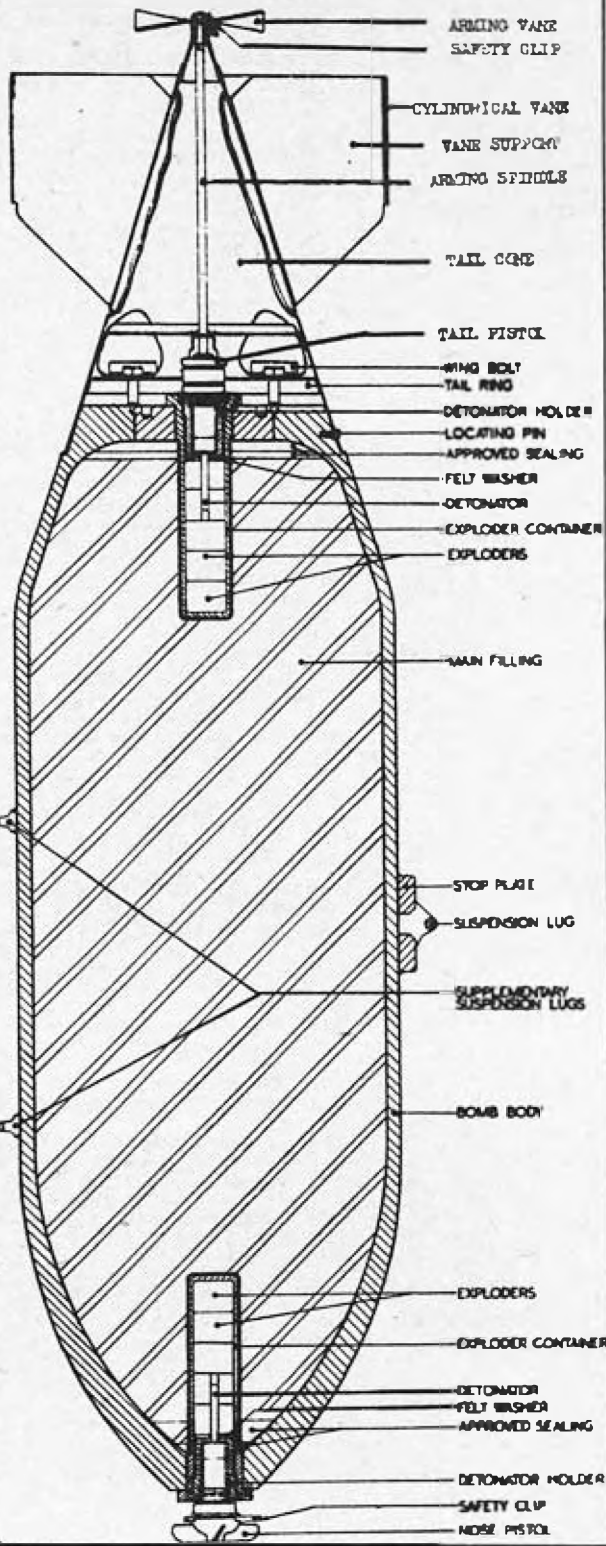
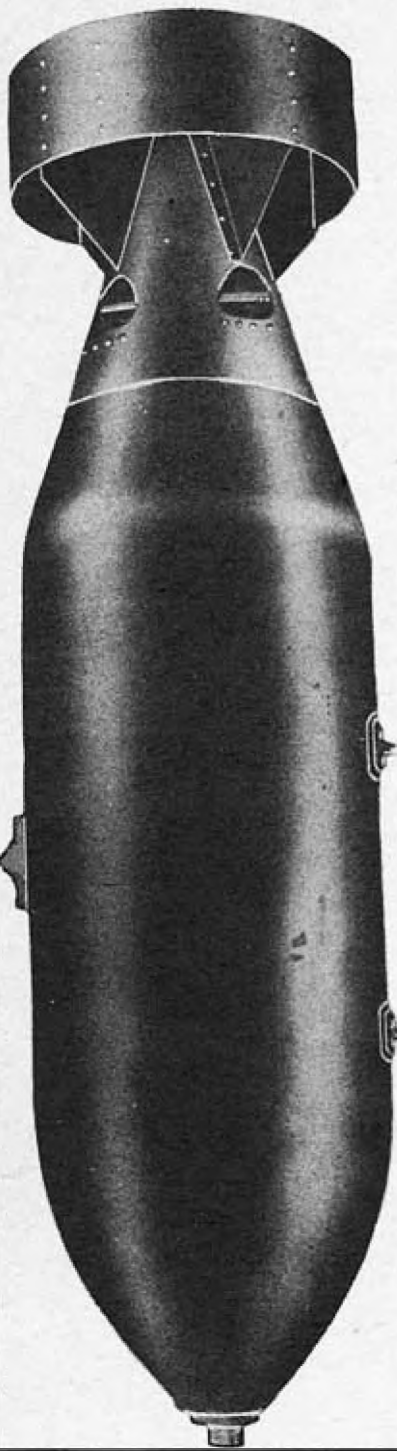
TAIL CONSTRUCTION: No. 25 and No. 28 tails are similar in construction, each con-  
sisting of a cylindrical strut attached to a tail cone by four  
fins. Secured to body by four spring clips engaging slots in  
the tail end of the body. Turnbuckle fittings are provided to two of the springs as  
a locking device. A reach rod through the tail cone engages the arming fork of the  
pistol and carries arming vanes at the rear. Arming vanes protrude beyond the  
cylindrical strut and fins on the short-type No. 28 tail unit.

SUSPENSION: Mks I-V - Single suspension lug welded to body.  
Mks VI-XII - Dual lugs for suspension from U.S. aircraft welded  
on in addition to single lug.

EXPLOSIVE COMPONENTS: Detonators: (See Appendix I, page 309)  
Exploders: C.E. pellets  
Filling (Mk VIII): 210 lb. Amatol 50/50 or 60/40  
226 lb. Amatex 51/40/9  
222 lb. R.D.X./T.N.T. 60/40  
232 lb. Torpex 2

REMARKS: (1) These bombs supplied with No. 28 or No. 30 tail pistol, and  
may or may not be fuzed at the nose.  
(2) The short type tail unit, such as the No. 28, Mk I, is  
used when the bombs are dropped from fighter-bomber aircraft.  
(3) Anti-disturbance fuze No. 845, formerly incorporated in  
the nose of bombs fuzed with the No. 37 tail pistol, is  
now obsolete.  
(4) Tail fins usually painted red when time pistol is used.

# 1000 LB. M.C. BOMB



FUZZING . . . . . Nose Pistol No. 27,42, or 44  
 Tail Pistol No. 28,30, or 37  
 COLOR & MARKINGS . . . . . Dark green overall; red band  
 around nose, light green band  
 around ogive base.  
 TAIL NO. . . . . No. 37 Mk I  
 OVERALL LENGTH . . . . . 72.6"  
 BODY LENGTH . . . . . 52.5"  
 MAX. BODY DIAMETER . . . . . 17.75"  
 WALL THICKNESS . . . . . 0.48"  
 TAIL LENGTH . . . . . 20"  
 TAIL WIDTH . . . . . 17.5"  
 TOTAL WEIGHT . . . . . 1021 lb. (with Amatol 60/40)  
 CHARGE/WEIGHT RATIO . . . . . 47%

## BRITISH BOMB

1000 LB. M.C.

Mks I &amp; II

(Service)

**BODY CONSTRUCTION:** Hollow steel casting, parallel sides, ogival nose, and slight taper at rear end. Explosive containers thread into nose and base filling plug (male base plate). Similar in appearance to U. S. General Purpose bombs.

**TAIL CONSTRUCTION:** Cylindrical strut attached to tail cone by four sheet metal fins. Reach rod with arming vanes on aft end extends through tail cone and engages arming fork in tail pistol. Tail secured to body by four wing bolts retained in tail ring by split pins. Arming vanes protrude beyond cylindrical strut.

**SUSPENSION:** Mk I - Single suspension lug at center of gravity attached to two stop plates welded to body, and dual "U" bolt suspension lugs 180 degrees removed from single lug for carrying in U.S. bomb racks, both welded on.

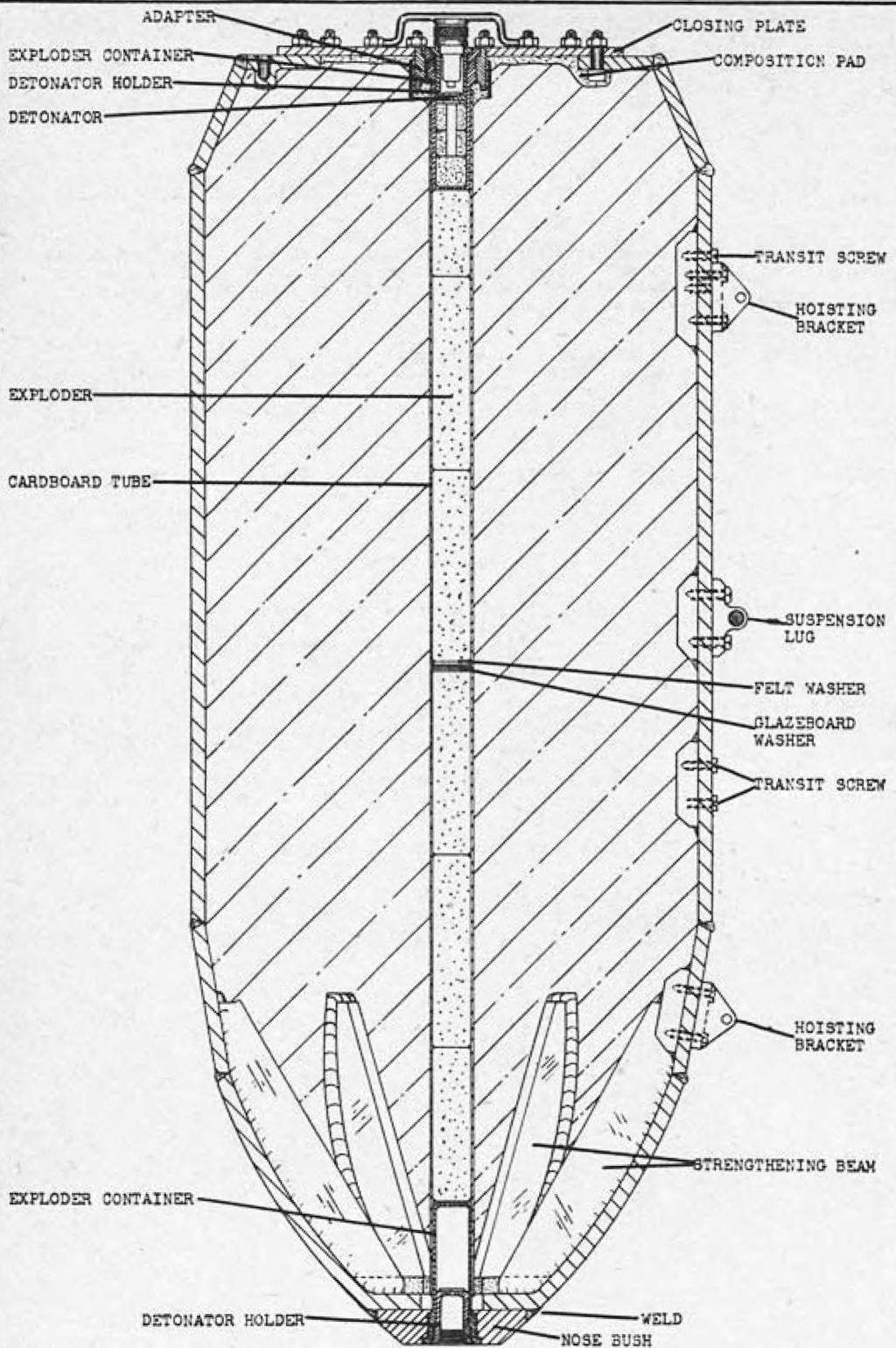
Mk II - Has strengthened form of U.S. lug for dive bombers.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploders: C.E. pellets  
 Filling: 475 lb. Amatol 50/50 or 60/40, or Amatex 9  
 500 lb. of R.D.X./T.N.T.  
 525 lb. Torpex 2

**REMARKS:**

- (1) This bomb is supplied with a No. 28 or No. 30 tail pistol in position, and may or may not be fuzed in the nose.
- (2) The anti-disturbance fuze No. 845, formerly incorporated in nose of bombs fuzed with No. 37 tail pistol, is obsolete.
- (3) Tail fins usually painted red when time pistol is used.

## 4000 LB. M.C. BOMB



## BRITISH BOMB

FUZING . . . . . Nose Pistol No.27, 42, or 44  
 Tail Pistol No.28, 30, or 37  
 COLOR & MARKINGS . . . Dark green overall; red band  
 around nose, and light green  
 band around ogive base.  
 TAIL NO. . . . . No. 38 Mk I  
 OVERALL LENGTH . . . . 109.5"  
 BODY LENGTH . . . . . 74.8"  
 MAX. BODY DIAMETER . . . 30"  
 WALL THICKNESS . . . . 0.75"  
 TAIL LENGTH . . . . . 35"  
 TAIL WIDTH . . . . . 30" (approx.)  
 TOTAL WEIGHT . . . . . 3784 lb. (Amatol 60/40)  
 3863 lb. (R.D.X./T.N.T.  
 60/40)

4000 LB. M.C.

Mks I &amp; II

(Service)

CHARGE/WEIGHT RATIO . 58 %

**BODY CONSTRUCTION:** Mk I - Exploder containers screw into nose and base filling  
 plug (male base plate). Parallel sides and ogival nose; slight  
 taper at body base. Similar in appearance to U. S. General  
 Purpose Bombs.

Mk II - Strengthened after end due to better welding.

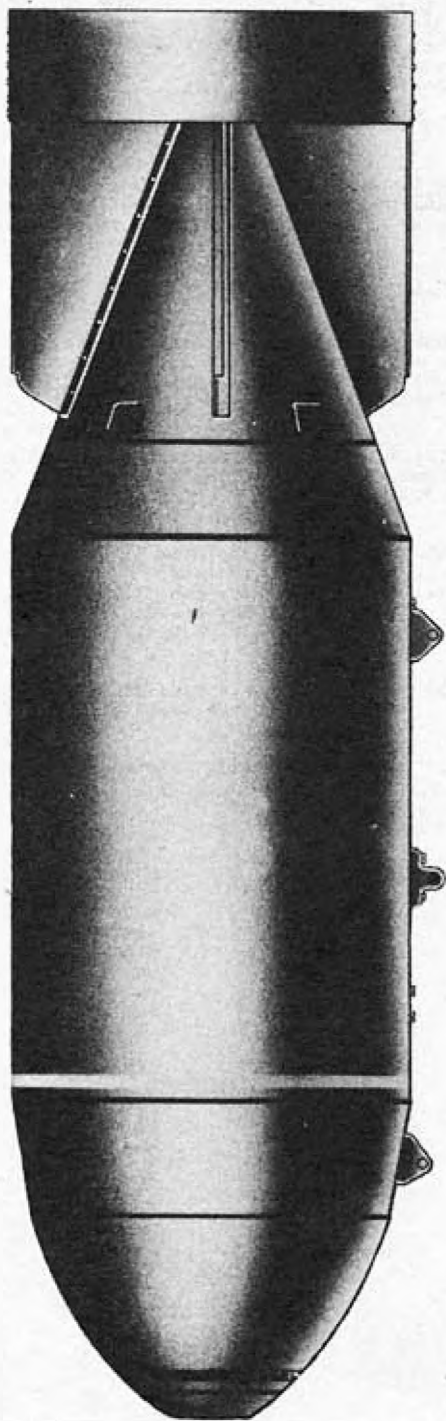
**TAIL CONSTRUCTION:** Short type tail unit, consisting of cylindrical strut attached  
 to tail cone by four fins. Reach rod having arming vanes at  
 rear extends through tail cone and engages arming fork of tail  
 pistol.

**SUSPENSION:** Single lug 44" from nose fuze tip and dual lugs 30" apart  
 diametrically opposite the single lug for suspension from  
 U.S. aircraft.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploders: C.E. pellets  
 Filling: 2166 lb. Amatol 60/40  
 2195 lb. Amatex 9  
 2265 lb. R.D.X./T.N.T. 60/40

**REMARKS:** (1) Anti-disturbance fuze No. 845, formerly incorporated in  
 the nose of bombs fuized with No. 37 tail pistol, is  
 obsolete.  
 (2) Tail fins usually painted red when time pistol is used.

# 4000 LB. M.C. BOMB



# HIGH CAPACITY BOMBS

## RESTRICTED USE

These bombs are thin-walled and have a high charge/weight ratio. They are used for general bombardment purposes on operations where maximum blast damage is required. At the present time this series includes bombs of 2000, 4000, 8000, and 12,000 lbs.

## FUZING

The earlier marks of these bombs are provided with side fuizing positions which are used for special operations, the bombs normally being fuized in the nose only. The later marks of the 2000 and 4000 lb. bombs, and all of the 8000 and 12,000 lb. bombs of the series, have three nose fuizing pockets, all of which generally are used.

Central exploder tubes are at present fitted in all types of H.C. bombs, and where side fuizing positions or nose fuizing positions offset from the longitudinal axis of the bomb are used, auxiliary exploder tubes connect the fuizing positions to the central tube.

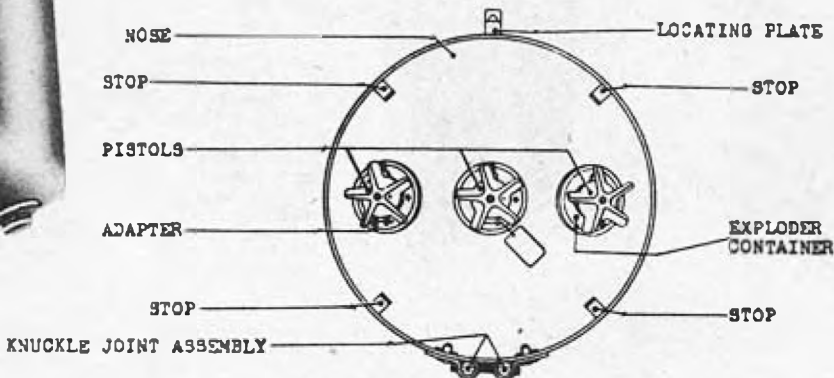
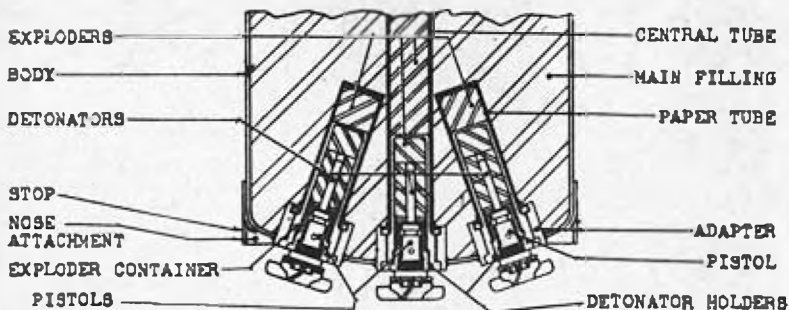
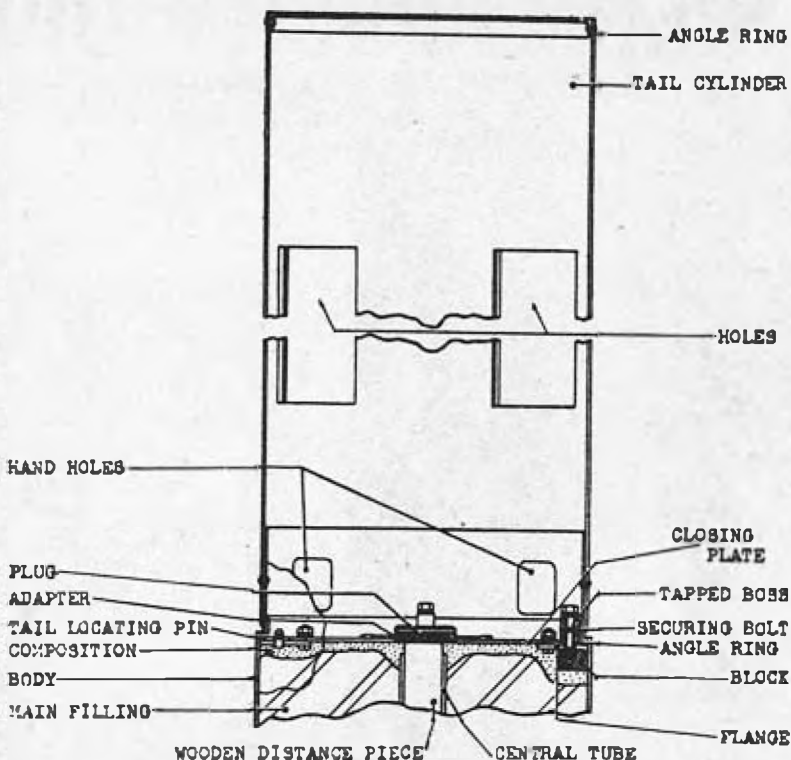
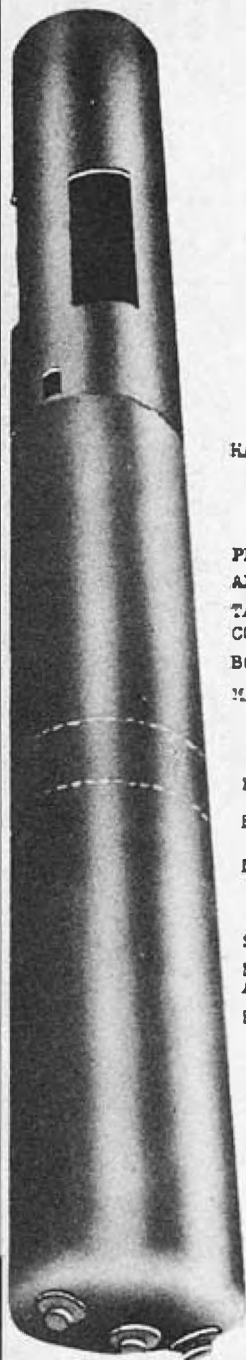
## CHARACTERISTICS

These bombs are characterized by dome-shaped noses and parallel sides, and may be fitted with nose attachments to retard the bomb in flight. Drum type tails are generally used, although the 2000 lb. may be fitted with a parachute attachment, and the 12,000 lb. bombs sometimes incorporate the normal G.P. type tail assembly; i.e., tail cone, cylindrical strut, and four fins.

The body is usually welded together and the tail bolted on. The 3000 and 12,000 lb. bombs consist of two and three body sections, respectively, bolted together.

H.C. bombs are supplied uncrated and are fitted with transit rings. All fuizing positions are plugged with transit plugs. Tails, nose attachments, and parachute attachments are supplied in separate packages.

# 2000 LB. H.C. BOMB



## BRITISH BOMB

2000 LB. H.C.

## FUZING:

Mk III - Three Nose Pistols, No. 27, 42, or 44  
 Mk II - Three nose fuze cavities present but only center one can be used, with one of above pistols.

## COLOR &amp; MARKINGS:

Dark green overall;  $\frac{1}{2}$ " red band 8" from front edge of cylindrical shell, and 2" light green band 16" from edge.

TAIL NO. . . . . No. 39 Mk I  
 OVERALL LENGTH . . . . 131"  
 BODY LENGTH . . . . . 89"  
 MAX. BODY DIAMETER . . . 18.5"  
 WALL THICKNESS . . . . 0.19"  
 TAIL LENGTH . . . . . 40"  
 TAIL WIDTH . . . . . 17.9"  
 TOTAL WEIGHT . . . . . 1723 lb. (Amatol 60/40)  
 CHARGE/WEIGHT RATIO . . 71 %

Mks II &amp; III

(Service)

**BODY CONSTRUCTION:** Steel fabricated cylinder with a dome shaped nose, parallel sides, and closed by a flat plate bolted to a flange a short distance within the rear end. The base flange is fitted with locating pins for the tail, and holes to receive tail securing bolts are drilled through it. A central tube is cemented to the stem of the central exploder container in the nose and extends through the body almost to the closing plate. All three nose fuzeing positions house exploder containers, the two side ones extending radially in toward the central tube.

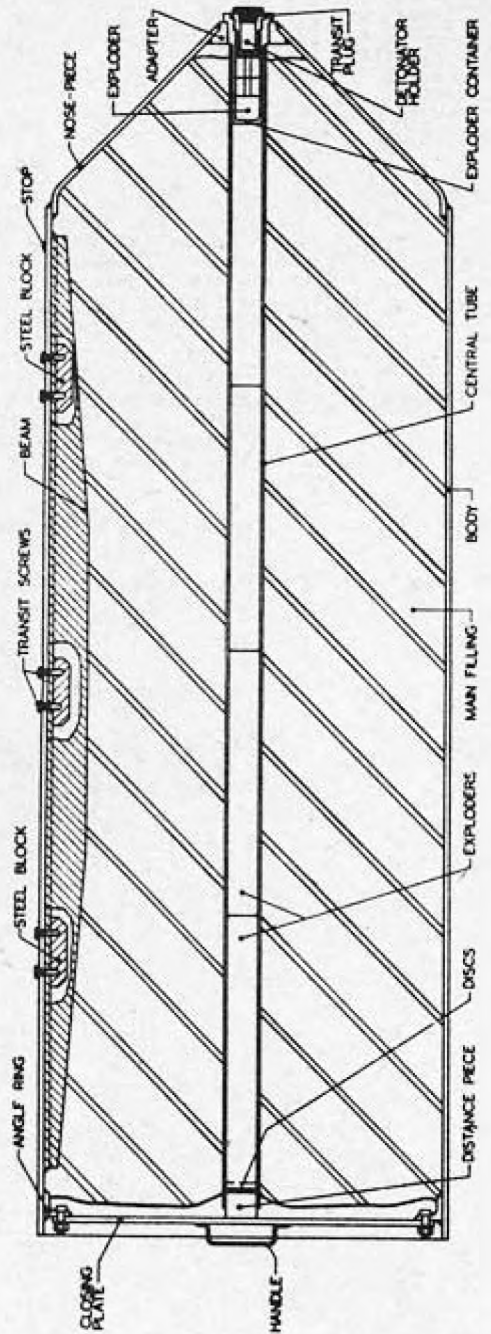
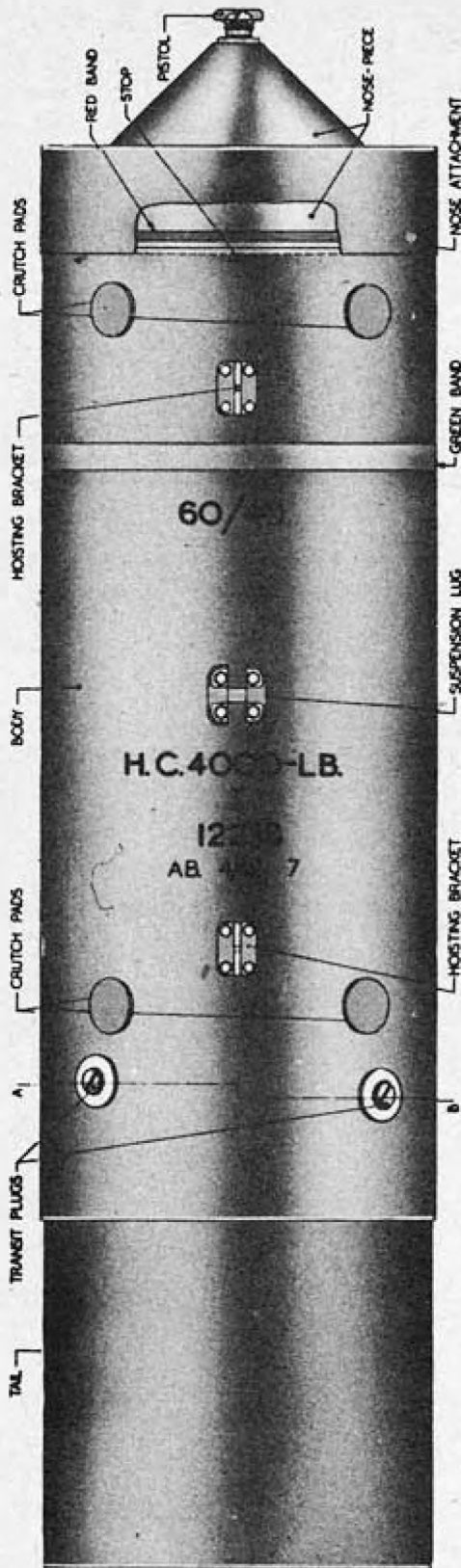
**TAIL CONSTRUCTION:** Metal cylinder, having an angle ring secured at each end. Hand holes in the tail cylinder give access to the tail securing bolts, which thread through tapped bosses on the forward angle ring. Other holes in the cylinder provide stability in flight.

**SUSPENSION:** Single suspension lug 46" from nose dome, secured by 8 screws.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploders: C.E. exploder in pistol exploder containers, and C.E. pellets in central tube.  
 Fillings: 1230 lbs. Amatol 60/40 or 50/50  
 1285 lbs. R.D.X./T.N.T. 60/40, or  
 1860 lbs. Torpex 2.

**REMARKS:** May have nose attachment on bomb, to retard in flight; consisting of a light gauge metal cylinder extending from the body shell forward around the dome shaped nose.

# 4000 LB. H.C. BOMB



## BRITISH BOMB

FUZZING . . . . . One nose pistol, No. 27, 42 or 44; Two side fuze pockets, not used.

COLOR & MARKINGS . . . . . Dark green overall,  $\frac{1}{2}$ " red band 1" from front edge of cylindrical shell, 2" light green band 16" from edge.

TAIL NO. . . . . No. 24 Mk I

OVERALL LENGTH . . . . . 115"

BODY LENGTH . . . . . 88.5"

MAX. BODY DIAMETER . . . . . 30"

WALL THICKNESS . . . . . 0.31"

TAIL LENGTH . . . . . 27"

TAIL WIDTH . . . . . 28.3"

TOTAL WEIGHT . . . . . 3920 lbs.

CHARGE/WEIGHT RATIO . . . . . 73 %

4000 LB. H.C.

Mk I

(Obsolescent)

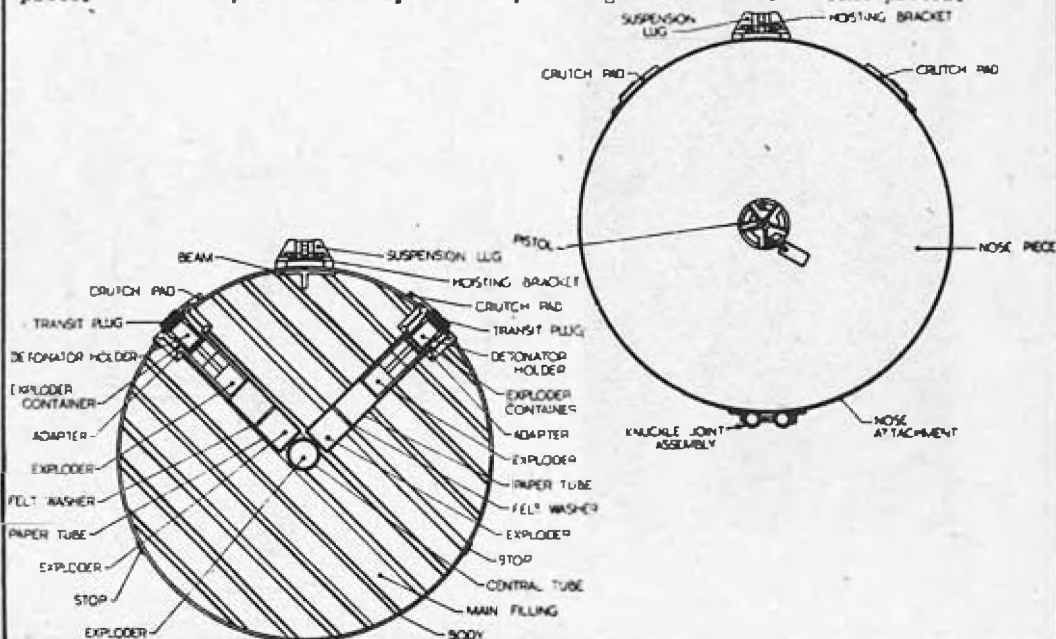
**BODY CONSTRUCTION:** Cylindrical shell having hollow conical nose piece welded on, parallel sides, and closing plate bolted to an angle ring welded in position at a short distance within the other end. Shell is strengthened by a T-section beam welded to inner surface. Steel blocks, constituting pads for suspension lug and hoisting brackets, are welded in the angles of the beam. Central tube is fitted over and cemented to the stem of exploder container, extending almost to the closing plate. Two exploder containers are fitted near rear of bomb at 45° angle to strengthening beam.

**TAIL CONSTRUCTION:** Cylinder of light gauge plate, closed at rear by a diaphragm plate welded in position. Tail securing screws thread into corresponding holes near the rear edge of the body shell. Forward portion of the cylinder has saw cuts between adjacent screw clearance holes, so that the tail can be sprung into the rear of the bomb body.

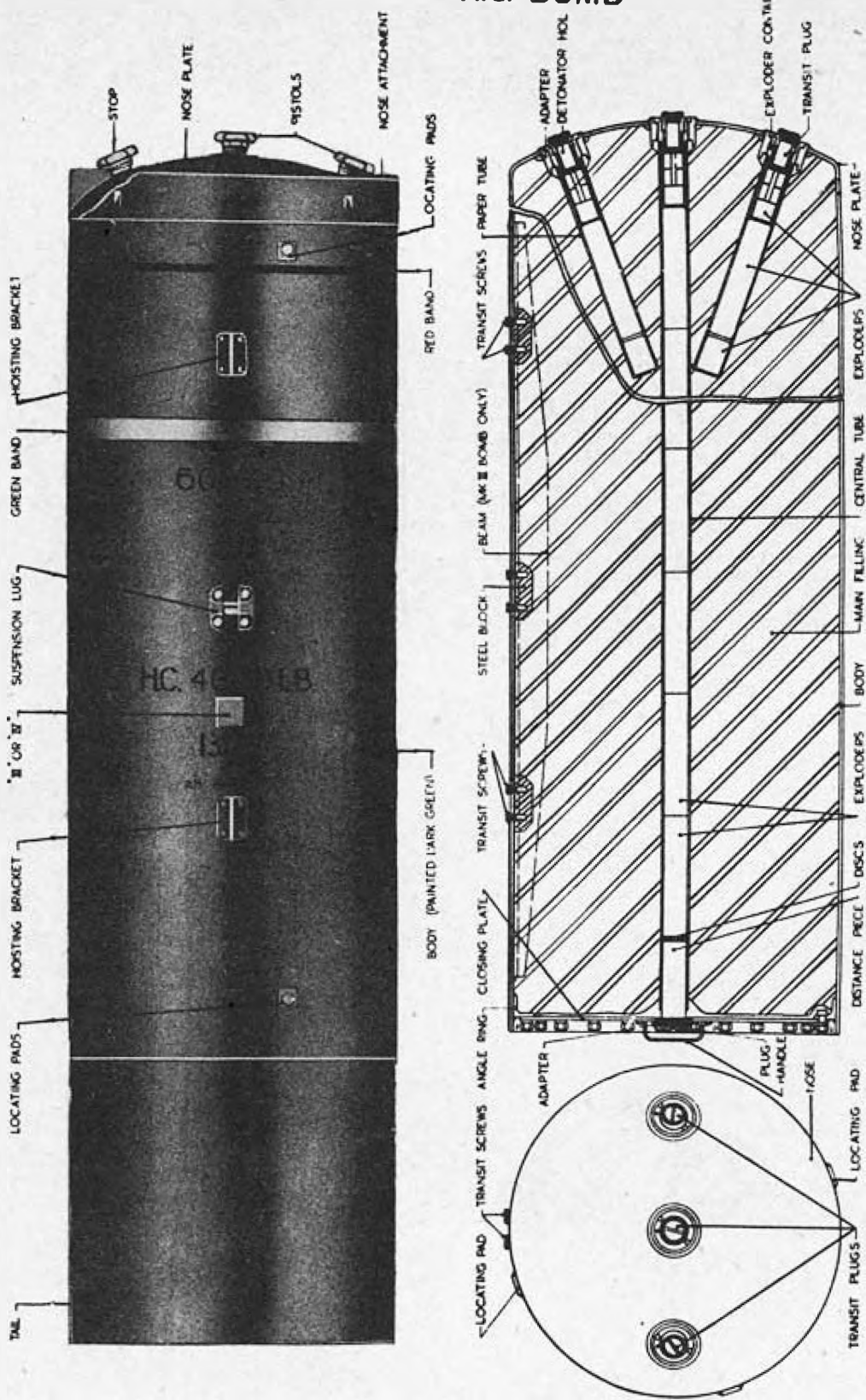
**SUSPENSION:** Single lug at center of gravity, bolted to body and internal strengthening beam.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
Exploders: Exploder containers house 1 solid and 2 perforated C.E. pellets, central tube filled with 36 pellets of pressed T.M.T.  
Filling: 2882 lbs. Amatol 60/40

**REMARKS:** This bomb may be fitted with a nose attachment to retard it in flight, consisting of light gauge plate around the forward end of the shell, and projecting beyond it around the conical nose-piece. Side fuze pockets usually not used, but might contain No. 47 Time pistol.



# 4000 LB. H.C. BOMB



BRITISH BOMB

FUZZING . . . . . Three nose pistols, Nos. 27, 42, or 44. Side fuze pockets on Mk II not used.

COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red band 8" from nose, and 2" light green band 2" from nose.

TAIL NO. . . . . No. 24 Mk I

OVERALL LENGTH . . . . . 110"

BODY LENGTH . . . . . 82"

MAX. BODY DIAMETER . . . . . 30"

WALL THICKNESS . . . . . 0.31"

TAIL LENGTH . . . . . 27"

TAIL WIDTH . . . . . 29"

TOTAL WEIGHT . . . . . 3930 lbs. (Amatol 60/40)

CHARGE/WEIGHT RATIO . . . . . 75 %

4000 LB. H.C.

Mks II, III (Obsolescent)

Mks IV, V, VI (Service)

**BODY CONSTRUCTION:** Fabricated steel cylindrical shell with domed plate welded to nose end, parallel sides, and closing plate bolted to angle ring welded in position a short distance within the tail end. Closing plate has central adapter for a screw-in plug and two drop handles. Nose dome houses three exploder containers, center one extended through the body by a central tube. Mk II has two side fuze pockets near rear of body. Mks II and III have strengthening beam running fore and aft, welded to inner surface of body and acting as a pad for suspension lug and hoisting brackets. Mk IV has steel blocks to support suspension lug and hoisting brackets and no beam.

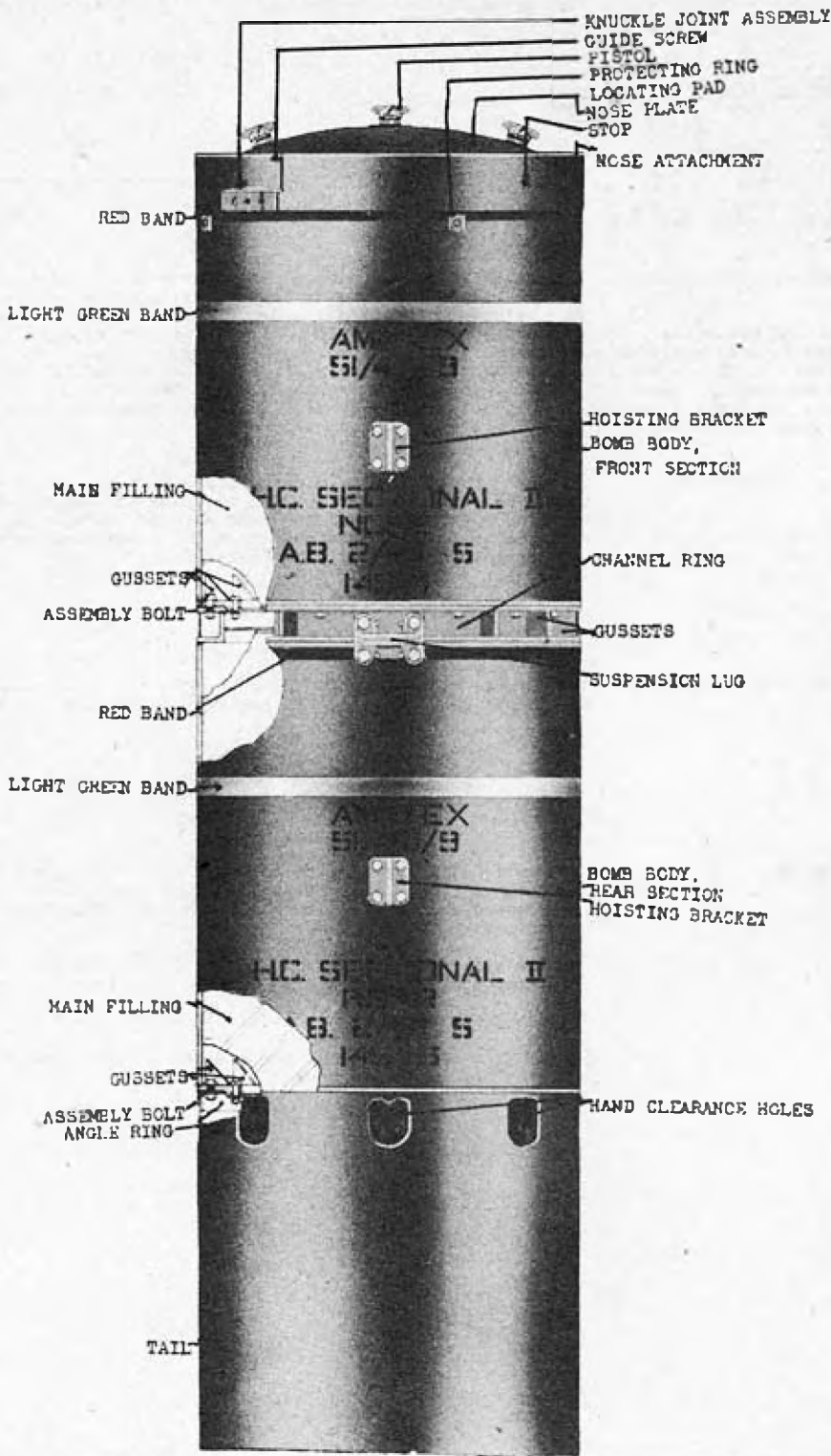
**TAIL CONSTRUCTION:** Cylinder of light gauge plate, closed at rear by a diaphragm plate welded in position. Tail securing screws thread into corresponding holes near the rear edge of the body shell. Forward portion of the cylinder has saw cuts between adjacent screw clearance holes, so that the tail can be sprung into the rear of the bomb body.

**SUSPENSION:** Single suspension lug 43" from nose dome, bolted to bomb body and steel block.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploders: C.E. pellets in exploder containers and central tube.  
 Filling: Mk II, 2954 lbs. Amatol 60/40  
 Mk III-VI, 2960 lbs. Amatol 50/50 or 60/40  
 3070 lbs. R.D.X./T.N.T. 60/40  
 3088 lbs. Minol 2  
 3294 lbs. Torpex 2

- REMARKS:**
- (1) These bombs may be fitted with a nose attachment to retard them in flight, consisting of light gauge plate around the forward end of the body shell and projecting beyond it around the nose piece.
  - (2) The side fuze pockets on the Mk II usually not used but might contain No. 47 time pistol.
  - (3) Mk V same as Mk IV but made and filled in U.S.
  - (4) Mk VI made in U.S. and has a metal box for lugs and other fittings welded to rear of bomb body.

# 8000 LB. H.C. BOMB



BRITISH BOMB**8000 LB. H.C.**

Sectional - Mk I &amp; II

(Obsolescent)

FUZING . . . . . Three nose pistols, Nos. 27, 42, 44.  
 COLOR & MARKINGS . . . . . Dark green overall, 1" bright red band and 2" light green band around each of the bomb body sections.  
 TAIL NO. . . . . No. 33 Mk I, or No. 52 Mk I  
 OVERALL LENGTH . . . . . 133.6"  
 BODY LENGTH . . . . . Front Section - 3' 11.16"  
   Rear Section - 3' 11.75"  
 MAX. BODY DIAMETER . . . . . 38"  
 WALL THICKNESS . . . . . 0.5"  
 TAIL LENGTH . . . . . No. 33 Mk I - 36.5"  
   No. 52 Mk I - 64.0"  
 TAIL WIDTH . . . . . 37.8"  
 TOTAL WEIGHT . . . . . 7860 lbs. (Amatex 9)  
 CHARGE/WEIGHT RATIO . . . . . 68 %

**BODY CONSTRUCTION:** Bomb consists of two cylindrical sections, each approximately 4' long, 3'2" diameter, connected together by bolts. Front section has domed nose plate welded to body and housing three exploder containers. A flat closing plate at rear is bolted to an end ring, which is fitted with assembly bolts for connecting the two sections. Additional exploder container is fitted in a central bush in rear closing plate. Rear section closed at each end by plates. Forward one welded to a channel ring having holes circumferentially to receive assembly bolts of forward section. Exploder container fits in forward closing plate of rear section, and central exploder tubes extend through both sections. Joining rings are cast in Mk. I; fabricated by welding in Mk. II.

**TAIL CONSTRUCTION:** No. 33 Mk I - Tail consists of a hollow steel plate cylinder open at the aft end with an angle ring welded or riveted in its forward end, drilled to take the assembly bolts of the body rear section for attaching the tail. Hand clearance holes give access to the assembly bolts when assembling the tail to the bomb.

No. 52 Mk I - Tail cone with hand holes for access to securing bolts; cylindrical strut attached to cone by six fins welded to strut and cone.

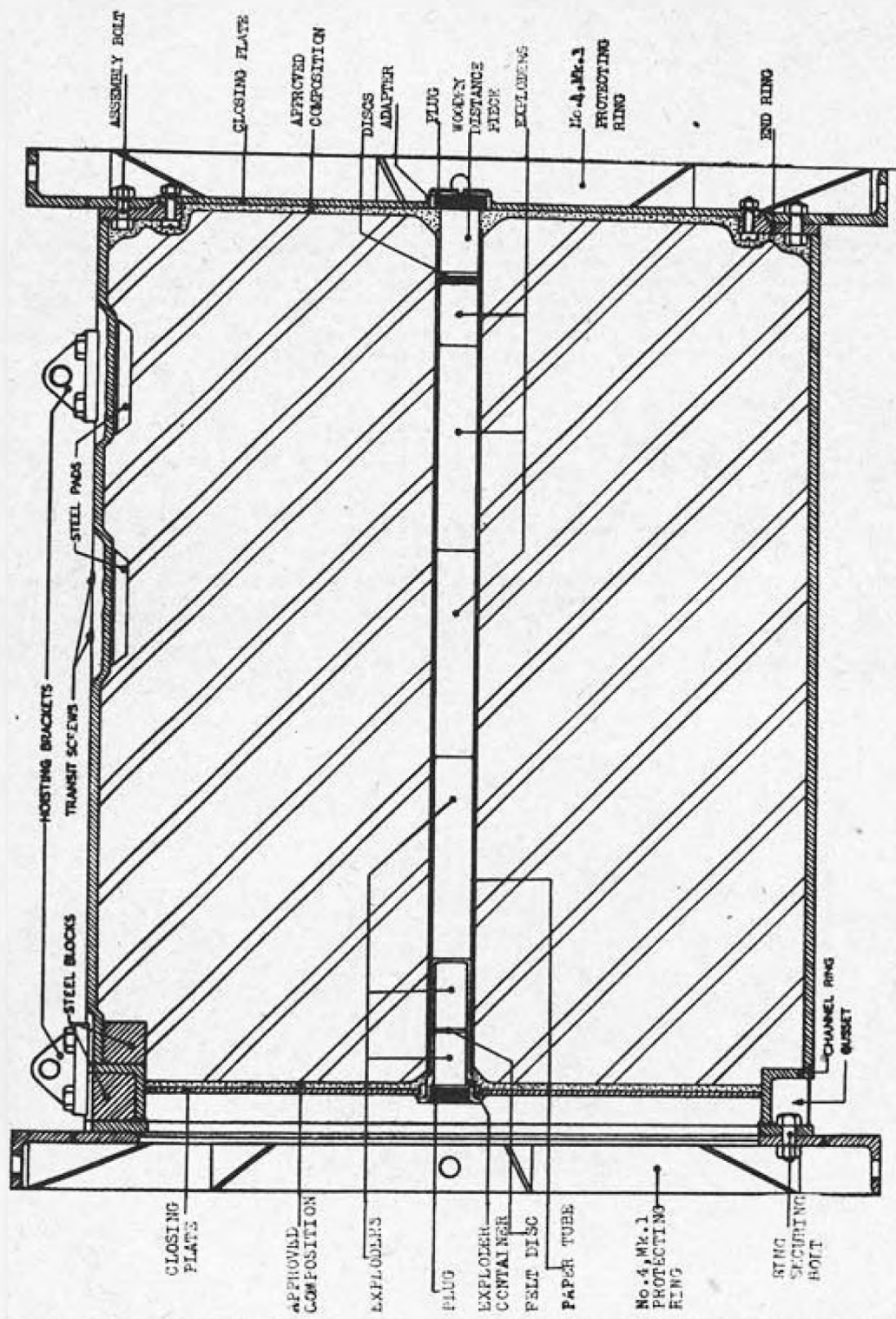
**SUSPENSION:** Single suspension lug secured by four bolts to steel block pads on channel ring and immediately aft of ring on rear body section 50" from bomb nose. This point represents center of gravity.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploders: All exploder containers, and exploders in central tube of both sections, filled with C.R. pellets.  
 Filling: 5361 lbs. Amatex 9, or 5850 lbs. Torpex 2.

**REMARKS:**

- (1) This bomb can be fitted with a cylindrical nose attachment around nose of forward section and protruding around the domed nose to retard bomb in flight.
- (2) This bomb is not composed of two regular 4000 lb. H.C. bombs, but of sections approximately 4000 lb. designed especially for it.

# 8000 & 12000 LB. H.C. SECTION



ASSEMBLY BOLT

CLOSING FLATE

APPROVED COMPOSITION

DISCS  
ADAPTER

PLUG

WOODEN DISTANCE PIECE

EXPLODERS

No. 4, Mk. 1 PROTECTING RING

END RING

HOSTING BRACKETS

STEEL PADS

TRANSIT SCREWS

STEEL BLOCKS

CLOSING PLATE

APPROVED COMPOSITION

EXPLODERS

PLUG

EXPLODER CONTAINER

FELT DISC

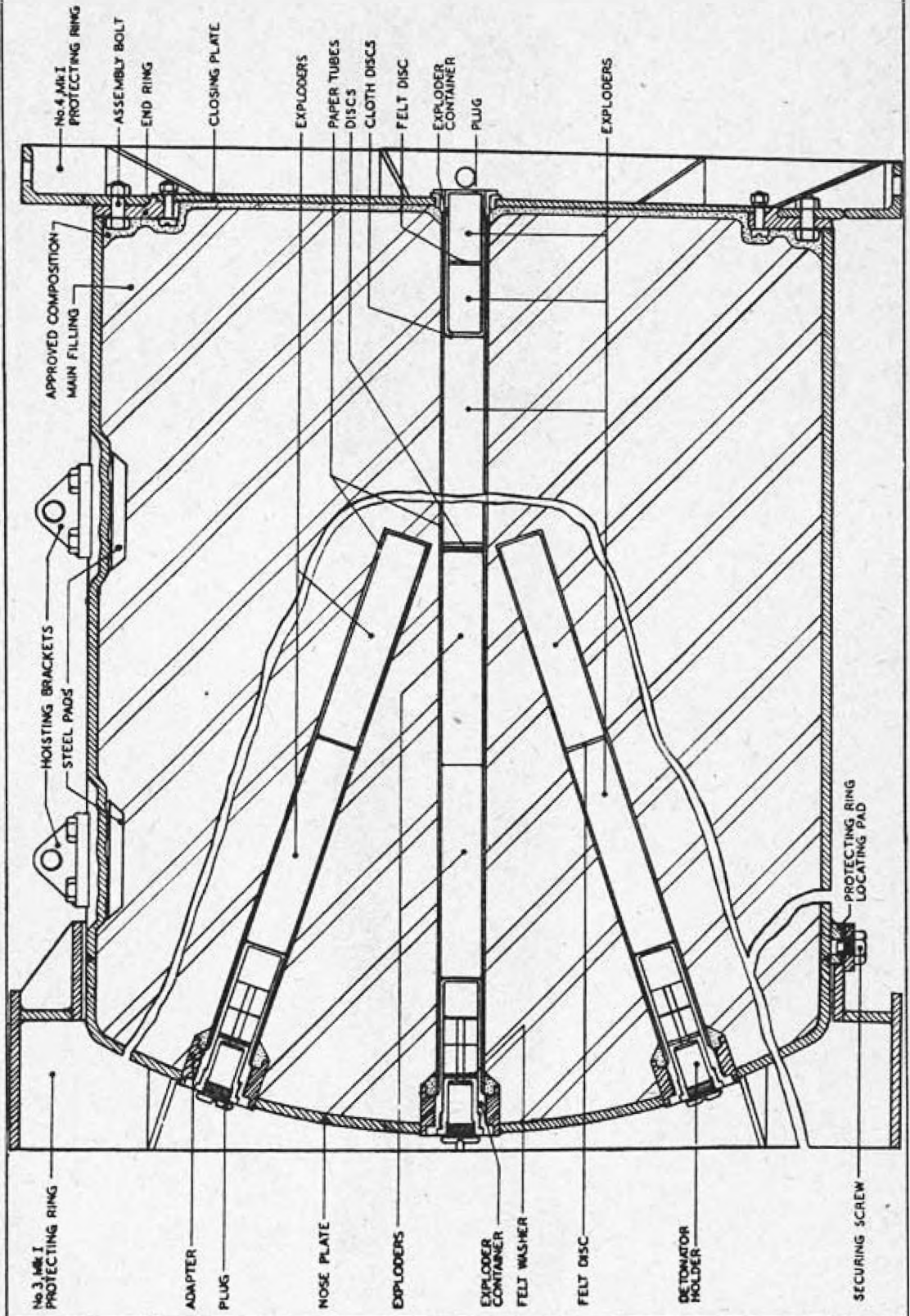
PAPER TUBE

No. 4, Mk. 1 PROTECTING RING

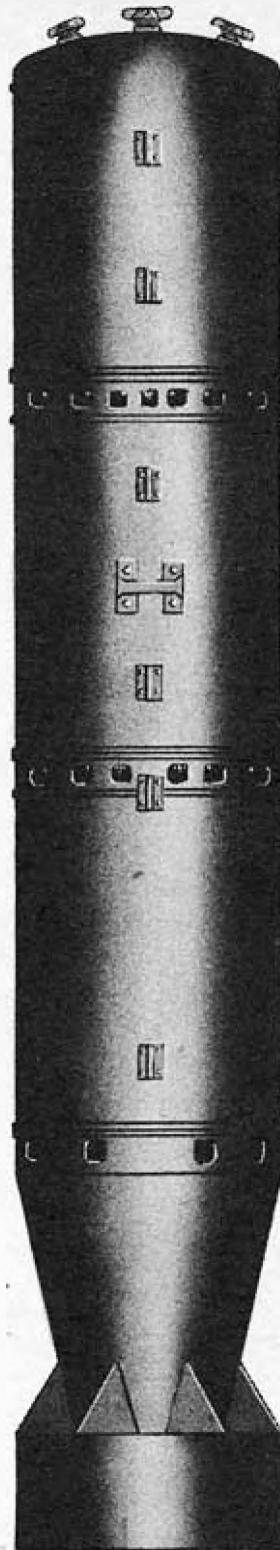
RING SECURING BOLT

CHANNEL RING  
GUSSET

# 8000 & 12000 LB. H.C. SECTION



# 12000 LB. H.C. BOMB



BRITISH BOMB

FUZING . . . . . Three nose pistols, No. 27,  
42, or 44.  
 COLOR & MARKINGS . . . . . Dark green overall, 1" bright  
red band and 2" light green  
band around each of the bomb  
body sections.  
 TAIL NO. . . . . No. 33 Mk I, or No. 52 Mk I  
 OVERALL LENGTH . . . . . 196"  
 BODY LENGTH . . . . . Each section approx. 4' long  
(3 sections)  
 MAX. BODY DIAMETER . . . . . 38"  
 WALL THICKNESS . . . . . 0.50"  
 TAIL LENGTH . . . . . No. 33 Mk I - 36.5"  
 No. 52 Mk I - 64.0"  
 TAIL WIDTH . . . . . 38" (approx.)  
 TOTAL WEIGHT . . . . . 11,836 lbs. (Amatex 9)  
 CHARGE/WEIGHT RATIO . . . . . 70 % (approx.)

**12000 LB. H.C.**

Sectional - Mk II

(Service)

**BODY CONSTRUCTION:** Consists of three sections bolted together, identical to the 8000 lb. H.C. with an additional rear body section (see page 54) Joining rings are fabricated by welding, not cast as in Mk I sectional used in 8000 lb. H.C.

**TAIL CONSTRUCTION:** No. 33 Mk I - Hollow steel plate cylinder open at aft end, with angle ring welded or riveted on forward end, drilled to take assembly bolts of body rear section for attaching tail. Hand clearance holes give access to assembly bolts.

No. 52 Mk I - Tail cone with hand holes for access to the securing bolts; cylindrical strut attached to cone by six fins welded to strut and cone.

**SUSPENSION:** Dual suspension by lugs secured by 4 bolts each to the two channel rings connecting the three body sections.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploders: C.M. pellets  
 Filling: 8040 lbs. Amatex 9  
 8760 lbs. Torpex 2

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# S.A.P. AND A.P. BOMBS

## USE

### S.A.P.

There are two British S.A.P. bombs in present service use. They are designed for penetration of resistant targets, such as reinforced concrete or medium armored targets, where penetration is required before the bomb is detonated.

### A.P.

Only one A.P. bomb is used by the British, the 2000 lb. It is used for attack against heavily armored targets, such as capital ships and is so constructed and fuzed that the bomb does not break up on impact, and detonation does not occur until after the target is penetrated. A 450 lb. bomb was used earlier in the war, constructed along the same lines as the 2000 lb., but is now obsolete.

## FUZING

### S.A.P. & A.P.

These bombs are fuzed in the tail only. Earlier marks were designed to receive a tail fuse, but later marks are fitted for a pistol/detonator combination. In later marks, the pistol used for fuzing is supplied, without detonators, in position in the bomb, where it acts as a tail transit plug.

## CHARACTERISTICS

### S.A.P.

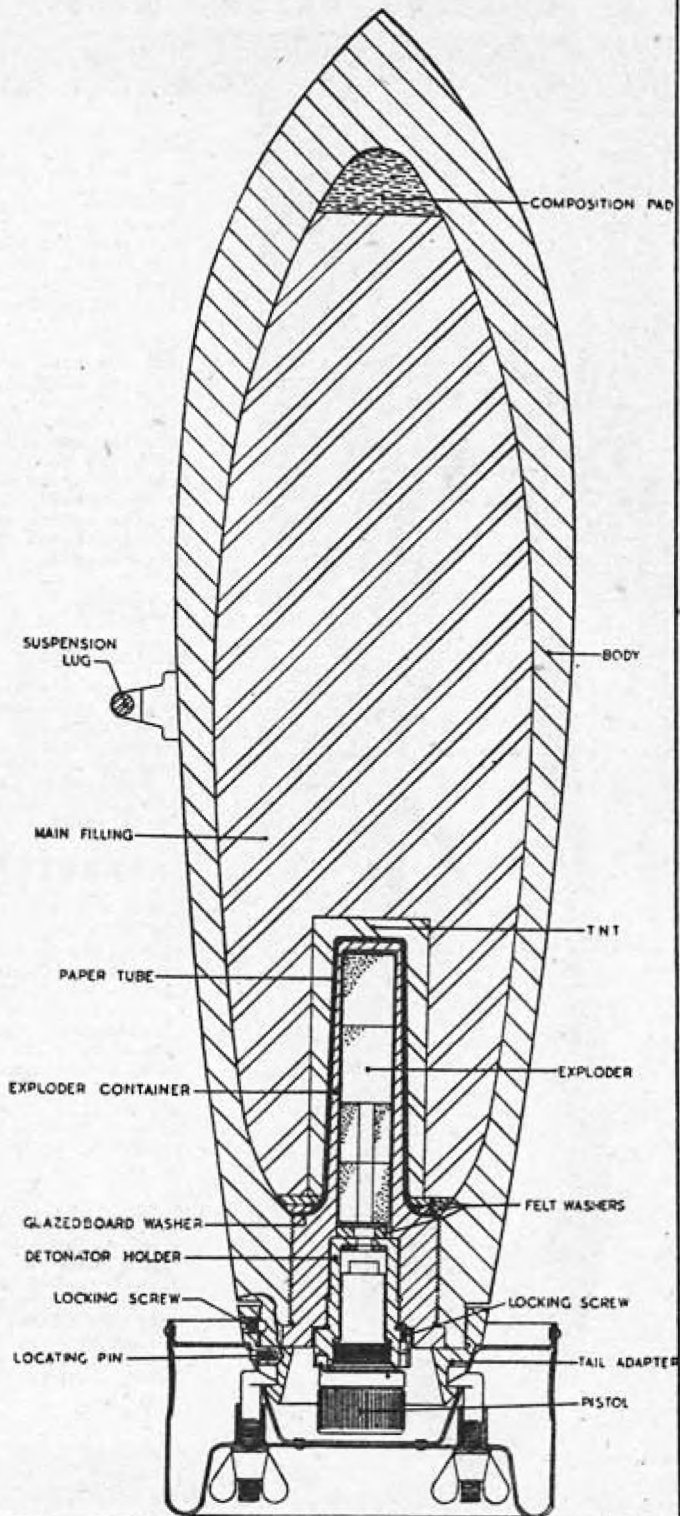
The color is dark green overall, with a white band on the nose just forward of a red band. The actual construction is similar to the G.P. bombs, but the case is thicker, and they are even more streamlined. They are normally filled with T.N.T., with a loading factor of about 20 per cent.

Mks I, II, III and IV have tails secured by a fuse locking ring which is threaded left-handed; Mk V has a clip-on tail.

### A.P.

A.P. bombs are dark green in cover over most of the bomb. The nose is painted light green to the point of widest diameter. Two white bands separated by a red band are painted around the nose. They are of one piece construction, filled with Shellite, consisting mainly of picric and very insensitive. The loading factor is about 10 per cent.

# 250 LB. S.A.P BOMB



## BRITISH BOMB

## FUZING:

Mks II-IV - No. 30 Tail fuze.  
Mk V - Tail Pistols No. 28 or No. 30

## COLOR &amp; MARKINGS:

Dark green overall;  $\frac{1}{2}$ " white band 3" from nose;  
 $\frac{1}{2}$ " red band 3-1/2" from nose; 1" light green  
band 5.5" from nose.

TAIL NO. . . . . Mks II & III - No. 1 Mk I  
Mk V - No. 10 Mk I

OVERALL LENGTH . . . . 49"  
BODY LENGTH . . . . 31.5"  
MAX. BODY DIAMETER . . . 9.2"  
WALL THICKNESS . . . . 0.91-0.99" (at max. diameter)  
0.61-0.69" (minimum thickness  
beginning 16.8" aft of nose)

TAIL LENGTH . . . . No. 10 Mk I - 18"  
No. 5 Mk I - 18"

TAIL WIDTH . . . . 9.2"  
TOTAL WEIGHT . . . . 245 lbs.  
CHARGE/WEIGHT RATIO . 17 %

250 LB. S.A.P.

Mks II &amp; III (Obsolete)

Mks IIC, IIIC, &amp; V (Service)

**BODY CONSTRUCTION:** Mk V - Forged steel with pointed nose and an open base threaded internally to receive exploder container, which is cemented in position. Base of body threaded externally to receive tail adapter, which is in form of a coned ring with four equi-spaced slots to receive the spring clips of the tail.

Earlier Mks - Similar, with slight variations in the tail adapter

**TAIL CONSTRUCTION:** No. 10 Mk I - Tail cone with a cylindrical strut attached by four fins. Attached to body 4 spring clips. Arming spindle engages fork in tail pistol to arm it.

No. 1 Mk I - (Used on Mks II & III bombs) No spring clips.

No. 3 Mk I - (Used on Mk IIC, Mk IIIC bombs) Spring clips.

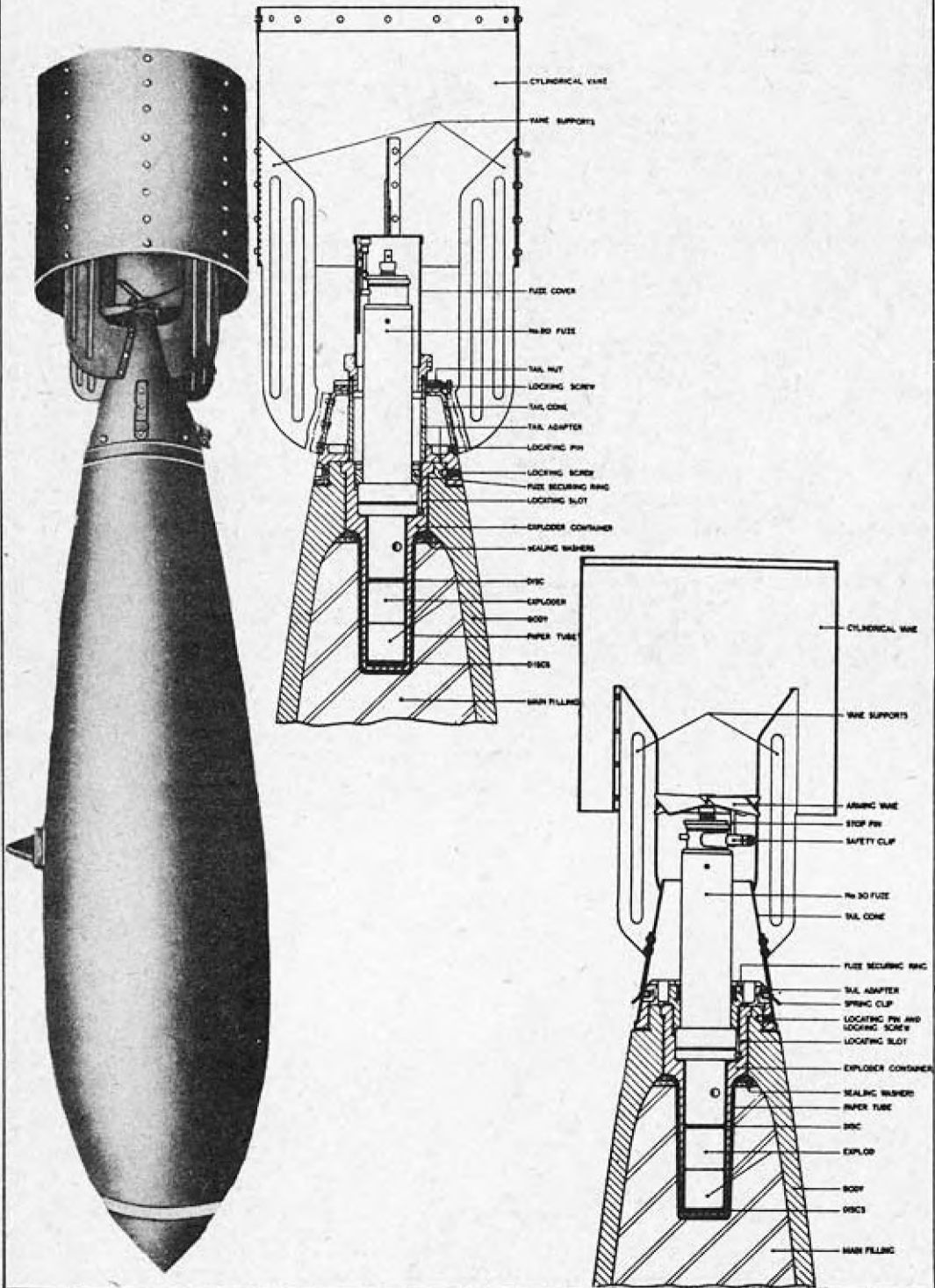
**SUSPENSION:** Single suspension lug secured to body by four screws.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
Exploders: C.E. pellet (Mks II-IV), H.E. (Mk V). On Mk V there is a separate layer of T.N.T. around the exploder.  
Filling: Mk V, 40.5 lbs. T.N.T./Beeswax  
Mks II-IV, 41.5 lbs. T.N.T.

**REMARKS:**

- (1) No. 30 tail fuze has left hand threads on securing ring.
- (2) Use of the No. 37 tail pistol is unlikely. Tail fins usually painted red when time pistol No. 37 is used.
- (3) Any mark may be found fitted with copper driving band for proof firing from B.L. 9.2" Howitzer.

# 500 LB. S.A.P. BOMB



BRITISH BOMB

500 LB. S.A.P.

Mks II & III (Obsolete)  
Mks IIC, IIIC, V (Service)

PUZING . . . . . Mks II-IV: No. 30 Tail Fuze  
Mk V: Tail Pistols No. 2B  
or No. 30.

COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " white  
band 3" from nose,  $\frac{3}{8}$ " red  
band 3 $\frac{1}{2}$ " from nose; 1" light  
green band 8" from nose.

TAIL NO. . . . . Mks II & III - No. 1 Mk I  
Mks IIC & IIIC - No. 4 Mk I  
Mk V - No. 11 Mk I  
No. 27 Mk I

OVERALL LENGTH . . . . . 62"

BODY LENGTH . . . . . 41.6"

MAX. BODY DIAMETER . . . . . 11.5"

WALL THICKNESS . . . . . 1.22" - 1.32" (at max. diameter)  
0.82" - 0.92" (Minimum thickness, beginning 23" aft of nose)

TAIL LENGTH . . . . . No. 6 Mk I - 21"  
No. 11 Mk I - 20.4"  
No. 27 Mk I, II - 9.24"

TAIL WIDTH . . . . . 11.5"

TOTAL WEIGHT . . . . . 490 lbs.

CHARGE/WEIGHT RATIO . . . . . 18 %

**BODY CONSTRUCTION:** Mk V - Forged steel with pointed nose and an open base threaded internally to receive exploder container which is cemented in position. Base of body threaded externally to receive tail adapter, which is in form of a coned ring with four equi-spaced slots to receive the spring clips of the tail.

Earlier Mks - Similar, with slight variations in the tail adapter.

**TAIL CONSTRUCTION:** No. 27 Mks I, II - Short type tail unit, arming vanes protruding beyond strut and fins.  
No. 11 Mk I - Tail cone with a cylindrical strut attached by four fins. Attached to body by four spring clips. Arming spindle engages fork in tail pistol to arm it.  
No. 1 Mk I - (Used on Mks II & III) No spring clips.  
No. 4 Mk I - (Used on Mks IIC & IIIC) Spring clips.

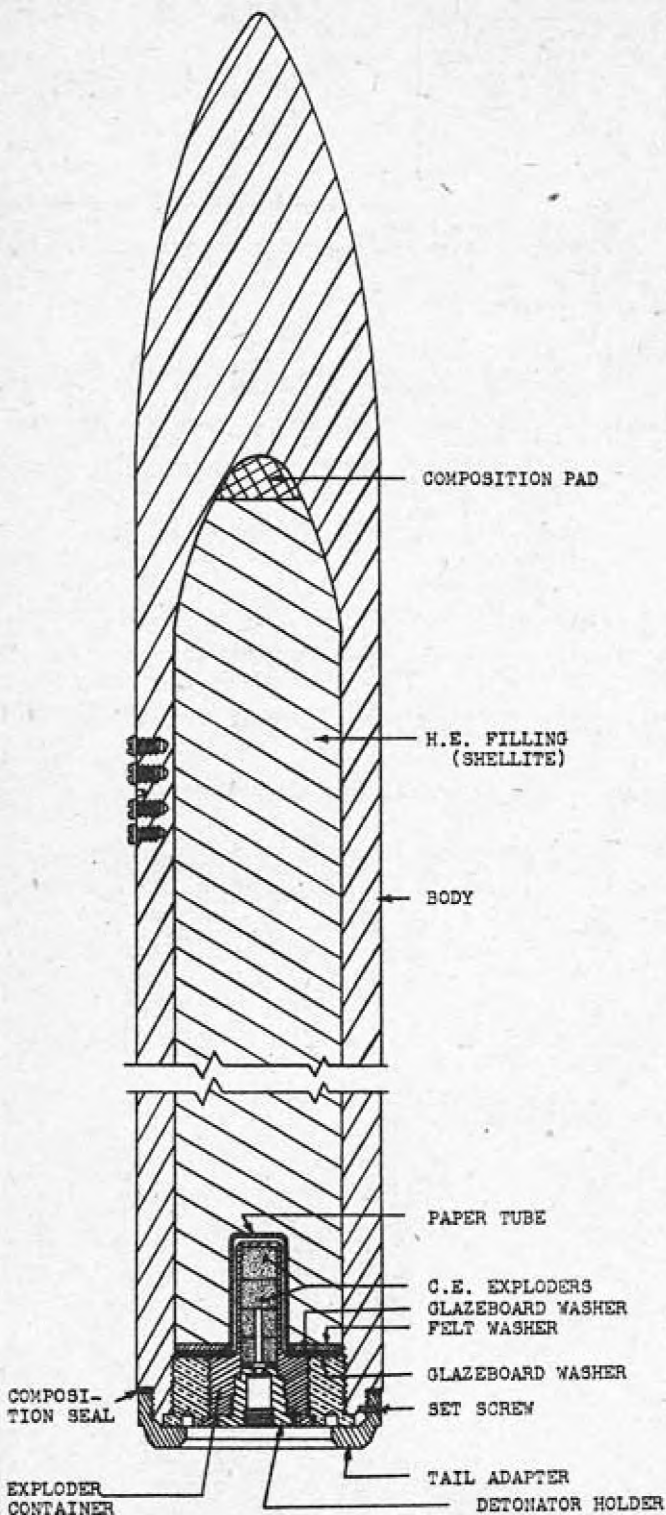
**SUSPENSION:** Single suspension lug secured to body by four screws.

**EXPLOSIVE COMPONENTS:** Detonator: (See Appendix I, page 309)  
Exploder: C.E. & T.N.T. (Mks II-IV); C.E. only (Mk V). There is no separate layer of T.N.T. around the exploder as in the 250 lb. S.A.P. Mk V.  
Filling: Mks II-IV - 90 lbs. T.N.T.  
Mk V - 89 lbs. T.N.T.

**REMARKS:**

- (1) No. 30 Tail Fuze has left hand threads on securing ring.
- (2) Use of the No. 37 Tail Pistol is unlikely but if used, tail fins usually painted red.
- (3) Mk I is very old and will not be found; Mk IV was never filled, though manufactured.

# 2000 LB A.P. BOMB



FUZZING . . . . . Mks I,II,III: Tail Fuze No. 37.  
 Mks IV: Tail Pistol No. 30  
 COLOR & MARKINGS . . . . . Dark green overall, with light green nose; three  $\frac{1}{2}$ " bands, white, red and white respectively, painted 4" to 5 $\frac{1}{2}$ " from tip of nose.  
 TAIL NO.: . . . . . Mks I: No. 1 Mks I  
 Mks II & III: No. 10 Mks I  
 Mks IV: No. 47 Mks I  
 OVERALL LENGTH . . . . . 113.0"  
 BODY LENGTH . . . . . 80.0"  
 MAX. BODY DIAMETER . . . . . 13.5"  
 WALL THICKNESS . . . . . 2.4" (approx.)  
 TAIL LENGTH . . . . . 35.5"  
 TAIL WIDTH . . . . . 13.5"  
 TOTAL WEIGHT . . . . . 193 $\frac{1}{2}$  lbs.  
 CHARGE/WEIGHT RATIO . . . . . 9 %

BRITISH BOMB

2000 LB. A.P.

Mks I, II, III &amp; IV

(Service)

BODY CONSTRUCTION: Mk I - Forged steel body with solid nose approximately 1.9' long. Slight taper from maximum diameter to the tail. Base threaded externally to take tail adapter and internally to take base adapter, which receives exploder container. Fuze is locked by fuze securing ring.

Mks II & III - Similar to Mk I, except for tail adapter, which has four equi-spaced holes threaded for attachment of the tail.

Mk IV - Modified to take Tail Pistol No. 30.

TAIL CONSTRUCTION: No. 1 Mk I - Aluminum alloy, consisting of cylindrical strut attached to tail cone by four vanes. Fits over tail adapter and secured by six screws.

No.15 Mk I - Similar to No. 1 Mk I, but made of steel. Has strengthening ring 2" from base and is secured to tail adapter by four wing bolts.

No.47 Mk I - Cylindrical strut secured to tail cone by four fins riveted on. Reach rod extends through tail cone, supported by spider.

SUSPENSION: Suspended from plane by two suspension bands.

EXPLOSIVE COMPONENTS: Detonators: (See Appendix I, page 309 )  
 Exploder: C.E. issued in position in exploder container.  
 Filling: 166 lbs. Shellite, with a composition pad in forward end of cavity, and sealed aft with washers and cement. Shellite is a very insensitive explosive consisting of 70% picric and 30% di-nitrophenol.

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# ANTI-SUBMARINE BOMBS

RESTRICTED

## USE

A.S. bombs, ranging from 35 to 600 lbs., are at present in service use. They are thin-walled bombs, having a high charge/weight ratio, for maximum blast effect on or under water. Aircraft depth charges are used by the British as alternatives for these bombs.

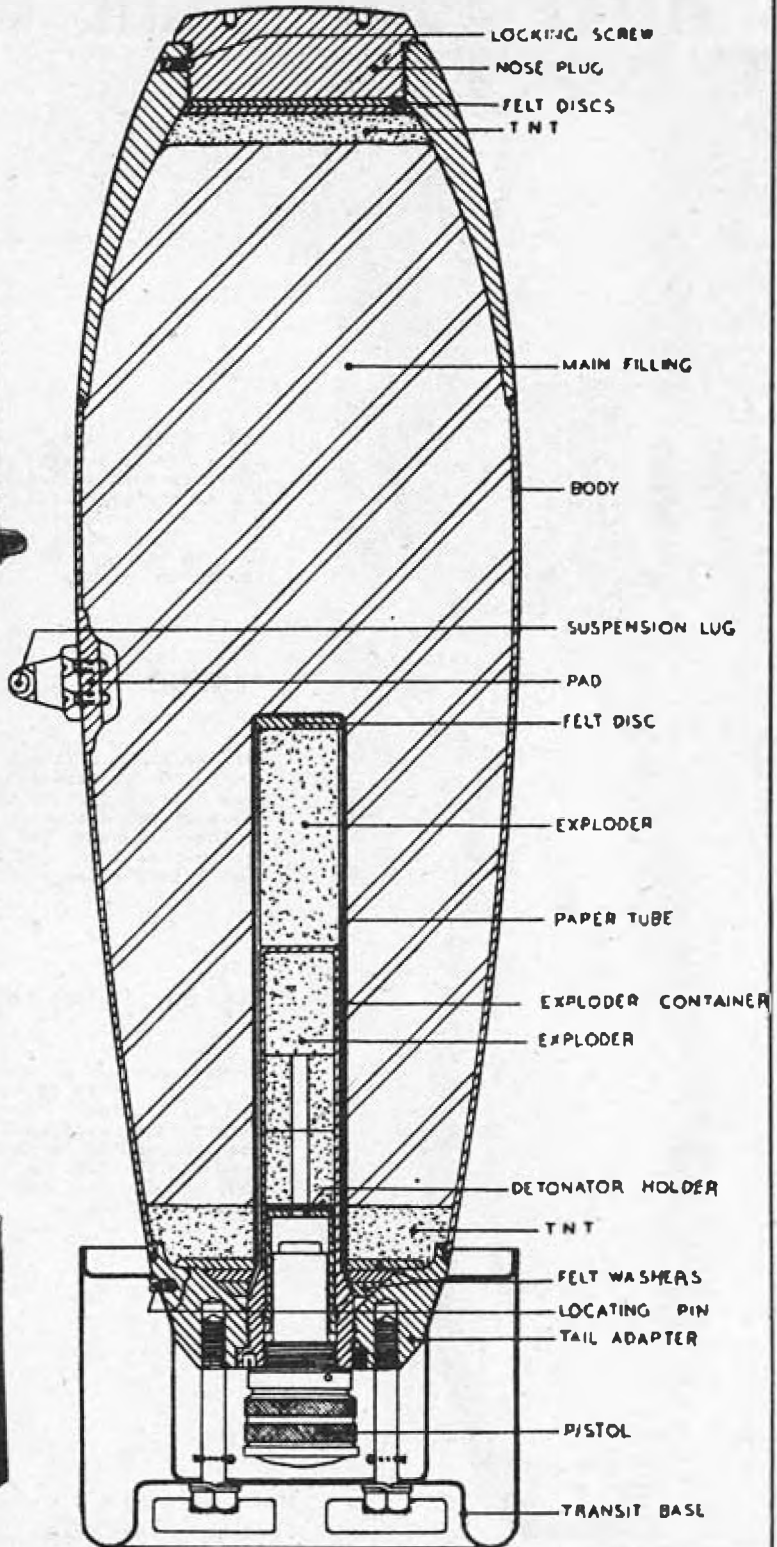
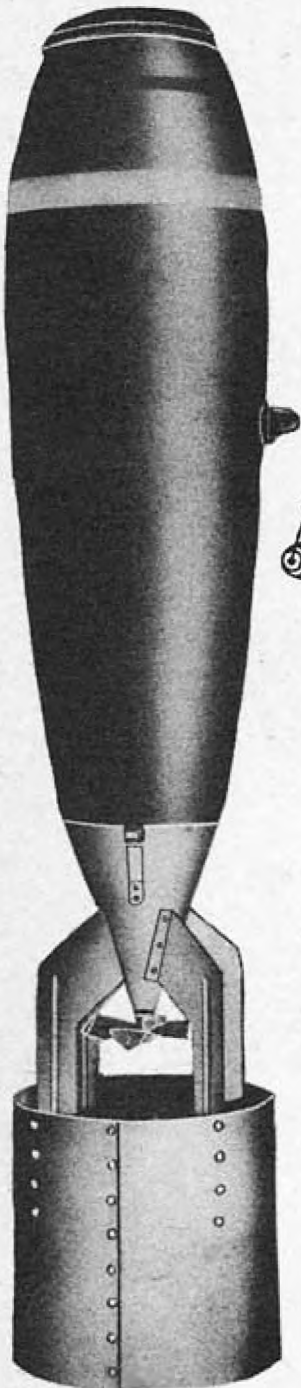
## FUZING

Earlier marks of the 100, 250, and 500 lb. bombs employed a No. 32 nose fuze, but later marks incorporate a pistol/detonator combination at the tail only. The 35 lb. bomb uses a nose fuze, and the 600 lb. bomb a tail fuze.

## CHARACTERISTICS

These bombs are painted green overall, and may be filled with Torpex, T.N.T., or Minol. Their charge/weight ratio is from 50 to 80 per cent, depending on the individual bomb and the filling. The 100, 250, and 500 lb. bombs are streamlined in shape.

# 100 LB. A.S. BOMB



100 LB. A.S.

## FUZING:

Mks I - III: Nose Fuse No. 32.  
 Mk IV: Tail pistol No. 28 or No. 30  
 Mk VI: Tail pistol No. 30 or Tail Fuses No.  
 875 or No. 896.

## COLOR &amp; MARKINGS:

Dark green overall;  $\frac{1}{2}$ " red band 1" from nose;  
 1" light green band  $\frac{1}{2}$ " from nose. Earlier  
 mods originally painted yellow.

TAIL NO. . . . . Mk IV: No. 7 Mk I  
 Mk VI: No. 56 Mk I

OVERALL LENGTH . . . 42" (Mk VI is several inches  
 longer with nose attach-  
 ment)

BODY LENGTH . . . . 31" (Mks I - III)  
 24.08" (Mks IV - VI)

MAX. BODY DIAMETER . . 8.05"

WALL THICKNESS . . . 0.11"

TAIL LENGTH . . . . 18"

TAIL WIDTH . . . . 8"

TOTAL WEIGHT . . . . 98 lbs.

CHARGE/WEIGHT RATIO . 46 % (approx.)

Mks I - IV (Obsolescent)

Mk VI (Service)

**BODY CONSTRUCTION:** Mk IV - Hollow nose forging or casting and cast or forged tail adapter welded to sheet steel casing. Hollow nose threaded to take solid flat nose plug locked by a locking screw. Casing made in two parts welded together longitudinally. Tail adapter receives exploder container which is locked and sealed in position, housing detonator holder & pistol. Mk III - Base of bomb fitted with adapter for nose fuse; three internal strengthening rings; tail adapter. A ballistic cap screws on the nose to prevent ricochet.

Mk VI - Nose plug and cup shaped nose attachment welded on as in drawing below.

**TAIL CONSTRUCTION:** Mk IV, No. 7 Mk I: Sheet metal cone with cylindrical strut attached by four fins, secured to tail adapter by four spring clips on the cone. Reach rod, with arming vanes on after end, extends through cone and engages arming fork of tail pistol.

Mk III: Cylindrical strut which is attached by fins to a dome, which is secured to the bomb by a central bolt.

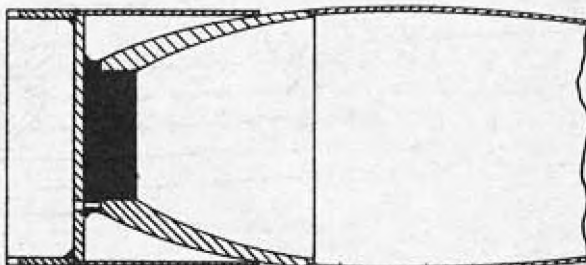
Mk VI: No. 56 Mk I tail secured by four locking screws threaded through four cone securing bosses welded on at an angle to tail cone; screws thread inward and aft to engage slots in body.

**SUSPENSION:** Horizontal suspension by single lug, secured by screws projecting through the case and into a steel block support pad welded to interior of body; suspended from universal bomb carrier.

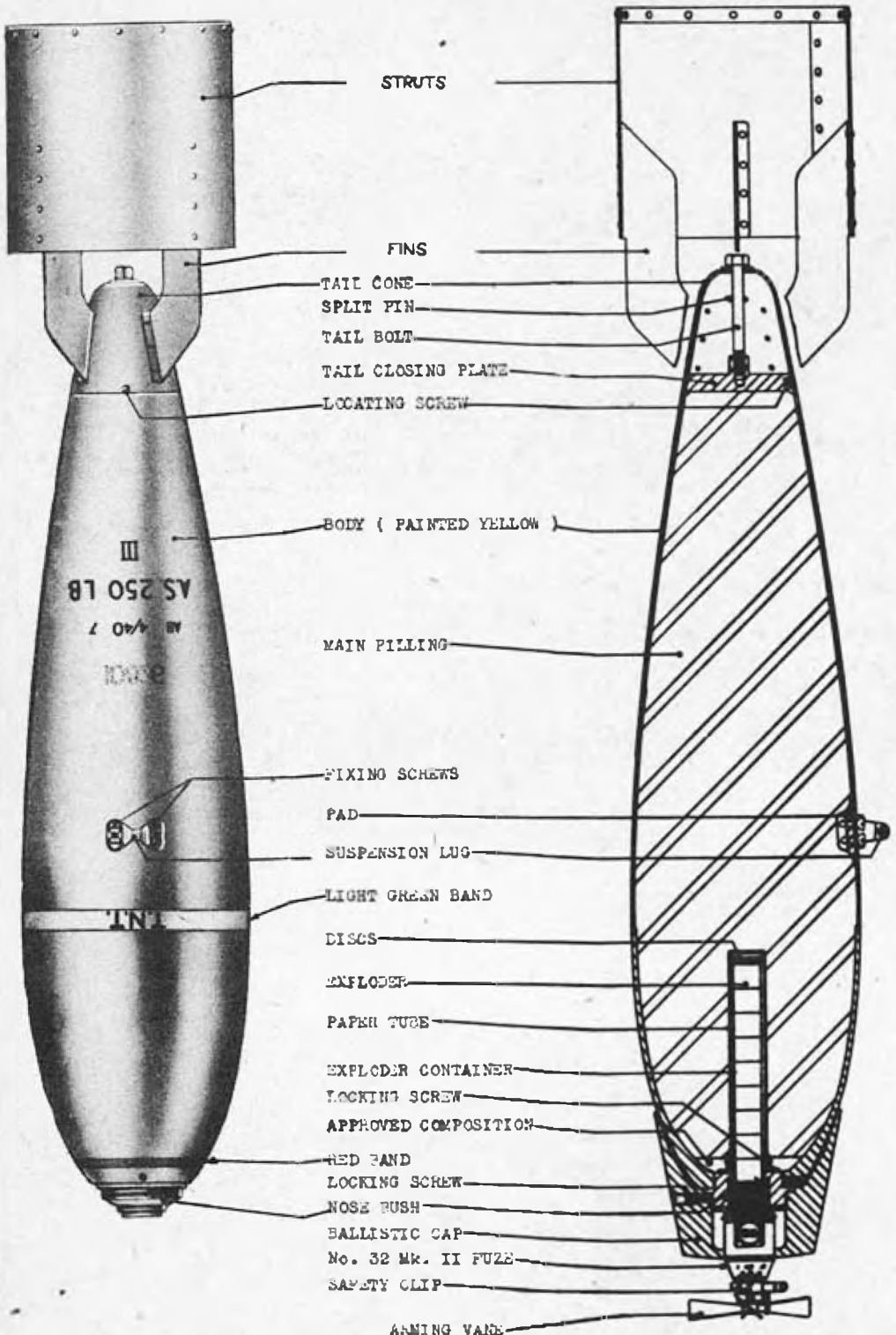
**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix I, page 309)  
 Exploders: C.E.  
 Filling: Mk IV: 45 lb. R.D.X./T.N.T. 60/40 or 44 lb. T.N.T.  
 Mk VI: 49 lbs. Torpex (When filled with Torpex, a tapping of T.N.T. is added at the nose and base.)

**REMARKS:** (1) No. 30 Tail Pistol with needle striker to be used in Mk IV for A/S bombing; No. 28 can be used in place of No. 30 for land bombardment.

(2) Mk V never produced.



# 250 LB. A.S. BOMB



## BRITISH BOMB

## 250 LB. A.S.

Mks I, II, III (Obsolescent)  
Mk IV (Service)

## FUZING:

Mks I-III - Nose Fuse No. 32  
Mk IV - Tail Pistol No. 28 or No. 30.

## COLOR &amp; MARKINGS:

Dark green overall,  $\frac{1}{2}$ " red band 1" from nose,  
1" light green band  $4\frac{1}{2}$ " from nose. Earlier  
models originally yellow overall.

TAIL NO. . . . . Mk IV - No. 8 Mk I  
OVERALL LENGTH . . . . Mk III - 59"  
Mk IV - 58"  
BODY LENGTH . . . . . Mk III - 42"  
Mk IV - 35.2"  
MAX. BODY DIAMETER. . . . 11.35" (Mk IV)  
11.2" (Mk III)  
WALL THICKNESS . . . . 0.14" (Mks III & IV)  
0.125" (Mks I & II)  
TAIL LENGTH . . . . . 23.4" (Mk IV)  
TAIL WIDTH . . . . . 11.0"  
TOTAL WEIGHT . . . . . 243 lbs. (Mk IV)  
CHARGE/WEIGHT RATIO . 55 % (Mk IV)

**BODY CONSTRUCTION:** Mk IV - Hollow nose forging or casting and cast or forged tail adapter welded to sheet steel casing. Hollow flat nose threaded to take solid nose plug locked by a locking screw. Casing made in two parts, welded together longitudinally. Tail adapter receives exploder container, which is locked and sealed in position, housing detonator holder and pistol. Mk I-III - Nose of bomb fitted with adapter for nose fuse. Internal strengthening bands welded to body. No tail adapter. Ballistic cap screws on the nose to prevent ricochet.

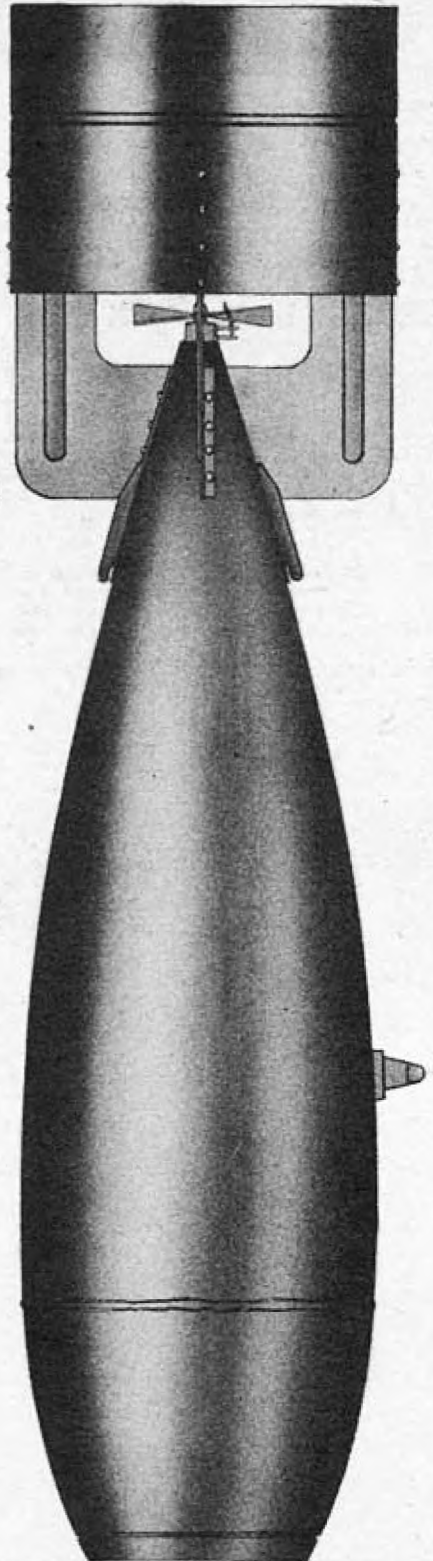
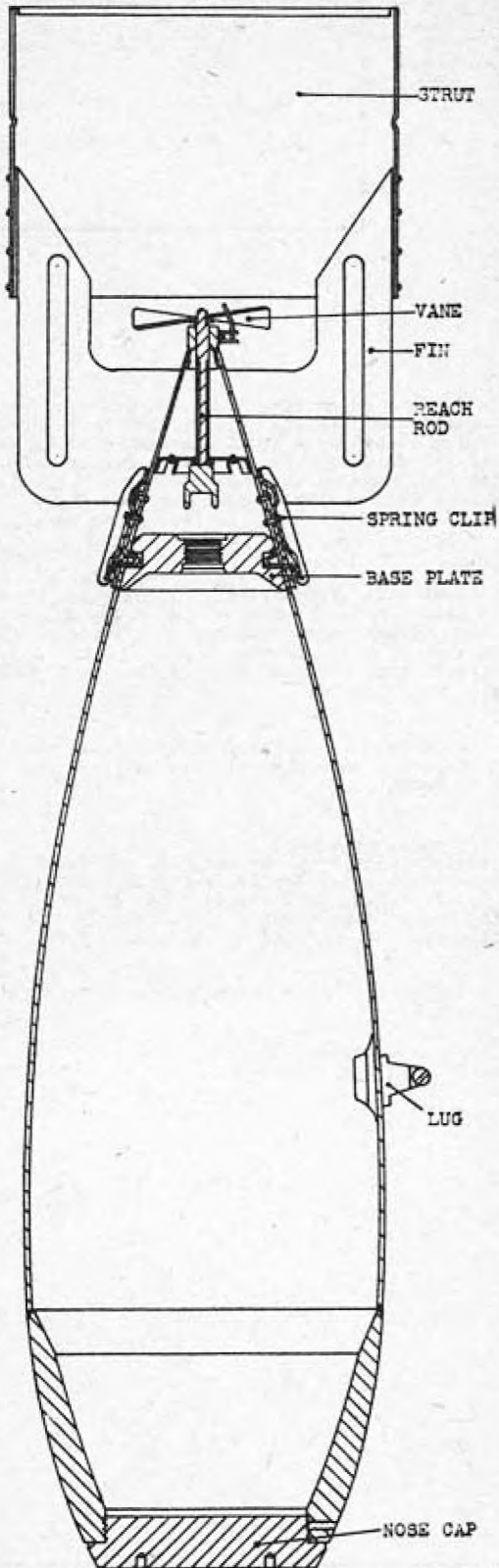
**TAIL CONSTRUCTION:** Mk IV - Sheet metal cone with cylindrical strut attached by four fins secured to the tail adapter by four spring clips on the cone. Reach rod, with arming vanes attached to after end, extends through the cone and engages arming fork of tail pistol. Mk I-III - Cylindrical strut attached by four fins to a dome shaped tail cone, secured to the bomb by a central bolt.

**SUSPENSION:** Horizontal suspension by single lug, secured by screws projecting through the case and into a steel block support pad welded to interior of body.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix, page 309)  
Exploders: C.E. pellets. (Early marks had C.E. and T.N.T.)  
Filling: Mk IV - 134 lbs. R.D.X./T.N.T. or 132 lbs. T.N.T.  
When R.D.X./T.N.T. is used, bomb has  $\frac{1}{2}$ " nose topping and 1" case topping of T.N.T.  
Mk III - 149 lbs. Baratol or 140 lbs. T.N.T.

**REMARKS:** (1) These bombs are designed to give maximum blast effect for use against submarines.  
(2) No. 30 tail pistol with needle striker to be used in Mk IV for A/S bombing; No. 28 can be used in place of No. 30 for land bombardment.

# 500 LB. A.S. BOMB



500 LB. A.S.

Mks I - IV

(Obsolescent)

## FUZZING:

Mks I-III - Nose Fuse No. 32  
 Mk IV - Tail Pistol No. 28 or No. 30

## COLOR &amp; MARKINGS:

Dark green overall;  $\frac{1}{2}$ " red band 1" from nose;  
 1" light green band 6" from nose. Early designs  
 originally yellow overall.

TAIL NO. . . . . Mk IV: No. 9 Mk I  
 OVERALL LENGTH . . . . 74.0" (Mks I & II)  
                               76.0" (Mk III)  
                               72.5" (Mk IV)  
 BODY LENGTH . . . . . 63" (Mks I, II & III)  
                               50" (Mk IV)  
 MAX. BODY DIAMETER. . . 14.0" (Mk I & II)  
                               14.3" (Mks III & IV)  
 WALL THICKNESS . . . . 0.16" (Mks I & II)  
                               0.18" (Mk III & IV)  
 TAIL LENGTH . . . . . 24.2" (Mk IV)  
 TAIL WIDTH . . . . . 14" (Mk IV)  
 TOTAL WEIGHT . . . . . 490 lbs. (Mk IV)  
 CHARGE/WEIGHT RATIO . 62 - 64 % (Mk III)  
                               58 % (Mk IV)

**BODY CONSTRUCTION:** Mk IV - Hollow nose forging or casting and cast or forged tail adapter welded to sheet steel casing. Nose threaded to take solid nose plug locked by a locking screw. Casing made in two parts, welded together longitudinally. Tail adapter receives exploder container, which is locked and sealed in position, housing detonator holder and pistol.

Mks I-III - Nose of bomb fitted with adapter for nose fuse. Internal strengthening bands welded to body. No tail adapter. Ballistic cap screws on the nose to prevent ricochet.

**TAIL CONSTRUCTION:** No. 9 Mk I: Sheet metal cone with cylindrical strut attached by four fins, secured to tail adapter by four spring clips on the cone. Reach rod, with arming vanes attached to after end, extends through the cone and engages arming fork of tail pistol.  
 Mks I-III: Cylindrical strut attached by four fins to a dome shaped tail cone, secured to the body by a central bolt.

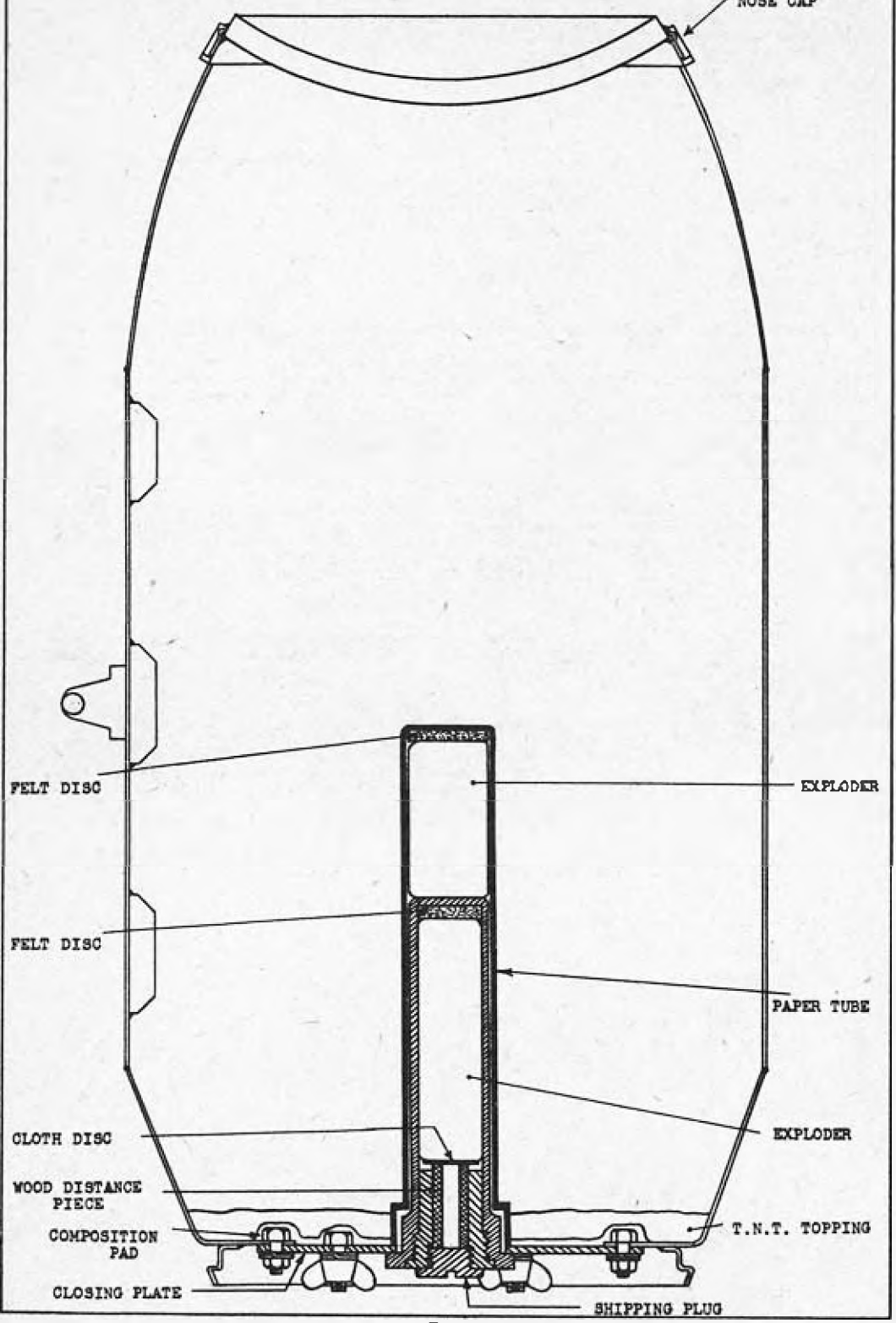
**SUSPENSION:** Horizontal suspension by single lug, secured by screws projecting through the case and into a steel block support pad welded to interior of body.

**EXPLOSIVE COMPONENTS:** Detonators: (See Appendix, page 309)  
 Exploders: C. E. pellets (earlier bombs had C.E. and T.N.T.)  
 Fillings: Mk IV: 282 lbs. T.N.T. (may be filled with R.D.X./T.N.T. When R.D.X./T.N.T. is used, bomb has  $\frac{1}{2}$ " nose topping and 1" base topping of T.N.T.)  
 Mk III: 291 lbs. T.N.T. or 308 lbs. Baratol 10/90

**REMARKS:** (1) These bombs are designed to give maximum blast effect for use against submarines.  
 (2) No. 30 Tail Pistol with needle striker to be used in Mk IV for A/S bombing; No. 28 can be used in place of No. 30 for land bombardment.

# 600 LB. A.S. BOMB

SPRING CLIP FOR NOSE CAP



FUZZING . . . . . Tail Fuze No. 862  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red  
 band and 1" light green  
 band around body.  
 TAIL NO. . . . . No. 36 Mk I  
 OVERALL LENGTH . . . . . 56.7"  
 BODY LENGTH . . . . . 36" (without nose attachment)  
 MAX. BODY DIAMETER . . . . . 17.5"  
 WALL THICKNESS . . . . . 0.125"  
 TAIL LENGTH . . . . . 20.5"  
 TAIL WIDTH . . . . . 17.5"  
 TOTAL WEIGHT . . . . . 550 lbs.  
 CHARGE/WEIGHT RATIO . . . . . 80 % (approx.)

BRITISH BOMB

600 LB. A.S.

Mk I

(Service)

**BODY CONSTRUCTION:** Three pieces welded together. Concave nose, parallel sides, tapered base to receive clip on tail. Aft end closed off by closing plate housing exploder container which extends into body 14" from base. Very thin walls. Round nose cap attached to nose for streamlining during air travel, breaking off on impact, and giving bomb an unstable trajectory, preventing ricochet.

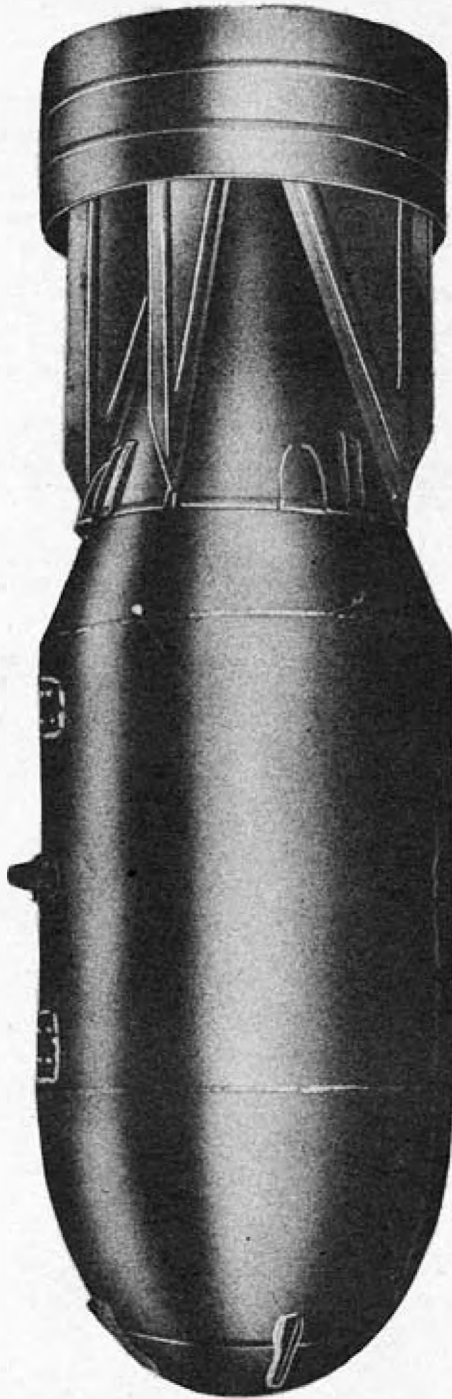
**TAIL CONSTRUCTION:** Clip-on type tail consisting of cylindrical strut secured to tail cone by four fins. Tail cone construction of four pieces and held together by three rivets only. There is no reach rod extending through the tail cone, as the fuze is not the arming vane type. Tail breaks off on impact with water, adding to the unstable trajectory of the bomb.

**SUSPENSION:** May be suspended from British planes by single lug, or by dual lugs 7" on either side of single lug for suspension from U.S. aircraft. Either dual lugs or single lug are used, the remaining lug screw holes closed by transit screws when not used.

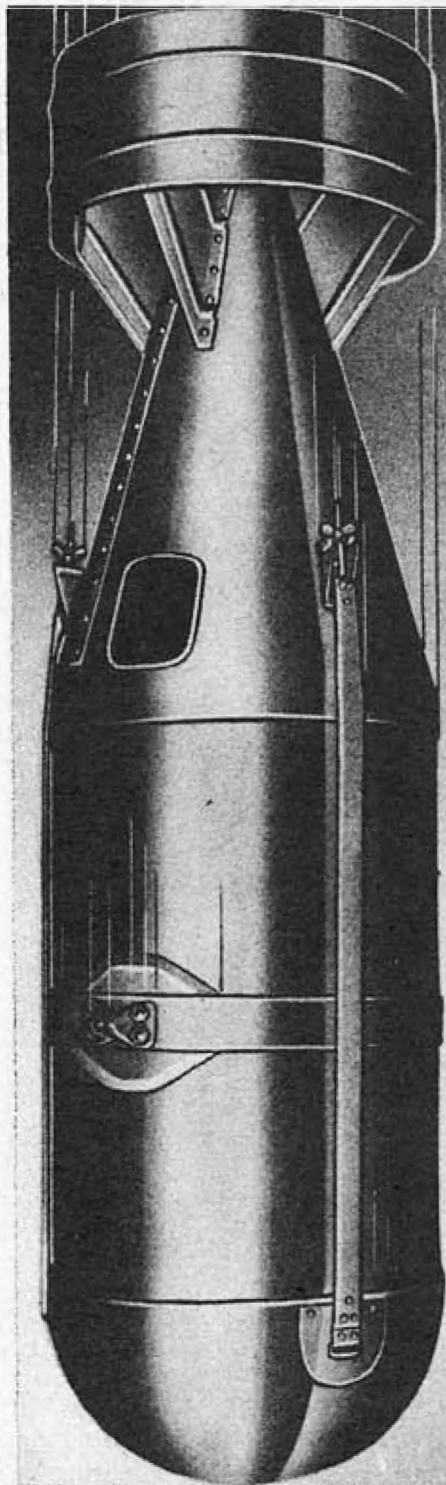
**EXPLOSIVE COMPONENTS:** Exploder: C.E.  
 Filling: 432 lbs. of Minol II or 439 lbs. Torpex. (Has  $\frac{1}{2}$ " layer of T.N.T. at base when filled with Minol or Torpex).

**REMARKS:** The fuze is fitted in an anti-countermining chamber.

# 600 LB. A.S. BOMB



# AIRCRAFT DEPTH CHARGES



## USE

The depth charges included in this section are those dropped from aircraft in anti-submarine warfare. Only one size is currently in use, the 250 pound. Normally they are carried on a bomb carrier.

## FUZING

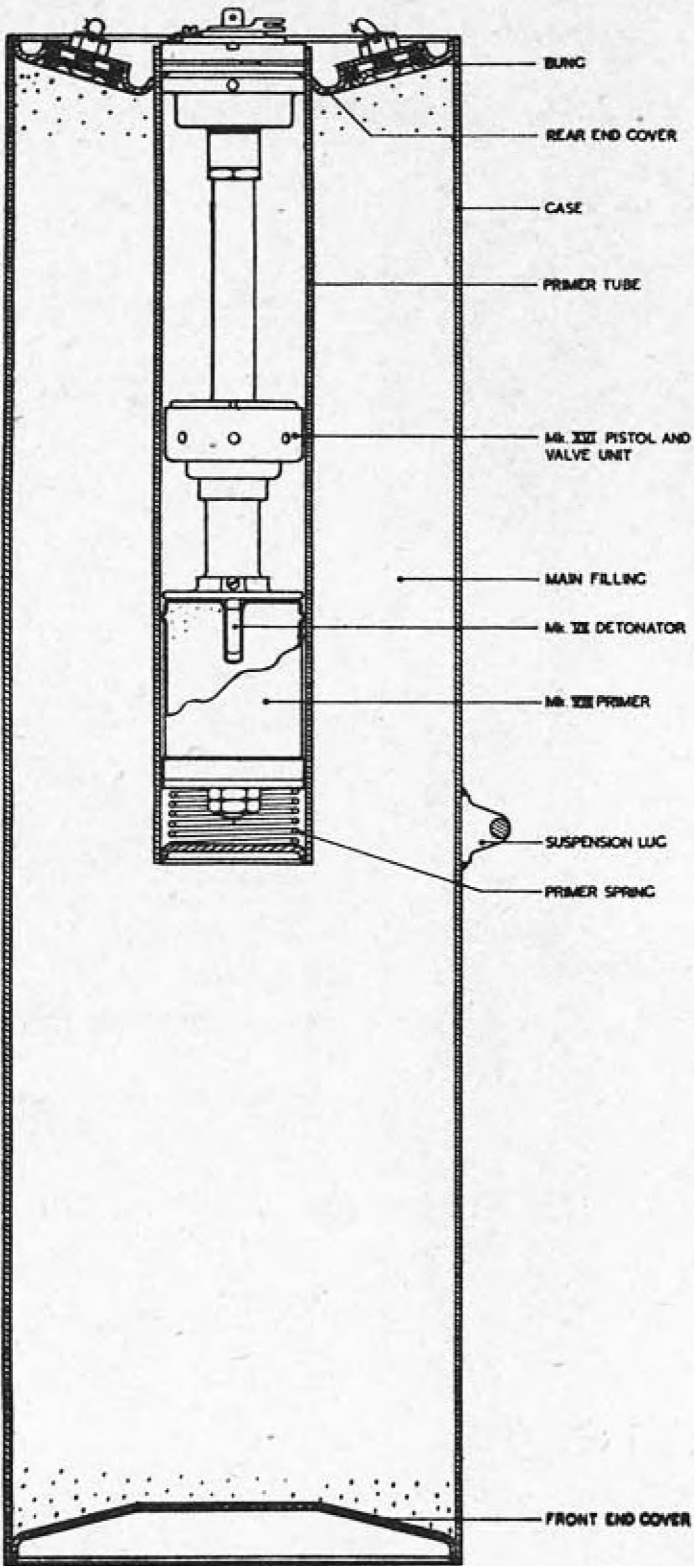
These bombs consist of a cylindrical metal case, with an explosive charge, and have a central tube in which is housed a primer, a detonator, and a tail pistol when the depth charge is fully armed. The depth at which the depth charge will detonate is determined by the pistol, which operates by hydrostatic pressure.

A safety device is incorporated to render the depth charge safe in the event of the carrying aircraft's sinking after a forced landing. This safety device, however, does not always prevent detonation if the depth charge is dropped safe, as it may be affected by impact with the water.

## CHARACTERISTICS

Aircraft depth charges are thin-walled, with a loading factor of about 55 per cent. They are painted dark green overall, with a red band and a colored band to indicate the nature of the explosive filling. Attachments, comprised of a nose fairing and/or a tail, are usually fitted to a depth charge to reduce the air resistance when carried externally on an aircraft and to increase the stability of the air trajectory. Unless fitted with a parachute, failure to detonate may result if the depth charge is dropped from too great a height or at too great a speed.

## 250 LB. A/G DEPTH CHARGE



FUZING . . . . . Mk XVI, XIV, XIX, or XX  
 hydrostatic pistols.  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{4}$ " red  
 band and a colored band  
 indicating nature of explo-  
 sive painted around body in  
 front of suspension lug.  
 TAIL NO. . . . . Mk III (Mk IV when using  
 Mk XIX or XX pistols).  
 OVERALL LENGTH . . . . . 54.8"  
 BODY LENGTH . . . . . 37"  
 MAX. BODY DIAMETER . . . . . 11"  
 WALL THICKNESS . . . . .  
 TAIL LENGTH . . . . . 17.6"  
 TAIL WIDTH . . . . . 11"  
 TOTAL WEIGHT . . . . . 265 lbs.  
 CHARGE/WEIGHT RATIO. . . . . 66 %

BRITISH BOMB

250 LB. D.C.

Mk XI, XI<sup>b</sup>

(Service)

**BODY CONSTRUCTION:** Welded cylindrical case closed at each end by a cover welded  
 on. Central primer tube is welded in an opening in the rear  
 cover and extends approximately half way through the body.  
 Equi-spaced around the rear cover are three lugs, each drilled and tapped to receive  
 a stud used for securing the tail to the depth charge. Two filling holes, each  
 closed by a bung, are provided in the rear cover. The front cover is dished inward  
 to prevent ricochet.

**TAIL CONSTRUCTION:** Mk III: Cylindrical drum open at both ends. Strengthening ring  
 is welded to the front end and provided with 3 equi-spaced  
 brackets, weakly riveted on, which fit over the studs in the  
 corresponding lugs on the rear and cover of the body. Tail strengthened by six cir-  
 cumferential corrugations. Tail breaks off on impact with water. Front of tail has  
 one large port for fuze-setting control link and two small ports to give access to  
 pistol and valve unit when fitting the fuze-setting control link.

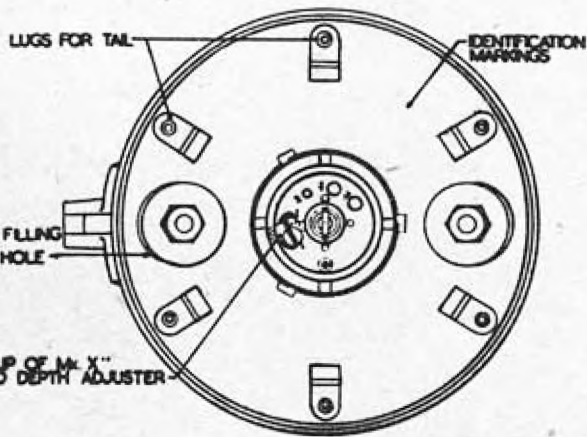
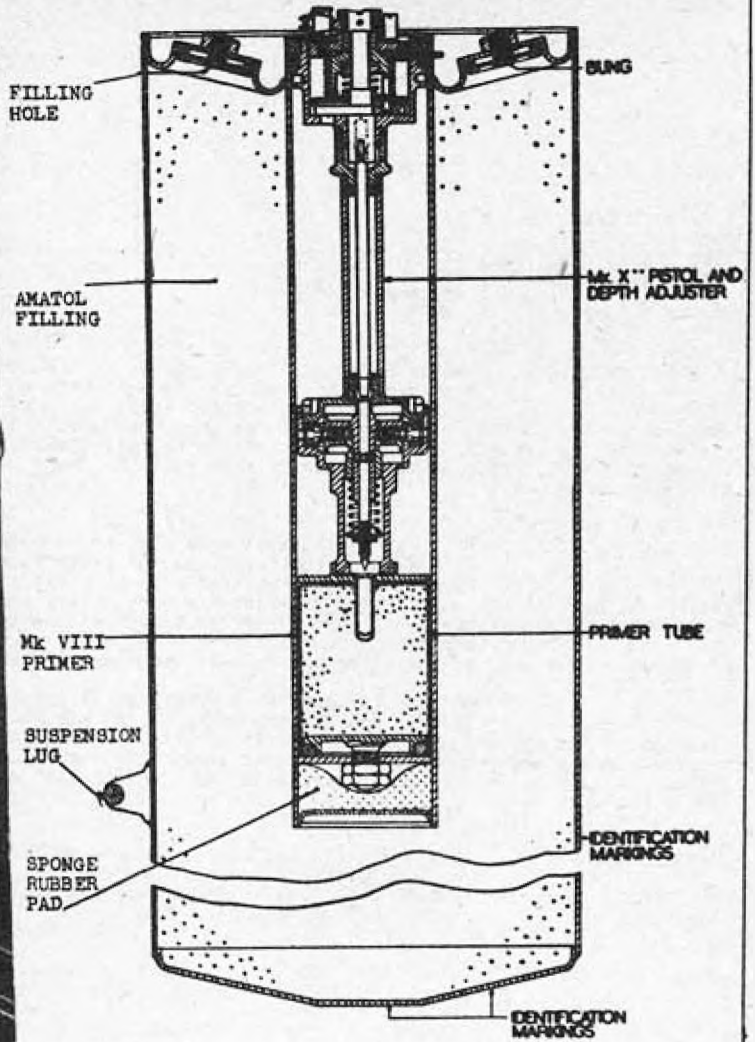
Mk IV: Designed with arming vanes and reach rod to arm pistols  
 Mk XIX and XX, which are of the air arming type and are re-  
 placing the Mk XIV and XVI tail hydrostatic pistols. This tail is constructed with  
 a three segment cone, to which are riveted three fins supporting the three segment  
 cylindrical strut. Three hand clearance holes are equi-spaced around the forward  
 end of the cone.

**SUSPENSION:** Mk XI: Single lug welded to case at center of gravity for  
 British aircraft.  
 Mk XI<sup>b</sup>: Dual lugs welded to case for suspension from U.S.  
 aircraft.

**EXPLOSIVE COMPONENTS:** Detonators: Mk VII detonator of A.S.A. and C.E.  
 Primer: Mk VIII primer, 1 perforated and 1 solid C.E.  
 pellet.  
 Filling: 175 lbs. Torpex

**REMARKS:** The Mk XIX and XX hydrostatic pistols are armed by vanes on a  
 reach rod extending through the tail unit, consequently requir-  
 ing the Mk IV tail, which is considerably different than the  
 Mk III.

# 250 LB. A/C DEPTH CHARGE



FUZING . . . . . Tail Pistol Mk XIV, XIV\*, XVI, XVI\*, or Mk X<sup>2</sup>\*

COLOR & MARKINGS . . . . . Dark green overall,  $\frac{1}{2}$ " red band near nose, 2" light green cross-hatched band near suspension lug.

TAIL NO. . . . .

OVERALL LENGTH . . . . . 56"

BODY LENGTH . . . . . 38.15"

MAX. BODY DIAMETER . . . . . 11"

WALL THICKNESS . . . . .

TAIL LENGTH . . . . . 18"

TAIL WIDTH . . . . . 11"

TOTAL WEIGHT . . . . . 250 lbs.

CHARGE/WEIGHT RATIO. . . . . 84 %

BRITISH BOMB**250 LB. D.C.**

AIRCRAFT DEPTH CHARGE

Mk VIII

( Obsolescent )

**BODY CONSTRUCTION:** Welded cylindrical outer case with convex nose welded on, sometimes fitted with concave nose attachment. Rear end of body closed by an end cover dished inwards, housing two filling holes, provided with bungs. On the cover are six equi-spaced lugs for attaching the tail. A primer tube fits into the rear cover, extending approximately half the length of the body. It has 3.5" internal diameter, and contains the primer and pistol and depth adjuster.

**TAIL CONSTRUCTION:** Open-ended cylindrical sheet metal tail supported internally by a spiral wire stiffener. Strengthening band on forward end carries six brackets which are attached by studs and nuts to the six lugs on the closing cover on the depth charge. Three squally spaced ports are provided in the tail, through one of which is passed the fuse-setting control link when the depth charge is loaded on the aircraft. Tail breaks off on impact with water.

**SUSPENSION:** Horizontal suspension by a lug welded to the body at the center of gravity. May be fitted with two additional lugs for suspension from U.S. aircraft bomb racks.

**EXPLOSIVE COMPONENTS:** Detonator: Mk VII, A.S.A. mixture and C.E.  
Primer: Mk VIII, 1 solid and 1 perforated pellet of C.E.  
Filling: 160 lbs. Amatol.

**REMARKS:** This depth charge is dropped from a maximum height of 500' and at a maximum speed of 175 m.p.h.

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# INCENDIARY BOMBS

CONFIDENTIAL

## USE

Incendiary bombs of many various types, ranging in weight from 4 to 250 lbs., are at present in service use for operations against different types of targets. The construction and filling of these bombs differ with the individual types and no general description can be given here to cover the complete range.

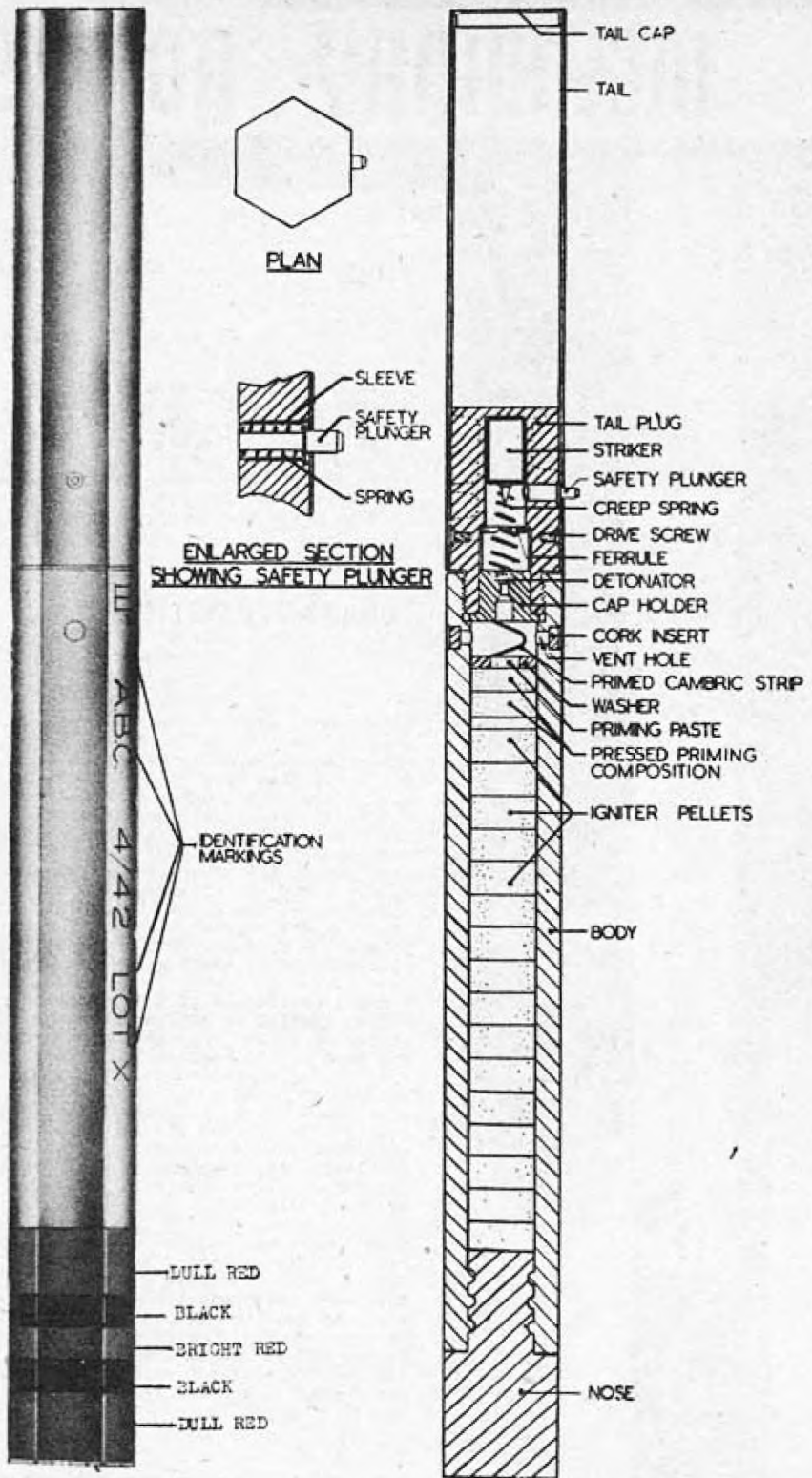
## CHARACTERISTICS

Some bombs, such as the 4 lb. series, have bodies composed mainly of incendiary material, such as magnesium alloy, and are filled with solid incendiary compositions. Other bombs, such as the 30 lb. I.B., have steel tubular bodies and are liquid filled with a rubber/benzole solution, or may be partially filled with cast white phosphorous. Liquid filled bombs are provided with an ejection charge. The 25 lb. bomb has a faired steel tubular body containing incendiary firepots which are ejected successively by small gunpowder charges.

A small percentage of 4 lb. incendiary bombs contains an explosive charge, the object of which is to render dangerous approach to the burning bombs, due to the risk of flying splinters. Attempts to extinguish these and standard non-explosive bombs which are dropped simultaneously are thereby discouraged. If the explosive charge is gunpowder, the bomb is distinguished by the letter "G"; tetryl explosive charge is indicated by the letter "X".

These bombs are painted either a dull red overall, or have the nose end for several inches painted red. Most of them have two black bands separated by a bright red band around the nose end. Though formerly they have been carried in the 250 lb. Small Bomb Container, Cluster Projectiles (aimable clusters) are replacing the 39C as the favored method of carrying.

# 4 LB. INCEND. BOMB



**FUZION** . . . . . Simple impact striker.  
**COLOR & MARKINGS** . . . Mks I-III have dull red nose, with two  $\frac{1}{2}$ " black bands separated by  $\frac{1}{2}$ " bright red band around nose. Mks IE-IIIIE also have bright red tail base and additional  $\frac{1}{2}$ " bright red band  $\frac{1}{2}$ " aft of dull red nose coloring.

**OVERALL LENGTH** . . . . 21.4"  
**WIDTH ACROSS FLATS** . . . 1.67" (hexagonal in shape)  
**TOTAL WEIGHT** . . . . . 4 lbs. approx.

BRITISH BOMB

**4 LB. I.B.**

Mks III & IIIE

(Mks I, IE, II, IIE, and 4 lb. "X" with 2 & 4 minute delays, Mk I - see "Similar Incendiaries" below)

{Obscurescent}

**DESCRIPTION:** Consists of a hollow magnesium-alloy body at one end of which is a cast iron or steel nose, the body being cast onto the nose during manufacture. A magnesium-alloy tail plug, which may be of solid or open construction, is screwed into the other end of the body. Fixed to the tail plug by two drive-screws is a tinplate tail closed by a tail cap. The tail plug houses a striker, creep spring, ferrule having four tabs, and a brass cap holder containing a 1.7 grain detonator. When the bomb is packed in its case, movement of the striker towards the detonator is prevented by a spring-loaded safety plunger housed in a sleeve fitted into the tail plug. Two vent holes, plugged by cork inserts, are provided in the body to communicate with the space between the cap holder and the filling of the bomb. A strip of primed cambric is located in this space. The Mk IIIIE is identical to the Mk III except for a black powder exploder just aft of the nose plug in the body cavity. The main filling is thermite.

**FUNCTIONING:** When bomb is released, the safety plunger springs out and on impact the striker overcomes the resistance of the creep spring bends the tabs on the ferrule (brass cross) and strikes and fires the detonator, the products of combustion from the detonator blowing the cork inserts out of the vent holes. The flash from the detonator is conveyed by the primed cambric strip to the gunpowder-shellac paste on the inside of the washer, which ignites the pressed priming composition and in turn the igniter pellets. The magnesium-alloy body starts to melt about 25 sec. after the bomb is ignited, and burns for about 10 minutes. In the Mk IIIIE bomb, after  $1\frac{1}{2}$  to 4 minutes, the powder in the burster is ignited and explodes.

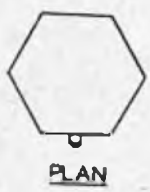
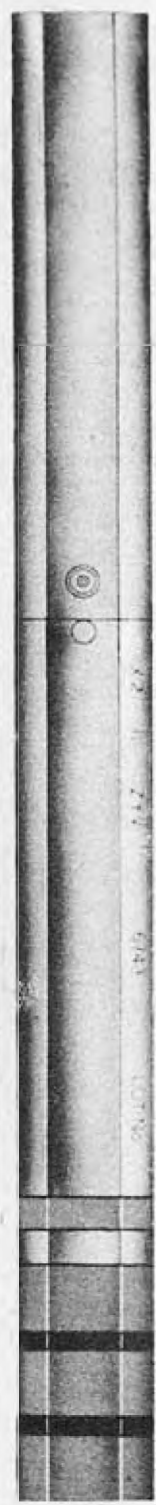
**SUSPENSION:** Carried in the Small Bomb Container or in a Cluster Projectile

**SIMILAR INCENDIARIES:** 4 lb. Mk II and IIE: Similar to the Mk III and Mk IIIE, but have following differences: (a) bomb bodies have smaller bore, (b) cap holders are of magnesium-alloy, (c) bomb bodies have four cork-plugged vent holes, (d) tail plugs are of solid magnesium-alloy, and (e) noses are of steel.

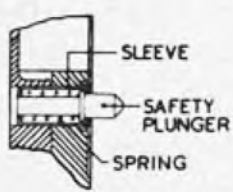
4 lb. Mk I and IE: Similar to the Mk II and IIE respectively, but differ in the following respects: (a) length of bomb is 21.5", (b) use a 1.62 grain detonator.

4 lb. X, with 2 & 4 minute delays, Mk I: Similar in construction to the Mk III, except that a C.E. exploder is contained in the steel nose plug, as shown in the drawing opposite; this exploder being initiated after delay of either 2 or 4 minutes, depending on which bomb it is. The letter "X" is stamped on the outside followed by a number "2" or "4" indicating which delay is incorporated in the bomb. The marking bands are the same as on the Mk IIIE, except that the red band between the two black bands is 1" instead of  $\frac{1}{2}$ ", and the base of the tail is not painted red.

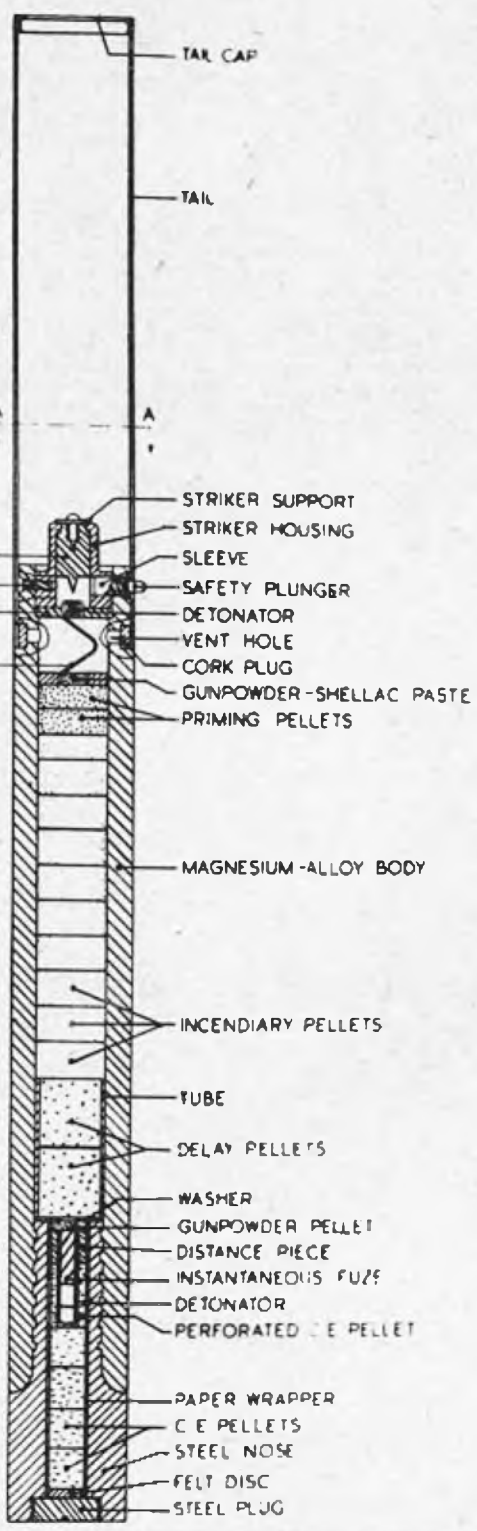
# 4 LB. INCEND. BOMB



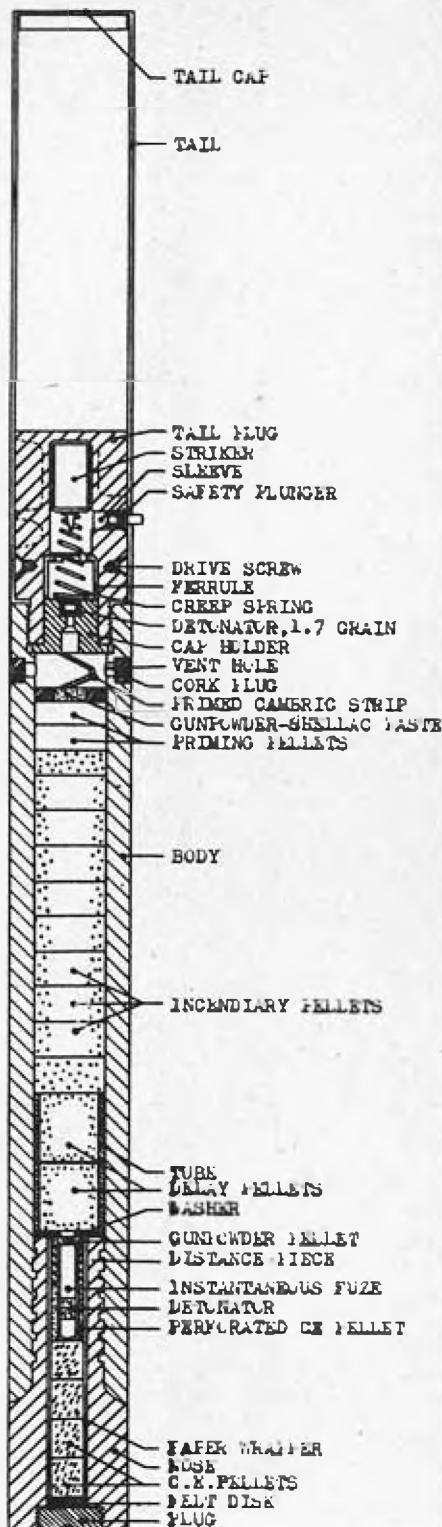
SECTION A-A



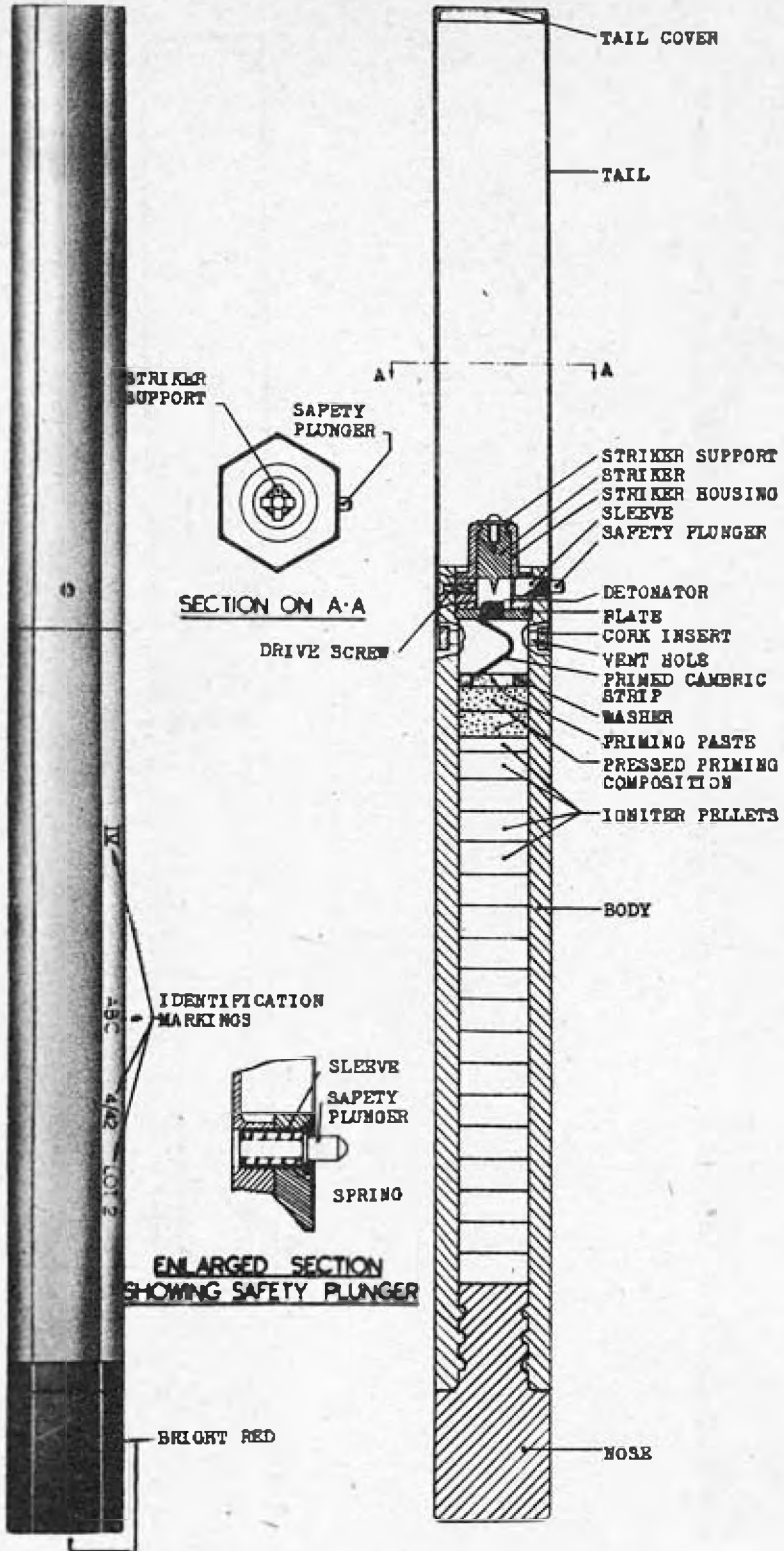
ENLARGED SECTION SHOWING SAFETY PLUNGER



# 4 LB. INCEND. BOMB



# 4 LB. INCEND. BOMB



FUZING . . . . . Simple impact striker  
 COLOR & MARKINGS . . . . End face of nose, and body  
 . . . . . aft of nose for 2" painted  
 . . . . . bright red; Mk IVE has  $\frac{1}{2}$ "  
 . . . . . bright red band  $\frac{1}{2}$ " aft of  
 . . . . . bright red nose coloring.  
 OVERALL LENGTH . . . . . 21.4"  
 WIDTH ACROSS FLATS . . . . 1.87" (hexagonal in shape)  
 TOTAL WEIGHT . . . . . 4 lbs. approx.

BRITISH BOMB**4 LB. I.B.**

Mks IV &amp; IVE

(Also Mk V, VE, and 4 lb. "X" with  
2 & 4 minute delays, Mk II - See  
"Similar Incendiaries" below)

(Service)

**DESCRIPTION:** The bomb is hexagonal in shape, having a hollow magnesium-alloy body, cast iron nose, with body cast to the nose in manufacture. A tinplate tail, closed by a tail cover, is secured to the other end of the body by three drive-screws, which also hold a steel striker housing in position in the body. At the tail end, the body is counterbored to accommodate an igniting mechanism consisting of a striker, located in the striker housing, and a steel plate seated at the bottom of the counterbore and containing a 1.7 grain detonator. One end of the striker is pointed, and the other end projects through a hole in the striker housing. The edge of this hole is chamfered to permit a thin brass cross secured to the striker, to be bent and pulled through the hole when the bomb functions. This cross forms a striker support during transit and storage. Movement of the striker towards the detonator is, when the bomb is packed in its case, prevented by a spring-loaded safety plunger housed in a sieve. Two vent holes, plugged by cork inserts, are provided in the tail end of the body and communicate with the space between the igniter mechanism and the bomb main filling. A strip of primed cambric is located in this space. The filling consists of a cardboard washer filled with gunpowder-shellac priming paste, a quantity of pressed priming composition, and the thermite igniter pellets.

**SUSPENSION:** These incendiaries are carried in the Small Bomb Container or in Cluster Projectiles.

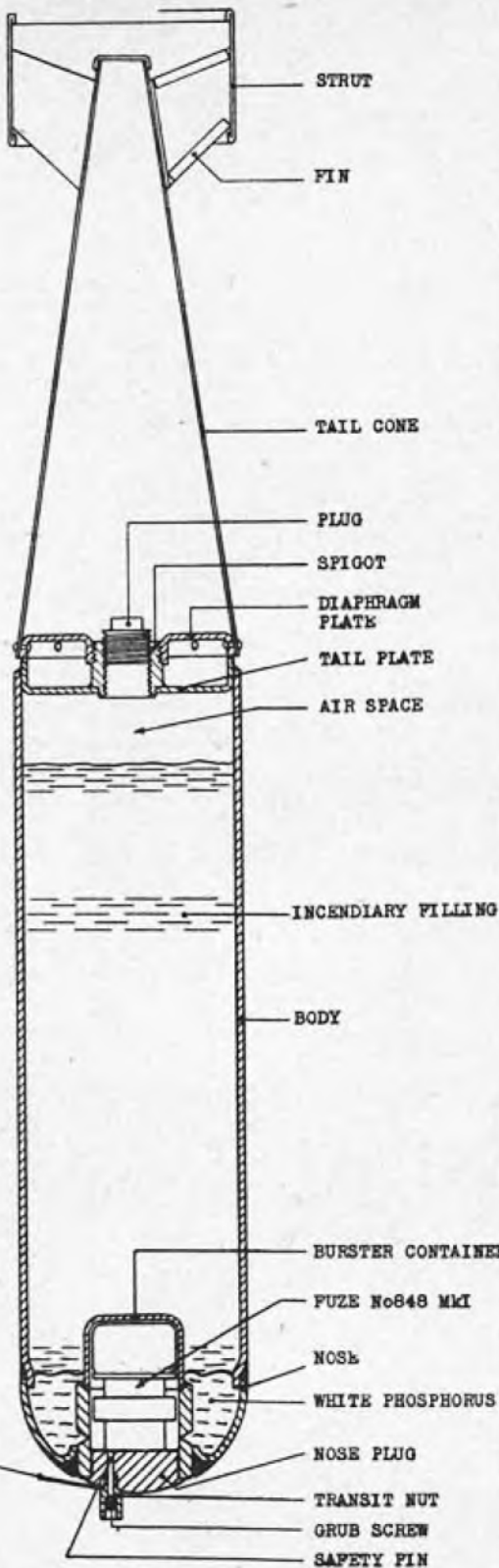
**FUNCTIONING:** When released from the container the safety plunger springs out, and on impact with the target the striker moves down, breaking free from the brass cross striker support, and firing the detonator. The flash from the detonator ignites the primed cambric strip and the gunpowder-shellac paste, and the products of combustion blow the cork inserts out of the vent holes. The paste ignites the pressed priming composition which, in turn, ignites the igniter pellets. The magnesium-alloy body starts to melt about 25 sec. after the bomb has ignited, and burns for about 10 minutes. In the Mk IVE, after 1 $\frac{1}{2}$  to 4 minutes, the gunpowder in the burster is ignited and explodes.

**SIMILAR INCENDIARIES:** 4 lb. Mk V and VE; Similar to the Mks IV and IVE, except for the following differences: (a) bomb is initiated by a cap and anvil being struck by the striker, the striker having a blunt point; (b) the cap is supported by an aluminum plate; (c) the striker housing is made of aluminum; (d) a different kind of pressed priming composition is used, being more violent than the priming compositions used in the Mk IV bombs, and causing some of the magnesium-alloy to scatter when the bombs are ignited. This bomb is actually the U.S. AN-M 50.

4 lb. X, with 2 & 4 minute delays, Mk II: Similar in construction to the Mk IV, except that a C.E. exploder is contained in the steel nose, as shown in the drawing opposite, this exploder being initiated after delay of either 2 or 4 minutes, depending on which bomb it is. The nose for 3 $\frac{1}{2}$ " is painted dull red, with two  $\frac{1}{2}$ " black bands separated by a 1" bright red band painted around this dull red nose. A second bright red band,  $\frac{1}{2}$ " wide and  $\frac{1}{2}$ " aft of the dull red coloring, indicates that the incendiary is of the explosive type.

**REMARKS** No "E" marks now produced. The small black powder charge was not lethal, but for scare purposes only.

# 30 LB. INCEND. BOMB



SAFETY PIN MUST BE REPLACED IMMEDIATELY BOMB IS REMOVED FROM CONTAINER OR BEFORE REMOVAL FROM CARRIER...

SAFETY PIN MUST BE REMOVED BEFORE BOMB IS LOADED IN CONTAINER OR AFTER BOMB HAS BEEN LOADED ON CARRIER...

INSTRUCTION TABLET

FUZZING . . . . . Mk I - Nose Fuze No. 38  
 Mks II-IV - Nose Fuze No. B46

COLOR & MARKINGS . . . All Marks dull red overall;  
 Mk I has one bright red band  
 around nose; Mks II-III has  
 two bright red bands, one  
 around the nose and one  
 around the rear of body.

TAIL NO. . . . . No. 40 Mk I

OVERALL LENGTH . . . . . 32.7"

BODY LENGTH . . . . . 18"

MAX. BODY DIAMETER . . . . . 5"

WALL THICKNESS . . . . . 0.1"

TAIL DIAMETER . . . . . 4.7"

TAIL LENGTH . . . . . 14.2"

FILLING . . . . . 1 lb. white phosphorous, 7 lb. rubber-benzole or Perspex-benzole  
 solution.

TOTAL WEIGHT . . . . . 25 lb.

BRITISH BOMB

**30 LB. I.B.**

Mk IV

(For Mks I, II, IIM, III & IIIM,  
 see "Similar Incendiaries" below

Mks III & IV - Service  
 Other Marks - Obsolete

**DESCRIPTION:** Bomb consists of a cylindrical body with a hemispherical nose  
 at one end and a tail at the other, the cylindrical tail strut  
 being connected by four equi-spaced fins to the rear end of the  
 tail cone. Cylindrical body is made from welded tube, forward end reduced slightly  
 to fit in the rim of the hemispherical steel plate nose, to which it is welded. Nose  
 is pierced centrally and has welded into it a burster container closed by a screwed  
 plug, the outer surface of which conforms with the shape of the bomb nose. A flanged  
 tail plate is welded in the rear end of the body and has in the center a hollow spigot  
 through which the bomb is charged. The spigot is closed by a screwed plug, and it  
 is threaded externally for the attachment of the tail. Riveted in the forward end  
 of the tail cone is a diaphragm plate having a threaded boss which screws on to the  
 tail plate spigot to secure the tail to the bomb body. A 10 per cent air space is  
 left in the body when it is filled. A 3" wide cylindrical strut is attached to rear  
 of tail cone by 4 fins spot welded to both strut and cone. Tail cone closed by end  
 cap.

**SUSPENSION:** Carried in Small Bomb Container, or suspended from bomb carrier  
 by a lug on a suspension band. SAC 250# will carry 8 bombs.

**FUNCTIONING:** On impact the firing of the gunpowder in the magazine of the  
 fuze disrupts the bomb body along the weld, and scatters the  
 filling over a considerable area to produce a large number  
 of sources of fire.

**SIMILAR INCENDIARIES:** Mk I, 30 lb.: Similar to Mk IV except (a) burster container  
 is screwed and welded into a flat nose plug which is welded in  
 the end of the body, and a hemispherical nose fairing fits on  
 to the nose plug; (b) employs the No. 38, N.D. nose fuze, (c) filling consists of 1.5  
 lb. white phosphorous cast in nose end of body, and approximately 6 lbs. of a 5 percent  
 solution of rubber in benzole.

Mk II, 30 lb.: Similar to the Mk IV except (a) the body is  
 made from drawn tube instead of being a welded tube, so that the bomb functions by  
 tail ejection of the filling, the tail plate and tail being blown off by the firing  
 of the magazine charge in the fuze; (b) weight of white phosphorous cast in nose is  
 1.5 lbs.

Mk IIM: Similar to Mk IV except body is of heavier gauge metal.

Mk IIIM, 30 lb.: Similar to the Mk III except that body has two  
 external pads to locate a suspension band with lug, which may or may not be used.

Mk IIIM, 30 lb.: Similar to Mk II except that the body has  
 two external pads to locate a suspension band with a lug, which may or may not be used.

Mk IVM, 30 lb.: Differs from Mk IV only in that it has a  
 suspension band with a lug.

# 30 LB. INCEND. BOMB

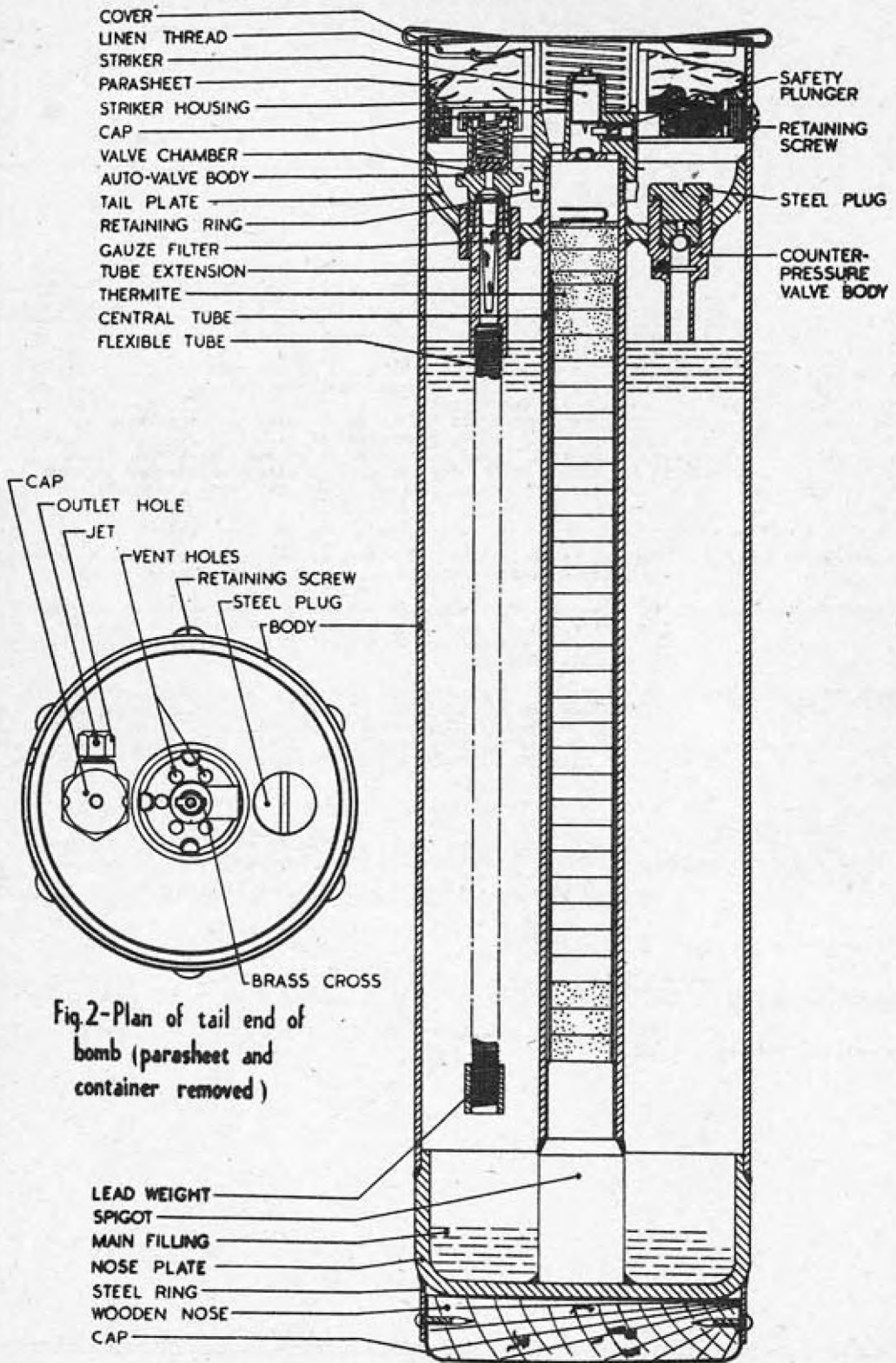


Fig.2-Plan of tail end of bomb (parasheet and container removed)

FUZING . . . . . Simple impact striker  
 COLOR & MARKINGS . . . Dull red overall, with two  
 1" bright red bands around  
 it; stencilled in black on  
 one band are letters "C.T.F.",  
 and on other "O.C.C."  
 OVERALL LENGTH . . . . . 21"  
 MAX. BODY DIAMETER . . . . 5.5"  
 TOTAL WEIGHT . . . . . 31 lbs.  
 WT. THERMITE . . . . . 1 lb.  
 QUANTITY MAIN FILLING. . . 1.3 gals. petrol with  
 methane dissolved under  
 pressure.  
 BURNING TIME . . . . . 1 minute approx.

## BRITISH BOMB

## 30 LB. I.B.

Type J, Mk I  
 (Service)

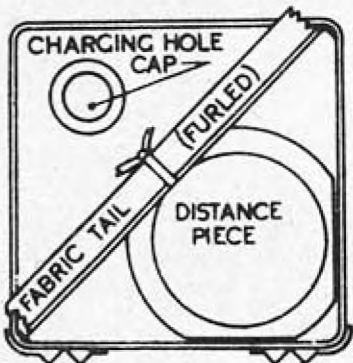
DESCRIPTION: Cylindrical steel body with dished steel nose plate having a central spigot welded on, a steel ring welded to nose plate and a wooden nose secured by screws to the ring and having a thin metal protecting cap. Near the other end of the body a tail plate is welded and a steel central tube, projecting through the tail plate, is welded to the tail plate and the spigot on the nose plate. A magnesium-alloy striker is screwed to the central tube and retains a detonator holder in position. The striker is supported by a two-armed brass cross which engages the top of the housing, and a spring-loaded safety plunger contained in a sleeve projects into the path of the striker. The safety plunger is held in position by a retaining sleeve which is secured to the parasheet container. An automatic valve is fitted to the tail plate and has an auto-valve body screwed into a socket welded into the tail plate. A tube extension screwed into the inner end of the auto-valve body holds a flexible tube which extends to within 3" of the bottom of the bomb. A jet having its outlet hole pointing vertically out of the tail is screwed into the side of the auto-valve body. The valve chamber houses a spring-loaded piston having a rubber sealing disk at its inner end which normally seals the central hole in the valve body. The parasheet is housed in a container held in the tail end of the bomb body by six retaining screws, and its rigging lines are anchored to the container. The container is closed by a loose metal cover held in position by the end plates of the cluster projectile. A safety pin retaining sleeve, secured to the cover, is fitted into a central guide tube in the parasheet container and houses a spring retainer in which is a compressed spring.

SUSPENSION: Carried in batches of 14 in Cluster Projectiles, 500 lb. No. 4 Mk I.

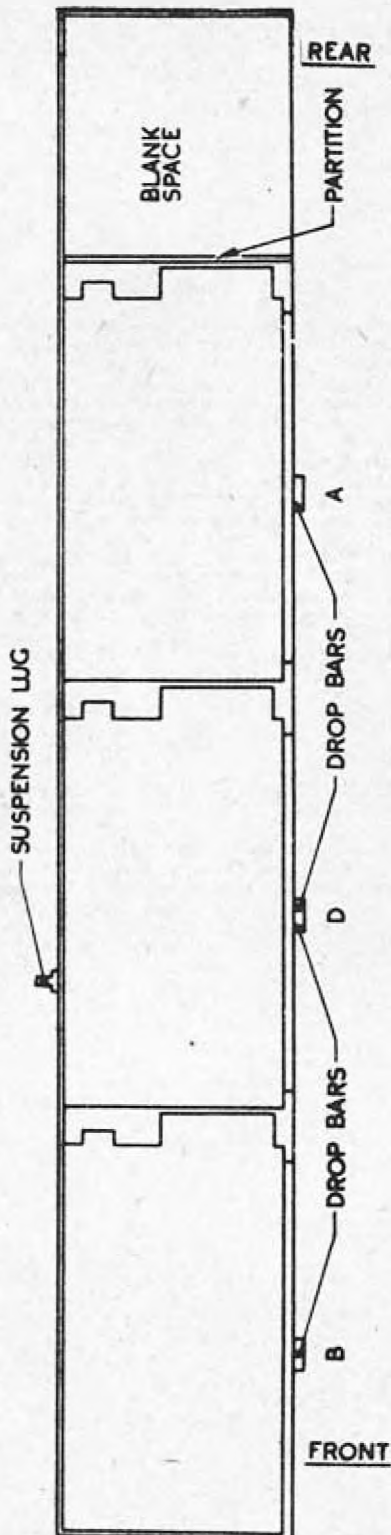
FILLING: The main filling consists of a solution of methane in petrol, the bomb being filled under pressure, so that the normal pressure inside the bomb is from 90 to 110 lbs. per sq. in.

FUNCTIONING: As the bomb falls free of the container, the spring in the spring retainer of the parasheet container forces the cover away and releases the safety plunger, thus arming the bomb. The cover is blown aft and withdraws the parasheet. When the parasheet is fully withdrawn, the drag on the cover breaks the linen threads, so that the cover falls away. On impact the striker moves forward, bending up the arms of the brass cross, and fires the detonator. The flash from the detonator passes through the paper disk covering the hole in the cellophane washer and ignites the primings in the central tube. The primings ignite the thermite and this heats the interior of the bomb, thus raising the internal pressure. The magnesium-alloy striker housing burns away to afford additional venting to the filling in the central tube. When the pressure has risen to about 300 lbs. per sq. in., the piston in the automatic valve is raised and the methane and petrol solution passes through the flexible tube, into the valve chamber, through the outlet hole in the jet, and through the hole in the bottom of the parasheet container. As it passes out of the jet, the liquid is ignited by the flame issuing from the vent holes in the striker housing as a result of the burning of the thermite. Due to the lead weight, the free end of the flexible tube always falls to the lower side of the bomb as it comes to rest, so that almost all of the liquid charging passes out of the bomb through the jet. It emits a flame 15 ft. high and 2 ft. wide.

# 45 LB. INCEND. BOMB



PLAN



BRITISH BOMB

FUZZING . . . . . No fuzes.  
 COLOR & MARKINGS . . . . Dull red overall; stiffeners  
 and distance pieces painted  
 black; "HANDLE WITH CARE"  
 stencilled between stiffen-  
 ers.  
 OVERALL LENGTH . . . . 18.3"  
 WIDTH . . . . . 10" x 9.75"  
 WEIGHT EMPTY . . . . . 7 lbs.  
 FILLING . . . . . Petrol  
 WEIGHT FILLED . . . . 45 lbs.

45 LB. I.B.

Mx I

(Service)

DESCRIPTION: The bomb consists of a square-section tin plate 5-gallon petrol can. On one face are two corrugated stiffeners, which serve to increase the strength of the can and also act as distance pieces between the can and the drop bar of the Small Bomb Container in which the bomb is carried. A charging hole, with screwed cap and washer, and another distance piece, are provided at the top of the can. At diagonally opposite corners on the top of the can are two metal loops for attachment, by a length of cord, of the fabric tail which acts as a flight stabilizer. Two handles for lifting the bomb are soldered to opposite faces of the can. Bombs of later issue may have a third handle, located on the face to which the stiffeners are soldered.

SUSPENSION: Three of the bombs are carried in the Small Bomb Container, 250 lb.

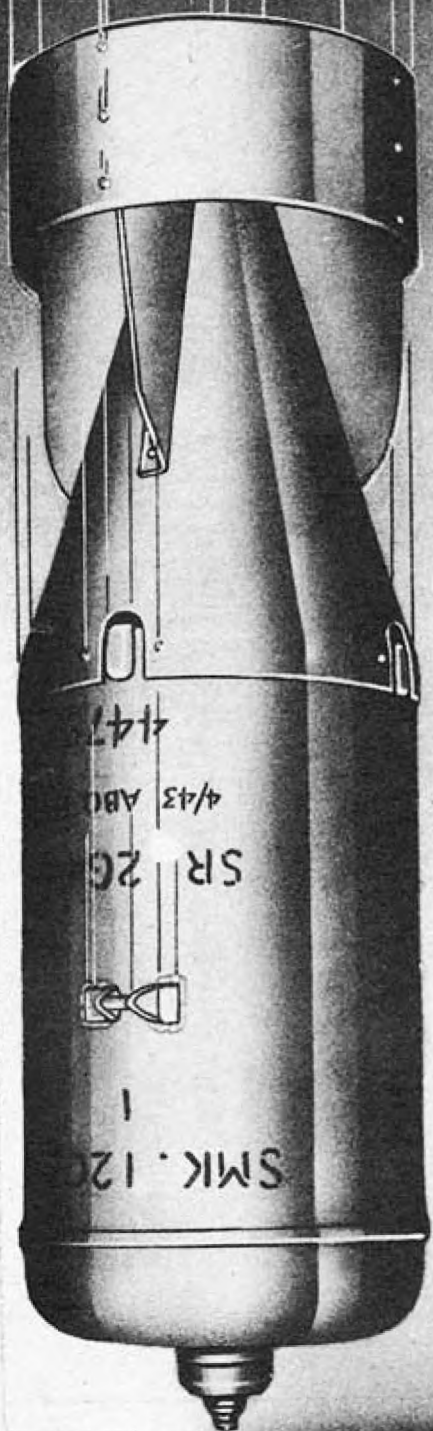
FILLING: The charging consists of  $4\frac{1}{2}$  gals. of aviation or M.T. petrol mixed with 1 quart of K O F Q R igniter.

FUNCTIONING: The bomb is fuseless, and functions by break-up. The igniter consists of droplets of a liquid which reacts with water to produce small sparks; the liquid is dispersed in a thick oil, the mixture floating on water. The sparks produced are not sufficient to ignite fuel oil or paraffin, but ignite petrol immediately. Thus, when the K O F Q R and petrol charging is released, on impact of the bomb with the surface of the water, the K O F Q R ignites the petrol, which ignites the layer of oil floating on the water.

REMARKS: (1) This bomb is intended for the ignition of patches of fuel oil or petrol present on the surface of the sea, rivers or other inland waterways, during attacks on oil-carrying vessels or oil storage installations.

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# AIRCRAFT SMOKE BOMBS



CONFIDENTIAL

## USE

There are at present in service use only four smoke-designated bombs, exclusive of those bombs containing smoke spotting charges. These are the 4, 100, 120, and 500 lb. smoke bombs. The bombs are used to lay smoke screens to conceal troop movements.

## FUZING

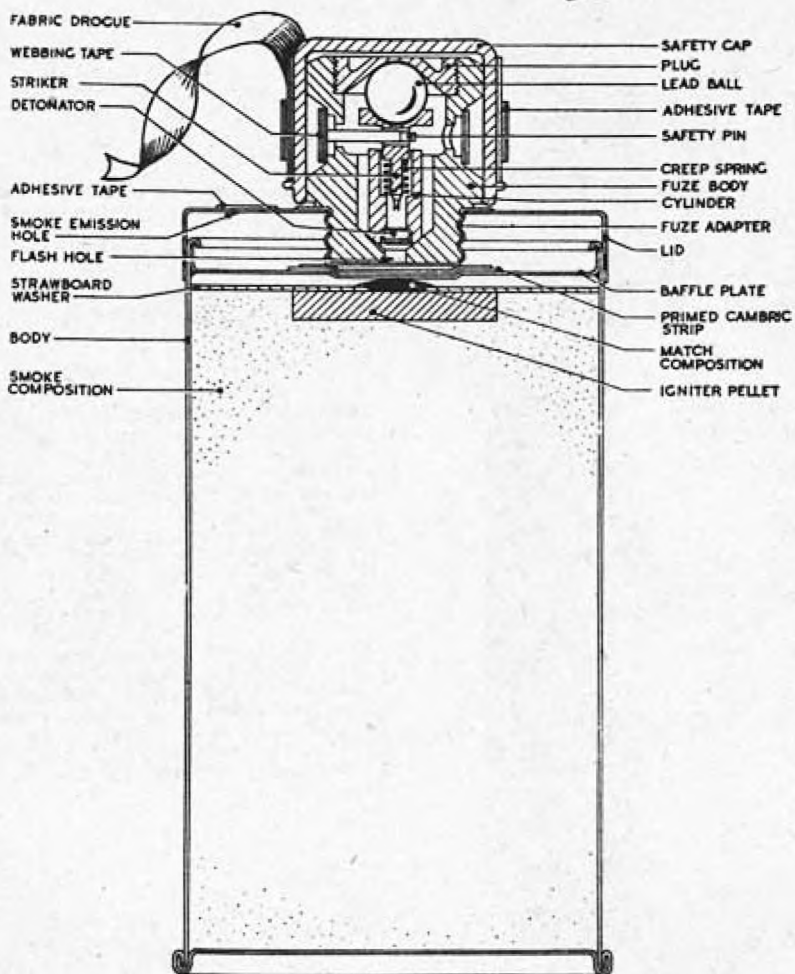
These bombs are fixed in the tail, except the 120 lb., which takes a nose fuze.

## CHARACTERISTICS

Smoke bombs are colored dark green overall with a red band around the body. The 4 lb. bomb is merely a cylindrical sheet metal can; the 100 lb. is the same size and shape as the 45 lb. incendiary, with a white phosphorous filling; the 120 lb. bomb consists of an outer container and an inner smoke canister which is blown out of the rear of the container by an ejection charge.

The 4 lb. bombs are preferably carried in Cluster Projectile No. 5, Mk I, while the 100 lb. and 120 lb. smoke bombs are generally carried in the Small Bomb Container 250 lb. The 500 lb. bomb is suspended individually in most 500 lb. bomb stations.

# 4 LB. SMOKE BOMB



FUZZING . . . . . Tail Fuze No. 859  
 COLOR & MARKINGS . . . Green overall with red band  
 around nose.  
 BURNING TIME . . . . . Mk I: 4 minutes  
                               Mk II: 8-12 minutes  
 OVERALL LENGTH . . . . . 7.5"  
 BODY LENGTH . . . . . 7.5"  
 MAX. BODY DIAMETER . . . . 3.6"  
 TOTAL WEIGHT . . . . . 3 lb. 14 oz.

BRITISH BOMB**4 LB. SMOKE**

Mks I &amp; II

(Service)

**BODY CONSTRUCTION:** The bomb consists of a cylindrical metal body closed at both ends and containing a smoke composition. At the tail end of the bomb is a baffle plate secured to the body and provided with a smoke emission hole covered by a strip of primed fabric held in place by two strips of adhesive tape. Beneath the baffle plate is an igniter pellet secured to a strawboard washer. The hole in the washer is filled with match composition which contacts the igniter pellet. The igniter pellet is set in the smoke composition.

Above the baffle plate is a lid secured to the bomb body and provided with a screw-threaded fuze adapter.

The No. 859 Mk I fuze is screwed and cemented into the fuze adapter.

**FUNCTIONING:** When the bomb is released from the Small Bomb Container, the safety cap of the fuze is drawn off by the action of air resistance on the fabric drogue. The lead sleeve on the webbing tape attached to the safety pin causes the free end of the tape to clear the waisted portion of the fuze body and be caught in the air stream, thus withdrawing the safety pin. The fuze is now armed, with the lead ball and striker held away from the detonator by the creep spring alone.

On impact with the target, the fuze functions, and the flash from the detonator passes through the flash hole in the fuze body and fires the primed cambric strip which, in turn, ignites the match composition. The match composition fires the igniter pellet, and this ignites the smoke composition.

The smoke generated passes through the smoke emission hole in the baffle plate and builds up pressure beneath the lid, thus bursting the adhesive tape covering the small smoke emission hole in the lid and permitting the smoke to escape into the air. After a short period of time the heat evolved in the bomb melts the solder securing the lid to the bomb body and the pressure of the smoke then forces off the lid.

**SUSPENSION:** These bombs are designed to be carried either in 250 lb. Small Bomb Container or the 500 lb. Cluster Projectile, No. 6 Mk I, Smoke. In the former, the bombs are packed 14 in a metal case, and three cases are placed in the Container. In the latter, 90 bombs are carried in five tiers of 18 bombs each. They are placed end to end longitudinally, with the fuzes pointing in opposite directions in alternate tiers.

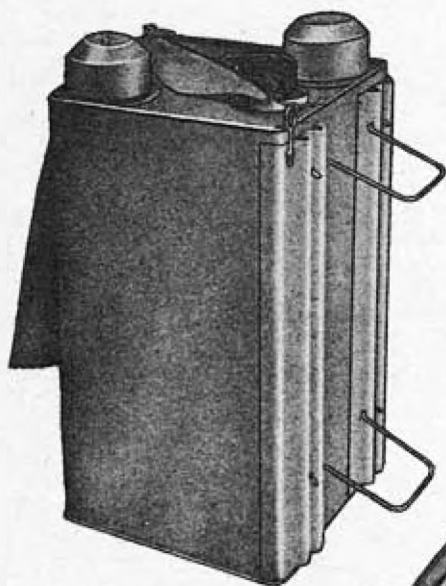
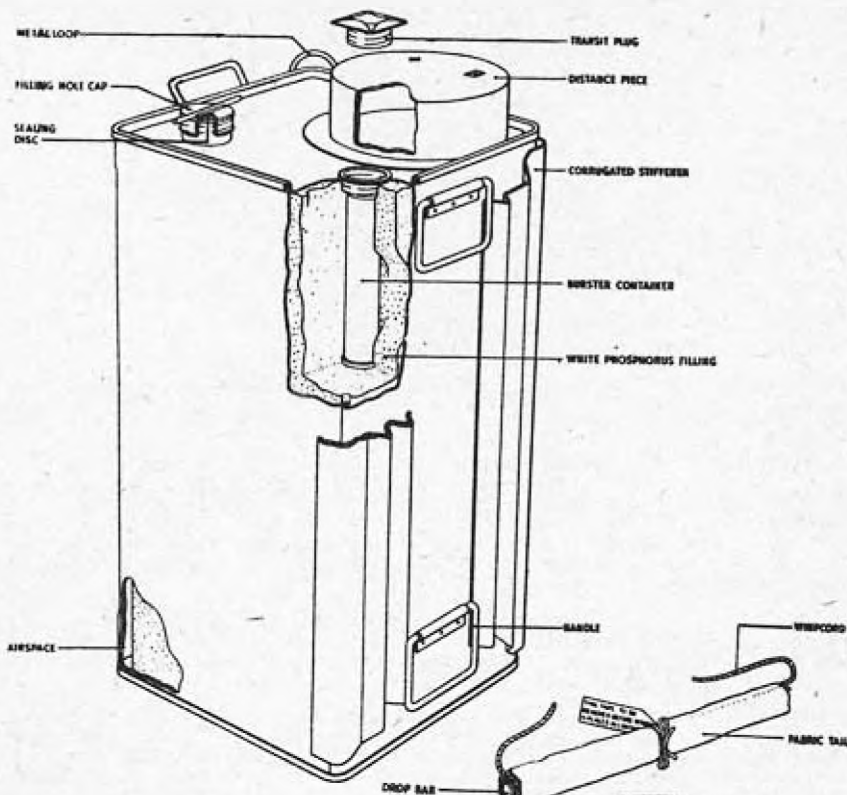
**EXPLOSIVE COMPONENTS:**

1. Cambric strip primed with S.R. 252.
2. Cambric square primed with sulphurless gunpowder.
3. 1/4 lb. Smoke Composition S.R. 269 (M)
4. 3-1/4 lb. Smoke Composition S.R. 264 A (H)

**REMARKS:**

1. Spontaneous ignition of smoke compositions may result if filling is wetted, especially by sea water.
2. The bombs are dropped from aircraft to produce a smoke screen to cover land operations.
3. The Mk II bomb is identical to the Mk I, except that the smoke composition is slower burning.

# 100 LB. SMOKE BOMB



FUZZING . . . . . Tail Fuze No. 854 Mk I  
 COLOR & MARKINGS . . . . . Dark green overall, with  
 red band around lower part  
 of body.  
 TAIL NO. . . . . Fabric Tail  
 OVERALL LENGTH . . . . . 18.3"  
 BODY LENGTH . . . . . 18.3"  
 MAX. BODY DIAMETER . . . . . 10" square  
 WALL THICKNESS . . . . . Very thin  
 TAIL LENGTH . . . . . 21"  
 TAIL WIDTH . . . . . 12"  
 TOTAL WEIGHT . . . . . 92-95 lbs.  
 CHARGE/WEIGHT RATIO . . . . . 85% (approx.)

## BRITISH BOMB

## 100 LB. SMOKE

Mks I &amp; II

(Service)

**BODY CONSTRUCTION:** These bombs are dropped from aircraft to produce smoke screens to cover land operations. The bomb consists of a thin tinplate can of square cross-section, on one face of which are soldered two corrugated stiffeners, these serving to increase the strength of the can and also acting as distance pieces between the can and the drop bar of the 250 lb. Small Bomb Container. A burster container, to take the No. 854 Mk I fuze and its burster, and an offset filling hole are provided in the top part of the can, together with a large circular distance piece.

The burster container is closed, during transit and storage by a rolled-thread tinplate transit plug. The filling hole is permanently sealed by a rolled thread filling hole cap, seating on a sealing disc. This cap must in no circumstances be unscrewed from the bomb, and as it is fitted with a short Tommy bar, it may be readily distinguished from the transit plug.

Three handles for lifting the bomb are provided, and at two diagonally opposite corners of the can are soldered metal loops for the attachment, by a length of whipcord, of a fabric tail which acts as a stabilizer to the bomb.

**FUNCTIONING:** On impact of the fuzed bomb with its target, the "all-ways" action fuze functions instantaneously, and the explosion of its burster disrupts the bomb and scatters the white phosphorous filling which, on contact with the air, ignites spontaneously and begins to give off smoke.

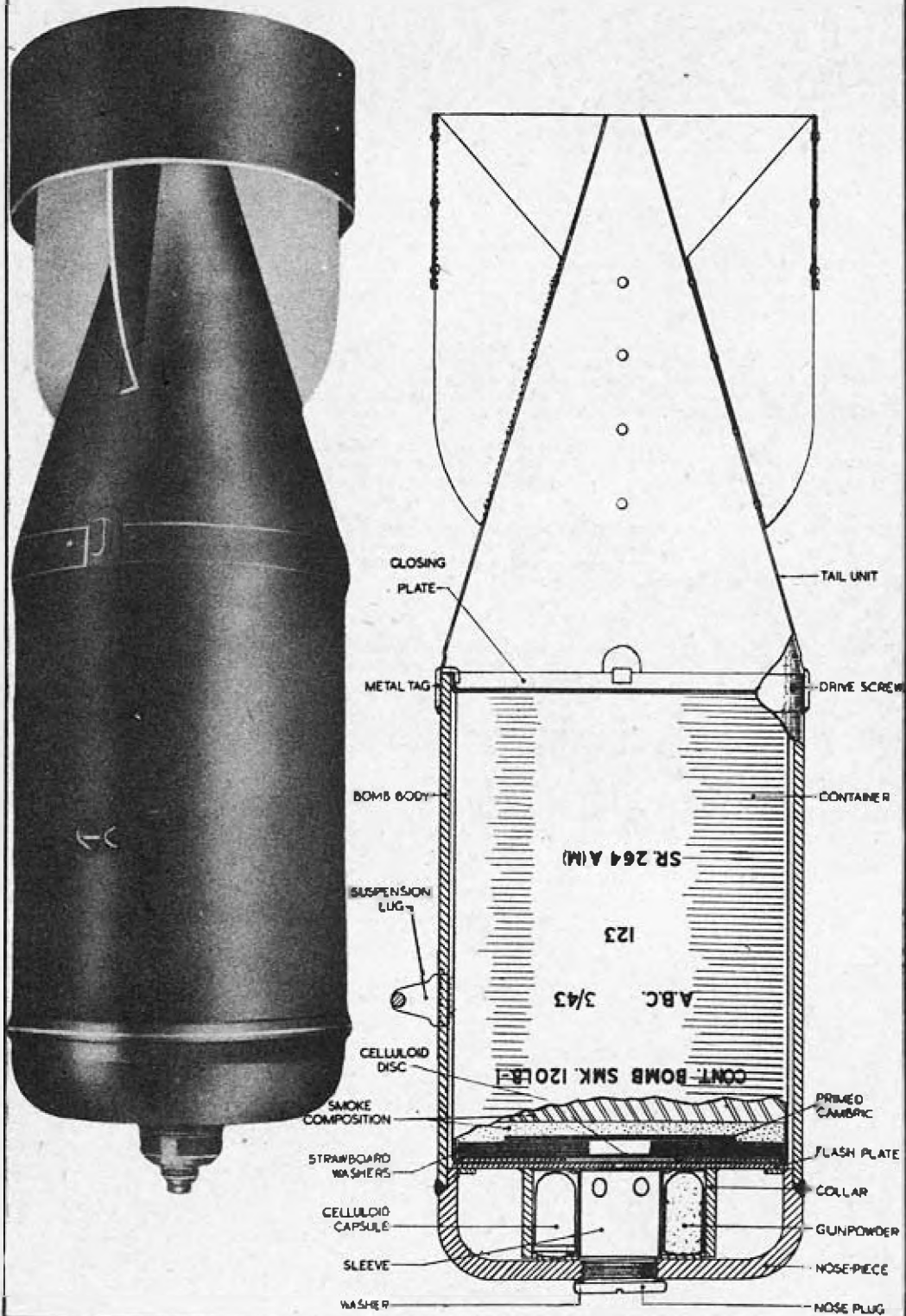
**SUSPENSION:** These bombs are carried three in a 250 lb. Small Bomb Container. In the container, they are separated from each other by the distance pieces on the end of each bomb.

**EXPLOSIVE COMPONENTS:** Burster: Gunpowder  
 Main Filling: 86 lbs. white phosphorous.

**REMARKS:**

1. The Mk II bomb is similar to the Mk I in operation, differing only in minor structural details as follows:
  - a) The filling hole is centrally located in the top of the can.
  - b) Two small distance pieces are provided at the top of the can and are located at diagonally opposite corners, on either side of the filling hole.
  - c) The two metal loops to which the fabric tail is secured differ slightly in design to those used on the Mk I bomb.
2. These bombs have a burning time of 15-20 minutes and provide an effective screen 250-300 yds. in length.

# 120 LB. SMOKE BOMB



## BRITISH BOMB

FUZZING . . . . . Nose Fuse No. 864 Mk I  
 COLOR & MARKINGS . . . . . Dark green overall with 1/2" red band around nose; tail is light green.  
 TAIL NO. . . . . No. 41 Mk II  
 BURNING TIME . . . . . 20 minutes  
 OVERALL LENGTH . . . . . 31"  
 BODY LENGTH . . . . . 15.8"  
 MAX. BODY DIAMETER . . . . . 9.5"  
 WALL THICKNESS . . . . . 0.25"  
 TAIL LENGTH . . . . . 15.1"  
 TAIL WIDTH . . . . . 10"  
 TOTAL WEIGHT . . . . . 120 lbs.  
 CHARGE/WEIGHT RATIO. . . . .

## 120 LB. SMOKE

Mks I & II  
 (Service)

**CONSTRUCTION:** The bomb consists of a cylindrical body, to which the tail unit is secured, housing a metal container filled with a smoke composition, and a gunpowder ejection charge contained in nine celluloid capsules. The bomb body is a steel tube welded to a flattened nose-piece. The nose-piece is centrally tapped to receive the fuze end, during transit and storage, is sealed by a nose transit plug and leather washer. To the exterior of the bomb body is welded a suspension lug.

A steel flash plate, abutting the nose-piece within the bomb body, has secured to it a steel collar. A small centrally-located hole is drilled through the flash plate and is sealed by a paper disc. The nine celluloid capsules, each filled with 1 oz. 1 grm. of gunpowder, are retained in the collar by a cardboard sleeve and felt and cardboard washers. The sleeve has six equi-spaced holes near its inner end.

The metal container, filled with approximately 50 lbs. of smoke composition (H.C.E.), is housed in the bomb body against the flash plate and has, at this end, a 3 in. diameter hole sealed with a celluloid disc. Between this disc and the smoke composition there are four strawboard washers, each with a 1 1/2 in. diameter hole, the hole so formed being sealed by two squares of primed fabric. The container is retained in position against the flash plate by a closing plate fitted into the rear end of the bomb body and secured by four metal tabs turned over.

The tail unit is secured to the bomb body by eight drive screws and consists of a tail cone to which a cylindrical vane is secured by four vane supports

**FUNCTIONING:** On impact of the bomb with the target, the magazine of the fuze explodes after a delay of not less than 1/2 sec., during which period the bomb will have come to rest. The flash from the fuze magazine, passing through the hole in the flash plate and the celluloid disc, ignites the two primed cambric squares, which in turn ignite the smoke composition in the container.

Concurrently with the ignition of the smoke composition, the flash from the fuze magazine also passes through the holes in the cardboard sleeve to initiate the gunpowder ejection charge contained in the nine celluloid capsules. The resulting explosion of the gunpowder ejects the tail, the closing plate, the container of burning smoke composition, and the flash plate, clear of the crater formed by the bomb.

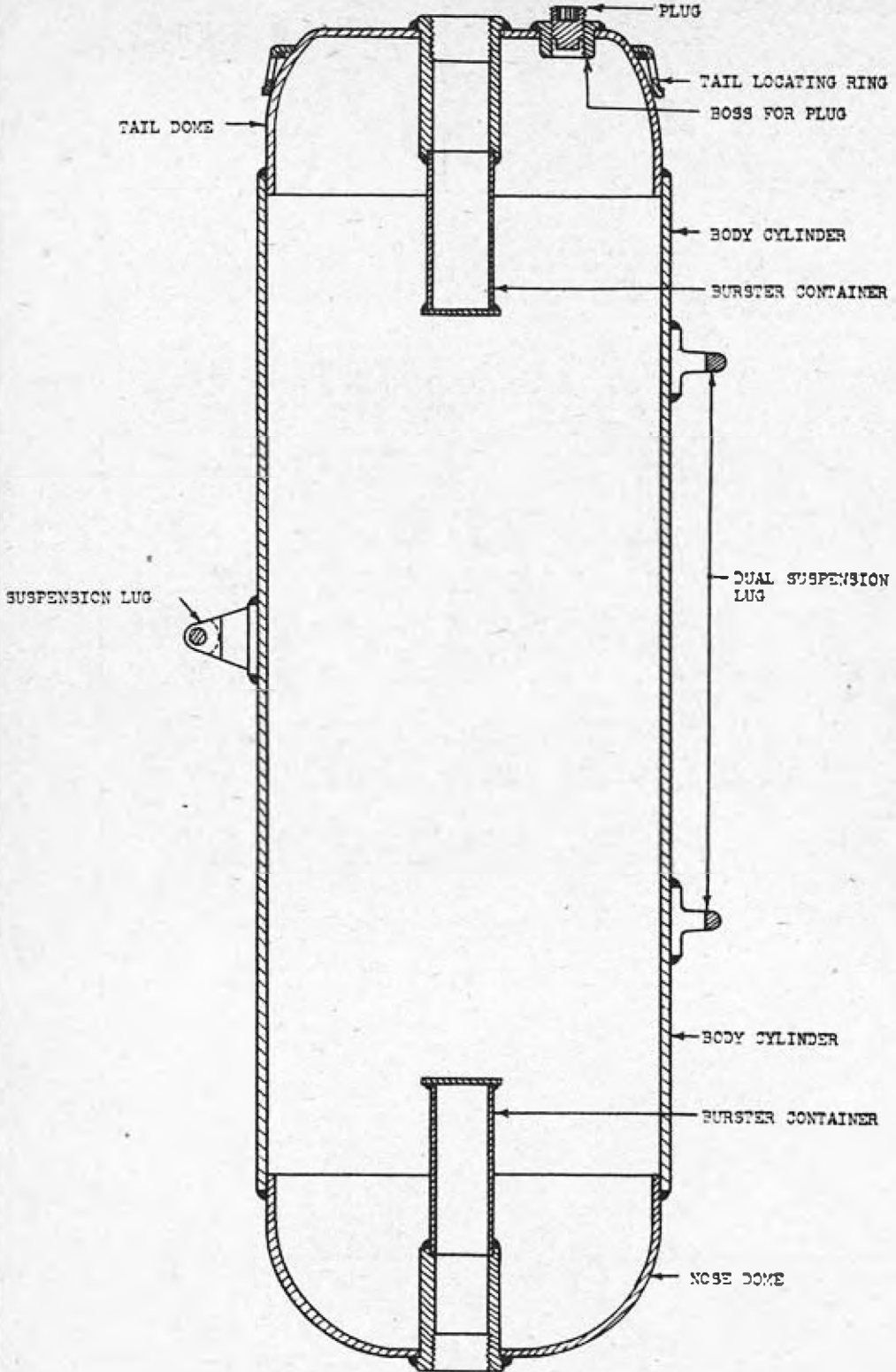
**SUSPENSION:** Two bombs may be carried in a 250 lb. Small Bomb Container, or the bombs may be suspended individually by a single lug. The Mk II bombs may be fitted with twin lugs for suspension in American aircraft.

**EXPLOSIVE COMPONENTS:** Magazine: Gunpowder  
 Ejector Charge: Gunpowder in nine celluloid capsules.  
 Main Filling: Smoke Composition (H.C.E.)

**REMARKS:** The smoke composition contained in these bombs is liable to spontaneous ignition should it become wet, particularly with sea water.

The Mk II bomb is similar to the Mk I in operation, the principal differences being a modified tail assembly and arrangement for twin suspension lugs for carrying in American aircraft.

# 500 LB. SMOKE BOMB



BRITISH BOMB

500 LB. SMOKE

Mk I

(Service)

FUZZING . . . . . Tail Pistol No. 30 Mk IV  
 COLOR & MARKINGS . . . . . Dark green overall, with a  
 red band around the lower  
 part of the body  
 OVERALL LENGTH . . . . . 66.0"  
 BODY LENGTH . . . . . 40.7"  
 MAX. BODY DIAMETER . . . . . 13.1"  
 WALL THICKNESS . . . . . 3/16"  
 TAIL LENGTH . . . . . 27.7"  
 TAIL WIDTH . . . . . 11.8"  
 TOTAL WEIGHT . . . . . 400 lbs. (approx.)  
 CHARGE/WEIGHT RATIO . . . . . 60 %

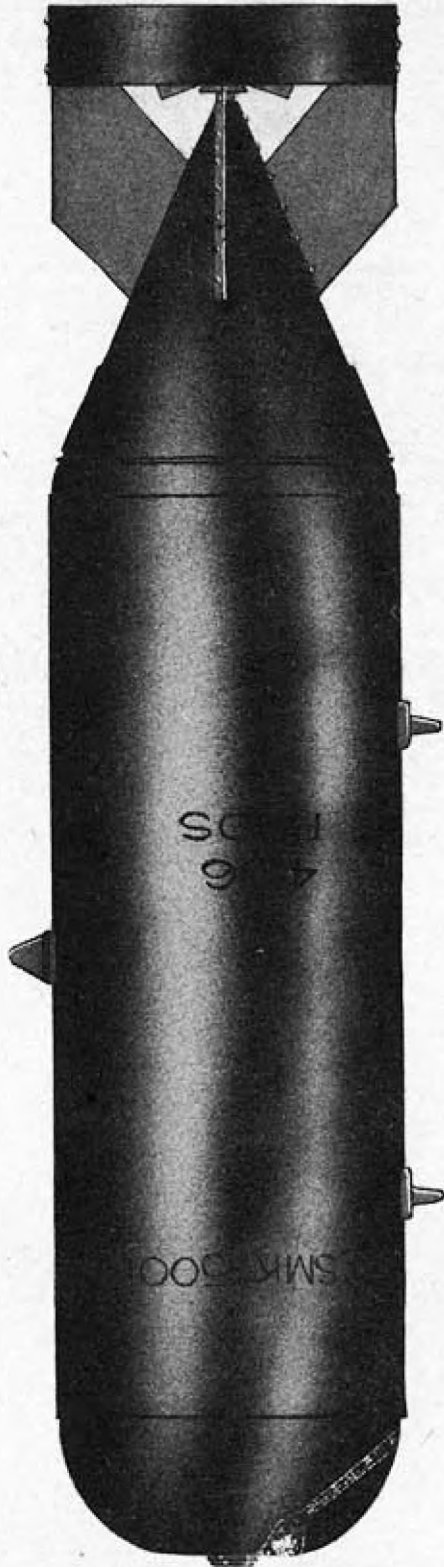
**BODY CONSTRUCTION:** The thin walled cylindrical metal container has a rounded nose and a somewhat rounded tail piece welded on to it. There is a burster tube in both ends, and in the tail to one side of the filling hole. Around the welded on tail section there is a tail locating ring. The bomb has three suspension lugs on it, two set 180 degrees around from the third for carrying in American aircraft.

**TAIL CONSTRUCTION:** The tail is of sheet metal with a tail cone to which are riveted 4 vanes. The end of the cone is cut away so that the arming bomb by spring clips that are set 90 degrees apart. Inside the tail cone supporting the lower end of the reach rod is a diaphragm in which are four large holes to allow air passage.

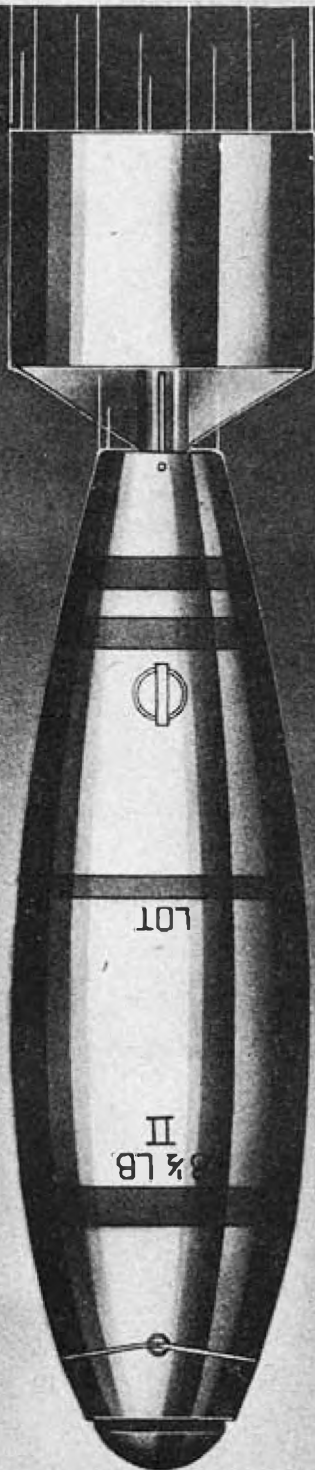
**EXPLOSIVE COMPONENTS:** Burster: Gunpowder  
 Main Charge: White phosphorous, 270 lbs.

**REMARKS:** Provision has been made in this bomb for both nose and tail fu-  
 zing, using a pistol/detonator combination. The bomb, however,  
 is to be fu- zed at the tail only, with a No. 30 Mk IV pistol; the  
 nose burster is left sealed with a transit plug.

# 500 LB. SMOKE BOMB



# PRACTICE BOMBS



## RESERVED

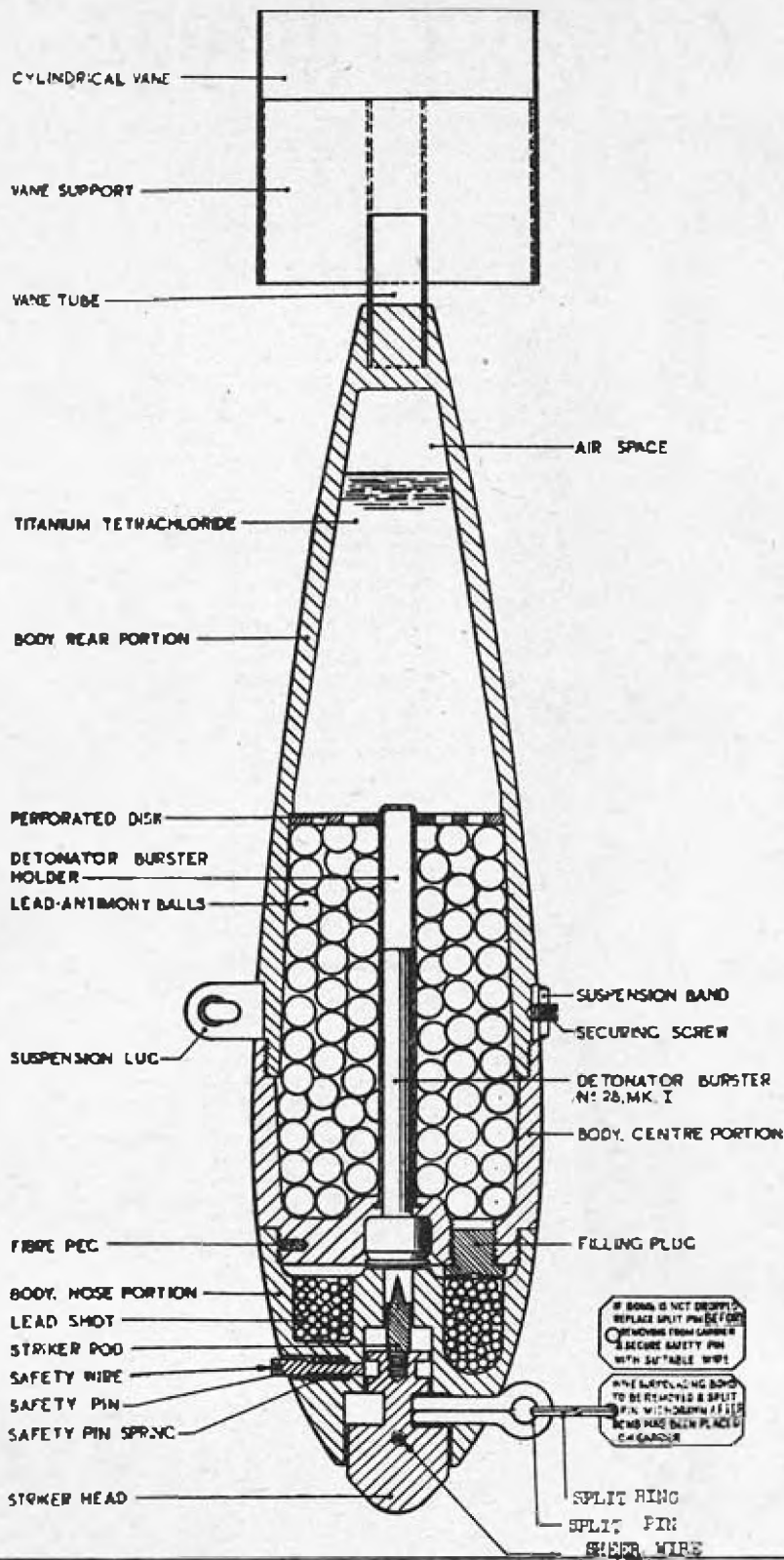
### USE

Included in this section are only three practice bombs. These are the only ones specifically designed for that purpose, although there are currently in use several practice bombs which are merely service bombs inert loaded with sand, water, or a chalk/lime solution. The standard practice bombs generally emit smoke as a spotting charge to indicate bombing accuracy.

### CHARACTERISTICS

Standard practice bombs are painted white overall with two light green bands painted around the center of the tail. Inert loaded service bombs used as practice are painted black. Practice bombs containing an exploder have a red band painted around the body.

# 8.5 LB. PRACTICE BOMB



**FUZING** . . . . . Simple striker arrangement with detonator-burster No.28 Mk I.

**COLOR & MARKINGS** . . . White overall, with two 1/2" green bands 1/2" apart around center of tail unit.

**OVERALL LENGTH** . . . . . 16"

**BODY LENGTH** . . . . . 12"

**MAX. BODY DIAMETER** . . . . . 3.0"

**WALL THICKNESS** . . . . . 0.5"

**TAIL LENGTH** . . . . . 4"

**TAIL WIDTH** . . . . . 3"

**TOTAL WEIGHT** . . . . . 8.5 lbs.

# 8.5 LB. PRACTICE

Mks I, II, III

(Service)

**BODY CONSTRUCTION:** Mks I & III - Moulded plastic body, made in three parts - nose section housing striker, center section housing detonator-burster and filling plug, and rear section which is hollow and closed at rear end. Perforated disc inside rear section supports the end of the detonator burster holder. The center part of the body is filled with lead-antimony balls, with the interstices between them and all but a 10% air space in the rear section cone, filled with titanium tetrachloride or gunpowder and magnesium turnings. Striker head is retained in handling by a cotter pin, safety pin and shear wire. An annular groove inside the nose portion is filled with lead shot secured by wax.

Mk II - Nose fitted for an extension rod.

**TAIL CONSTRUCTION:** Tail assembly consists of a tube moulded into the rear section of the body, with a cylindrical strut attached to the tube by four fins.

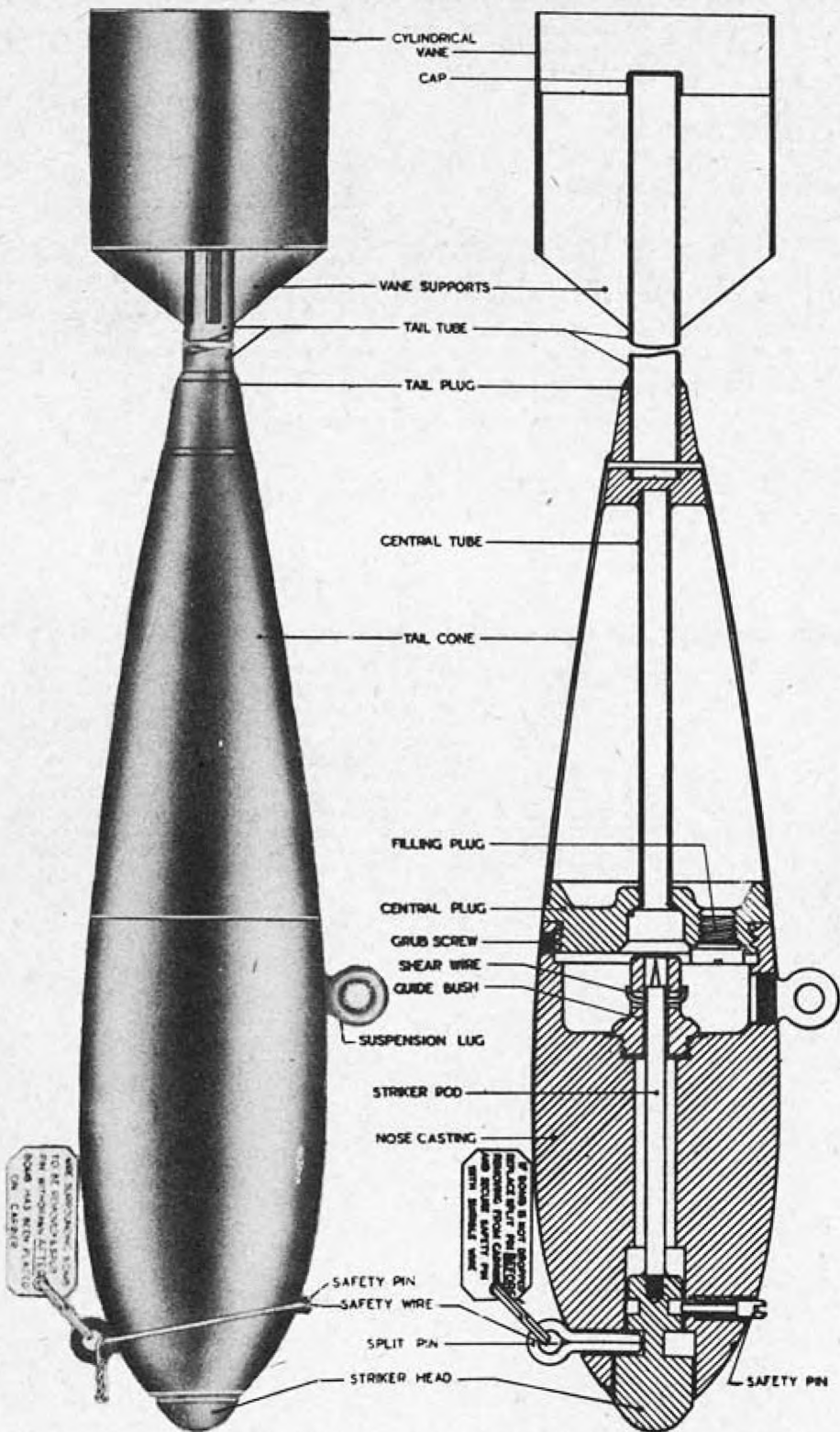
**SUSPENSION:** Single suspension lug on a band which fits in a groove in the body and secured in place by a securing screw.

**EXPLOSIVE COMPONENTS:** Detonator burster: 10 grains fulminate of mercury and 7 C.E. pellets.

Main filling: Mks I, II - Tetanium tetrachloride, which, when exposed to atmosphere as detonator-burster breaks open body, forms a cloud of white smoke, marking the point of impact. Mk III - Flash filling, gunpowder and magnesium turnings.

**REMARKS:** (1) This bomb is for use against certain targets where a bomb is required to break on impact without causing damage to the target. Due to its low terminal velocity, the bomb is only suitable for low altitude bombing.

# 10 LB. PRACTICE BOMB



PUZING . . . . . Simple striker assembly with  
detonator-burster No.28 Mk I  
COLOR & MARKINGS . . . White overall. 2 light green  
bands 1/2" wide around tail  
cone.  
OVERALL LENGTH . . . . 18 in.  
MAX. BODY DIAMETER . . . 3 in.  
WALL THICKNESS . . . . Solid body  
TOTAL WEIGHT . . . . 10 lbs.

BRITISH BOMB**10 LB. PRACTICE**

Mk I - Smoke

Mk III - Flash

(Service)

**BODY CONSTRUCTION:** Solid cast iron nose with an axial bore housing striker head and rod, with a guide bush threaded into rear cavity, and internal rear threads to take central plug. Striker retained by cotter pin (removed when loaded on aircraft), safety pin, and shear wire through rod and guide bush. Central plug houses central burster tube.

**TAIL CONSTRUCTION:** Tail cone closed at rear by conical tail plug and at front end by the central plug to which it is attached. Central tube extends through the tail cone to the tail plug and holds the detonator-burster. A tapped hole, fitted with a plug, is provided in the central plug for filling. Tail tube, with four fins carrying cylindrical strut, projects from tail plug, its rear end closed by a cap.

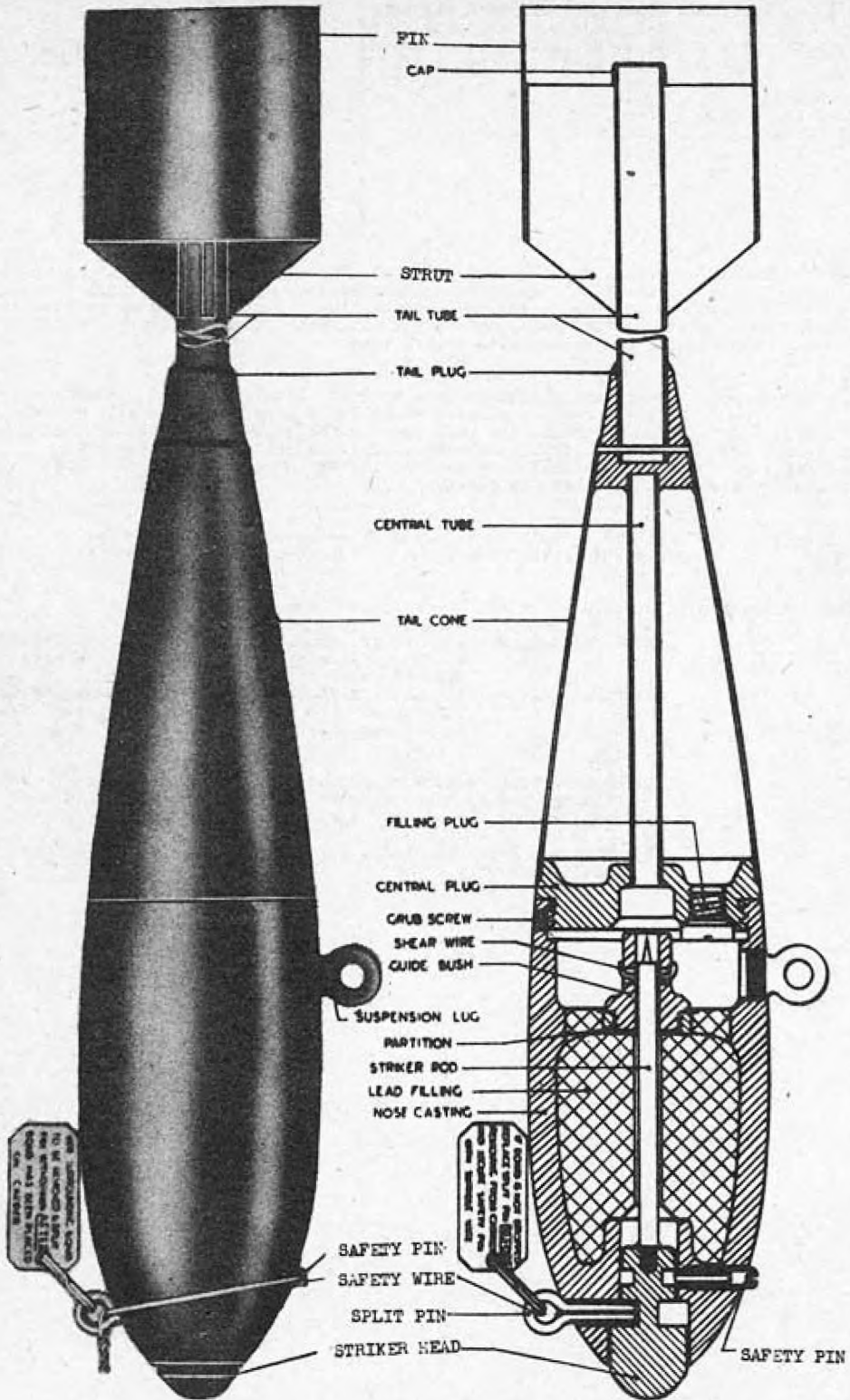
**SUSPENSION:** Single eyebolt which screws into bomb body opposite cavity, for suspension from Light Series bomb carrier.

**EXPLOSIVE COMPONENTS:** Detonator-burster: 10 grains fulminate of mercury and 7 C.E. pellets.  
Smoke Filling, Mk I: 1 lb. Titanium Tetrachloride, which forms white cloud on exposure to atmosphere upon detonation of tail cone.  
Flash Filling, Mk III: 1 lb. mixture of gunpowder and magnesium turnings, which causes brilliant white flash on detonation.

**REMARKS:**

- (1) Smoke filling used for daytime practice operations. Flash filling used at night. These bombs, because of solid iron nose, should not be used against lightly armored targets.
- (2) Mk II had a plastic tail, but was not satisfactory so all were scrapped.

# 11.5 LB. PRACTICE BOMB



FUZING . . . . . Simple striker assembly with  
detonator-burster No. 28 Mk I.  
COLOR & MARKINGS . . . White overall, with two 1/2"  
green bands 1/2" apart around  
tail cone.  
OVERALL LENGTH . . . . . 18 in.  
MAX. BODY DIAMETER . . . 3 in.  
TAIL WIDTH . . . . . 3 in.  
TOTAL WEIGHT . . . . . 11.5 lbs.

BRITISH BOMB**11.5 LB. PRACTICE**

Mk I - Smoke

Mk I - Flash

(Service)

**BODY CONSTRUCTION:** Bomb consists of a nose casting, fitted with a striker assembly and a tail cone which constitutes a container for the filling and is fitted with a central tube for a detonator burster. Nose casting made of iron, internally threaded at rear to receive spigot portion of a central plug which closes the forward end of the tail cone. Interior of nose filled with lead, having a clearance hole for the striker rod. Striker secured by a cotter pin (removed when loaded), a safety pin spring-loaded out, and a shear wire through the guide bush.

**TAIL CONSTRUCTION:** Sheet metal tail cone, constituting the container for the filling, is closed at the rear by a conical steel tail plug and at the forward end by a central plug which screws into the rear of the nose casting. A tapped hole is provided in the central plug for filling purposes. Secured to the tail plug is a tail tube having four fins which carry a cylindrical strut. Tail tube closed at rear by a cap.

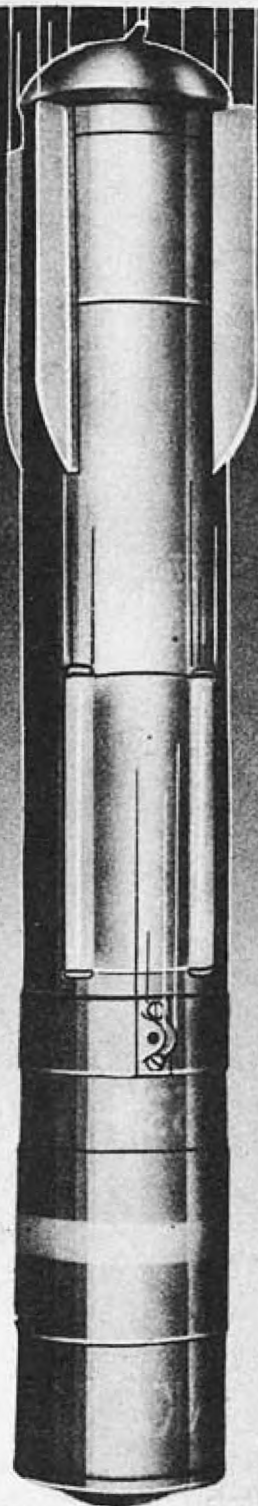
**SUSPENSION:** Single eyebolt which threads into bomb case.

**EXPLOSIVE COMPONENTS:** Detonator-burster: 10 grains fulminate of mercury and 7 C.E. pellets.  
Smoke filling: 1 lb. Titanium tetrachloride, which produces white smoke when detonator-burster breaks open tail cone and exposes it to the atmosphere.  
Flash Filling: 1 lb. mixture of gunpowder and magnesium turnings, producing a brilliant white flash on impact.

**REMARKS:** (1) Smoke is used as filling for daytime use; flash mixture at night.  
(2) Mk II of these bombs was made in the U.S. of bakelite, but now scrapped.

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# FLARES & PHOTOFLASH BOMBS



## CONFIDENTIAL

This section includes the 4", 4.5" and 5.5" reconnaissance flares, the 7" Hooded flare, the 250 lb. and 1000 lb. T.I. (target illuminating) flares, and the 4.5" photographic flashes.

### Reconnaissance Flares:

Reconnaissance flares are used for 3 purposes: (1) as an aid to night reconnaissance; (2) as an aid to night bombing; and (3) in an emergency to assist the making of a forced landing. All of the reconnaissance flares are of the same general construction, consisting of a flare body which houses a candle unit and parachute, which supports the flare when released. The flares can be stowed inside a plane and launched from a chute, or they may be fitted to a bomb or flare carrier. Most commonly, however, they are carried in Cluster Projectiles.

### Hooded Flare:

The Hooded Flare is intended to shield the personnel of the dropping plane from the intense light of the flare, preventing temporary blindness from the glare emitted.

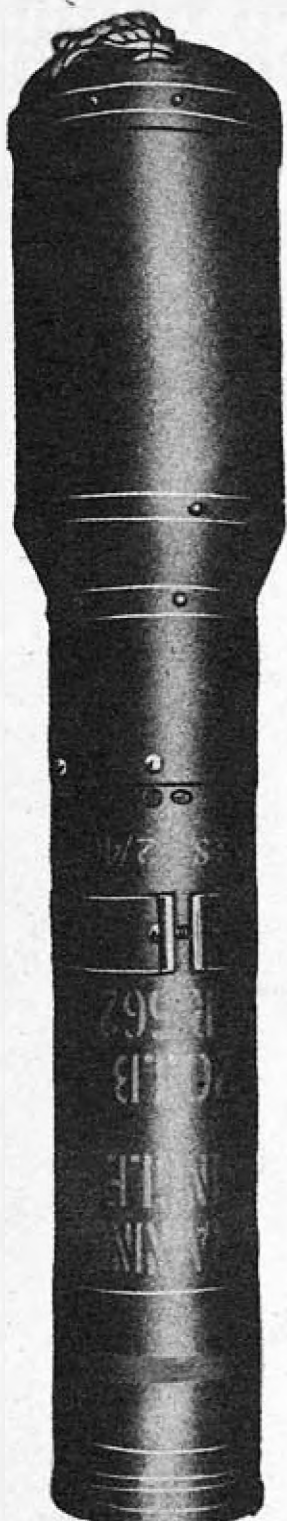
### T.I. Bombs:

The T.I. bombs are designed to illuminate a target for night bombing, but can be used for emergency night landings.

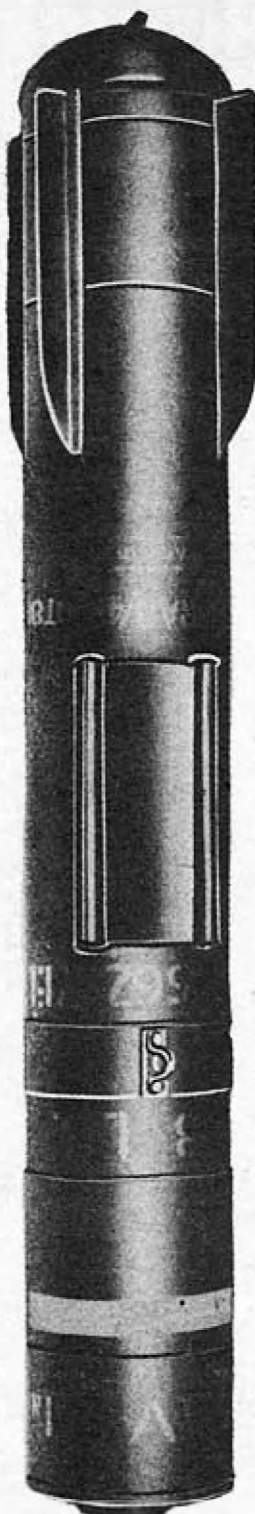
### Photographic Flashes:

Photographic Flashes are intended to provide illumination for night photography.

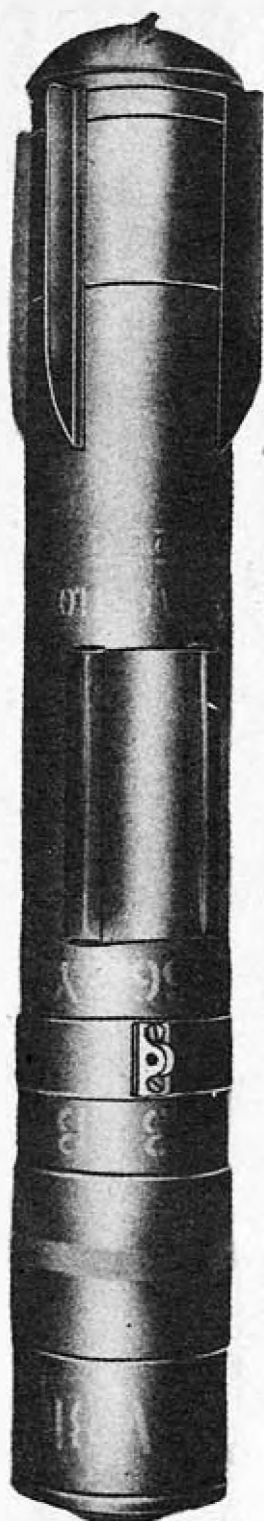
# BRITISH FLARES



4" TRAINING  
Mk. IV

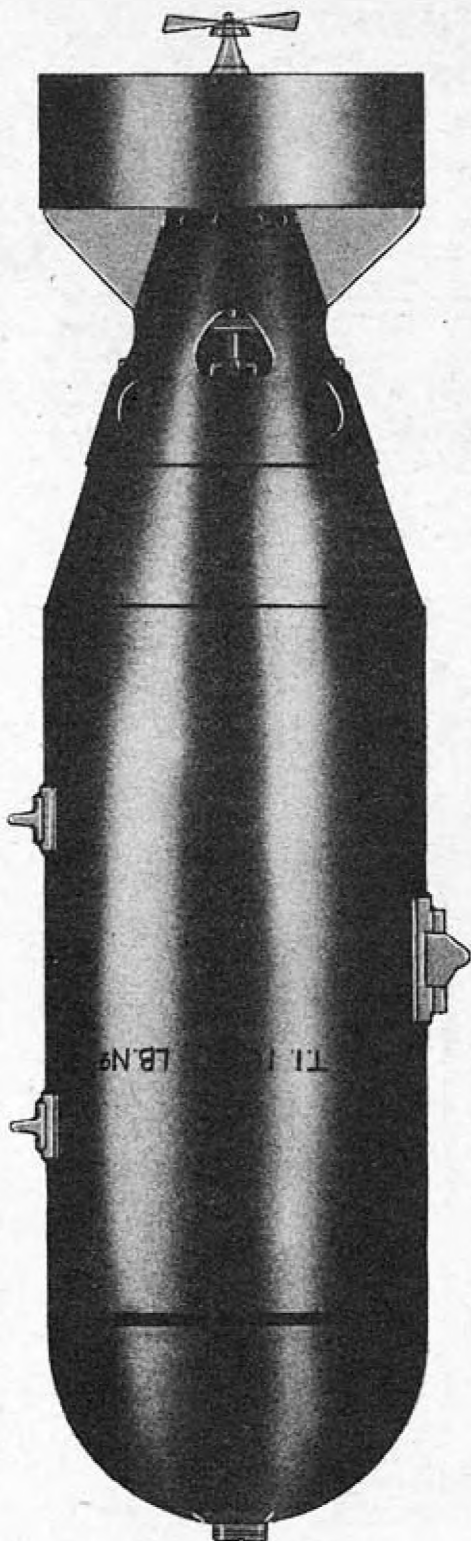


4.5" Mk. IV

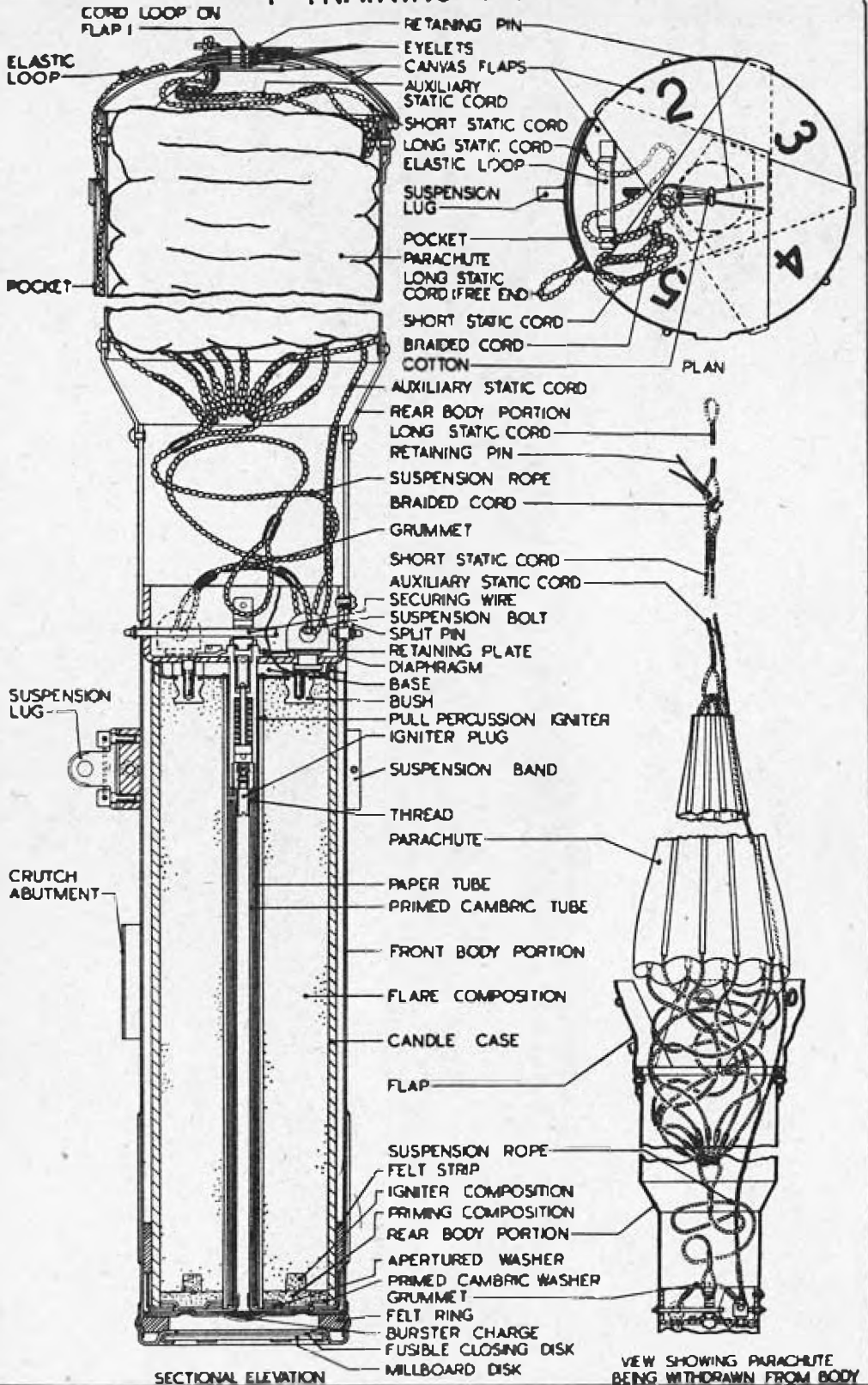


4.5" Mk. V

# 1000 LB. T.I. BOMB



# 4" TRAINING FLARE



FUZZING . . . . . Pull-percussion igniter  
 COLOR . . . . . Black with  $\frac{1}{2}$ " red band near  
 nose.  
 OVERALL LENGTH . . . . . 30"  
 MAX. BODY DIAMETER . . . . . 4"  
 TAIL DIAMETER . . . . . 5.5"  
 BURNING TIME . . . . . 50 sec. (A.S. flare)  
 3.25 minutes (Training flare)  
 PARACHUTE DIAMETER . . . . . 11 ft.  
 CANDLE POWER . . . . . 800,000 (Training flare)  
 2,000,000 (A.S. flare)

## 4" TRAINING

Mk IV  
 Reconnaissance Flare, 4" A.S., Mk I  
 (For Mks I, III, VII, & VIII - See  
 "Similar Flares" below)

(Service)

### DESCRIPTION:

Training Flare - Body compr ses a front body portion containing a flare candle and a pull percussion igniter, and a rear body portion containing an 11 ft. cotton parachute which is connected with the candle unit. The front and rear body portions are connected by a diaphragm which closes one end of the front body and supports the flare candle and igniter. Two suspension bolts on the diaphragm provide an anchorage for the parachute. The opposite end of the front body is closed by a millboard disc held in place by a fusible closing disc. In addition to the igniter plug, the igniter comprises an igniter body which houses a striker mechanism, and into which the igniter plug is screwed. The igniter body is held in place in the central tube by a retaining plate.

A.S. Flare - Identical except for delay fuze below igniter, giving about 5 seconds ~~delay before~~ burning starts.

### FUNCTIONING:

When the flare is released, the long static cord, the free end of which has been attached to the rear crutch holder of the carrier or to the eyebolt on the lid of the launching chute, is withdrawn from the elastic loop and pulls the retaining pin out of the loop on one of the flaps, thus releasing all flaps. The flare falls, with the parachute being drawn out of the body because of the connection between the short static cord and the long cord attached to the plane. Tautening of the auxiliary static cord breaks the thin braided cord, separating the flare from the cord attached to the plane. After the chute has opened, the body of the flare continues, momentarily, to fall freely until the suspension rope is fully tensioned. The jerk as the suspension rope tightens causes the securing wire to bend and the clutch to be pulled out, thus spring-loading and releasing the striker. The striker, when released, moves downwards and fires the percussion cap. This flash ignites the gunpowder in the training flare sending a flash down the center tube by the primed cambric tube, igniting the burster charge. (Percussion cap ignites safety fuze in A.S. flare). The flash from the burster charge passes through the holes in the apertured washer and ignites the primed cambric washer and the priming composition at the bottom of the flare candle. The priming composition ignites the flare composition, being assisted by the six portions of igniter composition which ensure a substantially even ignition of the flare composition. The fusible closing disc at the nose of the flare melts and permits the candle to burn freely.

### SIMILAR FLARES:

4 in. Training, Mk I - Has a silk parachute; a safety pin held by a split pin, instead of a securing wire; and the flash from the gunpowder is conveyed to the burster charge by a length of instantaneous fuze instead of by a primed cambric tube as in the Mk IV flare.

4 in. Training, Mk III - Silk parachute, but a stronger one than is used in the Mk I flare.

4 in. Training, Mk VII - Slightly different cotton parachute than the Mk IV flare.

4 in. Training, Mk VIII - Igniter fitted with a copper shear wire which passes through holes near the top of the igniter body and in the clutch. The shear wire is fitted to assist assembly during manufacture. Shear wire is broken by the jerk which bends the securing wire and pulls out the clutch. Similar parachute to the Mk VII.

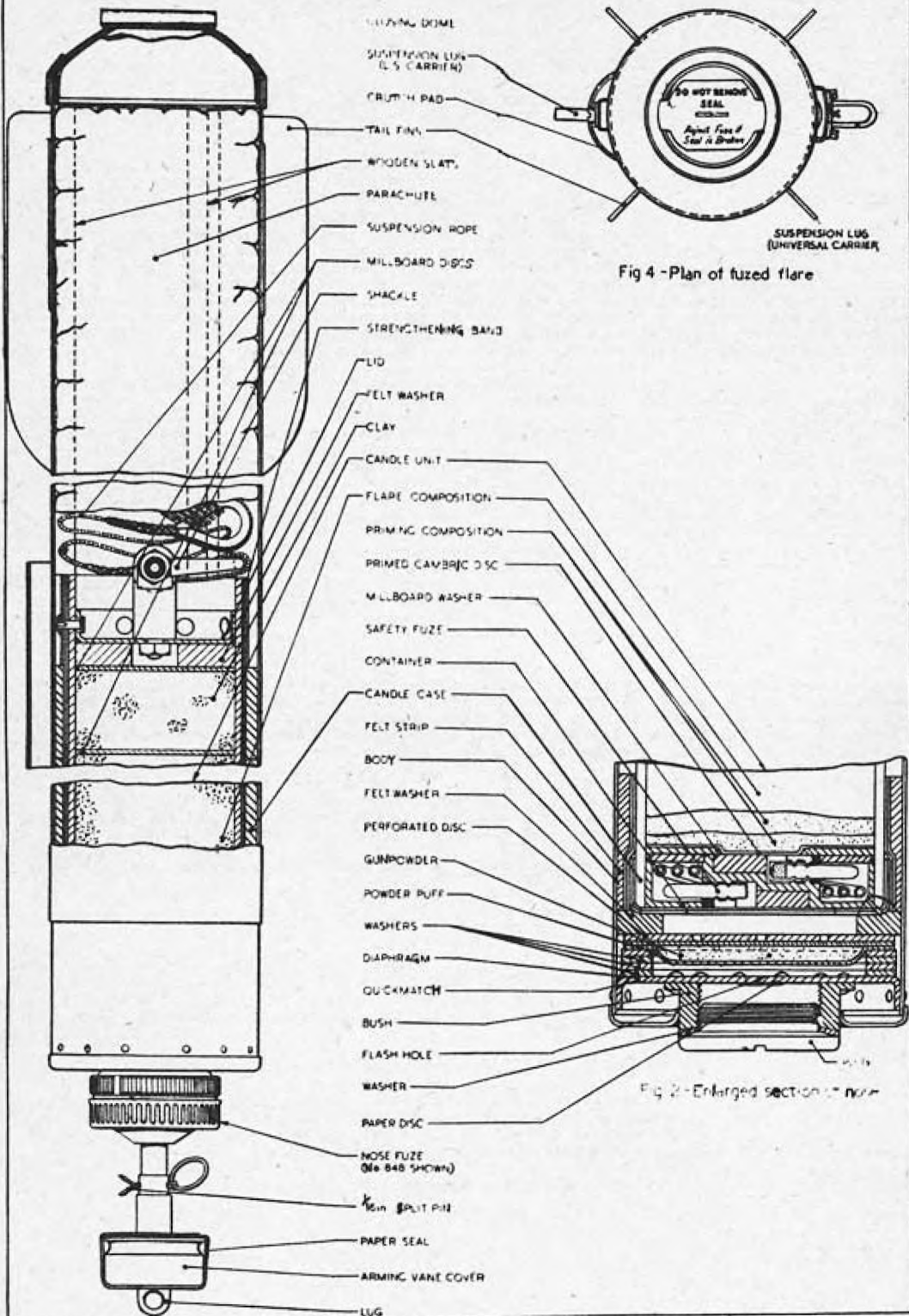
4 in. A.S., Mk II - Same changes as 4 in. Training, Mk VIII.

### REMARKS:

These flares are used primarily for training purposes, and, after being dropped from an aircraft, are supported by their parachutes even if they are not ignited. The flares can also be used to assist in making an emergency landing during night flying.

For external view. see page 116.

# 4.5" FLARE (WITH DELAY)



BUZING . . . . . Nose Fuzes Nos. 35, 42, 840 or 849; No. 860 can be used only if specially authorized.

COLOR & MARKINGS . . . . . Black overall with  $\frac{1}{2}$ " red band around nose end.

OVERALL LENGTH . . . . . 33"

MAX. BODY DIAMETER . . . . . 4.5"

PARACHUTE DIAMETER . . . . . 11 ft.

TOTAL WEIGHT . . . . . 23 lbs.

BURNING TIME . . . . . 3-4 minutes

DELAY . . . . . 2 min.

CANDLE POWER . . . . . 750,000

BRITISH BOMB

**4.5"**

**RECONNAISSANCE**

WITH DELAY

Mk V

(Mk VI & VIII - See "Similar Flares below")

(Service)

**DESCRIPTION:** The flare has a tubular body containing the candle unit and the Mk IV cotton parachute. The tail end is closed by a closing dome, and has four tail fins. Body is closed at nose end by a diaphragm having a bush into which screws the nose fuze. The flare composition is contained in a candle case and at the nose end of the case is a quantity of priming composition. The filling of the candle is held in place at the nose end by a primed cambric disc and a millboard washer, and at the tail end by a felt washer and a lid secured to the candle case. The lid is riveted to the candle case, and the rivets pass through a hessian or cotton canvas strengthening band round the candle case. At the nose of the candle unit is a container in which is coiled a length of safety fuze, the ends of the safety fuze being clamped and set in cement. During manufacture the end of the safety fuze which is ignited by the powder puff is cut square, dipped in moist powder, and dusted with dry sulphurless meal powder. The other or inner end of the safety fuze terminates in a small quantity of igniter composition, and is covered by a shellacked paper tube and two shellacked paper discs.

**SUSPENSION:** Suspension band around the body has two removable suspension lugs for attaching to a Universal bomb carrier or a Light Series bomb carrier. Seven flares may be contained in Cluster No. 1, Mk I; four in SBC 250 lbs.

**FUNCTIONING:** When the fuzed flare is released from a plane, the fuze is set in operation and the flare drops freely until the magazine charge of the fuze bursts the paper disc covering the flash hole in the diaphragm. The flash from the magazine charge passes through the flash hole and ignites the primed fabric of the powder puff and the strands of quickmatch, which in turn ignite the gunpowder in the powder puff. The gases formed by the burning of the gunpowder in the powder puff force the candle unit toward the closing dome and the wooden slats push off the closing dome, thus permitting the candle unit and parachute to be ejected from the flare body, which, together with the expended fuze, falls away. The safety fuze is ignited by the flash from the gunpowder in the powder puff, and after a delay of 2 min., during which time the flare has fallen 2,000 ft. supported by the parachute, the safety fuze ignites the igniter composition at its inner end. The flash from the igniter composition is conveyed by the primed cambric disc to the candle primings, which are ignited and in turn ignite the flare composition.

**SIMILAR FLARES:** 4.5" with delay, Mk VI - Similar to the Mk V flare, but is provided with a 4 minute internal delay, so that the flare falls 4,000 ft. suspended on its parachute, before the candle is ignited.

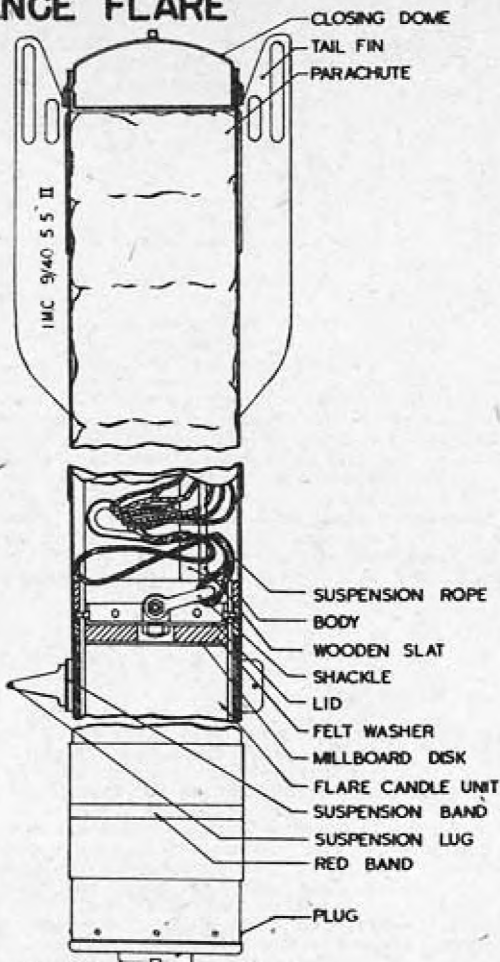
4.5" with delay, Mk VIII - Differs from the Mk V flare in that it has a modified parachute known as the Mk VP, 11 ft. parachute.

**REMARKS:** (1) The period of delay of these flares enables the aircraft which has released the flare to get into position for its bombing run and to make the best use of the 3 to 4 minute illumination given by the flare.

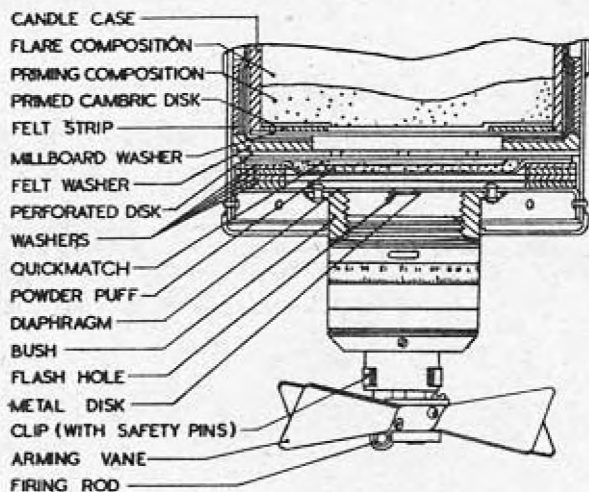
(2) The No. 42 and No. 848 fuzes incorporate an interchangeable delay capsule intended to give a delay such as to fire a 4.5" Mk III or IV flare at a height of 3,000 ft. above sea level. Delays range from 4 to 32.5 seconds.

(3) For external view. see page 116.

## 5.5" RECONNAISSANCE FLARE



BROKEN VIEW OF FLARE  
(PARTLY IN SECTION)



ENLARGED SECTION OF NOSE  
(FUZE, No.28B, M&I, SHOWN IN POSITION)

FUZZING . . . . . Nose Fuzes No. 28B, 42, or 848 usually; may use No. 35 or 849. No. 860 can be used only if specially authorized.

COLOR & MARKINGS . . . . . Black overall with  $\frac{1}{4}$ " red band about 5" from the nose.

OVERALL LENGTH . . . . . 48"

MAX. BODY DIAMETER . . . . . 5.5"

PARACHUTE DIAMETER . . . . . 18 ft.

TOTAL WEIGHT . . . . . 41.6 lbs.

BURNING TIME . . . . .  $3\frac{1}{2}$  -  $4\frac{1}{2}$  minutes

BRITISH BOMB

**5.5" RECONNAISSANCE**

Mk II

(For Mk I - see "Similar Flare" below)

(Obscurescent)

**DELAY:** Interchangeable delay capsules are provided for use with fuzes No. 42 and 848, the capsules being intended to give a delay such as to fire a 4.5" Mk II or IV flare at a height of 3,000 ft. above sea level, with the height at which the 4.5" flare should be released stamped on the capsules. When using these fuzes in the 5.5" flare, it is to be remembered that the 5.5" flare has a greater terminal velocity and for a given height it will be fired at a height below that of a 4.5" flare.

**CANDLE POWER:** 1,000,000 approx.

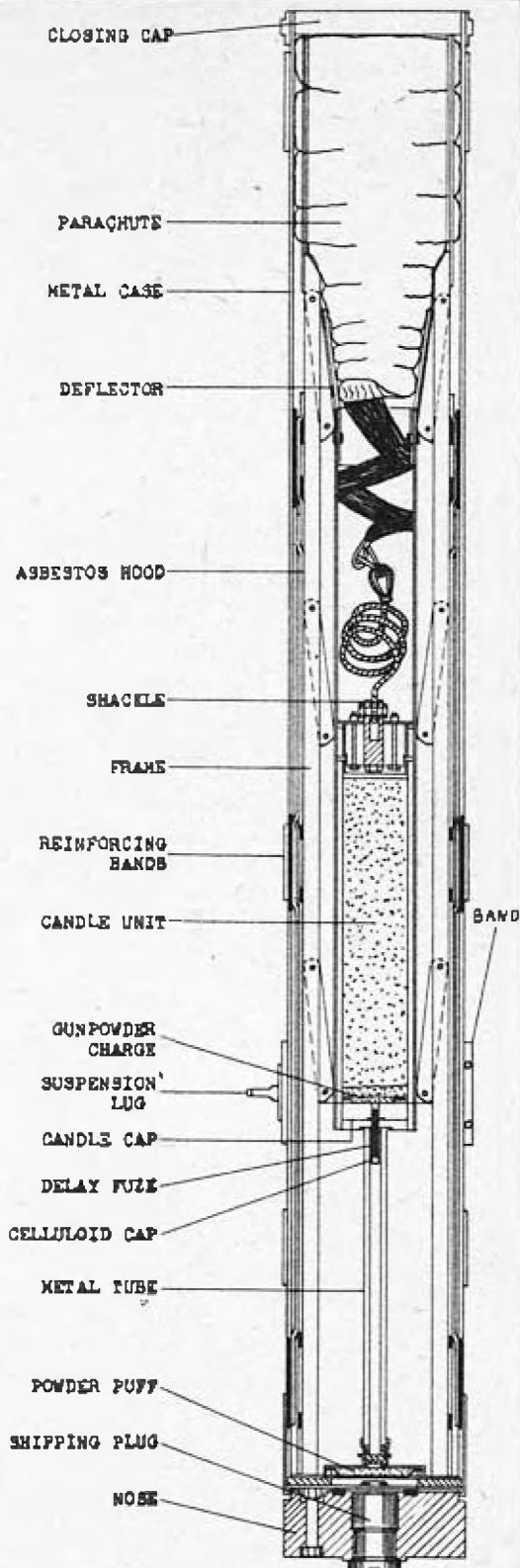
**DESCRIPTION:** The flare has a tubular body which contains the flare candle unit and its parachute. The body is closed at its nose end by a diaphragm having a bush into which is screwed a nose fuze. The tail end of the body is closed by a closing dome and has four tail fins. The diaphragm has a flash hole, sealed by a thin metal disc. A powder puff, consisting of a primed fabric bag containing gunpowder and strands of quickmatch, is located in position by washers and a perforated disc to which it is secured. The candle unit comprises a candle case containing the flare composition and a quantity of priming composition. The nose end of the case is closed by a primed cambric disc and a millboard washer, and the tail end is closed by a lid. A shackle attached to the lid connects the candle unit with the suspension rope of the parachute.

**SUSPENSION:** A suspension band with a lug is provided for attachment to a Universal bomb carrier.

**FUNCTIONING:** When the fuzed flare is released from a plane, the fuze is set in operation and the flare falls freely until the magazine charge of the fuze is fired and perforates the metal disc covering the flash hole in the diaphragm. The flash from the magazine charge passes through the flash hole and ignites the primed fabric of the powder puff and the strands of quickmatch, which in turn ignites the gunpowder in the powder puff. The gases formed by the burning of the gunpowder in the puff force the candle unit towards the closing dome, and the wooden slats push off the closing dome and permit the candle unit and parachute to be ejected from the flare body, which, together with the expended fuze, falls away. The parachute then opens and supports the candle unit. Before ejection, the candle is ignited by the flash from the gunpowder in the powder puff, this flash being conveyed by the primed cambric disc at the nose end of the candle case to the priming composition which, in turn, ignites the flare composition.

**SIMILAR FLARE:** 5.5" Mk I - Similar to the Mk II flare, except that the duration of burning is 3.5 minutes approximately and a Mk I parachute is used instead of a Mk II (the Mk I is not so strong)

# 7" HOODED FLARE



FUZION . . . . . Nose Fuze No. 848  
 COLOR & MARKINGS . . . . . Black overall with  $\frac{1}{2}$ " red  
 band near nose end.  
 OVERALL LENGTH . . . . . 63"  
 MAX. BODY DIAMETER . . . . . 7"  
 TOTAL WEIGHT . . . . . 85 lbs. (Mk I)  
 . . . . . 58 lbs. (Mk II)  
 BURNING TIME . . . . . 3 to 4 minutes  
 CANDLE POWER . . . . . 750,000

BRITISH BOMB

7" HOODED

Mks I &amp; II

(Service)

## DESCRIPTION:

Mk I - The flare consists of a flare candle unit contained in a thin metal case which is fitted with a heavy nose and closed at the tail end by a metal closing cap. Housed in the rear of the casing is the parachute attached by the shackle to the candle unit. A metal tube containing a primed cambric tube connects the powder puff in the nose of the flare with the candle cap. A length of Bickford fuze, sealed at each end with a celluloid cap containing a small gunpowder charge, passes through the candle cap to the gunpowder charge contained in the nose of the candle. Attached to the side of the candle unit is a frame to which is fixed the sheet asbestos hood. The form which folds around the candle unit has a square cross-section when open and extends beyond the ends of the candle unit. The tail end of the hood is partially closed by a deflector.

Mk II - Heavy nose and suspension band are omitted, thereby reducing the weight.

## SUSPENSION:

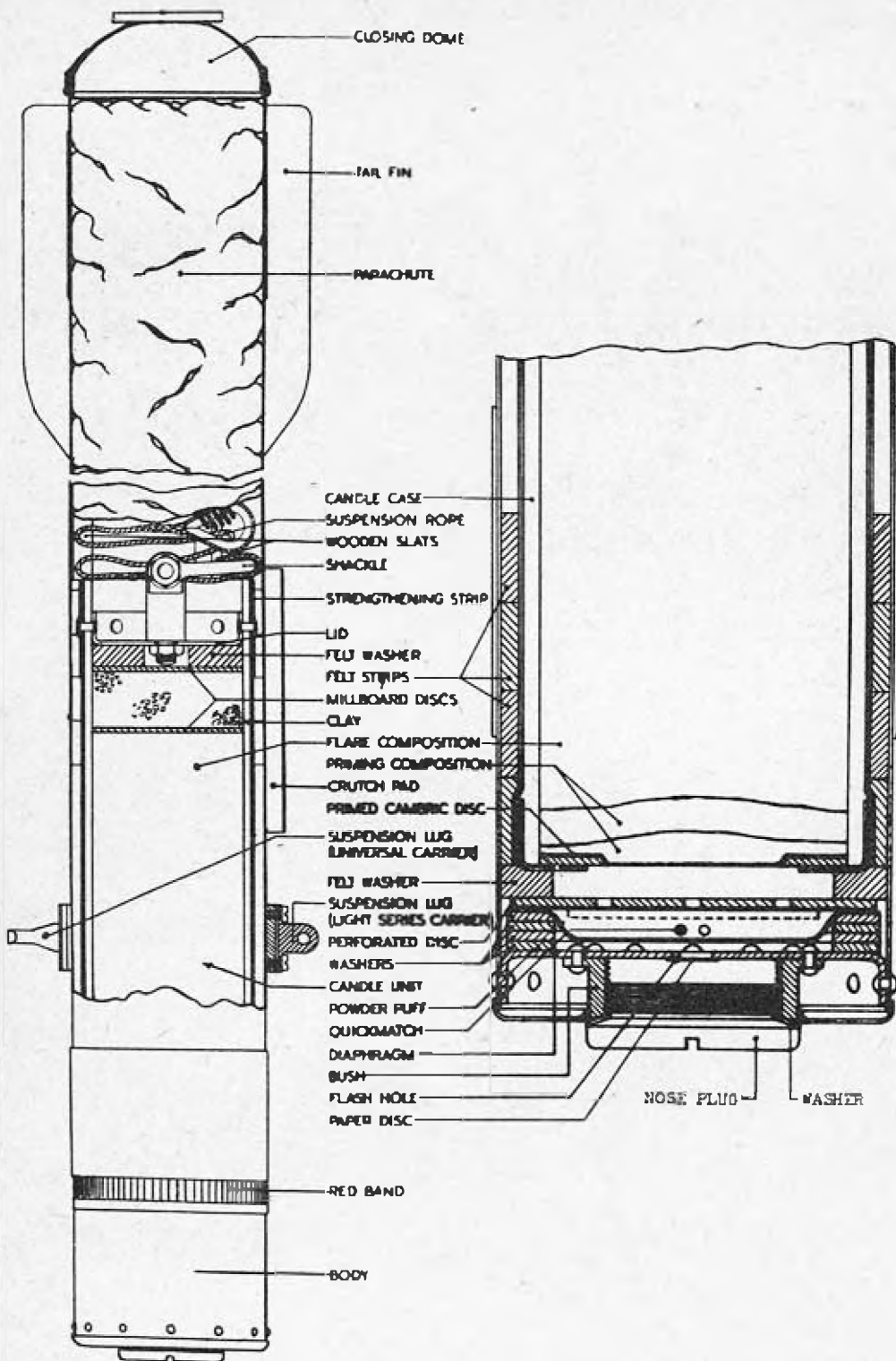
Mk I - Carried singly by suspension lug on a band fastened around the body.

Mk II - Four flares carried in Cluster No. 3, Mk I.

## FUNCTIONING:

On release from the aircraft the flare falls in a normal manner until the fuze functions. The flash from the fuze magazine forces the parachute and candle unit out of the metal case, at the same time igniting the primed cambric. The primed cambric ignites the celluloid cap of the Bickford fuze and after a short delay the Bickford fuze fires the gunpowder charge in the nose of the candle. The explosion of the gunpowder forces off the candle cap at the same time igniting the flare composition. The short delay in the Bickford fuze allows the parachute and hood to open before the flare functions.

# 4.5" FLARE (WITHOUT DELAY)



FUZING . . . . . Nose Fuses Nos. 36, 42, 648,  
or 849 usually; may use No.  
28B, II or III or No. 860  
with special permission.

COLOR & MARKINGS . . . Black overall with  $\frac{1}{2}$ " red  
band around nose end.

OVERALL LENGTH . . . . . 33"

MAX. BODY DIAMETER . . . . . 4.5"

PARACHUTE DIAMETER . . . . . 11 ft.

TOTAL WEIGHT . . . . . 23 lbs.

BURNING TIME . . . . . 3 - 4 minutes

CANDLE POWER . . . . . 750,000

## BRITISH BOMB

## 4.5" RECONNAISSANCE

Mk IV

(For Mk I, II, III, VII & Target  
Flare, Mk I - see "Similar Flares"  
below)

(Service)

**DESCRIPTION:** The flare has a tubular body containing the candle unit and the parachute, which is made of cotton. The tail end of the body is closed by a closing dome, and has four tail fins. The body is closed at the nose end by a diaphragm having a bush into which is screwed a nose plug or the fuse. Flare composition is contained in a candle case together with some priming composition and a primed cambric disc at the nose end, a quantity of clay held between millboard discs, and a felt washer at the tail end. A lid is riveted to the tail end of the candle case. A shackle attached to the lid connects the candle unit with the suspension rope of the parachute.

**SUSPENSION:** A suspension band having two removable suspension lugs, one for attaching the flare to a universal bomb carrier, and the other for attaching it to a Light Series bomb carrier, is secured to the flare body. Seven flares may be carried in Cluster, No. 1 Mk I; four in SBC 250 lb.

**FUNCTIONING:** When the fused flare is released from the plane, the fuse is set in operation and the flare drops freely until the flash from the magazine charge of the fuse passes through the flash hole in the diaphragm and ignites the powder puff. The gases formed by the burning of the gunpowder in the puff force the candle unit towards the closing dome and the wooden slats push off the dome, thus permitting the candle unit and the parachute to be ejected from the flare body, which, together with the expended fuse, falls away. The flash from the puff ignites the primed cambric disc and the priming composition at the nose of the candle, and the priming composition ignites the flare composition. The candle, which is now suspended on its parachute, continues to burn from the nose end until the flare composition is expended.

**SIMILAR FLARES:** 4.5" Mk I - Similar to the Mk IV flare, but has larger tail fins, a Mk II silk parachute, a brass disc over the flash hole in the diaphragm, and its candle case is not strengthened in the region through which the lid rivets pass.

4.5" Mk II - Similar to the Mk IV flare, but has larger tail fins, a Mk IV silk parachute, a brass disc over the flash hole in the diaphragm, and its candle case is not strengthened in the region through which the lid rivets pass.

4.5" Mk III - Similar to the Mk IV flare, but it has larger tail fins, a brass disc over the flash hole in the diaphragm, and its candle case is not strengthened in the region through which the lid rivets pass.

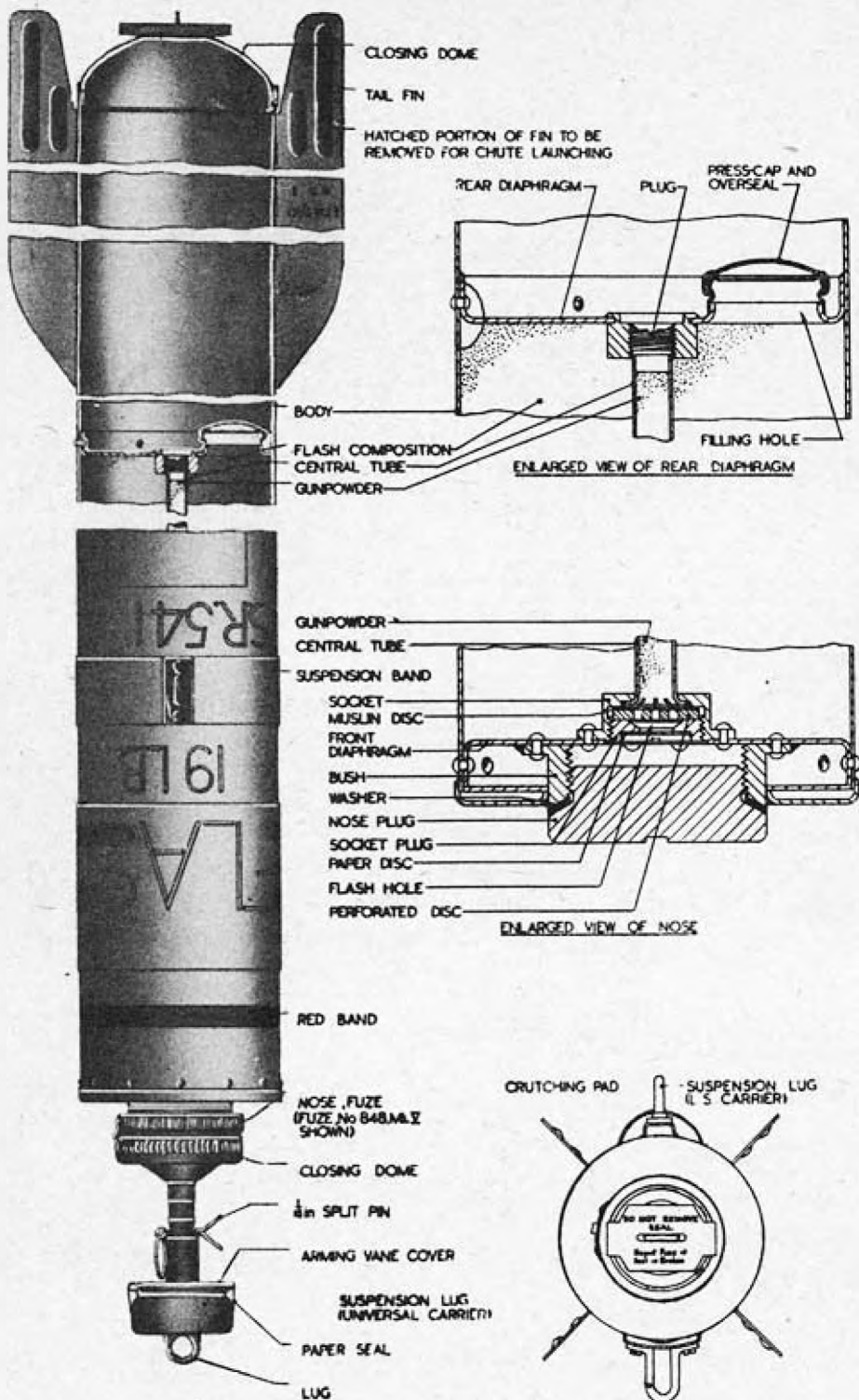
4.5" Mk VII - Similar to the Mk IV flare, only it has a modified parachute known as the Mk VI parachute.

Target Flares, Mk I - Details are the same as the 4.5" reconnaissance flare, Mk IV, except for the stencilled markings. Also, when falling, the target flares give either a red or green steady color with seven stars of the other color thrown out at intervals.

**REMARKS:** (1) The No. 42 and No. 848 fuzes incorporate an interchangeable delay capsule intended to give a delay such as to fire a 4.5" Mk III or IV flare at a height of 3,000 ft. above sea level. Delays range from 4 to 32.5 seconds.

(2) For external view, see page 116.

# 4.5" PHOTOFLASH BOMB



BRITISH BOMB

## 4.5" PHOTOFLASH

Mks I &amp; II

4.5" Heavy Photo Flash

(Service)

FUZING . . . . . Nose Fuze No. 28B, 84B, or 849; No. 860 can be used only if specially authorized

COLOR & MARKINGS . . . Body is black; tail is red;  $\frac{3}{4}$ " red band around nose end. The word "FLASH" is printed plainly on the body near the nose end.

OVERALL LENGTH . . . . 33"

MAX. BODY DIAMETER . . . 4.5"

TOTAL WEIGHT . . . . . 19 lbs.

ILLUMINATION TIME . . . 0.1 sec. approx.

## DESCRIPTION:

The Mk I and II flashes are similarly constructed, the only difference being that the Mk II has narrower tail fins. Each flash has a tubular body, closed at the tail by a closing dome and at the nose by a front diaphragm having a bush into which is screwed the nose fuze. The four tail fins are located at the tail end. A quantity of flash composition is contained in the body between a front and rear diaphragm, the filling hole being closed by a press-cap and overseal. A central tube, closed at each end, extends between the front and rear diaphragms and is filled with gunpowder. A socket secured to the front diaphragm houses a perforated disc and a muslin disc which closes the nose end of the central tube. The perforated disc is held in position by a socket plug having a flash hole covered by a disc which, in earlier issues, is of brass, but in later issues is paper.

## SUSPENSION:

Suspended by means of a suspension band to which are secured two suspension lugs, one for attaching to a Light Series bomb carrier the other for attaching to a Universal bomb carrier.

## FUNCTIONING:

When a fuze flash is released from an aircraft, its fuze is set in operation and the flash falls until the magazine charge of the fuze explodes. The flash from the magazine charge passes through the perforated disc and ignites the gunpowder in the central tube. The gunpowder explodes, bursts the body of the photographic flash, and simultaneously ignites the flash composition.

4.5" HEAVY PHOTOGRAPHIC FLASH

FUZING . . . . . U.S. M 111, 111A1, or 111A2 nose fuze.

TOTAL WEIGHT . . . . . 40 lbs.

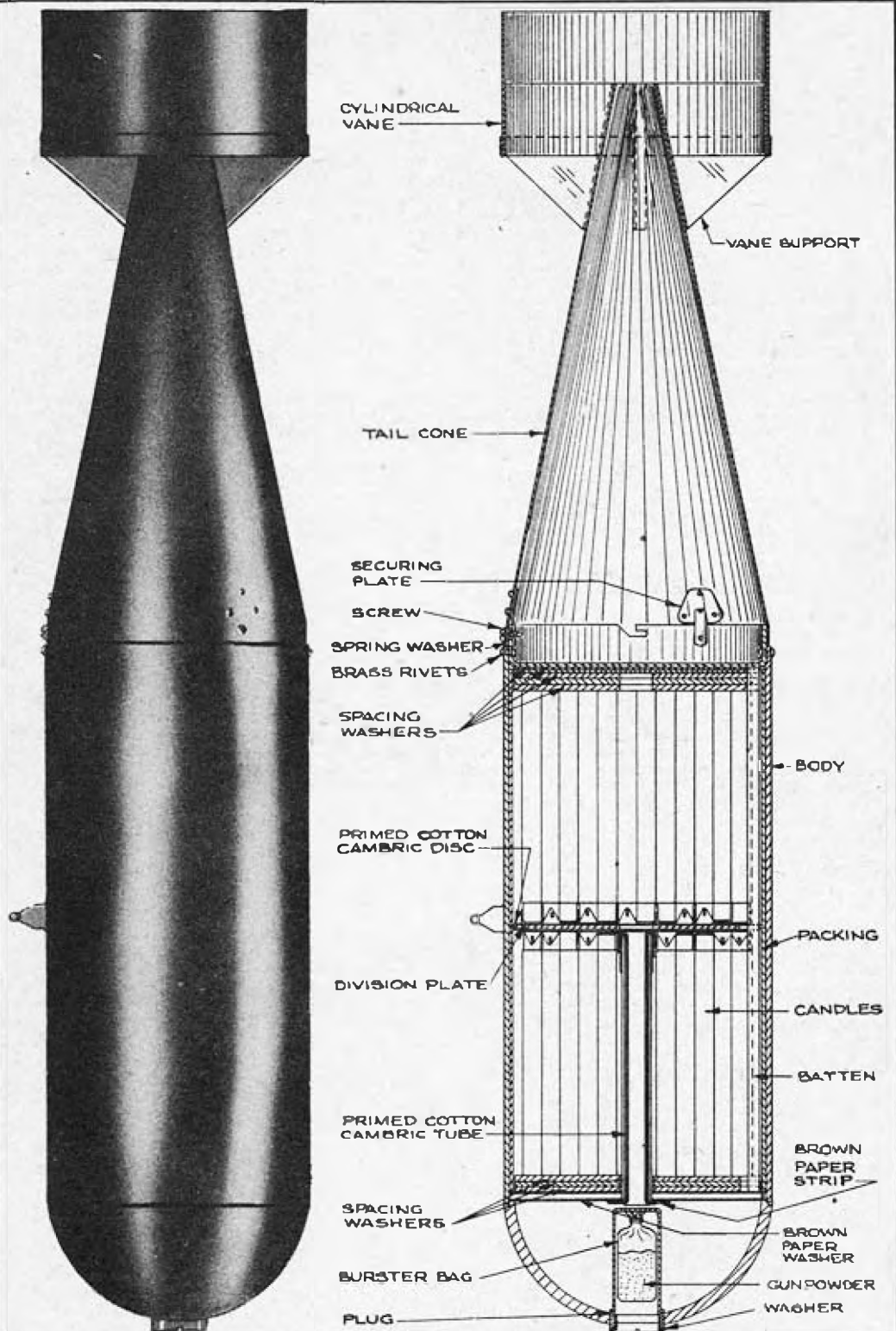
## DESCRIPTION . . . . .

Externally it is the same as the ordinary 4.5" flash. Internally the construction is slightly modified, the rear diaphragm being moved to a position nearer the closing dome, consequently increasing the length of the central tube. A retaining diaphragm is positioned in the body  $5\frac{1}{2}$ " from the front diaphragm. A cast-iron weight is located between the front and retaining diaphragms, the flash composition being housed between the rear and retaining diaphragms. The fuze is a mechanical time fuze which has a fuze adapter in order to fit it into the British bomb. When it is loaded, the arming wire is fitted through the second hole in the arming pin and passes through the arming vane lock. The delay may be from 5 seconds to 93 seconds.

## REMARKS . . . . .

- (1) These flashes are intended to provide illumination for night photography and when functioned they explode with a loud report and a vivid white flash.
- (2) It is important to distinguish between flares and flashes. They may be distinguished by the following differences: (a) "FLASH" is stencilled on the nose of all photographic flashes; (b) The tail of the flash is RED; (c) eight rivets around the body at the junction of the red and black parts of the flash; (d) on removal of the tail dome of a flash, there is no parachute or shackle visible.

# 250 LB. T.I. BOMB



BRITISH BOMB

250 LB. T. I.

Mk. I

(Service)

FUZZING . . . . . Nose Fuze No. 860 (No. 848, Mk I may be used)

COLOR & MARKINGS . . . . . Black overall with colored band around nose to indicate color of flares, and 1" red band 8" from nose. Red cross near rear indicates explosive candles are present. Color of flares stencilled on bomb.

TAIL NO. . . . . No. 1, Mk I

OVERALL LENGTH . . . . . 61.7"

MAX. BODY DIAMETER . . . . . 12 in.

TAIL LENGTH . . . . . 27.2"

TAIL WIDTH . . . . . 11.7"

TOTAL WEIGHT . . . . . 220 lbs.

BURNING TIME . . . . . 3 min. approx. (red & green candles)  
5 min. approx. (yellow candles)

DESCRIPTION: The flare body consists of a steel tube to which is welded a steel nose. The rear end is closed by a tail plate held in place by six copper or brass shear rivets. The tail plate has two bayonet slots to receive the fixed pins of the tail. In the nose is a short burster container having a flash hole in its inner end. Inside the burster container is a burster charge consisting of a cambric bag containing gunpowder. A suspension lug is secured to the body to enable the flare to be attached to a bomb carrier. Tail consists of a cone, four vane supports, and cylindrical drum; it may be the tail normally used with the 250 lb. incendiary, or a specially designed shortened tail.

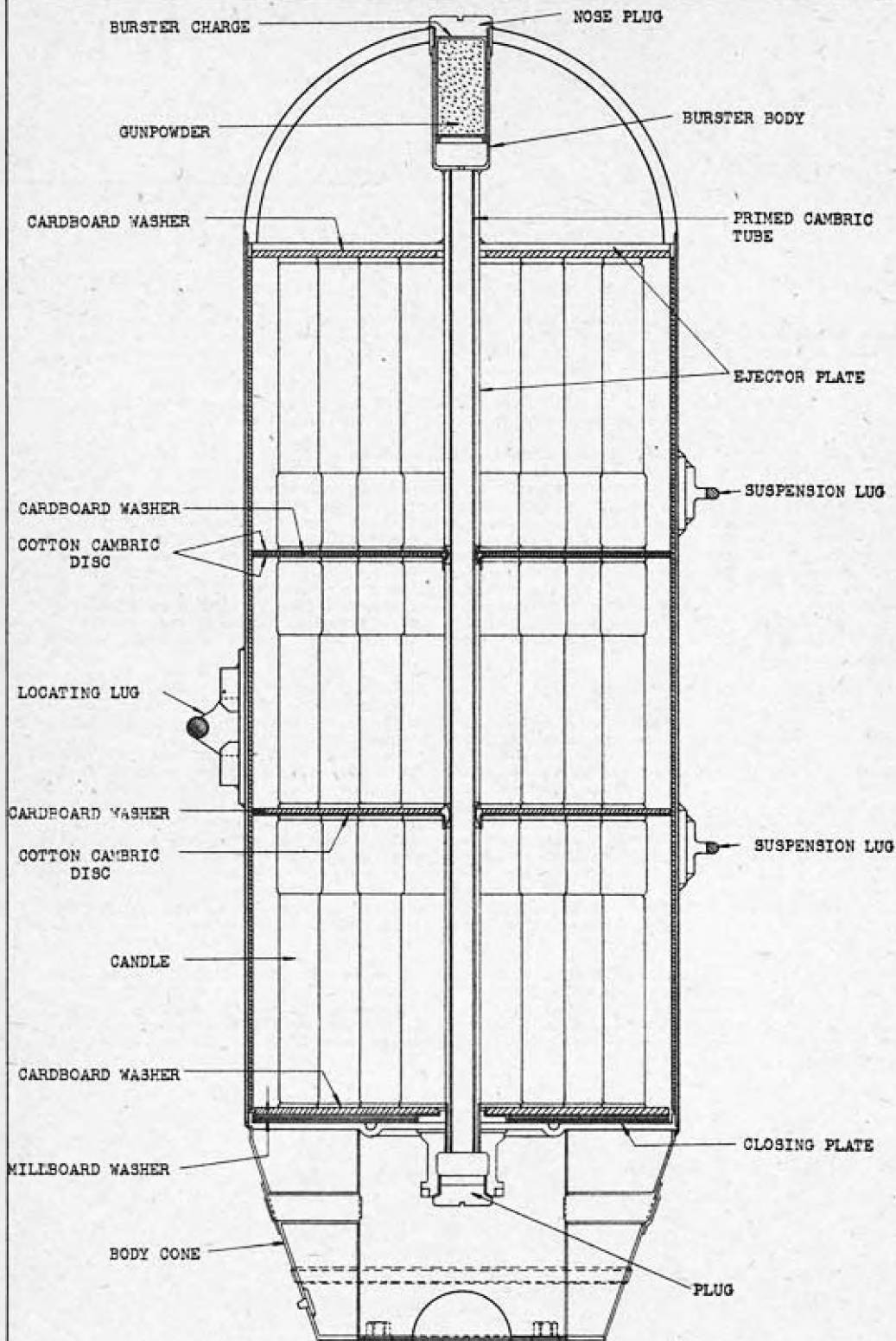
FILLING: The filling comprises 60 candles arranged in two groups of 30, the two groups separated by a wooden disc to each side of which is secured a primed cambric disc threaded with a length of quickmatch. Each candle weighs  $1\frac{1}{2}$  lbs., and is 12" long. They are cylindrical in shape or sometimes they are modified 4 lb. incendiaries, and are either red, green, or yellow (white if incendiary). These candles are two main types: Non-explosive and explosive. The non-explosive candles may function without delay, or after a delay of  $2\frac{1}{2}$  minutes to 5 minutes; the explosive candles function after 1,  $1\frac{1}{2}$ , or 2 minutes delay. The bomb may be filled with any of a number of combinations of non-delay and delay non-explosive, and various delay explosive candles. The explosive candles are usually included in the layer nearest the tail and are marked "X" with the time of delay marked in minutes. These candles contain an explosive charge of 300 grams of gunpowder.

FUNCTIONING: When the fuze flare, with safety pin removed, is released, the fuze arms when the arming vanes rotate off, and when it has fallen to a height of 3,000 ft. the gunpowder in the fuze magazine is fired and initiates the burster charge in the burster container of the flare. The products of combustion of the burster charge force the steel plate towards the tail plate and the pressure exerted by the wooden battens shears the copper or brass shear rivets holding the tail in place, so that the tail plate and tail are forced off, and the candles are ejected from the flare. Simultaneously with the forcing outwards of the steel plate, the flash from the burster charge passes through the flash hole in the burster container, is conveyed through the central tube by the primed cambric tube, and ignites the primed cambric discs and the lengths of quickmatch which are threaded through the discs. The primed cambric discs ignite the primed ends of the candles, so that the candles are already ignited when they are ejected from the flare. The ignited candles, which are ejected at about 3,000 ft. above the ground, take 20 to 25 seconds to fall to the ground, where they form a distinctive group and continue to burn until expended.

REMARKS: (1) This bomb case may also be filled with photoflash material or other filling.

(2) The usual ways of filling with candles are either: (a) 60 non-delay; (b) 56 non-delay and 4 explosive; (c) 30 non-delay and 40 delay; (d) 16 non-delay, 4 explosive, and 40 delay; (e) 30 non-delay and 30 delay; (f) 26 non-delay, 4 explosive, and 30 delay.

# 1000 LB. T. I. BOMB



**FUZZING** . . . . .  
**COLOR & MARKINGS** . . . . . Black overall with red band around nose end, and 2" ring around nose to indicate color of contents; "X" stencilled in red when explosive candles are used.

**TAIL NO.** . . . . . No. 57 Mk I  
**OVERALL LENGTH** . . . . . 73.6"  
**MAX. BODY DIAMETER** . . . . . 17"  
**TAIL LENGTH** . . . . . 20"  
**TAIL WIDTH** . . . . . 17.4"  
**BODY LENGTH** . . . . . 53.6"

BRITISH BOMB

1000 LB. T. I.

Mk I

(Service)

**DESCRIPTION**

The bomb consists of a cylindrical body with a dome-shaped nose cap welded on. The after body of the bomb consists of a sheet steel body cone. This after cone section is welded to a steel closing plate which is press-fitted into the after end of the central cylinder. A small notch is cut out at one point on the circumference of the closure plate. A projection from the end of the central body engages in this notch, properly positioning the closure plate and tail assembly. A steel tube, running axially through the bomb, is welded to a burster container at the nose end, and passes through a central hole in the closure plate at the tail end. A steel plug is threaded to this tube aft of the closure plate, holding the closure plate and tail assembly tight in the bomb body.

Three banks of flares are placed in the central body cylinder. The ignition ends of the flares bear against one of two equi-spaced primed cambric discs. A primed cambric tube is inserted in the central tube, and holes in the central tube lead out to each of the primed cambric discs.

An ejection plate is located just forward of the first bank of flares and just aft of the hollow nose portion of the bomb. This ejection plate is welded to the central tube. In the nose is a short burster container with a flash hole in its lower end and additional flash holes located circumferentially around its upper portion. These latter holes lead into the empty cavity formed by the nose portion of the bomb and the ejection plate.

**FILLING**

A number of combinations of candles may be incorporated in this bomb. The following table indicates the combinations most commonly used:

| <u>No. &amp; Type of Candles</u>                                  | <u>Color</u>           | <u>Remarks</u>              |
|---|------------------------|-----------------------------|
| 186 Non-delay candles<br>14 Explosive candles                     | Red, green, or yellow. | Burning time: 3 min.        |
| 8 Non-delay candles<br>128 Delay candles<br>2 Explosive candles   | Red, green, or yellow  | Total burning time: 55 min. |
| 31 Non-Delay candles<br>155 Delay candles<br>14 Explosive candles | Red, green, or yellow  | Total burning time: 12 min. |

**FUNCTIONING**

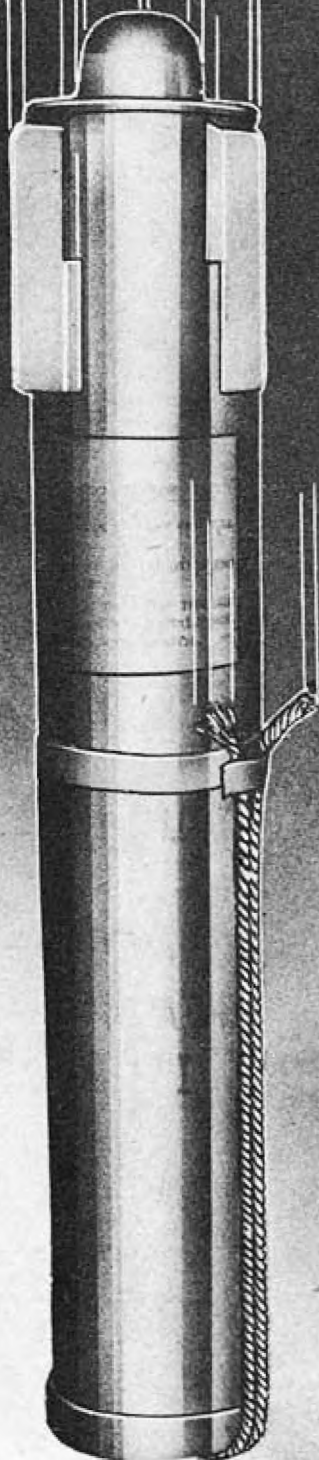
When the aerial burst nose fuse functions, the fuse magazine initiates the gunpowder in the burster container. The explosion of the burster passes through the lead out flash holes in the top part of the burster container, putting pressure against the ejection plate. Simultaneously the explosion of the burster passes through the flash hole in the bottom of the burster container, ignites the primed cambric tube, which in turn ignites the primed cambric discs, initiating the flares. Pressure of the explosive gases behind the ejection plate, assisted by wind drag on the tail, forces the whole internal assembly out of the tail of the central body cylinder, allowing the flares to be dispersed.

**REMARKS**

1. Additional information will be released when available.
2. Dual suspension lugs are provided for suspension in American planes.

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# AIRCRAFT PYROTECHNICS



## RESTRICTED

This section includes data on flame floats, marine markers, smoke floats, seamarkers, and smoke generators dropped from aircraft.

### Flame Floats and Marine Markers:

These are devices designed to give off a flame to illuminate surrounding areas of water. Generally calcium phosphide is used as the filler for flame floats. When moistened, this gives off a spontaneously inflammable gas, phosphine.

### Smoke Floats:

Smoke floats generate smoke by the combustion of a smoke composition filler. The smoke so produced may be used for indicating a position, for obscurement, or for signalling. Although all smoke floats are designed primarily for use at sea, they differ from each other in construction and design according to the purpose for which the smoke is intended. There are three essential types of smoke floats in use, one for each of the following purposes: to mark a position at sea for navigational or bombing purposes; to create a smoke screen; and to be thrown by hand from a plane or dinghy to attract attention following a forced landing.

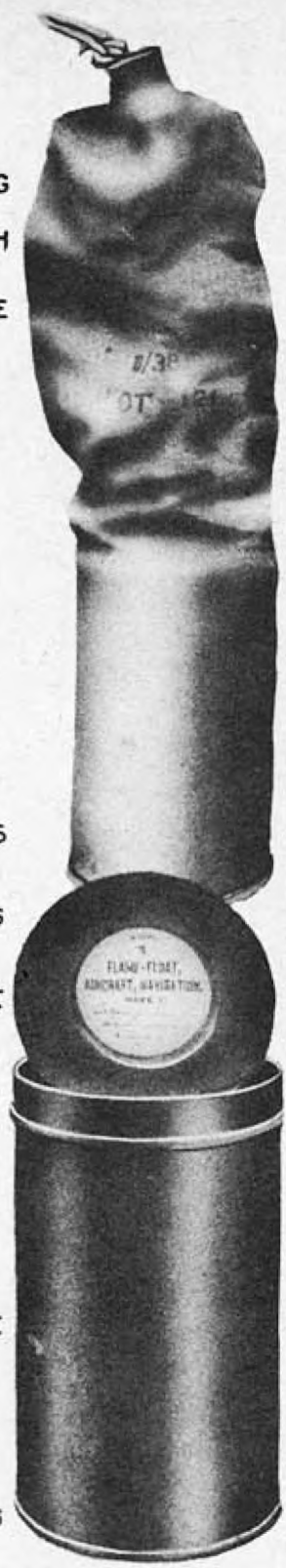
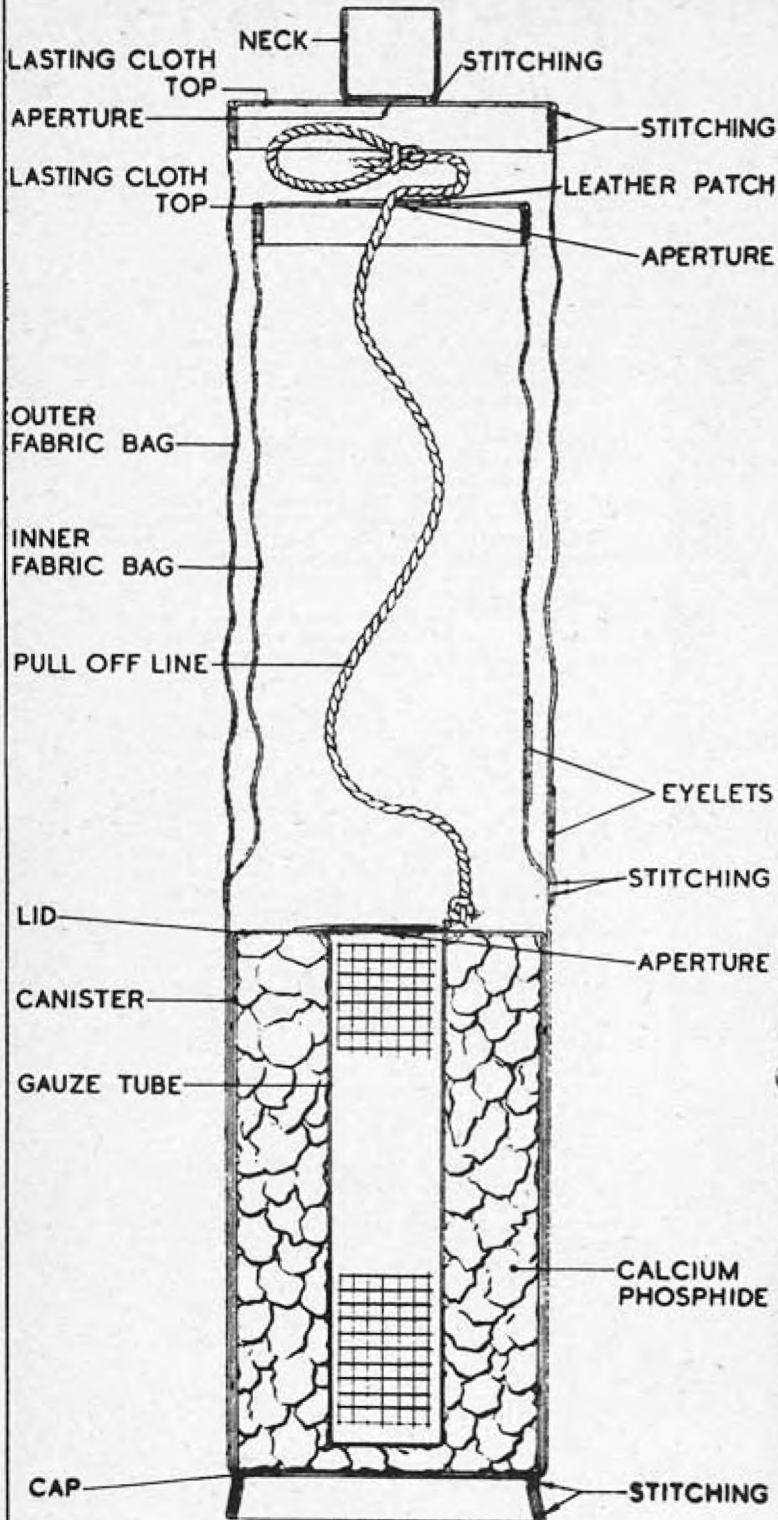
### Sea Markers:

These devices are designed to be dropped on the sea to produce a surface patch readily visible from the air in daylight for purposes of navigation or identification. Generally, aluminum powder is used as the filling, with stearic acid incorporated to form a slick.

### Smoke Generators:

Smoke generators are designed to emit smoke, sometimes colored, upon ignition of their filling. Only one type of generator is discussed, since it is the only one intended to be dropped from aircraft in flight.

# FLAME FLOAT, NAVIGATION



BRITISH

## FLAME FLOAT

OVERALL LENGTH (extended) . . . 17 in.  
 OVERALL LENGTH (collapsed) . . . 8 in.  
 MAX. BODY DIAMETER . . . . . 3.7 in.  
 FILLER . . . . . Calcium phosphide  
 FILLER WEIGHT . . . . . 2 lbs.  
 TOTAL WEIGHT . . . . . 3.2 lbs.  
 EFFECTIVE ILLUMINATION . . . . . 5 min.  
 COLOR . . . . . Cylinder painted  
 red with yellow  
 label on lid.

Aircraft, Navigation,  
 MX I

(Obsolascant)

## DESCRIPTION

Cylindrical tinplate canister with a tinplate lid having a central aperture soldered over the top of the canister and a slotted brass sealing patch soldered over the aperture. Soldered to the lid is an iron gauze tube, which extends axially nearly to the bottom of the canister, and is closed at its lower end. The annular space outside the gauze tube is filled with granular calcium phosphide. At its base the canister is closed by a cap which fits over its outside. The canister is surrounded by an outer fabric bag, which is considerably longer than the canister. Secured by a double row of stitching inside the outer fabric bag, above the canister, is a second fabric bag, termed the inner fabric bag. Above the top of the canister, in the walls of the inner and outer fabric bags, at different levels, are two eyelets. The pull-off line passes through the aperture in the leather patch at the top of the inner fabric bag and through the neck of the outer fabric bag, the aperture being a fairly snug fit on the line.

## FUNCTIONING

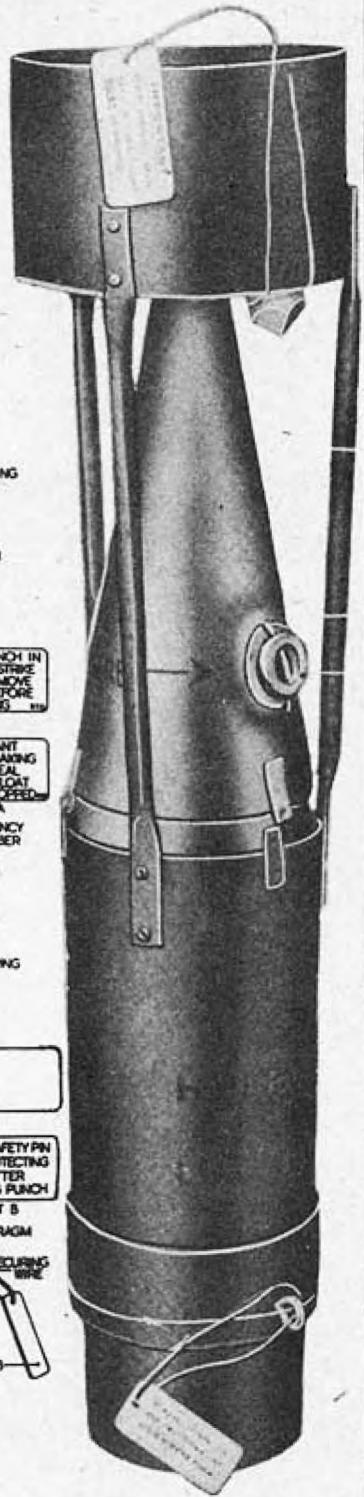
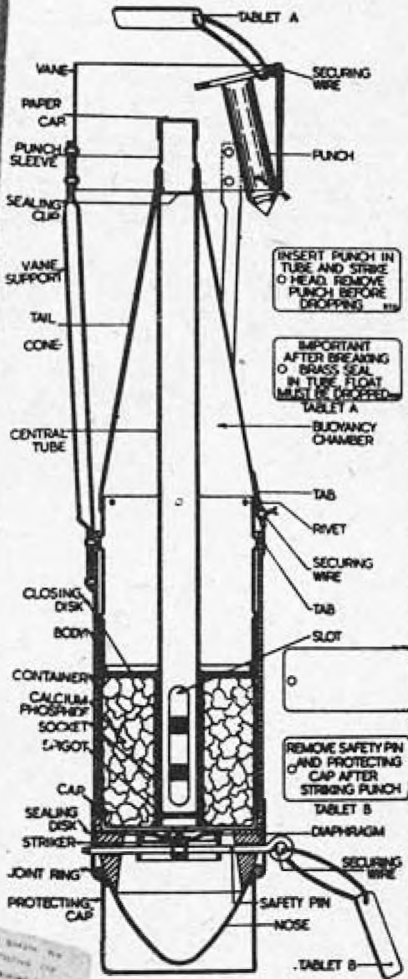
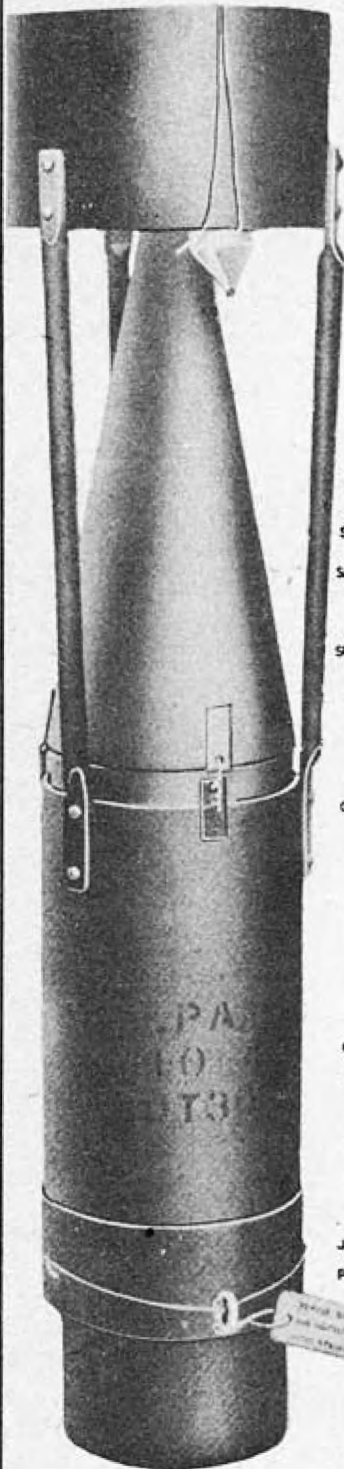
When the flame float has been prepared for use by removing the brass sealing patch and has been dropped into the sea, water passes through the eyelets and enters the canister through the aperture in its lid. The water enters the gauze tube through which it penetrates into the calcium phosphide filling. Phosphine is then evolved, inflating the inner fabric bag, and providing sufficient buoyancy to bring the flame float to the surface of the sea. The gas escapes from the neck of the outer fabric bag, and takes fire spontaneously in contact with the air, producing a highly luminous flame.

## REMARKS

It may be dropped from any height and gives a reasonably steady and bright flame for about five minutes. A flame continues for a further 15 minutes, but it becomes increasingly feeble and intermittent.

If the sealing patch of the canister has been removed, the flame float must be dropped or removed to a safe place for disposal.

# FLAME FLOAT, NAVIGATION



OVERALL LENGTH . . . . . 23.4 in.  
 MAXIMUM DIAMETER . . . . . 5.9 in.  
 FILLER . . . . . Calcium phosphide.  
 FILLER WEIGHT . . . . . 1.8 lbs.  
 TOTAL WEIGHT . . . . . 11.8 lbs.  
 EFFECTIVE ILLUMINATION . . . . . 6 min.  
 COLOR & MARKINGS . . . . . Body, vane supports, strut, and protecting cap painted red, and tail cone painted yellow.

## FLAME FLOAT

Navigation, Mk. II,  
 Message Carrying, Mk. I  
 (Flame Float, No. 4, Mk. I:  
 see remarks below.)  
 (Service)

**DESCRIPTION** The flame float consists of two main parts, a body and a container. The body is a cylindrical casting to one end of which three fins are riveted. A cylindrical strut is riveted to the fins. Secured to the fin by a securing wire is a punch to which is attached an instructional tablet, lettered on both sides. Body is thickened at nose end and has a conical nose of thin sheet steel. A protecting cap is fitted over the nose and a safety pin passes through holes in both the cap and nose.

The container consists of a sheet metal cylinder, to one end of which is attached a sheet metal tail cone. The opposite end of the container is closed by a cap. The cap is apertured and carries on the side facing the tail cone a correspondingly apertured spigot and a wire gauze socket. Passing axially along the container is a central tube, one end of which is soldered to the narrow end of the tail cone and the other end fitting into the socket. Near the tail end, the tube is closed by a sealing cup, projecting from which is a punch sleeve closed by a paper cap. On the side opposite the spigot the cap carries a diaphragm which retains a striker bored to receive the safety pin.

The lower part of the container is filled with granular calcium phosphide, which is held in position by a closing disc. This material surrounds the slotted portion of the central tube. Beyond the closing disc the annular space between the container and the central tube forms a sealed buoyancy chamber.

**FUNCTIONING** On dropping from an aircraft, impact with the water crushes the nose of the float and causes the striker to penetrate the sealing disc; at the same time the securing wires holding the container to the body are broken, and the container and tail cone are forced away from the body. The buoyancy chamber maintains the tail cone uppermost in the water. Water enters the aperture in the cap and passes through the gauze socket and the slots in the central tube into the calcium phosphide. The phosphine generated on entry of the water passes upwards through the central tube, from which it emerges through the hole pierced by the punch through the sealing cup and, on contact with the air, takes fire spontaneously.

**REMARKS** (1) Flame Float, No. 4, Mk I: Identical with inner body of Mk II float.  
 (2) Before the float is dropped, the punch is removed from the strut by cutting the securing wire, and the sealing cap on the punch sleeve is punctured with it. After the sealing cup has been broken from the flame float must be dropped from the aircraft immediately, or removed to a safe place for disposal.

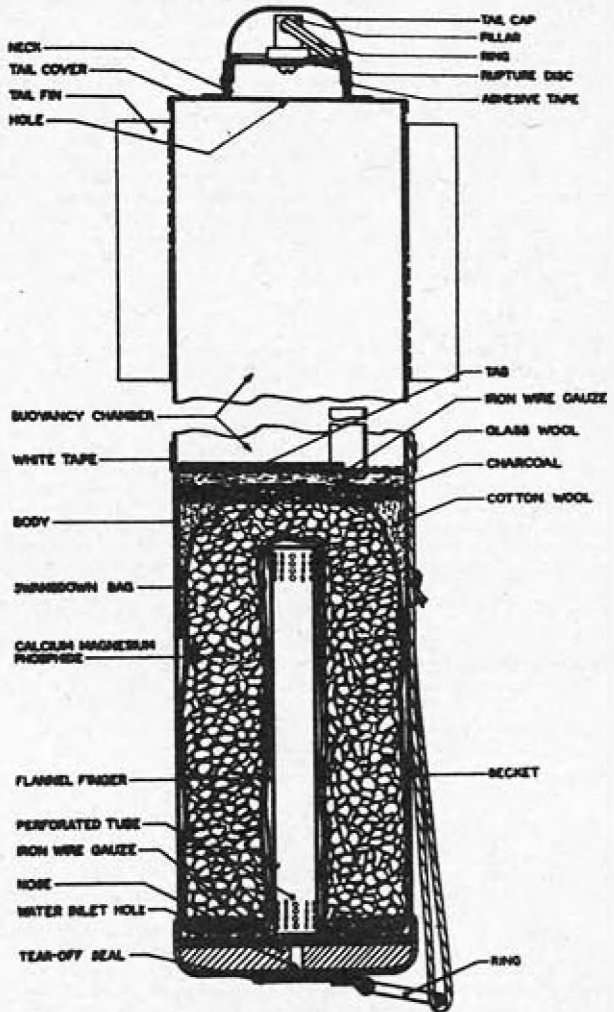
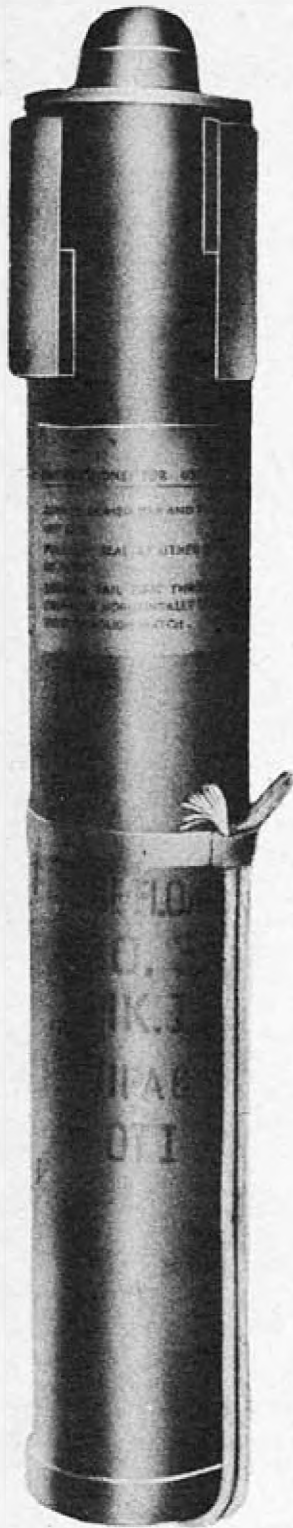
### FLAME FLOAT, MESSAGE CARRYING, MK I:

**DESCRIPTION** This float is almost identical to the Flame Float, Navigation, Mk II in dimensions and construction. The essential difference is that a message container is suspended in the buoyancy chamber by a fixing wire secured to a plug which is screwed into a bush in the tail cone. The plug is provided with a handle to facilitate its removal from the bush, and a washer on the plug insures a water-tight joint. An arrow and the words "MESSAGE HERE" are painted on the tail cone to direct attention to the message.

**FUNCTIONING** On impact with the water the nose is crushed, causing the striker to penetrate the sealing disc; at the same time the securing wires holding the container for the filling to the body are broken, and the container and tail cone are forced away from the body. The buoyancy chamber maintains the tail uppermost in the water, which enters the holes in the cap and passes through the slots in the central tube and gauze socket into the calcium phosphide. The phosphine generated on entry of the water passes upwards through the central tube, from which it emerges through the hole pierced by the punch through the sealing cup and, on contact with the air, takes fire spontaneously.

**OBTAINING MESSAGE** When the float is reached, it is to be held submerged while the plug is unscrewed and removed complete with the message container. After removal of the plug, the float will sink as a result of water entering the buoyancy chamber through the hole from which the plug has been removed.

# FLAME FLOAT NAVIGATION



OVERALL LENGTH . . . . . 18.5 in.  
 MAX. BODY DIAMETER . . . . . 2.9 in.  
 DISTANCE ACROSS TAIL FINS . . . . . 4.1 in.  
 TOTAL WEIGHT . . . . . 2.5 lbs.  
 FILLER . . . . . Calcium magnesium  
 phosphide.  
 EFFECTIVE ILLUMINATION . . . . . 5 min.  
 COLOR . . . . . Yellow overall.

## FLAME FLOAT

(Navigation)  
 No. 3, Mk. I

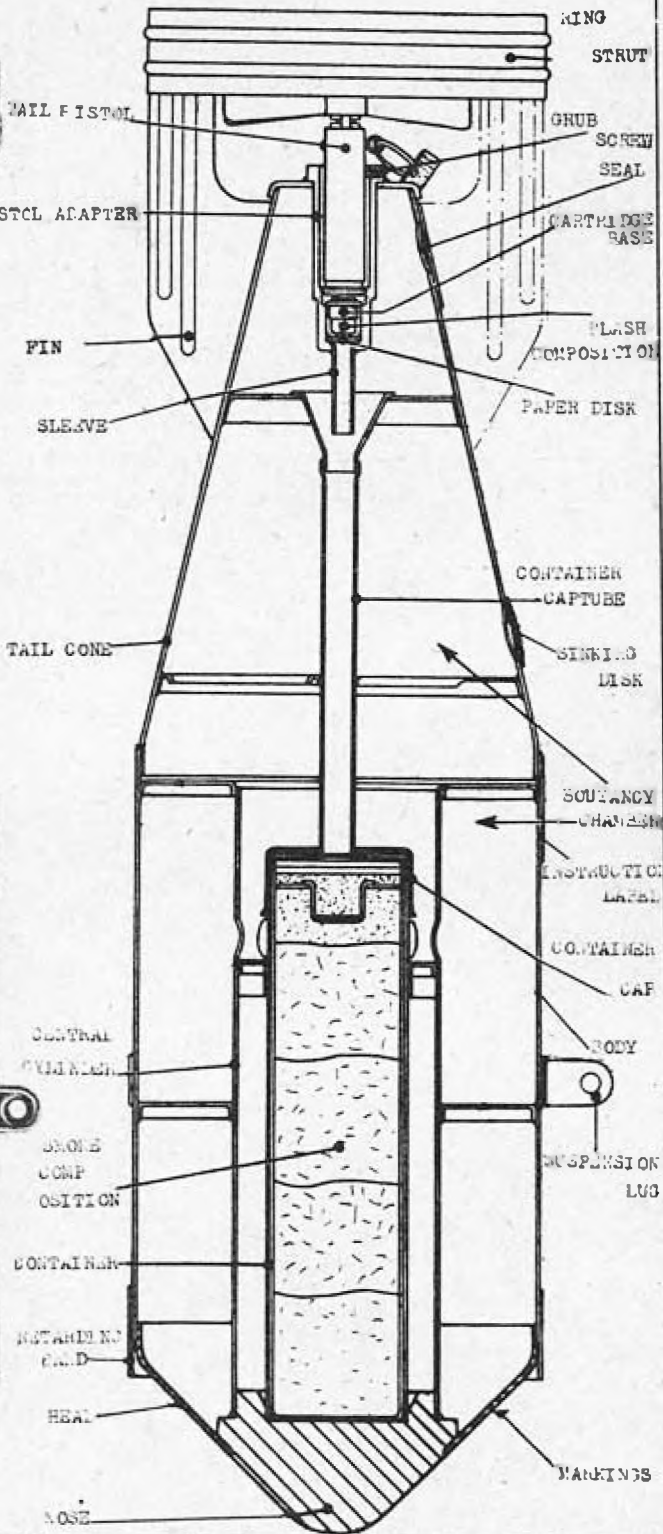
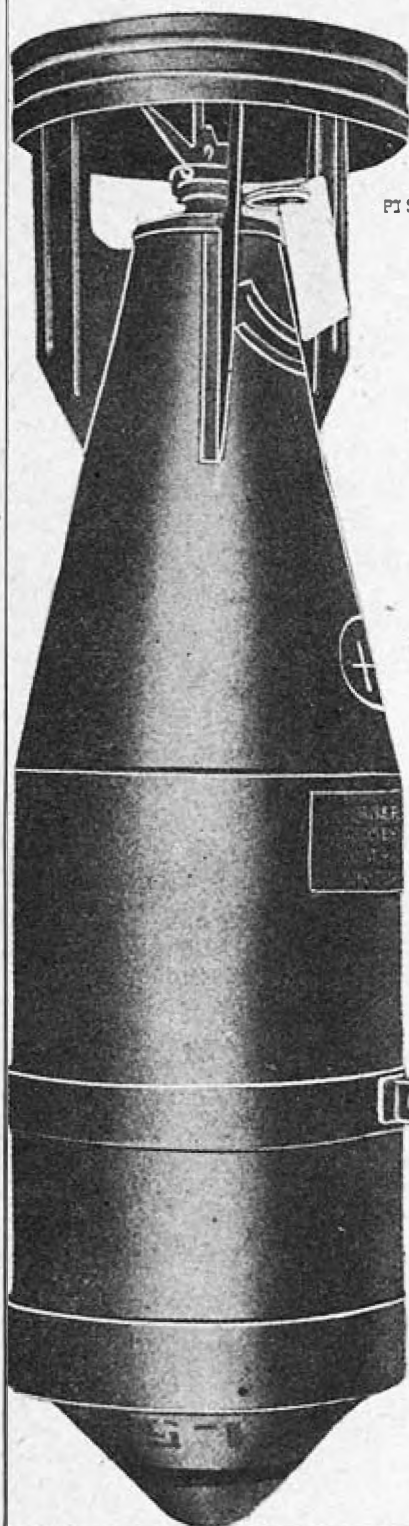
(Obsolescent)

**DESCRIPTION** . . . . . Cylindrical tinplate body, the tail end of which has four tail fins, covered by a tail cover having a central hole. Neck is closed by a thin rupture disk to which is secured a small pillar having a ring passing through it. Forward end of body is closed by a cast iron nose having a central water inlet hole. Nose is contained in a tinplate cover having a central hole covered by a tear-off seal to which is secured either a ring or an eyelet. Inside the body is a perforated zinc central tube surrounded by a swansdown bag containing calcium magnesium phosphide. Some cotton wool is packed around the tail end of the bag, and a layer of glass wool, is located between the bag and the iron wire gauze. The charcoal is provided to absorb any slight traces of gas which may be given off while the flame float is in store. The tail end of the body comprises the buoyancy chamber of the flame float.

**FUNCTIONING** . . . . . After dropped into water the float, which has had its rupture disc broken and its tear-off seal removed, rises to the surface and floats, and water enters through the water inlet hole in the nose. The water passes through the perforated zinc tube and soaks through the flannel finger into the swansdown bag, where it reacts with the calcium magnesium phosphide to give off spontaneously inflammable phosphine. The phosphine, so generated, escapes through the broken rupture disc and, on contact with air, takes fire.

**REMARKS** . . . . . Should either of the seals be broken while in store, the damaged flame float must, pending disposal, be removed to a dry place where the possibility of its catching afire is an acceptable risk.

# SMOKE FLOAT



FUZZING . . . . . No. 23 Tail Pistol  
 COLOR & MARKINGS . . . . . Body, head, and nose  
 painted green; tail cone  
 vane, vane ring painted  
 yellow; red ring 1/2"  
 wide around head near  
 the nose.  
 OVERALL LENGTH . . . . . 22 in.  
 MAX. BODY DIAMETER . . . . . 6 in.  
 TOTAL WEIGHT . . . . . 11.5 lbs.  
 DURATION OF BURNING . . . . . 8 min.  
 COLOR OF SMOKE . . . . . White

## BRITISH

## SMOKE FLOAT

No. 1, Mk. IV

(For Mks II, III, and IV2, see  
"Similar Floats" below)

Service

## DESCRIPTION

Comprises a cylindrical body, closed at one end by a conical head and a heavy nose. A retarding band is secured to the body adjacent to the head. A tail cone, carrying three vanes to support the vane ring, is secured to the opposite end of the body. End of tail cone houses a pistol adapter for the tail pistol, which is locked in place by a grub screw. Inserted in the pistol adapter is a cup, containing a cartridge base and a small quantity of flash composition, sealed with a paper disc. A sleeve leads from the bottom of the pistol adapter into the funnel-shaped upper end of the tube, known as the container cap tube. The container for the smoke composition has a fusible cup inserted into the top of the smoke composition, which is filled with pressed priming composition; above this is a layer of loose priming composition, and a primed cambric disc through which is threaded a length of quickmatch. The container is closed by a container cap. A central cylinder, provided with a ring of holes, surrounds the container. The rest of the body and the tail cone comprise a buoyancy chamber. The tail cone is provided with a sinking disc, which is scored, so that if a floating smoke float is found, the disc can be pierced easily to sink the float, the water entering the tail cone and passing into the body through the holes in the central cylinder.

## SUSPENSION

A suspension lug provided on the body permits attachment of the smoke float to a Light Series Bomb carrier.

## FUNCTIONING

When the fused smoke float has been dropped from the aircraft impact of the nose on the surface of the water causes the striker of the pistol to hit the cartridge base, and the flash composition. The flash from the flash composition ensuing flash ignites the passes down the container cap tube and ignites the primed cambric disc and quickmatch, which ignite the primings. The fusible cup melts, and the primings ignite the smoke composition. Smoke rises up the container cap tube, and the pressure increases, bursting the seal of the tail cone. The short period between impact with water and bursting of the seal is sufficient to enable the smoke float, after submerging, to rise to the surface owing to its buoyancy.

## SIMILAR FLOATS:

No. 1, Mk III - The container cap tube serves only to carry the smoke from the container to the sealed hole in the tail cone; a separate flash tube guides the flash from the flash composition to the container.

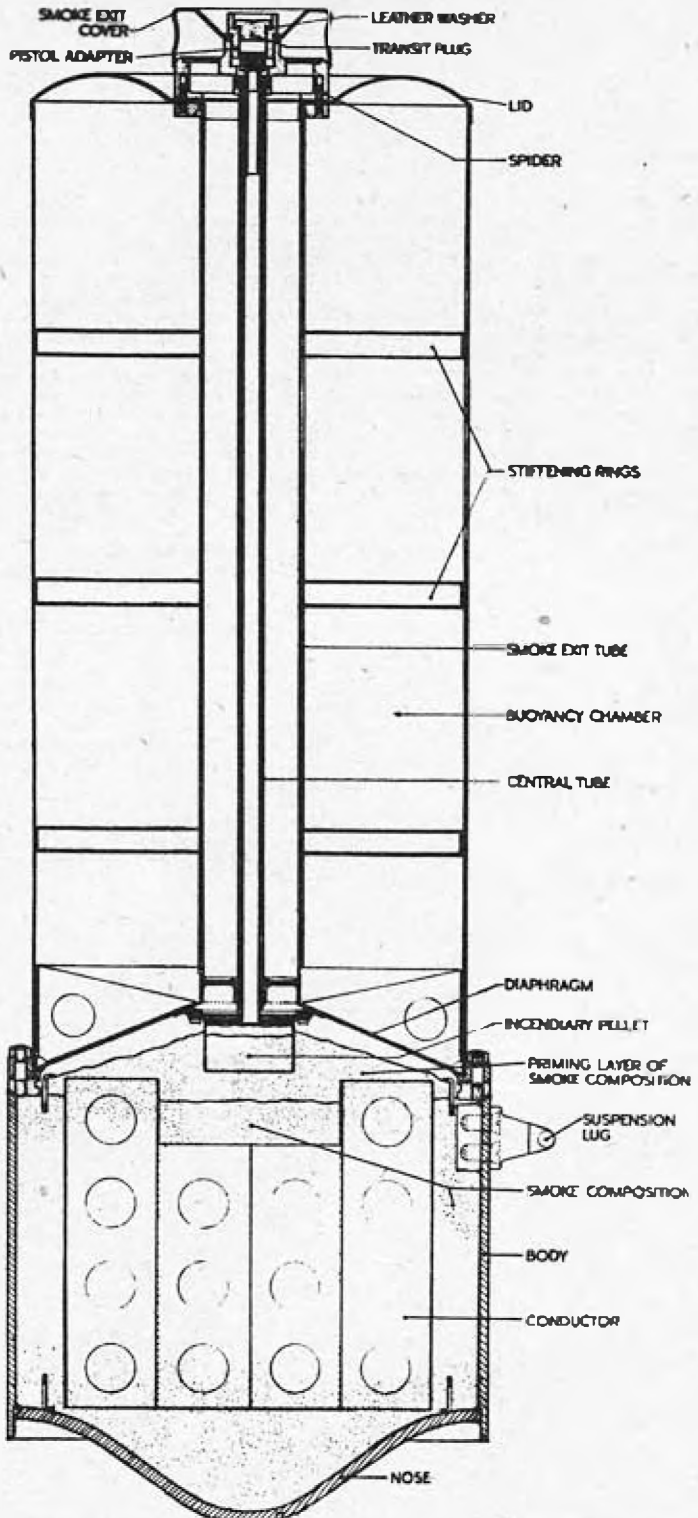
No. 1, Mk II - The container cap tube serves only to carry smoke from the container to the sealed hole in the tail cone; a length of safety delay fuse, giving a 20 sec. delay, extends between the pistol adapter and the container.

No. 1, Mk IV2 - Differs from the Mk IV float only in the nature of the smoke composition used.

## REMARKS

Should water, especially salt water, come into contact with the smoke composition it is liable to spontaneous combustion due to chemical action. If it is suspected that moisture, especially salt water, has obtained access to the smoke composition, the suspect smoke float is to be segregated immediately and examined at the first possible moment.

# SMOKE FLOAT



FUZING . . . . . Tail Pistol No. 48  
 COLOR & MARKINGS . . . . . Green overall; red band  
 around nose, yellow  
 band around tail.  
 OVERALL LENGTH . . . . . 45.5 in.  
 MAX. BODY DIAMETER . . . . . 13 in.  
 TOTAL WEIGHT . . . . . 108 lbs. (empty)  
 DURATION OF BURNING . . . . . 8-10 minutes  
 COLOR OF SMOKE . . . . .

BRITISH

## SMOKE FLOAT

No. 2, Mks I &amp; II

(For Mk I see "SIMILAR FLOATS"  
 below)  
 (Obsolete)

### DESCRIPTION

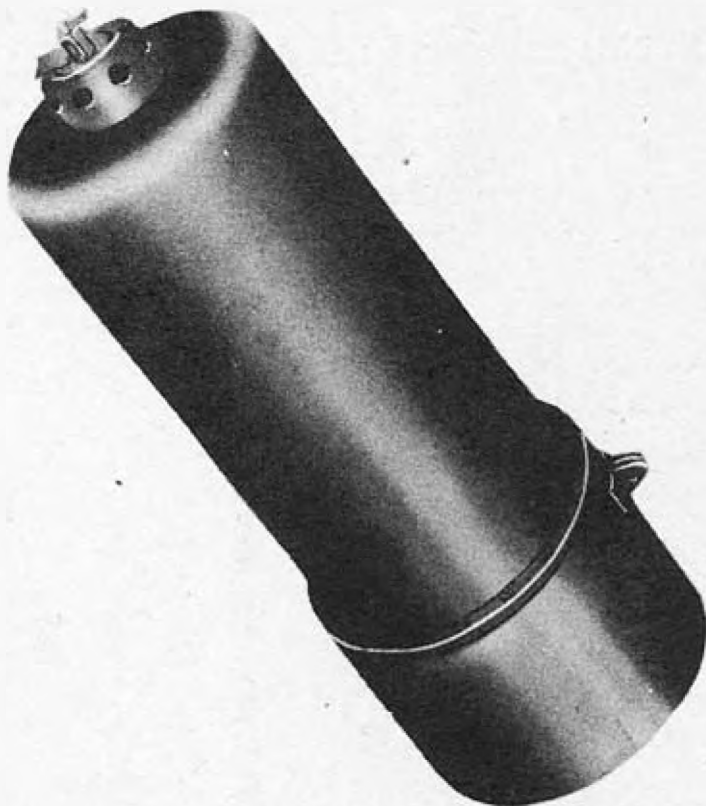
This float consists of a cylindrical body with a rounded nose containing the smoke composition. The nose piece is riveted to a metal band passing around the body at the joint. The rest of the body is cylindrical and contains a central well filled with primed cambric. At the end of the central well is the pistol well. The body has several internal stiffening rings. The float is suspended in the carrier by a single suspension lug attached near the nose of the float.

### FUNCTIONING

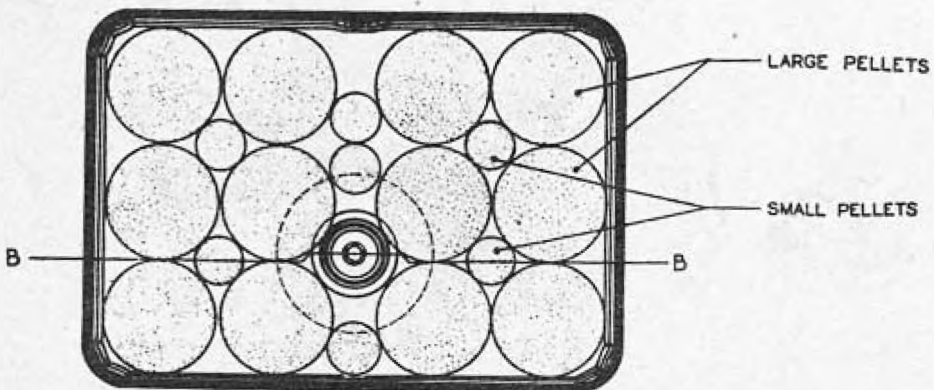
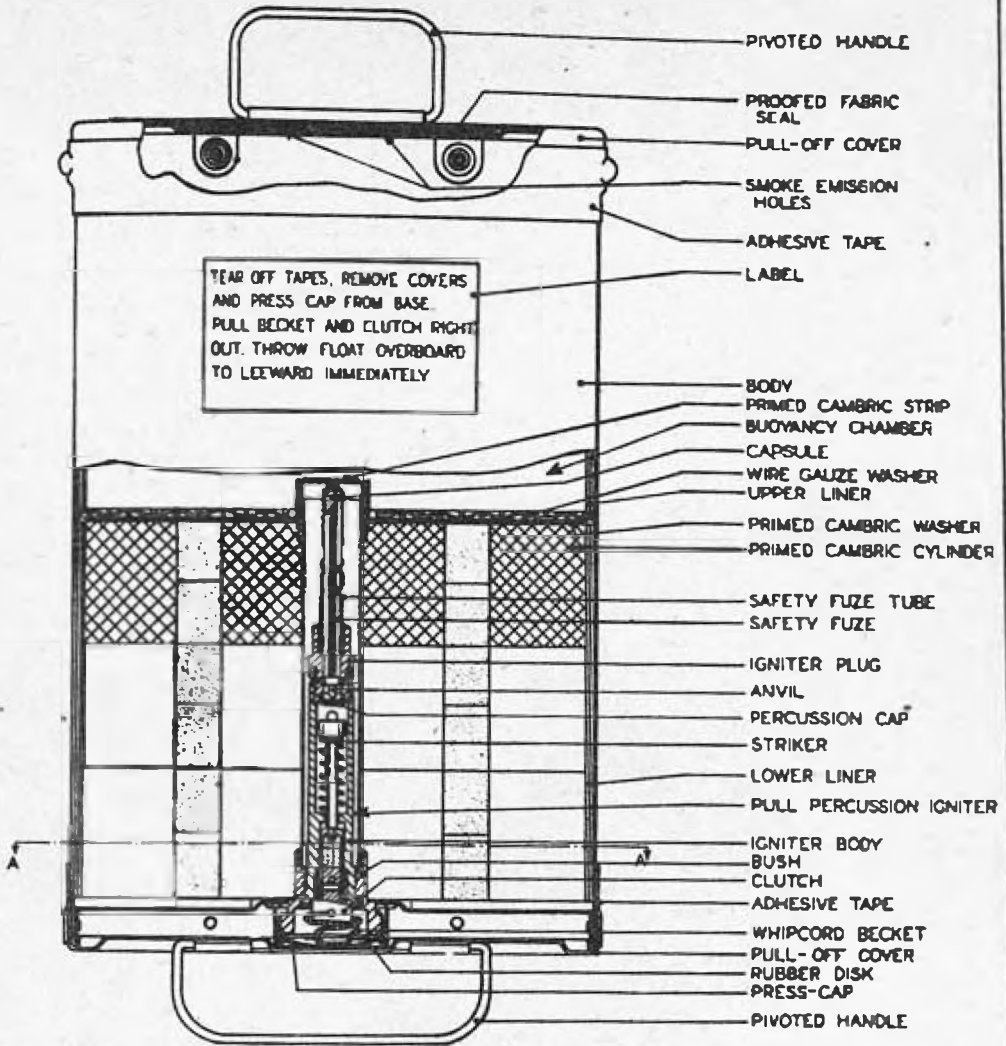
When the fuzed float is dropped, the striker overcomes the creep spring on water impact and fires a detonator located below the pistol in the pistol well. The flash is carried to the smoke composition in the nose of the float by means of the primed cambric in the central well.

### SIMILAR FLOATS

No. 2 Mk I : The forward end is reduced in diameter about 1 1/2" for a distance of about one foot.



# SMOKE FLOAT



SECTION A.A.

BRITISH

FUZZING . . . . . Pull-Percussion igniter  
 COLOR & MARKINGS . . . . . Upper half of body is  
 yellow; lower half green,  
 with red band  $\frac{1}{2}$ " wide 2"  
 from bottom.  
 OVERALL LENGTH . . . . . 10.1 in.  
 WIDTH . . . . . 6.7 in.  
 DEPTH . . . . . 4.95 in.  
 DURATION OF SMOKE  
 EMISSION . . . . . 40 sec.  
 COLOR OF SMOKE . . . . . Red

## SMOKE FLOAT

No. 3, Mk I

(Obscurement)

## GENERAL

This smoke float is intended for use from an emergency dinghy, after a forced landing has been made, to assist search planes.

## DESCRIPTION

Comprises a thin metal body at the upper end of which six smoke emission holes are covered by a proofed fabric seal. A wire gauze washer held in place by an upper and lower liner divides the body into two portions, the upper portion comprising a buoyancy chamber, and the lower portion housing a number of large and small smoke pellets disposed around a pull-percussion igniter. The large smoke pellets are arranged in tiers, the pellets in the upper tier each contained in a primed cambric cylinder. Below the wire gauze washer, a primed cambric washer rests on the upper ends of the primed pellets, and strips of primed cambric cross over the igniter. The igniter, which is secured to the body, includes a clutch movable lengthwise in the igniter body. A whipcord becket is secured to the head of the clutch and threaded through a rubber disc. The upper end of the clutch is sprung over one end of a striker which is spring loaded when the clutch is pulled out. Opposite the free end of the striker is a percussion cap and an anvil housed in an igniter plug screwed into the igniter body. A length of safety fuse enclosed in a tube terminates in a capsule filled with igniter composition.

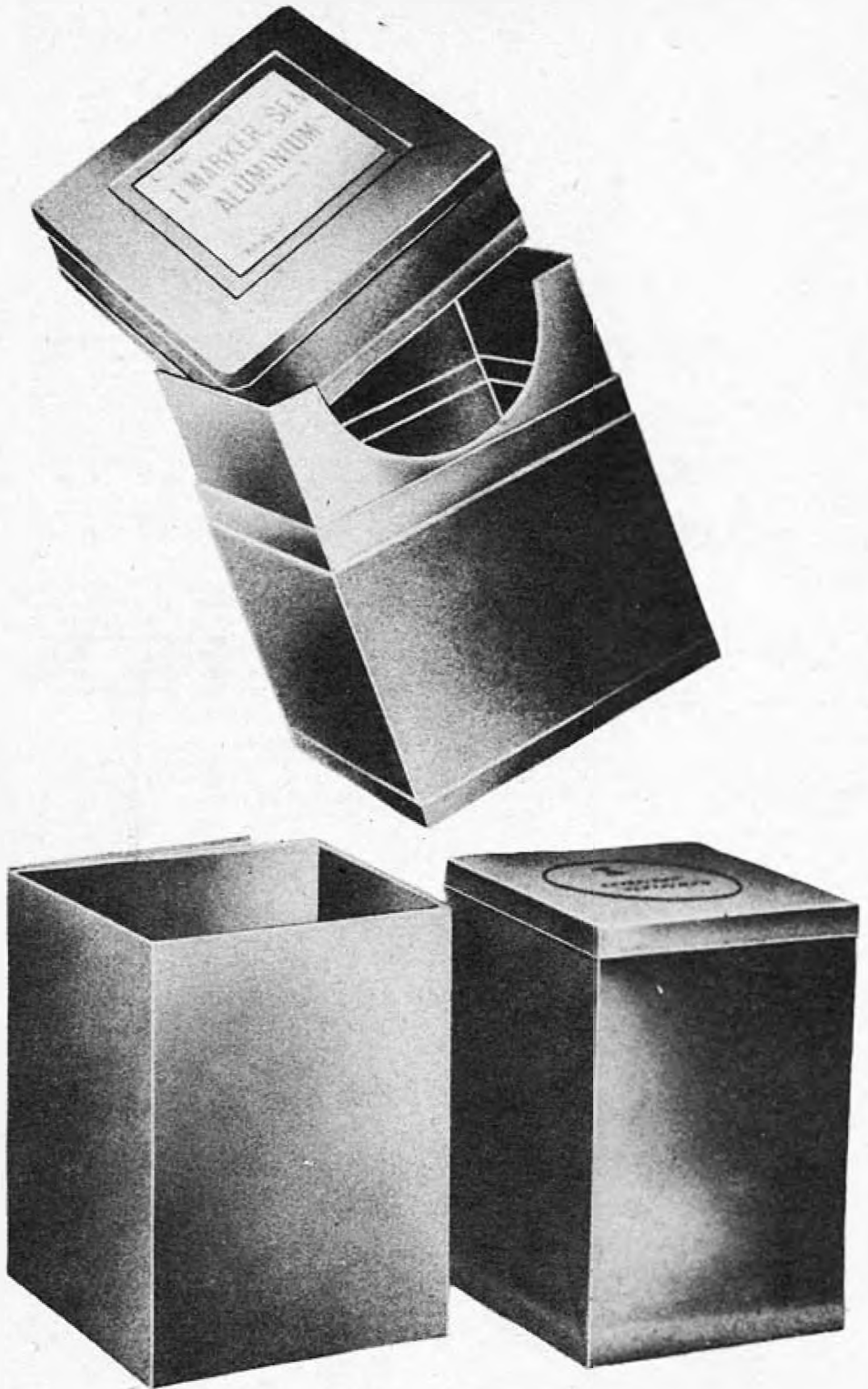
## FUNCTIONING

When the clutch is pulled out, the striker is released and fires the percussion cap. The flash from the cap ignites the safety fuse which fires the igniter composition in the capsule after a delay of not less than 8 sec. The flash from the igniter composition is conveyed by the primed cambric strips and the primed cambric washer to the pellets in the upper tier. The smoke produced raises the pressure in the buoyancy chamber until the pressure bursts the proofed fabric seal, and the smoke escapes to the atmosphere, through the smoke emission holes.

## REMARKS

When the float is to be used proceed as follows: remove the adhesive tapes securing the covers and remove both covers; press in the center of the press-cap to release the cap, then remove the cap; pull the whipcord becket and the clutch right out of the float, and immediately throw the smoke float overboard to leeward.

# SEA MARKER, AL.



LENGTH . . . . . 4.5 in.  
WIDTH . . . . . 3.5 in. sq.  
WEIGHT . . . . . 1 lbs.  
COLOR . . . . . Aluminum

BRITISH

# SEA MARKER, AL.

Mk I

(Service)

## DESCRIPTION

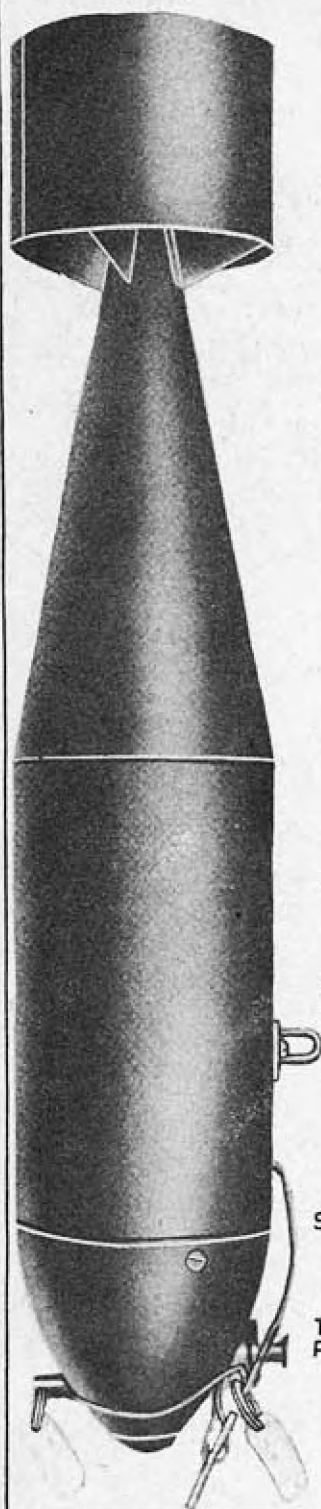
The marker consists of a fragile, paper-sided body of square cross section, fitted with wooden end pieces and filled with aluminum powder. The outside is coated with aluminum paint.

The body is surrounded by a loose cardboard sheath to protect it from damage while being handled.

## FUNCTION

When the sea marker is dropped from a plane, the sheath separates from the marker, and the latter bursts on impact with the sea, leaving a patch of aluminum powder floating on the surface.

# SEA MARKER, AL.



VANE  
SUPPORT

TAIL DRUM

TAIL CONE

STRENGTHENING  
BAND

BODY

ALUMINIUM  
POWDER

SUSPENSION  
LUG

DETONATOR-  
BURSTER TUBE

STRENGTHENING  
BAND

PLUG

DIAPHRAGM

SHEAR WIRE

NOSE

STRIKER GUIDE

STRIKER NEEDLE

FLANGE

TRANSIT SAFETY  
PIN

SAFETY PIN

SECURING WIRE

STRIKER HEAD

WITHDRAWAL WIRE

TABLETS

FUZZING . . . . . Simple impact striker  
 COLOR . . . . . Aluminum overall  
 OVERALL LENGTH . . . . . 23.12 in.  
 MAX. BODY DIAMETER . . . . . 4.4 in.  
 TOTAL WEIGHT . . . . . 10.25 lbs.

BRITISH

# SEA MARKER, AL.

Mk III

(Service)

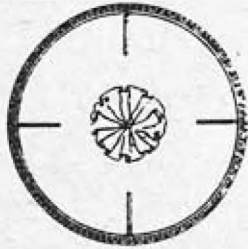
## DESCRIPTION

Cylindrical tinplate body, containing aluminum powder, and a detonator-burster charge which explodes when the marker is dropped on the sea, rupturing the body and scattering the aluminum powder contained therein. The body has an internal strengthening band near each end. A tail cone is soldered to the body, and carries the fins to which a tail drum is secured. At the other end, the body is closed by a steel diaphragm. The diaphragm has a central opening, threaded to receive a plug, which carries a detonator-burster tube. A nose is fitted to this diaphragm and secured in position by three set screws. Screwed into the nose is a striker guide in which slides a striker needle, secured to a striker head which projects outside the nose. When in its operative position, a transit safety pin engages with the striker head, preventing it from moving inwards. A second safety pin is provided in the nose. This pin is flanged and is spring-loaded outward, but normally is held in its operative position by a split pin to which a withdrawal wire is secured. A securing wire is passed through the eye of the split pin, around the head of the safety pin and the nose of the marker, and through a boring in the transit safety pin.

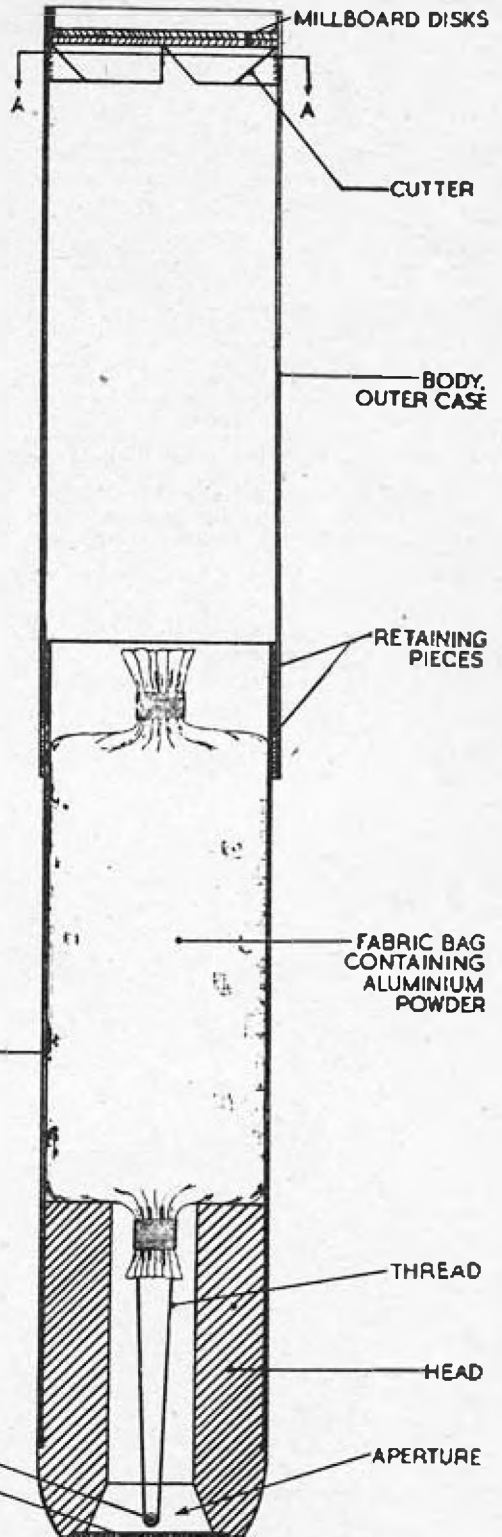
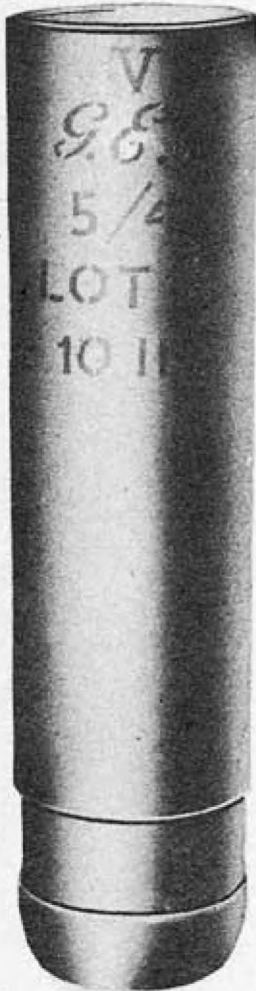
## FUNCTIONING

When the sea marker has been prepared for use and dropped on the surface of the sea, impact of the striker head with the water drives the striker needle inwards and explodes the detonator-burster charge, which disrupts the body and tail cone and scatters the aluminum powder.

# SEA MARKER, AL.



SECTION A-A



BODY,  
INNER CASE

PIN

PAPER DISK

MILLBOARD DISKS

CUTTER

BODY,  
OUTER CASE

RETAINING  
PIECES

FABRIC BAG  
CONTAINING  
ALUMINIUM  
POWDER

THREAD

HEAD

APERTURE

BRITISH

OVERALL LENGTH (telescope) . . . 12.5 in.  
 OVERALL LENGTH (extended) . . . 20 in.  
 MAX. BODY DIAMETER . . . . . 3 in.  
 WEIGHT . . . . . 10 lbs.  
 COLOR . . . . . Aluminum

## SEA MARKER, AL.

Mk V

(Service)

## DESCRIPTION

Body inner case of sheet metal, the lower end of which is pressed on to a heavy apertured head. The aperture in the head is sealed by a paper disc and is traversed by a pin.

To the upper end of the body inner case a circular retaining piece is secured. Inside the body inner case is a fabric bag containing aluminum powder, each end of the bag being tied with thread to close it. The thread at the lower end of the fabric bag is passed around the pin, to hold the bag in contact with the head. A body outer case slides over the inner case. At its upper end the body outer case is closed by two millboard discs, and inside its lower end a circular retaining piece is secured to provide a stop to prevent its being withdrawn completely from the body inner case. Immediately below the millboard discs a cutter is provided. The cutter is a ring secured inside the outer case and cut across in four places at about 45 degrees, the cut ends bent up at right angles to form four projections within the outer case.

## FUNCTIONING

The head is the heaviest part of the marker and consequently will strike the water first. Impact with the surface of the water breaks the paper disc sealing the aperture in the

head. Water enters this aperture and carries the fabric bag rearwards from the head, breaking the thread which anchors it to the pin and also ejecting the millboard discs sealing the aperture at the tail end of the body outer case. As the bag passes through this aperture it strikes the sharp projecting parts of the cutter, which slit it, releasing its contents. As a result a patch of aluminum powder is formed on the surface of the sea.

## REMARKS

The marker contains no explosive.

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BRITISH

FUZING . . . . . Nose fuze No. 848 or 860  
 COLOR & MARKINGS . . . . . Black overall with  $\frac{1}{2}$ " red  
 band near the nose; words  
 "Sea Marker Flame" sten-  
 cilled in white on both  
 body and nose, with the  
 number "19" three places  
 on the nose.  
 TAIL NO- . . . . . No. 35 Mk I  
 OVERALL LENGTH . . . . . 34.5 in.  
 MAX. BODY DIAMETER . . . . . 12 in.  
 FILLING . . . . . Sodium phosphide and  
 phosphorous.

# 250 LB. SEA MARKER

No. 19 Mk I

(Service)

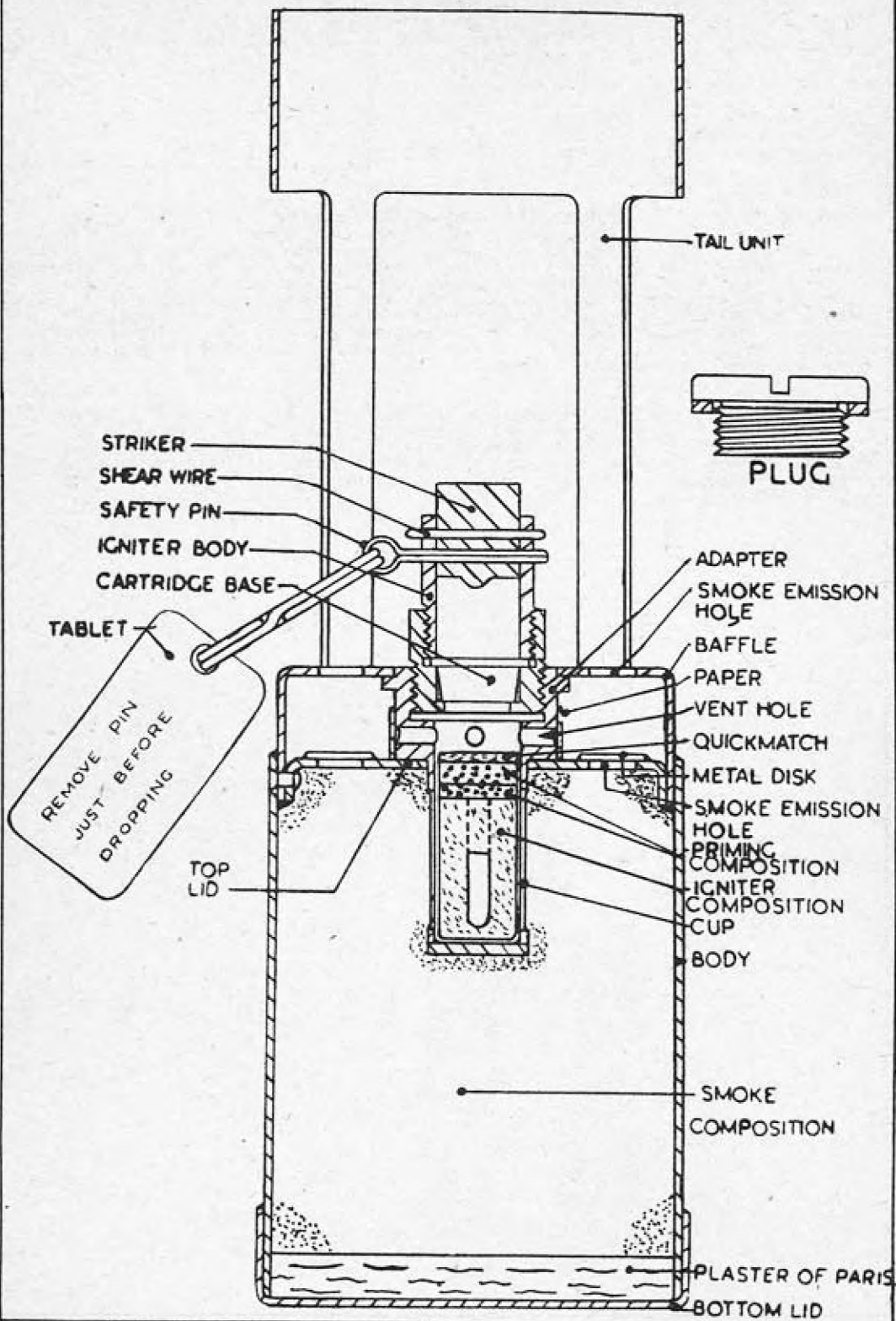
## DESCRIPTION

This bomb consists of the normal 250 lb. T.l. bomb casing (see page 131) without the candles and with an altered internal construction. The canister is divided into two parts by a thin dished plate, the upper part acting as buoyancy chamber and the lower containing the filling. Water inlet holes and a charging hole are drilled through the lower part of the canister. Each inlet hole is covered with wire netting soldered to the inside of the canister, and the charging hole is sealed with a plug. The canister is seated on an ejector plate and is retained in position by a thin metal diaphragm soldered to the bomb body below the tail plate and by six equi-spaced wooden battens extending between the ejector plate and the diaphragm.

## FUNCTIONING

On release from the aircraft, the bomb falls in a normal manner until the fuse functions. The explosion of the burster charge forces off the tail plate and ejects the canister. On impact, the water percolates through the inlet holes, and on surfacing, the generated phosphine gas burns spontaneously, giving a luminous flame about 3 ft. long. At the same time a cloud of white smoke is emitted for about 5 - 8 minutes.

# SMOKE GENERATOR



|                              |                     |
|------------------------------|---------------------|
| USING . . . . .              | Percussion igniter  |
| COLOR & MARKINGS . . . . .   | Light green overall |
| OVERALL LENGTH . . . . .     | 7.13 in.            |
| MAX. BODY DIAMETER . . . . . | 2.42 in.            |
| SMOKE COLOR . . . . .        | Orange              |
| TOTAL WEIGHT . . . . .       | 1 lb.               |
| EMISSION TIME . . . . .      | 2½ min.             |

BRITISH

## SMOKE GENERATOR

No. 6, Mks. I &amp; II

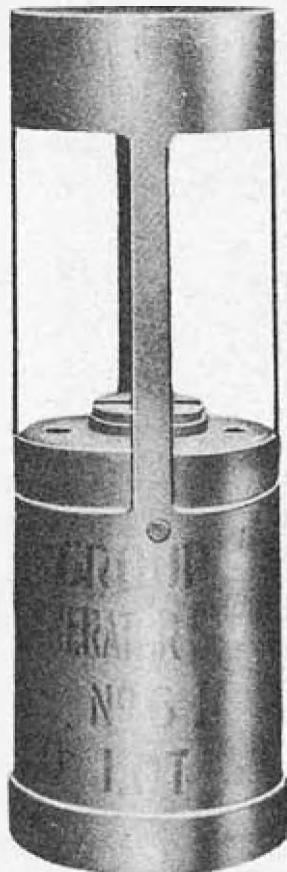
(Service)

## DESCRIPTION

This smoke generator is designed to be dropped from an aircraft to enable the pilot to ascertain the direction of the wind on the ground before making an emergency landing. It consists of a cylindrical metal body containing smoke composition, a plugged adapter containing igniter composition in a metal foil cup, a quantity of priming composition, and a length of quickmatch. When prepared for use, a percussion igniter replaces the adapter plug. A tail unit is formed integrally with the body, and the upper end of the body is closed by a lid. The igniter consists of an igniter body, a striker supported above the cartridge base by a shear wire, and a safety pin. The cartridge base includes a small quantity of cap composition located between a percussion cap and an anvil.

## FUNCTIONING

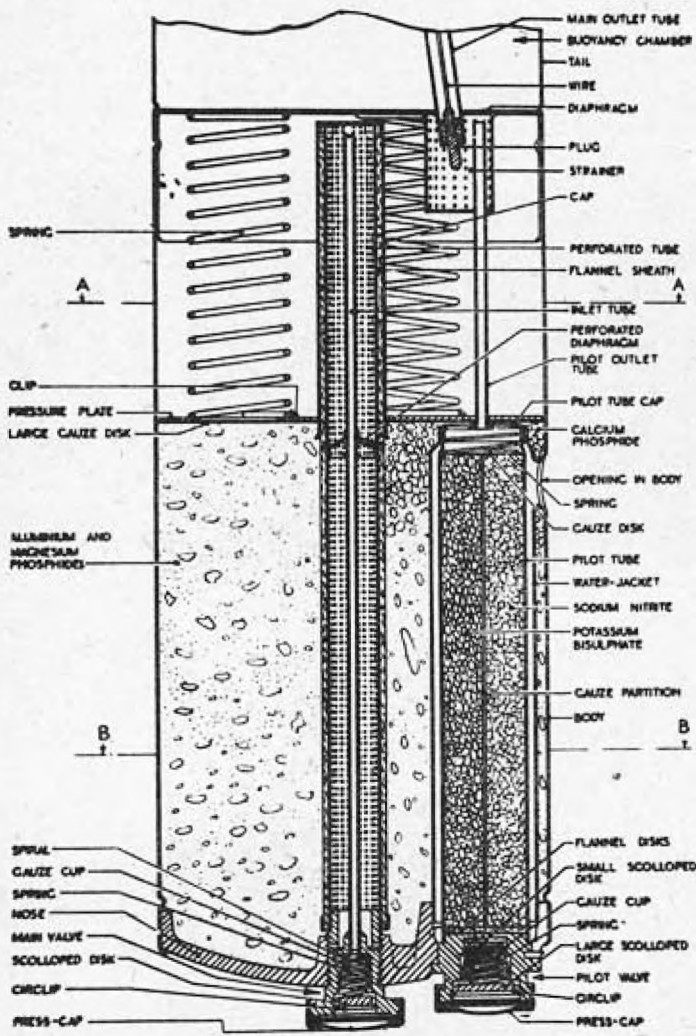
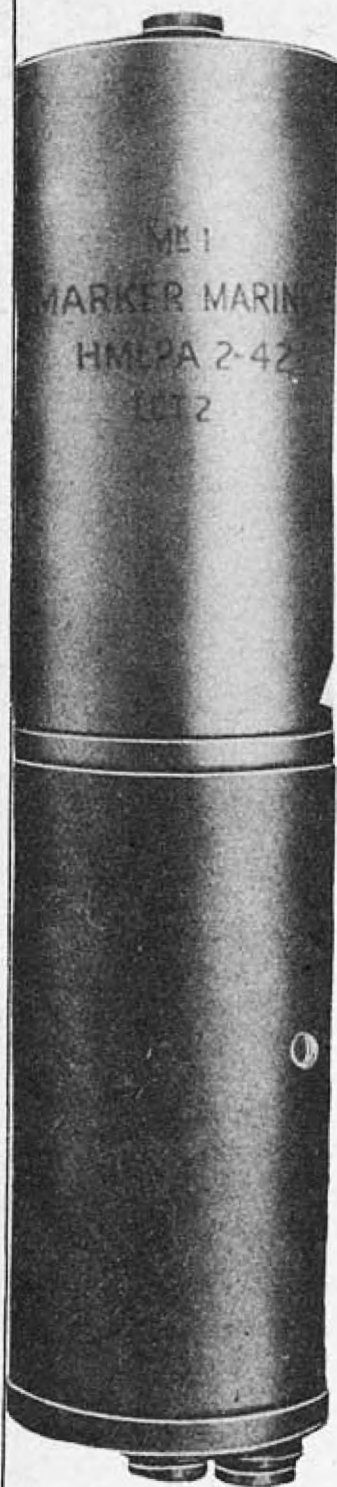
The safety pin is removed just before the generator is dropped. On impact the striker moves downwards, breaks the shear wire, and fires the cap composition in the cartridge base. The flash from the cap composition ignites the quickmatch which, in turn, ignites the priming composition in the adapter. The priming composition ignites the igniter composition which, in turn, ignites the smoke composition. The heat due to the combustion of the smoke composition loosens the metal discs covering the smoke emission holes in the top lid, and the pressure of the smoke forces the discs off the top lid, allowing the smoke to escape to the atmosphere. Orange colored smoke is emitted for about 2½ minutes.



REMOVE PIN  
JUST BEFORE  
DROPPING



# MARINE MARKER



OVERALL LENGTH . . . . . 26.8 in.  
 MAX. BODY DIAMETER . . . . . 8.6 in.  
 TOTAL WEIGHT . . . . . 16 lbs.  
 FILLER . . . . . Aluminum and mag-  
 nesium phosphides  
 EFFECTIVE ILLUMINATION . . . . . 2 hours  
 COLOR . . . . . Body and nose red;  
 tail and tail cap  
 yellow.

## MARINE MARKER

Mk. I

(Obsolescent)

## DESCRIPTION

When the marker has been prepared for use and dropped into water, the water jacket fills and the scalloped disc in the main valve and the large disc in the pilot valve are forced against the ledges in the valves, thus preventing too great an ingress of water while it is submerged. Some water, however, enters the main outlet tube, passes through the pressure plate, and reacts with the calcium phosphide. This reaction evolves impure phosphine which ignites spontaneously when the marker surfaces. As it surfaces, the pressure closing the valves is relaxed, and the springs return the discs against the circlips, thus permitting the ingress of water through the scallops in the disc to the bottom of the inlet tube and pilot tube. The water entering the main valve passes through the inlet tube into the perforated tube, and after passing through the perforated diaphragm percolates through the flannel sheath and reacts with the main charge to give off pure phosphine, which is not spontaneously inflammable. The cap over the free end of the perforated tube prevents the water from percolating through the part of the flannel sheath above the pressure plate.

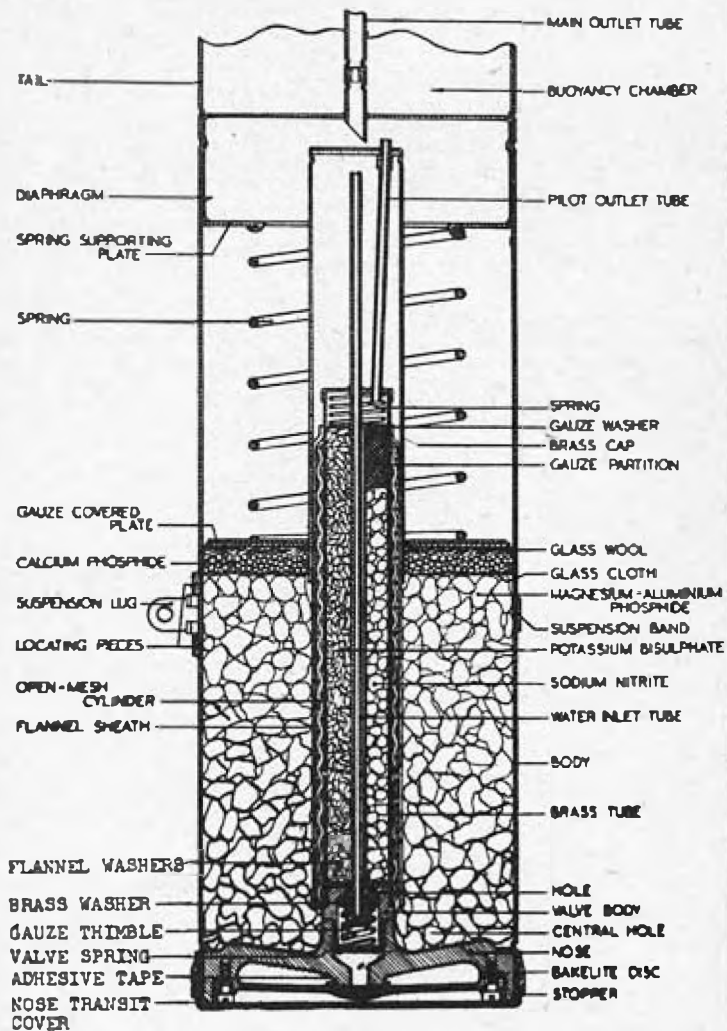
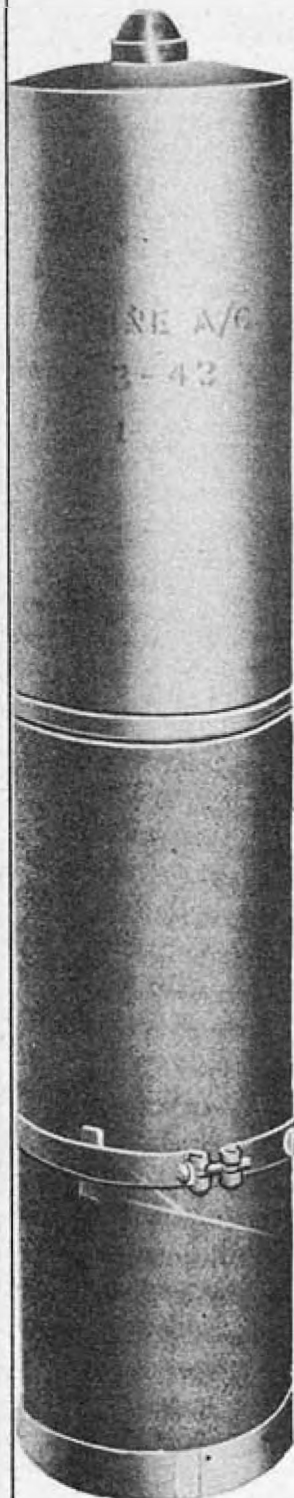
The water entering the pilot valve percolates through the flannel disc and dissolves the potassium bisulphate and the sodium nitrite, which inter-act and evolve gaseous oxides of nitrogen which mix with the phosphine in the strainer. The mixed gases are spontaneously inflammable in air, and, passing through the main outlet tube, inflame immediately on reaching the air. The flame thus produced continues to burn evenly for approximately 2 hours, during the whole of which time the gases remain spontaneously inflammable, so that even if the flame is put out by a wave, it lights up again as soon as contact with air is re-established.

The flame is visible, either from the air or from the bridge of a surface vessel, in daylight over a distance of at least three miles, and at night over a distance of about 20 miles, and white smoke is given off with the flame.

## REMARKS

In damp atmosphere, after removal of the oversalls and press-caps, this marker evolves spontaneously inflammable phosphine, and for this reason should be prepared for use only just before it is to be launched.

## MARINE MARKER



RESTRICTED

BRITISH

OVERALL LENGTH . . . . . 30 in.  
MAX. BODY DIAMETER . . . . . 5.8 in.  
TOTAL WEIGHT . . . . . 19 lbs.  
FILLER . . . . . Magnesium-aluminum  
phosphide  
BURNING TIME . . . . . 2 hours  
COLOR . . . . . Body and nose transit  
cover painted red;  
tail, tail cap and tail  
transit cap painted  
yellow.

## MARINE MARKER

Mk. II  
19 lb.

(Service)

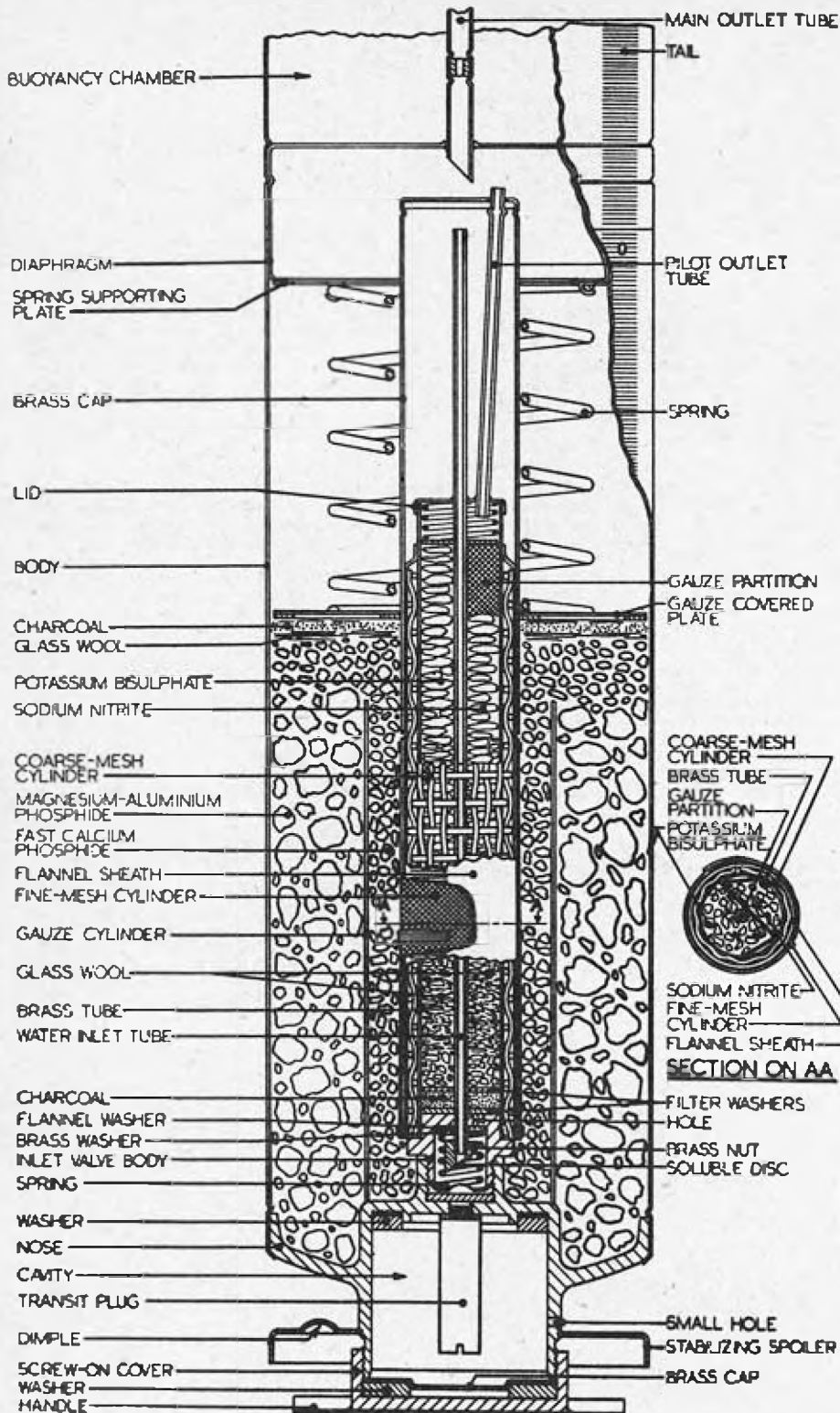
### DESCRIPTION

Consists of a body with a steel nose at one end having a central hole closed by a stopper which forms part of a thin bakelite disc secured to the nose by screws. The disc is protected during transit and storage by a nose transit cover held in position by adhesive tape. The tail constitutes a buoyancy chamber, and a main outlet tube extends between the diaphragm and a tail cap at the outer end of the tail. The tail cap has a neck closed by a thin rupture disc to which is secured a small pillar having a ring attached to it. Two locating pieces secured to the outside of the body are provided to locate a suspension band in position if the marker is to be carried on a Light Series Bomb carrier.

### FUNCTIONING

When it is dropped into water, the bakelite disc is broken by impact with the water, the stopper falls away and the marker rises to float on the surface. Water enters the central hole in the nose and, after passing through the gauze thimble, some of it soaks through the flannel washer, passes through the small hole in the valve body, and enters the brass tube after soaking through the flannel washer in the tube. The remainder of the water passes through the water inlet tube, percolates through the open-mesh metallic cylinder and its flannel sheath, and enters the body of the marker. The brass cap prevents water from passing through the sheath and coming into direct contact with the calcium phosphide. The water which enters through the nose reacts with the magnesium-aluminum phosphide and gives off pure phosphine, which is not spontaneously inflammable. Some water, however, passes down the main outlet tube while the marker is submerged, and this water reacts with the calcium phosphide to produce a phosphine which, in contact with the air, is spontaneously inflammable. The supply of spontaneously inflammable gas lasts only about 3 minutes and is thereafter maintained by the phosphine evolved from the magnesium-aluminum phosphide mixing with the gaseous oxides of nitrogen given off by the inter-action of the potassium bisulphate and the sodium nitrite, which are dissolved by some of the water which enters through the nose.

## MARINE MARKER



OVERALL LENGTH . . . . . 36.8 in.  
 BODY DIAMETER . . . . . 6.0 in.  
 TOTAL WEIGHT . . . . . 21 lbs.  
 FILLER . . . . . Magnesium-aluminum  
 phosphide.  
 BURNING TIME . . . . . 2 hours  
 COLOR . . . . . Blue grey overall

## MARINE MARKER

Mk. III  
 21 lb.

(Service)

## DESCRIPTION

Outer casing consists of a body and a tail connected by a diaphragm, a heavy nose being secured to the body. The nose has a cavity to receive the time valve, and a central hole at the bottom of the cavity is closed by a transit plug. The valve is a clockwork device which permits the marker to remain in the water for a period up to 6 hours before it functions. The period of delay is determined by setting the valve before the marker is released from the aircraft. The main filling consists of magnesium-aluminum phosphide, and is packed round a gauze cylinder, and inside the gauze cylinder is a quantity of fast calcium phosphide, which also extends over the top of the magnesium-aluminum phosphide. Main filling held in place by a thin steel plate having large holes covered by brass gauze, and a large spring anchored to a spring supporting plate which abuts against the diaphragm connecting the tail to the body of the weapon. A layer of charcoal is provided beneath the steel plate to absorb any small quantities of phosphine gas generated by traces of moisture which may be in the body of the marker during filling, and a layer of glass wool beneath the charcoal acts as a dust filter. The tail constitutes a buoyancy chamber and a main outlet tube extends between the diaphragm and a tail cap at the outer end of the tail.

## FUNCTIONING

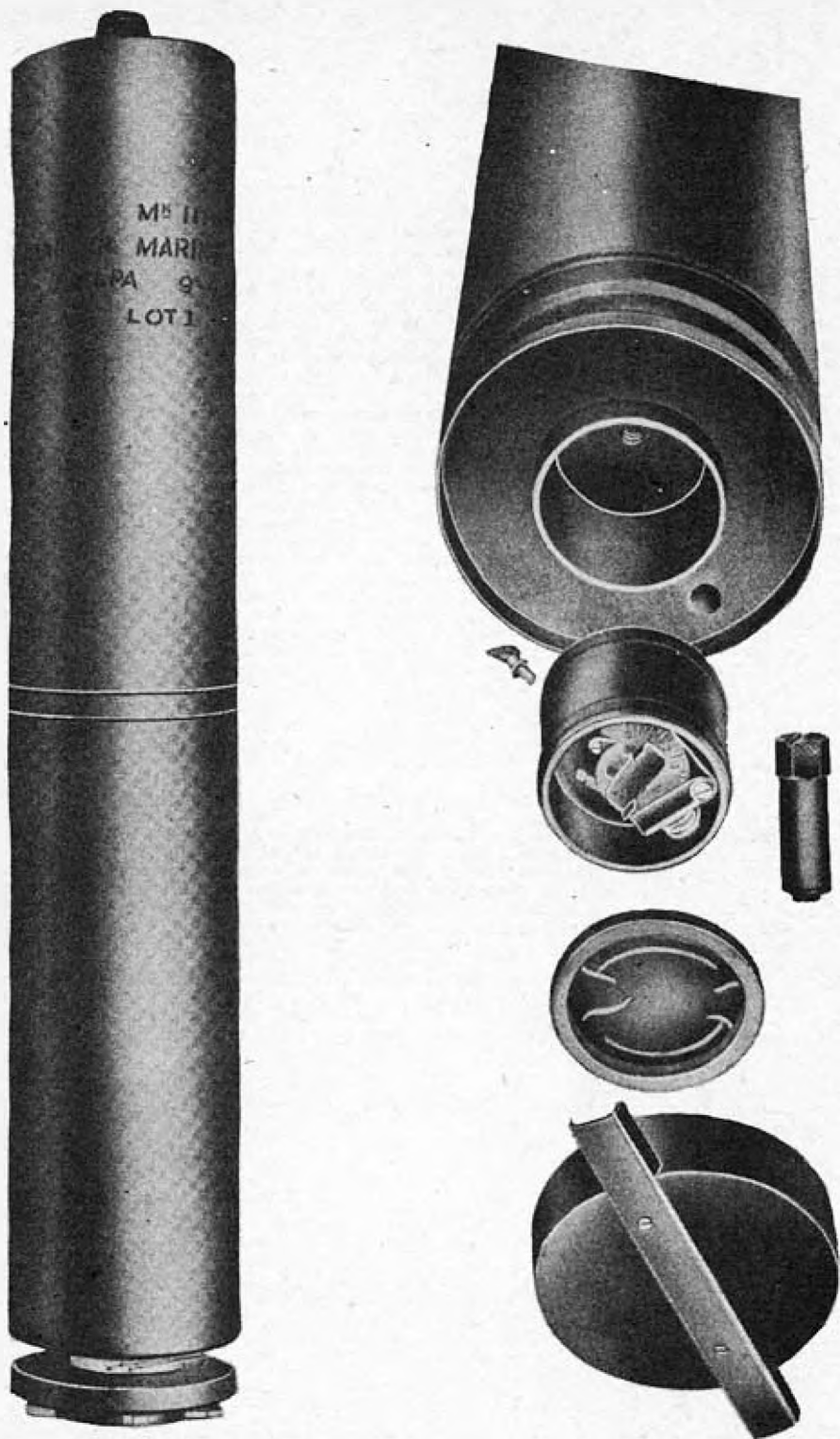
After entering the water, the marker rises to the surface and floats tail uppermost, water entering the nose cavity through the two small holes in the side of the nose. At the expiration of the delay set on the time valve, the helvic plug sealing the hole in the side of the time valve is opened and the water passes through the time valve and the central hole at the bottom of the nose cavity, into the water inlet valve in the nose. Some of the water entering the water inlet valve soaks through the flannel washer and passes through the small hole in the inlet valve into the brass tube to react with the filling in the brass tube. The remaining water, after dissolving the soluble disc covering the nut, passes upwards through the water inlet tube, percolates through the coarse-mesh cylinder, the flannel sheath, and the fine-mesh cylinder, and enters the body of the marker. The brass cap prevents water from passing through that portion of the sheath which is above the fine-mesh cylinder.

The water passing through the fine-mesh cylinder, together with the small quantity which passes down the main outlet tube while the marker is submerged, reacts with the calcium phosphide in the gauze cylinder and covering the top of the main filling, to produce impure phosphine which, in contact with air, is spontaneously inflammable. This supply of gas lasts only for a few minutes, and is thereafter maintained by the pure phosphine evolved from the magnesium-aluminum phosphide mixing with the gaseous oxides of nitrogen given off by the interaction of the potassium bisulphate and the sodium nitrate, which are dissolved by the water entering the brass tube.

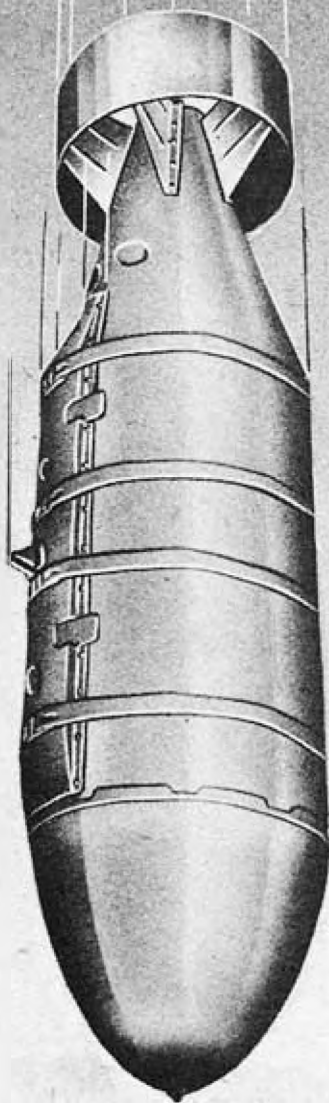
## REMARKS

When breaking the rupture disc, do not hold your head directly over the tail cap of the marker. This avoids possible injury to the eyes which might be caused should sufficient pressure be built up in the marker to force phosphide dust particles past the glass wool filter at the top of the main filling.

# MARINE MARKER



# CLUSTER PROJECTILES



CONFIDENTIAL

## USE

A cluster projectile is an assemblage of small bombs or containers held together primarily by resilient straps and beams. It is constructed so as to be an aimable projectile and is usually fitted with a tail unit for stabilization.

At present there are cluster projectiles for flares, incendiary bombs, smoke bombs, and the 20 lb. fragmentation bombs. The cluster projectiles are rapidly replacing the Small Bomb Containers as the preferred method for carrying small bombs and flares. Advantages of the Cluster Projectiles include ease of loading and installation in the aircraft, increased number of bombs or flares contained in the same space, and increased accuracy.

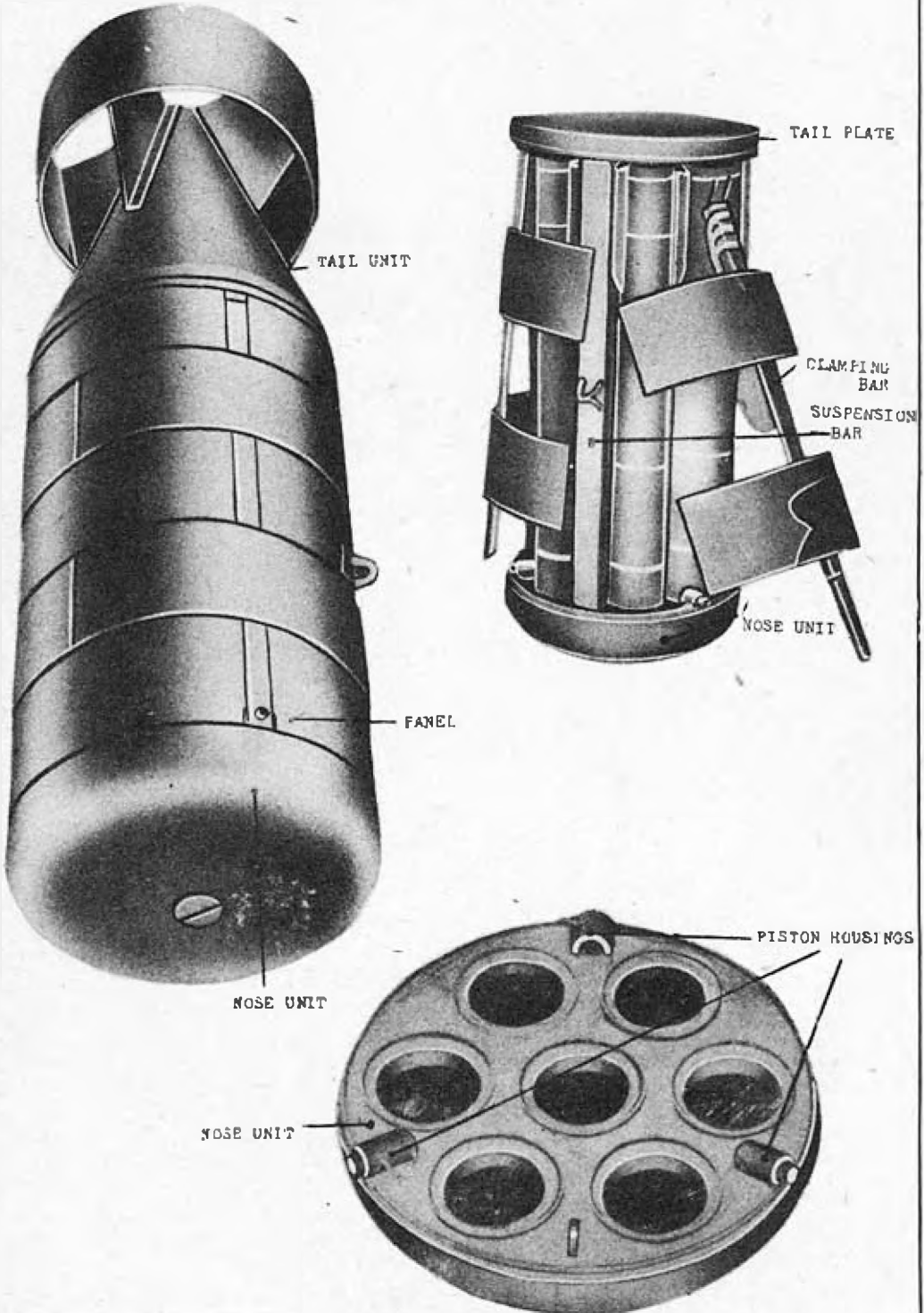
## FUZING

Fuzes are incorporated in the projectiles to disintegrate the cluster itself and permit the individual bombs to disperse and fall freely after break-up of the projectile. They are fused either at the nose or tail, and have explosive channels and pellets so designed as to break up the cluster without injuring any of the contained bombs.

## CHARACTERISTICS

Usually the bombs or flares are shipped already packed in the cluster projectile so assembly of the complete round is not necessary in the field. The fuze of the cluster is generally installed just prior to loading the projectile on the aircraft.

# CLUSTER PROJECTILE



FUZZING . . . . . Nose Fuze No. 42, 848, 849,  
 or 860, Mk II.  
 CONTENTS . . . . . Seven 4.5" reconnaissance  
 flares.  
 OVERALL LENGTH . . . . . 62.75"  
 DIAMETER . . . . . 18"  
 TOTAL WEIGHT . . . . . 260 lbs.

BRITISH BOMB

# CLUSTER PROJ.

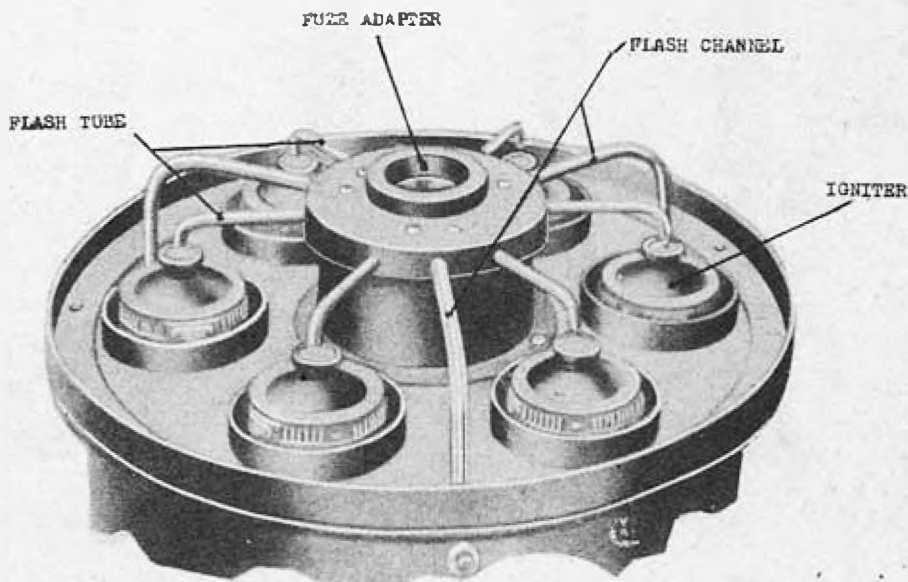
No. 1, Mk. I

(Service)

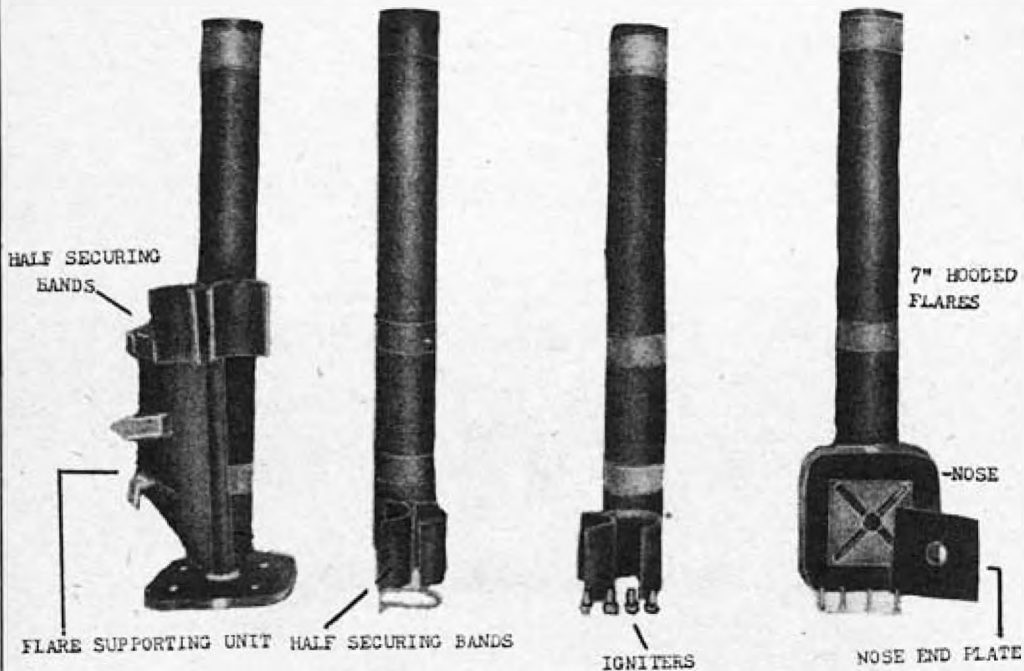
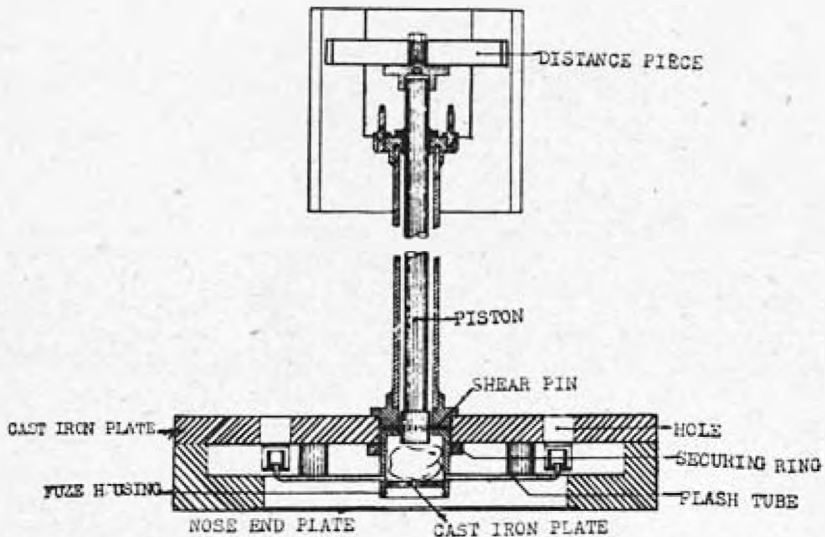
**DESCRIPTION:** Cylindrical metal container consisting of a nose unit recessed to receive the noses of seven 4.5" reconnaissance flares and a fuze adapter from which radiate six flash tubes to the igniters and three flash channels leading to the explosive pellets in the piston housings. The nose unit is secured to the panel locating plate and the tail plate by the T-section suspension bar and the clamping bars. The clamping bars consist of a bar to which are welded two panels. The clamping bars locate the panels and are secured through the panel locating plate to the tail plate and to the nose unit by spring washers and nuts. The nuts securing the clamping bars to the piston housings are further secured by split pins. The tail tie rod is screwed into the tail plate and the tail unit fastened to it by a spring washer and nut. Tail consists of a sheet metal cone with cylindrical strut attached by four fins on the rear of the tail cone. The flares from which the suspension lugs and domed caps have been removed are located by the recesses in the nose unit and panel locating plate. The flares are fuzed with special igniters consisting of the body and dome portion of the No. 42 fuze without the percussion cap and striker mechanism, and sealed with primed cambric.

**SUSPENSION:** Single lug secured to a T-section suspension bar running from the nose to the base.

**FUNCTIONING:** On release from the aircraft the cluster falls normally until the fuze functions. When the fuze functions the flash from the magazine passes through the flash tubes to ignite the igniters in the nose of each flare and through the flash channels to explode the gunpowder pellets in the piston housings. The explosion of the pellets forces the pistons out of their housings, causing the clamping bars to swing outwards, thereby releasing the nose unit, panels and initiated flares. The flares then function in the normal manner.



# CLUSTER PROJECTILE NO.3 MK.1



FUZING . . . . . Nose Fuze No. 860  
 COLOR . . . . . Black overall  
 CONTENTS . . . . . Four 7" Hooded Flares  
 OVERALL LENGTH . . . . . 72.5"  
 DIAMETER . . . . . 18"  
 TOTAL WEIGHT . . . . . 400 lbs.

BRITISH BOMB

# CLUSTER PROJ.

No. 3, Mk. I

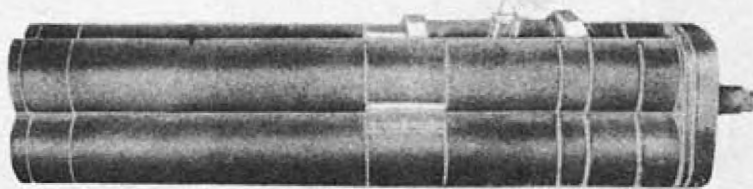
(Service)

**DESCRIPTION:** The cluster projectile consists of the following main components: the flare supporting unit, heavy nose, half securing bands, and the hooded flares. The flare supporting unit consists of a square cast iron plate (on which is painted a narrow white alignment strip), and a steel tube to which is welded a suspension web. The rear end of the tube is flanged and 4 equi-spaced pins are riveted to the flange. External threads on the fuze housing receive the plate securing ring which secures the plate to the tube. The tube is also internally threaded at the nose end to receive the fuze and a centrally drilled separating plug.

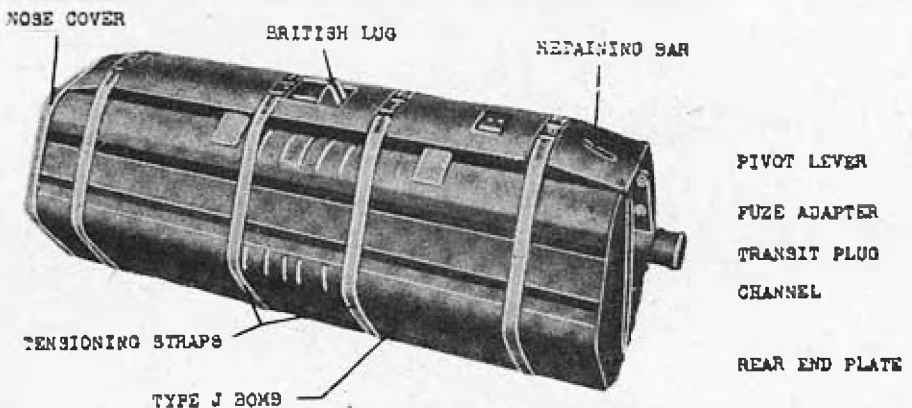
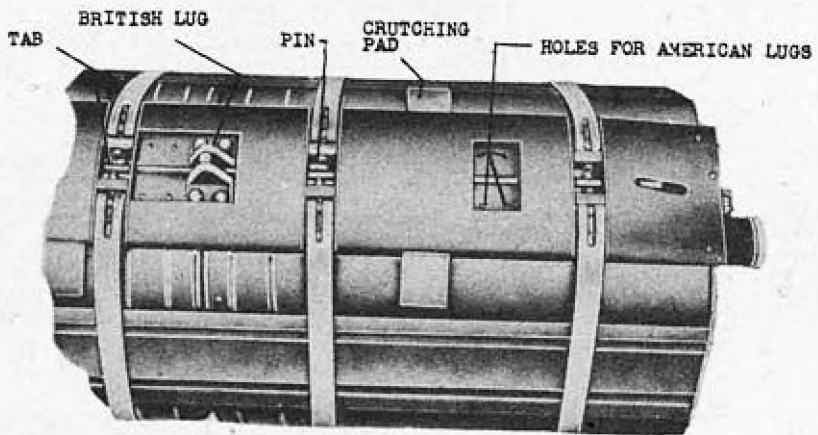
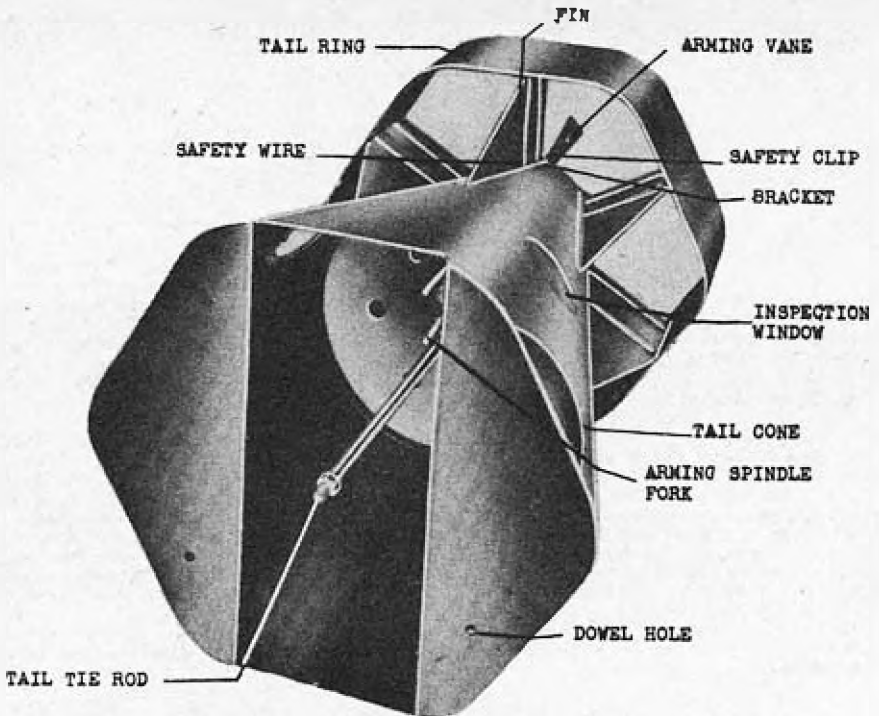
Four flash channels are drilled through the walls of the fuze housing immediately above the separating plug. Four flash tubes lead from these flash channels to the four equi-spaced holes in the plate drilled to receive the flare igniters. The piston, flanged at the protruding tail end, is housed in the tube and retained in position at the nose end by two shear pins. A space between the nose end of the piston and the centrally drilled separating plug forms a burster chamber which is filled with a small fabric bag containing 80 grams of gunpowder when the cluster is fused. The heavy cast iron nose, on which is painted a white alignment strip, and to which the flare supporting unit is bolted, is slotted to receive the flash tubes and the No. 860 fuze. The nose end plate is retained in position by the fuze. The four flares are fitted with special igniters instead of fuzes, and are retained in position in the cluster by half securing bands, the igniters being located in the drilled holes in the plate.

The four half securing bands of the flare securing unit are seated on the flange and each is retained in position by a socket welded to the outside of the band engaging with a corresponding dowel pin. The sockets are covered by metal bridges in which are cut horizontal slots to receive the flange of the piston. This prevents premature displacement of the flares. The four remaining half securing bands are placed in position round the flares and bolted to the other half bands. A cruciform distance piece is bolted to the tail end of the piston.

**FUNCTIONING:** On release from the aircraft the cluster falls in a normal manner until the fuze functions. The flash from the detonator of the fuze magazine passes through the flash channels and the flash tubes to function the igniters and through the separating plug to the burster charge. The explosion of the burster charge forces the piston towards the tail end of the cluster to sever the shear pins and to lift the half securing bands off the dowel pins by means of the flange of the piston engaging in the bridges. The four flares are thus lifted off the plate of the flare supporting unit and a 3 second delay in the flare igniters allows the cluster to disintegrate before the flares function.



# CLUSTER PROJECTILE NO. 4 MK. I



FUZZING . . . . . Tail Fuse No. 867, Mk I  
 COLOR . . . . . Dull red overall; one of ten-  
 sioning straps painted  
 bright red.  
 CONTENTS . . . . . Fourteen 30 lb. "J" Incen-  
 diaries.  
 TAIL NO. . . . . No. 44 Mk I  
 OVERALL LENGTH . . . . . 69"  
 TAIL LENGTH . . . . . 25.75"  
 DIAMETER . . . . . 15"  
 TOTAL WEIGHT . . . . . 477 lbs.

BRITISH BOMB**CLUSTER PROJ.**

No. 4, Mk. I

(Service)

**DESCRIPTION:** This cluster is hexagonal in shape, and contains fourteen 30 lb. type "J" incendiaries, in two faggots of 7 bombs each, the bombs being placed nose to nose and arranged in super-imposed rows of 2, 3, and 2 in each faggot. The bombs are retained in position by the front and rear end plates, the top and bottom beams, the side fairings, tensioning straps and the retaining bar. The front and rear end plates secure the spring-loaded covers of the bomb parachute containers. Lateral pins on the retaining bar engage with and hold in position the tabs of the tensioning straps. A shear wire near the end plate acts as a safety device for the retaining bar. To the rear end of the retaining bar is secured the pivoted lever, the lower end of which engages with the piston in the fuse adapter.

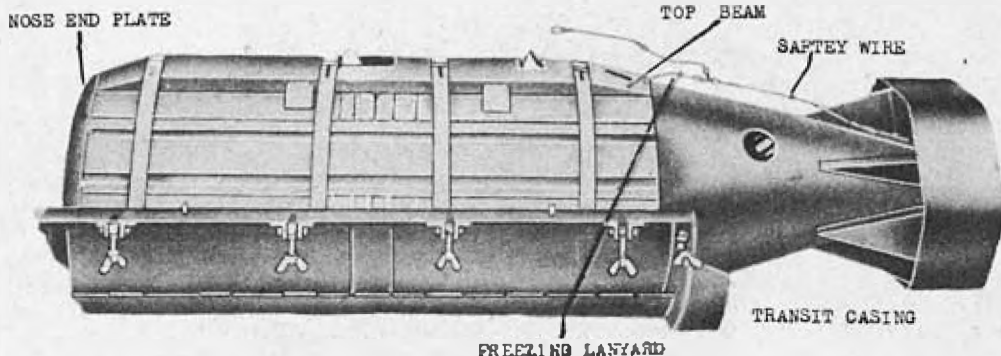
The fuse adapter is fixed to the channel plate which, in turn, is fastened to the rear end plate. A nut welded to the center of the rear end plate receives the tail tie rod to which the tail unit is secured by a tension nut. A nose fairing is secured to the front end plate and fairings are fitted to the top beam, the fairing adjoining the rear end plate being slotted to receive the fuzing lanyard of the fuse and the safety wire of the tail unit.

**TAIL UNIT:** The tail unit No. 44, Mk I, measuring 25.75" long and 15" in diameter, is located by the two dowel pins and is provided with two inspection windows to ensure correct alignment of the spring forks.

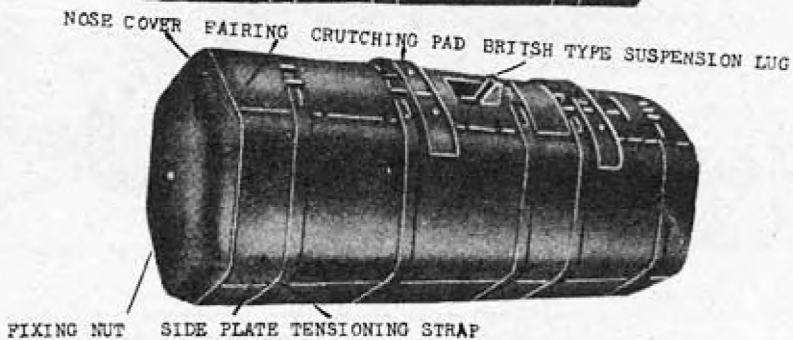
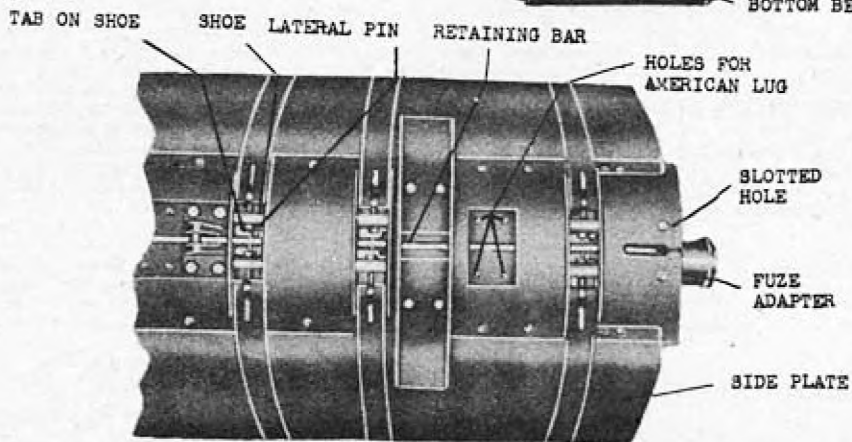
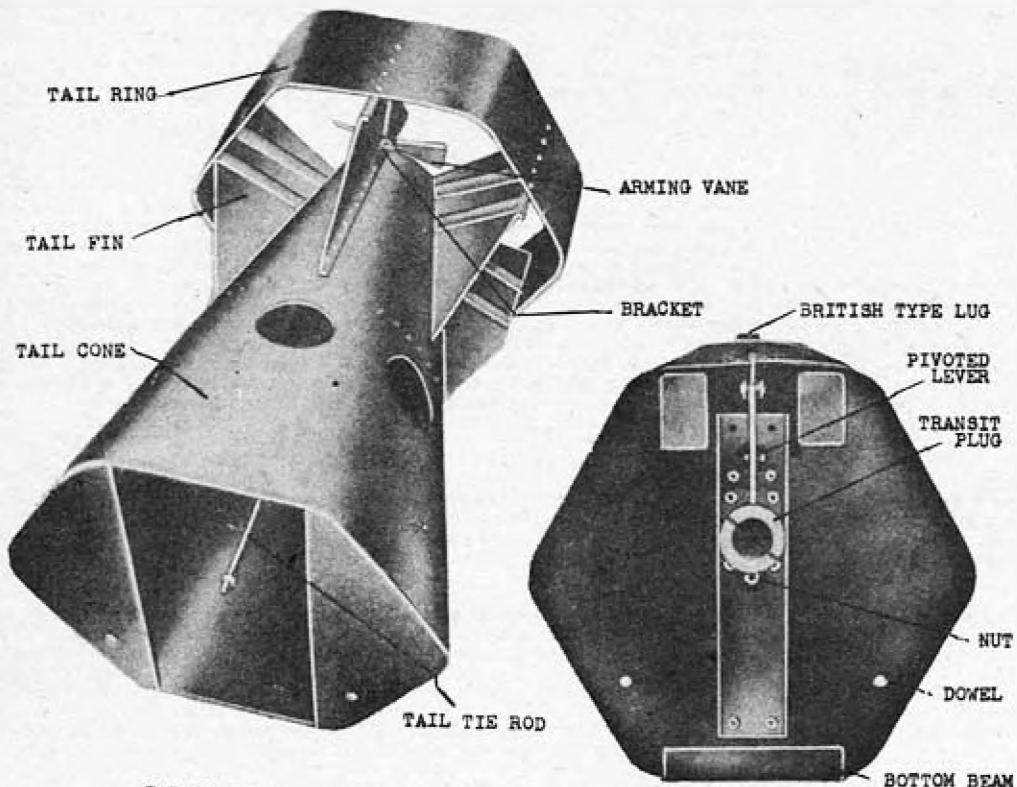
**SUSPENSION:** A suspension lug is fitted to the top beam and tapped holes are also provided for the fitting of American lugs where necessary.

**FUNCTIONING:** On release from the aircraft, the fuse setting control link withdraws the safety wire from the tail unit and at the same time, breaks the shear wire of the fuse by means of the fuzing lanyard. The cluster falls normally until the fuse functions. The explosion in the magazines forces the piston forward in its housing to cause a rocking movement of the pivoted lever. The sudden movement of the pivoted lever exerts a pull on the retaining bar to break its shear wire and disengages the lateral pins from the tabs of the tensioning straps. The straps, thus released, fly outwards, to release the 14 bombs which, on impact, function normally.

**REMARKS:** This cluster projectile is designed to replace the Small Bomb Container as a means of carrying 30 lb. type "J" incendiaries.



# CLUSTER PROJECTILE NO.6 MK.1



FUZZING . . . . . Tail Fuze No. 867 Mk I  
 COLOR . . . . . Dark green overall  
 CONTENTS . . . . . Ninety 4 lb. smoke bombs  
 OVERALL LENGTH . . . . . 72"  
 WIDTH ACROSS FLATS . . . . . 16"  
 TOTAL WEIGHT . . . . . 428 lbs.  
 TAIL LENGTH . . . . . 27"  
 TAIL WIDTH ACROSS  
 FLATS . . . . . 16"  
 TAIL NO. . . . . No. 45 Mk. I.

BRITISH BOMB

# CLUSTER PROJ.

No. 6, Mk. I

(Service)

**DESCRIPTION:** The cluster is hexagonal in cross section and comprises ninety 4 lb. smoke bombs, arranged in five faggots of eighteen. The bombs are arranged nose to tail longitudinally, and in alternate rows the bomb fuzes point in opposite directions. The bombs are held in place by a front end plate and a rear end plate, a top beam and a bottom beam, four side plates, tensioning straps, and a retaining bar. Lateral pins on the retaining bar engage tabs forming part of shoes attached to the ends of the tensioning straps. A shear wire passes through the retaining bar and a bridge on the top beam. The four side plates, together with the two beams, completely surround the bomb cluster. A channel secured to the rear end plate supports a fuze adapter, the outer end of which is closed by a transit plug and leather washer. Inside the adapter is a piston through which is a pin to engage the lower end of a pivoted lever. The fuze adapter and piston are slotted to receive the lever, which is connected at its upper end to the retaining bar.

The rear end plate has two dowels for locating the tail in position, and a nut welded to the center of the plate receives one end of a tail tie rod when the tail unit is fitted to the cluster. The front end plate has two dowels for locating a nose cover in position, and a securing bolt is screwed into the center of the end plate to receive a fixing nut when the nose cover is fitted to the cluster.

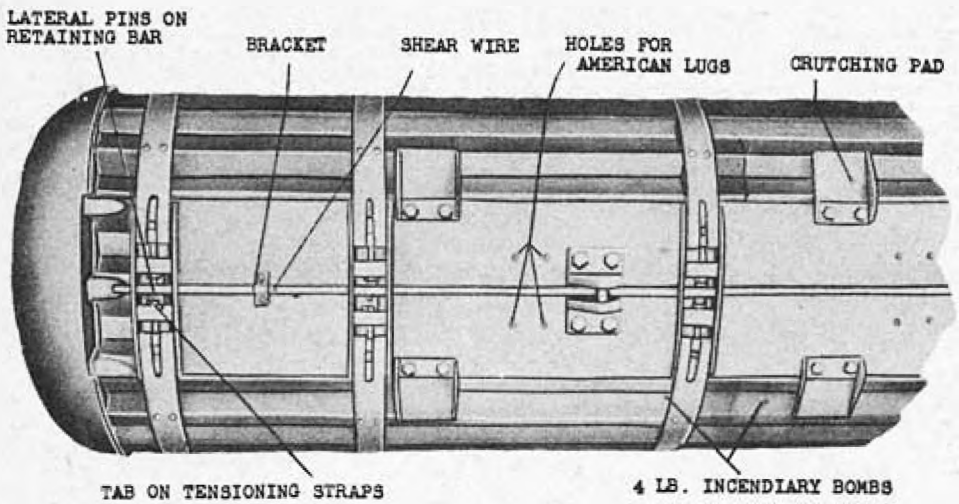
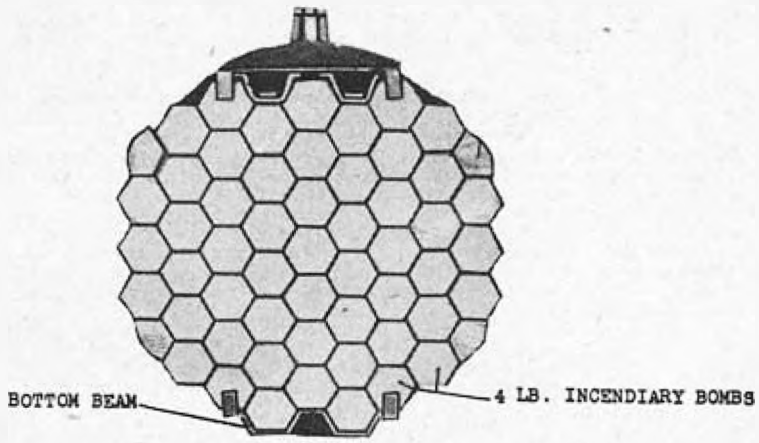
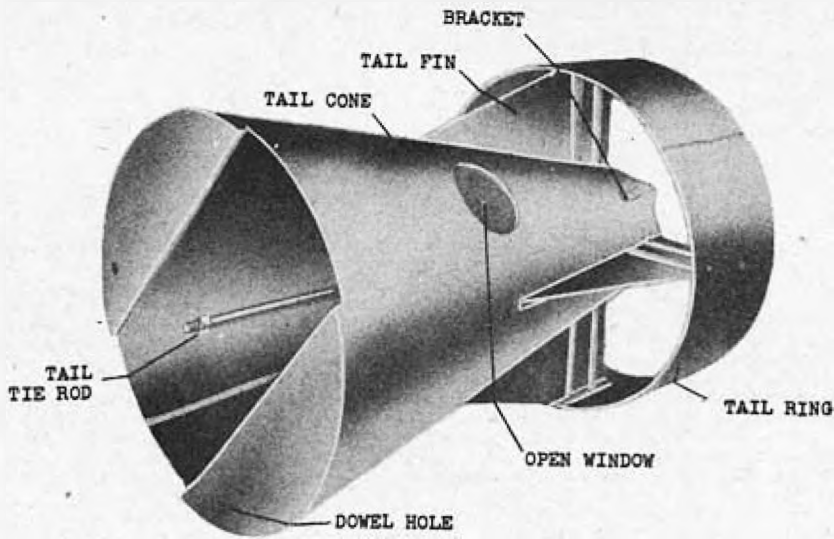
**TAIL UNIT:** The tail unit consists of a tail cone with an approximately hexagonal base, and a tail ring secured to the cone by fins. At the base of the tail cone are two holes to fit over the dowels on the rear end plate of the cluster. A tie rod passes through the center of the tail, and one end of this rod is threaded to screw into the central nut on the rear end plate. The other end of the rod is fitted with a tensioning nut for securing the tail to the cluster. The tail unit also has an arming spindle mounted in bearings and having a fork at its inner end and an arming vane at its outer end. The safety wire, when fitted, passes through holes in a bracket, a projection on the support for the arming spindle bearings, and a blade of the arming vane. Two inspection windows in the tail cone are provided to enable the armorer to watch the fork of the arming spindle when fitting the tail unit.

**SUSPENSION:** A British type suspension lug is fitted to the top beam of the cluster and tapped holes are provided for fitting American type lugs.

**FUNCTIONING:** When a cluster projectile fuzed with a No. 867 fuze is released, the safety wire is withdrawn from the tail unit arming vane and the shear wire of the fuze is broken to release the fuze safety pin. After a period of delay during which the cluster projectile falls freely, the fuze magazine is fired. The products of combustion of the magazine charge force the piston in the fuze adapter against the lower end of the pivoted lever, which is thus rocked about its pivot and exerts a pull on the retaining bar of the cluster. The pull breaks the shear wire passing through the retaining bar, and moves the bar so that its pins disengage the tabs on the shoes attached to the tensioning straps. The straps then fly outwards and the cluster disintegrates, its component parts falling away separately. The individual bombs function on impact.

**REMARKS:** If the smoke composition used in the 4 lb. smoke bombs gets wet, and especially if wetted by sea water, it is liable to spontaneous combustion through chemical action.

# CLUSTER PROJECTILE NO.14 MK.1



FUZZING . . . . . Nose Fuze No. 42, Mk IV  
 COLOR . . . . . Dull red overall; one of  
 tensioning straps painted  
 bright red.  
 CONTENTS . . . . . 106 4 lb. incendiaries  
 TAIL NO. . . . . No. 42, Mk I  
 OVERALL LENGTH . . . . . 67"  
 DIAMETER . . . . . 14"  
 TAIL LENGTH . . . . . 21"  
 TAIL DIAMETER . . . . . 14"  
 TOTAL WEIGHT . . . . . 450 lbs.

BRITISH BOMB

**CLUSTER PROJ.**

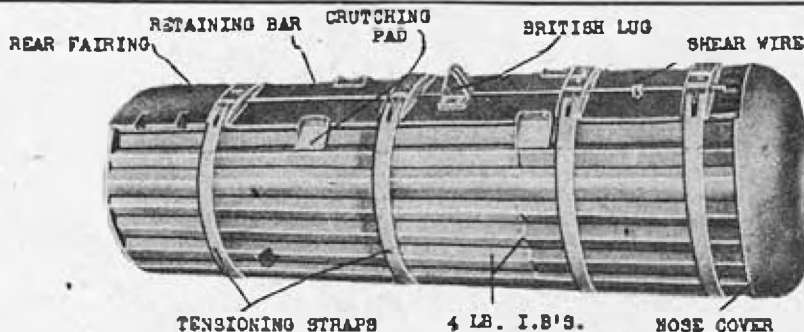
No. 14, Mk. I  
(Service)

**DESCRIPTION:** The cluster comprises two faggots of 53 bombs each. The bombs in the two faggots are arranged nose to tail and with their safety plungers inwards so that they are all depressed. The bombs are held in place by a front end plate and a rear end plate, a top beam and a bottom beam, four wooden slats, tensioning straps, and a retaining bar having lateral pins which engage tabs on the tensioning straps. A shear wire passes through a bridge and the retaining bar at a position near the rear end plate. A channel, secured to the rear end plate, supports a fuze adapter, the outer end of which is closed by a transit plug fitted with a leather washer. Inside the adapter is a piston through which is a pin arranged to engage the lower end of a pivoted lever. The fuze adapter and the piston are slotted to receive the lever. The upper end of the lever is forked and is connected to the retaining bar. The rear end plate has two dowels for locating the tail in position and a nut welded to the center of the rear end plate to receive one end of a tail tie rod when the tail unit is fitted to the cluster. A nose cover is fitted to the front end plate to decrease the drag of the cluster.

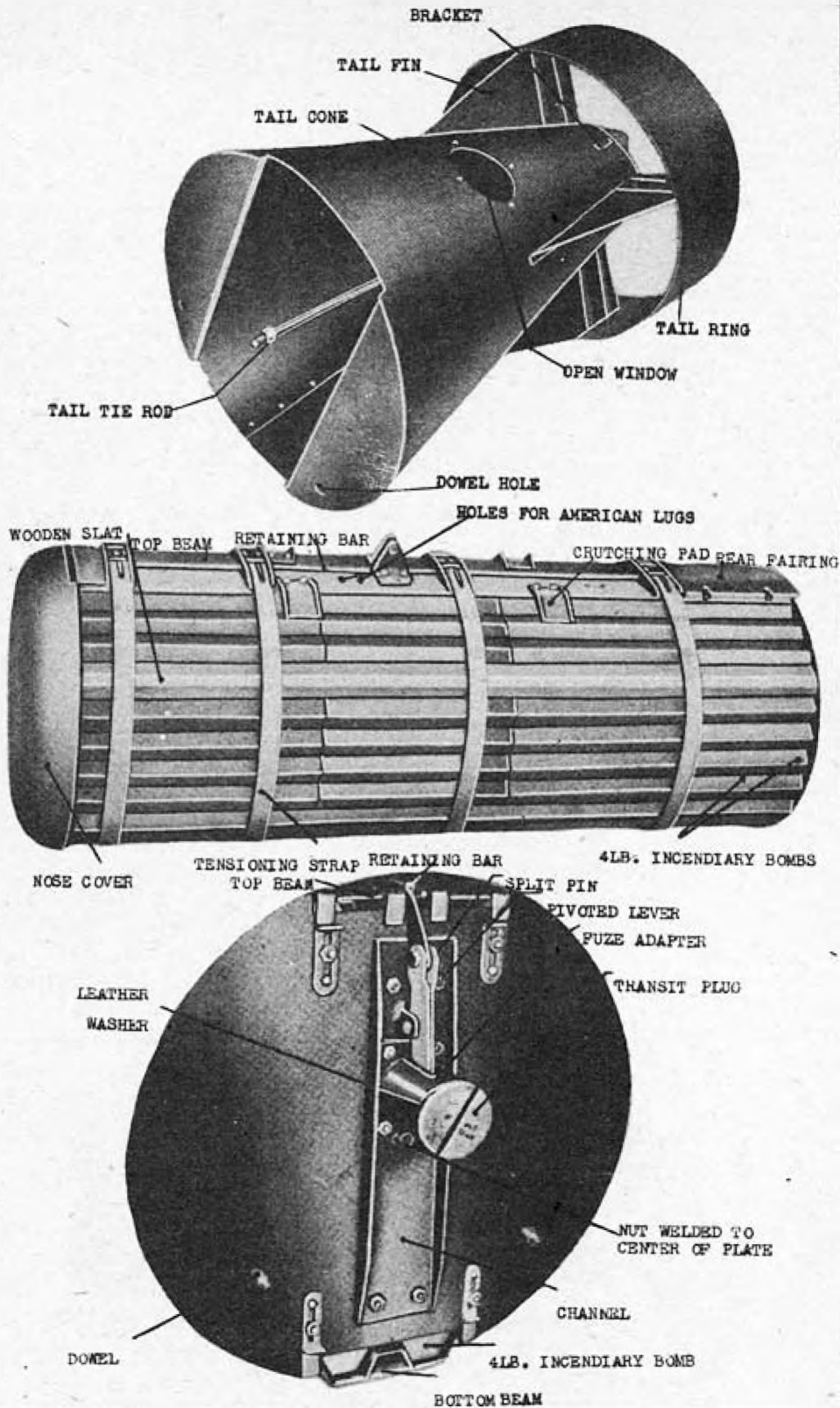
**TAIL UNIT:** The tail is a shortened drum type tail having a tail cone to which a tail ring is secured by pins. At the base of the tail cone are two holes to fit over the dowels on the rear end plate of the cluster. The tail unit is fitted with a bearing for an arming spindle, so that if it should ever be required to fuze the cluster with an air armed fuze, a suitable arming spindle with an arming vane could be readily fitted. Also, against this contingency, a bracket to receive a safety wire is welded to the tail cone and a hole passes through a projection on the support for the arming spindle bearings. A tie rod passes through the center of the tail and one end of the rod is screw threaded to go into the central nut of the rear end plate. Two windows, one of which is open, are provided in the tail cone. The open window is provided so that when the cluster is prepared for use the fuzing link connected to the pull percussion mechanism of the No. 42, Mk IV fuze can be passed through it and be connected to the fuizing unit of the bomb carrier.

**SUSPENSION:** A British type suspension lug is fitted to the top beam and tapped holes in the beam are provided for fitting American type lugs.

**FUNCTIONING:** When a cluster is released from an aircraft, the fuze is functioned and after a period of delay, during which the cluster projectile falls freely, the fuze magazine charge is fired, and the products of combustion of the magazine charge force the piston in the fuze adapter against the lower end of the pivoted lever which is thus rocked about its pivot and exerts a pull on the retaining bar of the cluster. This causes the retaining bar to break its shear wire and to be moved so that the pins on the bar disengage the tabs on the tensioning straps. The straps then fly outwards and the cluster disintegrates, the component parts falling away separately. The individual 4 lb. bombs function on impact.



# CLUSTER PROJECTILE NO. 15 MK. I



BRITISH BOMBS

**CLUSTER PROJ.**

No. 15, Mk. I

(Service)

FUZING . . . . . Nose Fuze No. 42, Mk IV  
 COLOR . . . . . Dull red overall; one tensioning strap painted bright red.  
 CONTENTS . . . . . 150 4 lb. incendiary bombs  
 TAIL NO. . . . . No. 43, Mk I  
 OVERALL LENGTH . . . . . 67"  
 DIAMETER . . . . . 17.3"  
 TAIL LENGTH . . . . . 21"  
 TAIL DIAMETER . . . . . 17.3"  
 TOTAL WEIGHT . . . . . 668 lbs.

**DESCRIPTION:**

This cluster comprises two faggots of 75 bombs each, the bombs in each arranged nose to tail and with their safety plungers inwards so that they are all depressed. The bombs are held in place by a front end plate and a rear end plate, a top beam and a bottom beam, four wooden slats, tensioning straps and a retaining bar having lateral pins which engage tabs in the tensioning straps. A shear wire passes through a bridge and the retaining bar at a position near the end plate. A channel secured to the rear end plate supports a fuze adapter, the outer end of which is closed by a transit plug fitted with a leather washer. Inside the adapter is a piston through which is a pin arranged to engage the lower end of a pivoted lever. The fuze adapter and the piston are slotted to receive the lever. The upper end of the lever is forked and is connected to the retaining bar. The rear end plate has two dowels for locating the tail in position and a nut welded to the center of the rear end plate to receive one end of a tail tie rod when the tail unit is fitted to the cluster. A nose cover is fitted to the front end plate to decrease the drag of the cluster.

**TAIL UNIT:**

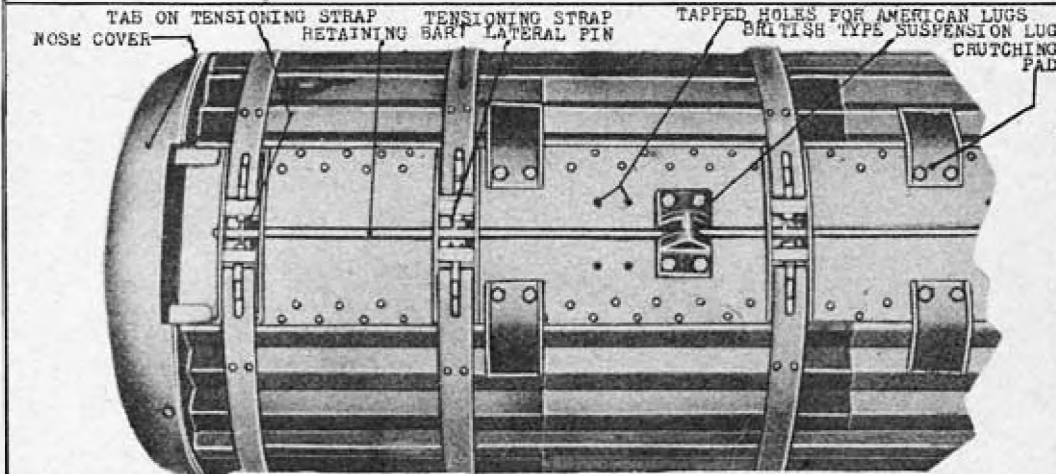
The tail is a shortened drum type tail having a tail cone to which a tail ring is secured by fins. At the base of the tail cone are two holes to fit over the dowels on the rear end plate of the cluster. The tail unit is fitted with a bearing for an arming spindle so that if it should ever be required to fuze the cluster with an air armed fuze, a suitable arming spindle with an arming vane could be readily fitted. Two windows, one of which is open, are provided in the tail cone. The open window is provided so that when the cluster is prepared for use; the fuzing link connected to the pull-percussion mechanism of the No. 42 Mk IV fuze can be passed through it and be connected to the fuzing unit of the bomb carrier.

**SUSPENSION:**

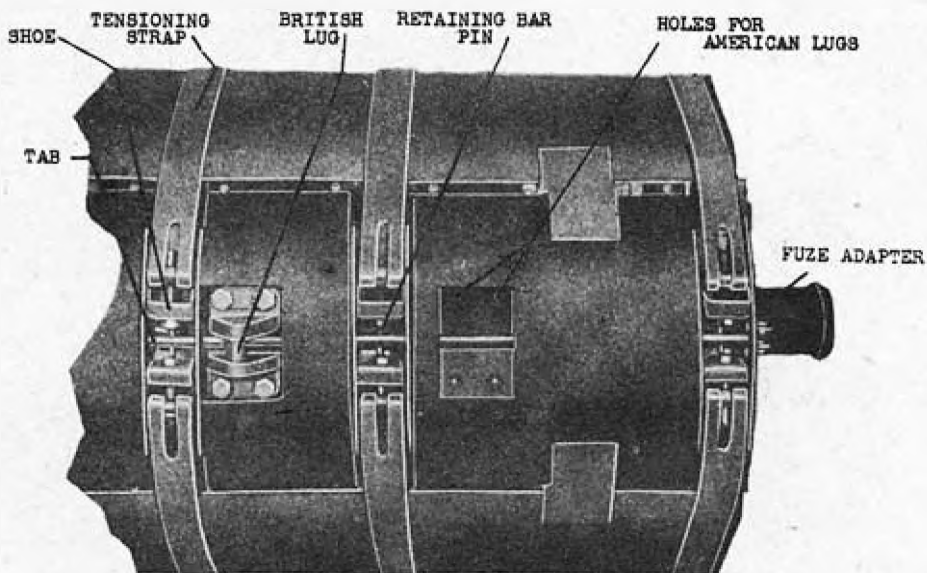
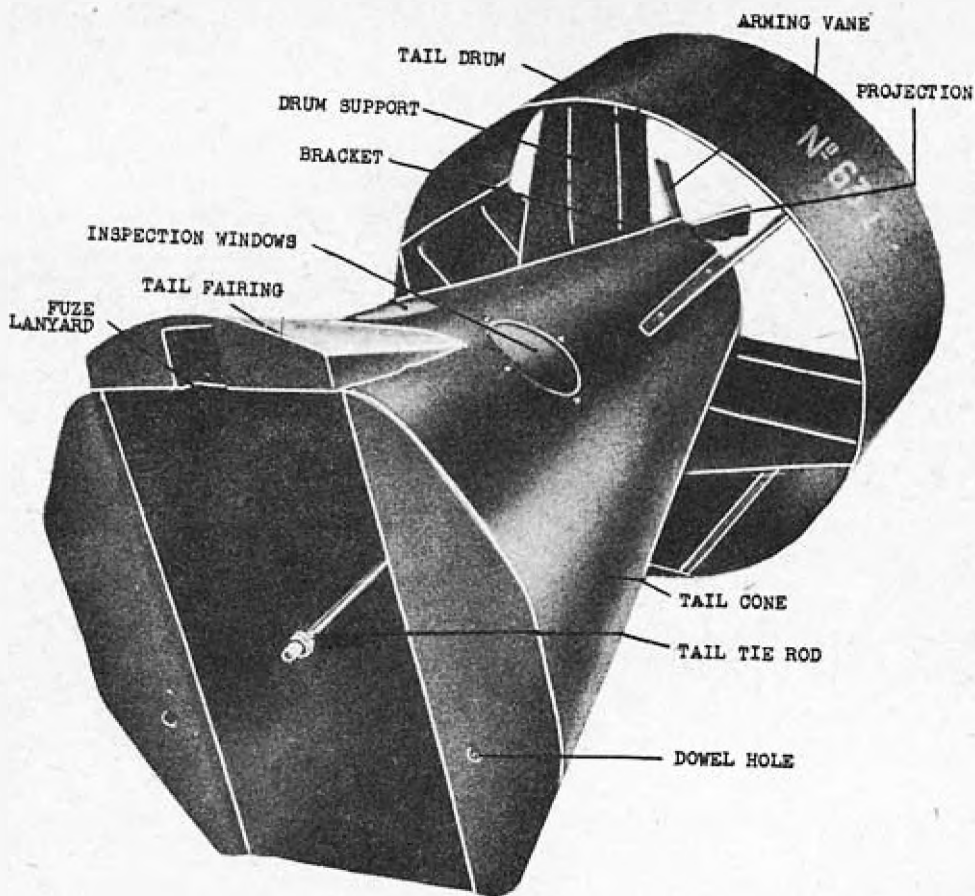
A British type suspension lug is fitted to the top beam and tapped holes in the seam are provided for fitting American type lugs.

**FUNCTIONING:**

When a fused cluster projectile is released, the fuze is functioned and after a delay, during which the cluster projectile falls freely, the fuze magazine charge is fired and the products of combustion of the magazine charge force the piston in the fuze adapter against the lower end of the pivoted lever which is thus rocked about its pivot and exerts a pull on the retaining bar of the cluster. This causes the retaining bar to break its shear wire and to be moved so that the pins on the bar disengage the tabs on the tensioning straps. The straps then fly outwards and the cluster disintegrates, the component parts falling away separately. The individual 4 lb. bombs function on impact.



# CLUSTER PROJECTILE NO. 17 MK. I



FUZZING . . . . . Tail Fuze No. 885, Mk I  
 COLOR . . . . . Dark green overall  
 CONTENTS . . . . . 26 20 lb. Frag bombs  
 (specially designed for use  
 in this cluster)  
 TAIL NO. . . . . No. 63, Mk I & II  
 OVERALL LENGTH . . . . . 63" (with bluff nose)  
 WIDTH ACROSS FLATS . . . . . 15" (octagonal in shape)  
 TAIL LENGTH . . . . . 27"  
 TAIL DIAMETER . . . . . 17.5"  
 TOTAL WEIGHT . . . . . 382 lbs.

BRITISH BOMB**CLUSTER PROJ.**

No. 17, Mk. I  
 (Service)

**DESCRIPTION:**

The cluster comprises twenty-six 20 lb. Frag bombs arranged in two faggots of thirteen. The bombs are held in place by a front end plate and a rear end plate, a top beam and a bottom beam, side plates which overlap each other, and tensioning straps and a retaining bar which hold the components together. The bombs are completely enclosed. Lateral pins on the retaining bar engage tabs forming part of shoes attached to the ends of the tensioning straps. A shear wire passes through the retaining bar and a bridge on the top beam. A channel secured to the rear end plate supports a fuze adapter, the outer end of which is closed by a transit plug and leather washer. Inside the adapter is a piston through which is a pin to engage the lower end of a pivoted lever. The fuze adapter and piston are slotted to receive the lower end of the lever. The lever can be seen passing into the fuze adapter. Links connect the upper end of the lever to a downwardly projecting plate welded to the retaining bar. The rear end plate has two dowels for locating the tail in position, and a nut welded to the center of the plate, to receive one end of a tail tie rod when the tail unit is fitted to the cluster. The front end plate has two dowels for locating either a bluff nose fairing or a streamlined nose fairing in position, and a nut welded to the center of the plate to receive the securing stud of the bluff nose fairing, or the tie rod of the streamline fairing. The bluff nose fairing is fitted to the cluster if it is to be carried internally in an aircraft. The streamlined nose fairing consists of a hollow metal dome, the base of which is partly covered by an end plate welded to the dome, and is to be fitted to the cluster when carried externally on an aircraft.

**TAIL UNIT:**

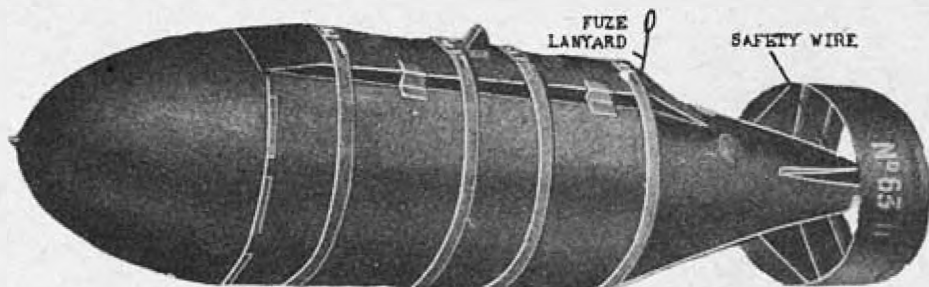
The No. 63, Mk I tail unit consists of a tail cone, having an approximately octagonal base and a tail drum secured to the cone by six drum supports. The tail unit has an arming spindle mounted in bearings and having a fork at its inner end and an arming vane at its outer end. Two inspection windows in the tail cone are provided to enable the armorer to watch the fork of the arming spindle when fitting the tail unit to a cluster fuzed with a No. 855 tail fuze. The No. 63, Mk I tail is only used when the cluster is carried internally in an aircraft. The No. 63, Mk II tail is similar to the Mk I except that it is generally strengthened and has seven tail drum supports as compared with the six of the No. 63, Mk I tail, and is to be used when the cluster is carried externally on the aircraft.

**SUSPENSION:**

A British type suspension lug is fitted to the top beam and tapped holes in the top beam are provided for fitting American type lugs.

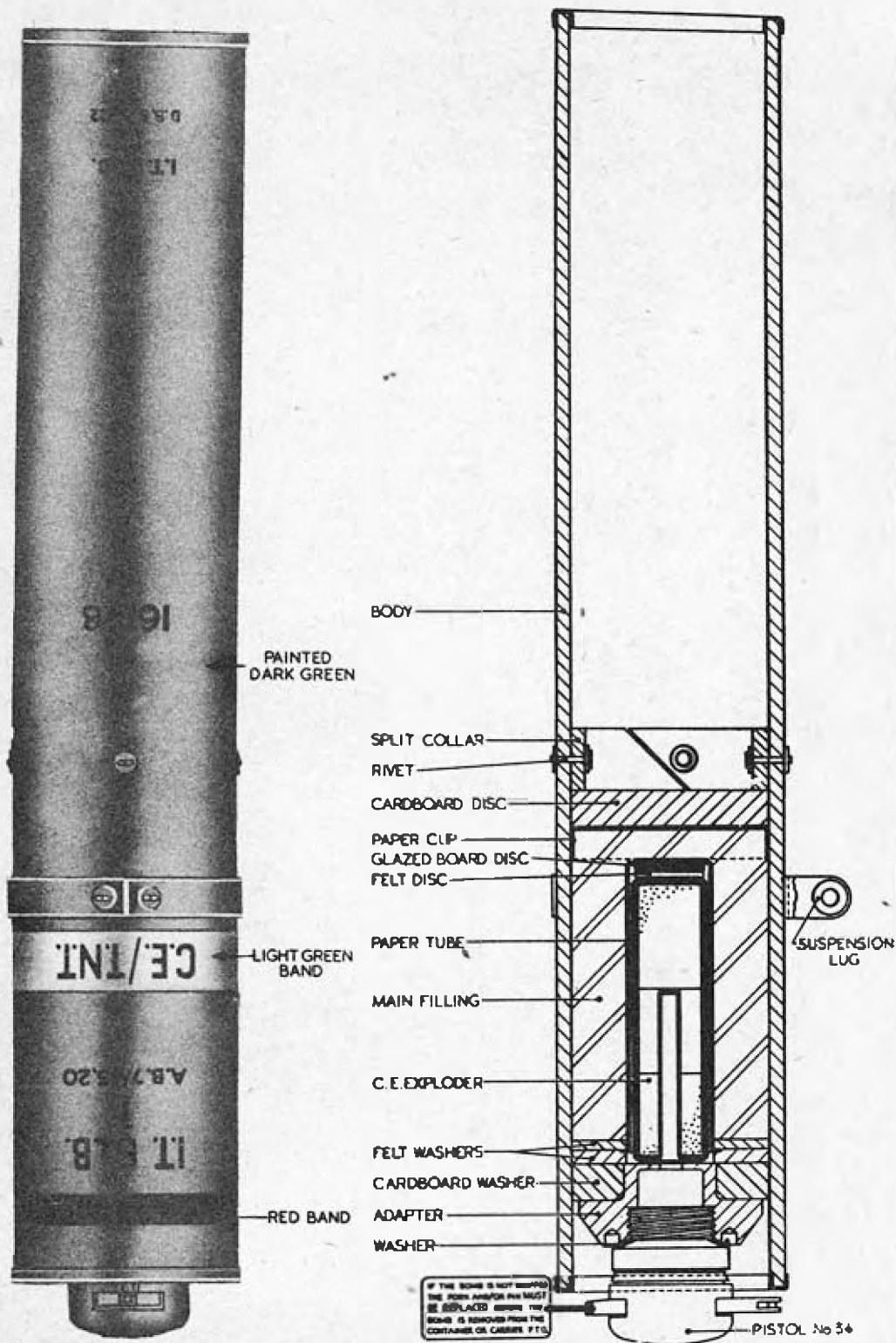
**FUNCTIONING:**

When the fuzed cluster projectile is released, the fuze is functioned and, after a period of delay during which the cluster falls freely, the fuze magazine is fired. The products of combustion of the magazine charge force the piston in the fuze adapter against the lower end of the pivoted lever which is thus rocked about its pivot and exerts a pull on the retaining bar of the cluster. The pull breaks the shear wire passing through the retaining bar and moves the bar so that its pins disengage the tabs on the tensioning straps. The straps then fly outwards and the cluster disintegrates, its component parts falling away separately. The individual bombs descend, supported by their parachutes, and function in the normal manner.



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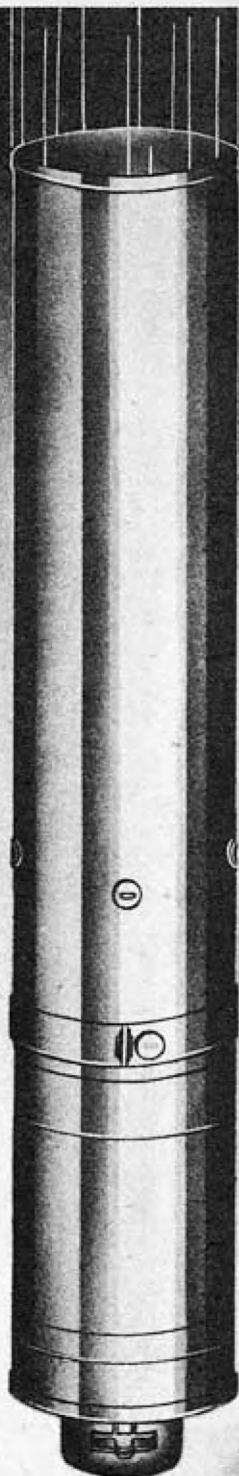
# 6 LB. INF. TRAINING BOMB



IF THE BOMB IS NOT SHIPPED THE PAPER ADAPTER PIN MUST BE REPLACED BEFORE THE BOMB IS REMOVED FROM THE CONTAINER OR CARRIER P.T.S.

PISTOL No 34

# MISCELLANEOUS BOMBS



## CONFIDENTIAL

Included in this section are three British bombs, all of which are used for special purposes.

### I.B. 6 $\frac{1}{2}$ and 60 $\frac{1}{2}$

These bombs are used to train infantry units under simulated combat conditions. The bomb casing is splinterless, but noise and flash are comparable to those of the explosion of a medium sized bomb.

The bombs are fused with a pistol/detonator combination. The 6 lb. bomb takes a No. 34 nose pistol; the 60 lb. I.B., a No. 42 nose pistol.

The bomb bodies are constructed of rolled pressed paper and are closed by a pressed paper head.

### "B" 250 lb.

This bomb is designed to be dropped in front of ships underway. The bomb penetrates deep into the water, then because of its buoyancy chamber rises slowly to the surface, allowing the ship time to move forward. The bomb then contacts the unarmored bottom of the ship and explodes. If the bomb fails to hit the ship on its rise to the surface, it is so arranged that it will sink after about ten minutes.

The No. 850 tail fuze is used in this bomb.

The bomb itself is painted dark grey overall with a red and green band near the nose.

BRITISH

FUZING . . . . . Nose Pistol No. 34  
 COLOR & MARKINGS . . . . . Dark green overall; 1/2"  
   red band 1" from nose; 1"  
   light green band 4" from  
   nose.  
 OVERALL LENGTH . . . . . 20 in.  
 BODY LENGTH . . . . . 20 in.  
 MAX. BODY DIAMETER . . . . . 3.8 in.  
 TOTAL WEIGHT . . . . . 6 lbs. (approx.)  
 CHANGE/WEIGHT RATIO . . . . . 33%

**6 LB. I.T.**

Mk. 1

(Service)

**BODY CONSTRUCTION**            Body consists of a rolled paper cylinder shellacked internally and externally. At nose end an adapter is attached to a chamfered cardboard washer and threaded internally to receive the pistol. Main filling held in body between paper cup amidships and two felt washers at nose which position the exploder. The paper cup is supported by a cardboard washer, which is in turn supported by a split collar secured to the body by four rivets.

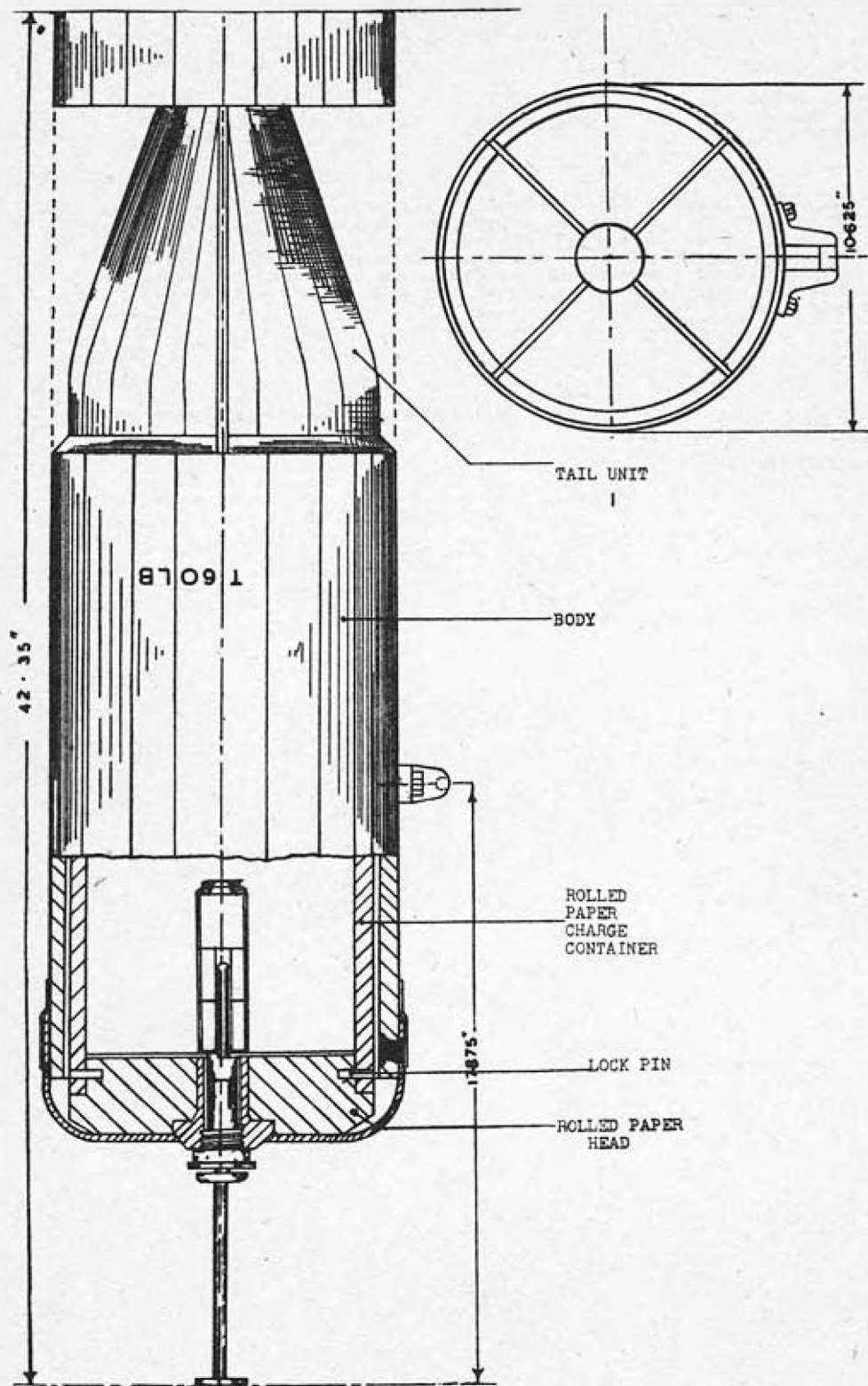
**TAIL CONSTRUCTION**            No tail unit used.

**SUSPENSION**                    Suspension lug on a band approximately 6" from nose.

**EXPLOSIVE COMPONENTS**        Detonator: No. 43 (See Appendix I, page 309)  
   Exploder: 3 C.E. pellets, two of which are perforated.  
   Filling: 2 lbs. of C.E./T.N.T. 30/70, or pentolite, desensitized, Grade I.

**REMARKS**                        This bomb used to provide realistic bombing attacks on infantry undergoing training. Bomb is splinterless, but noise and flash are comparable to a medium sized bomb used for dive bombing operations.

# 60 LB. H.E. TRAINING BOMB



BRITISH

FUZZING . . . . . Nose Pistol No. 42.  
 COLOR & MARKINGS . . . . . Dark green overall; 1/2" red band and 1" light green band around forward part of body.  
 OVERALL LENGTH . . . . . 36 in. (without extension rod).  
 MAX. BODY DIAMETER . . . . . 10.6 in.  
 TOTAL WEIGHT . . . . . 60 lbs. (approx.)

# 60 LB. TRAINING

(Service)

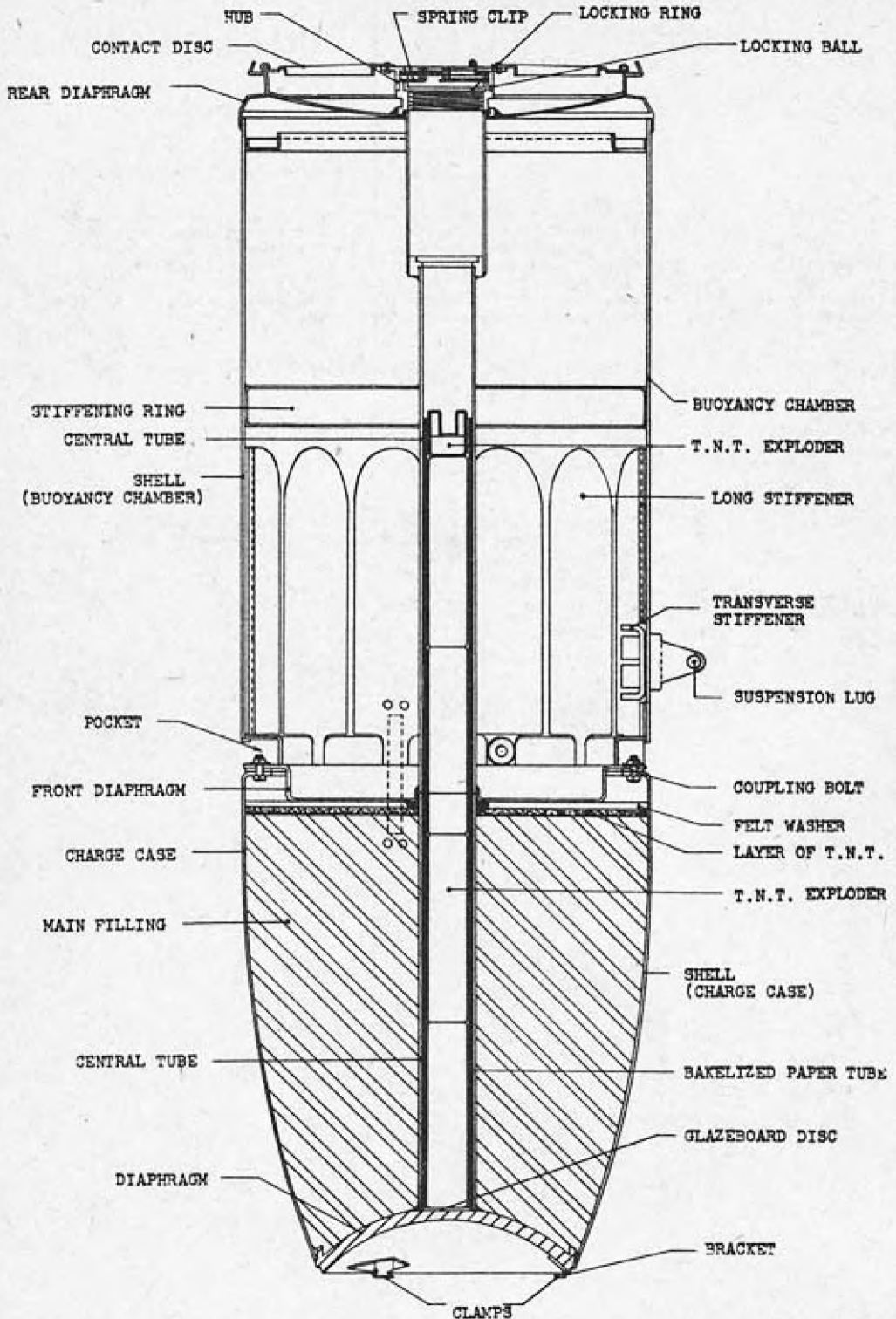
**CONSTRUCTION**                      Body and tail unit are in one piece, manufactured of rolled and pressed paper. The rolled paper charge container, containing pentolite, rests on a felt washer seated on a diaphragm in the body. The head of the charge container is closed by a rolled paper head, planed, shellacked, and taped in position. The head is recessed to house the pistol adapter. A 6" extension rod is fitted to the No. 42 nose pistol, by means of a spring washer after the arming vane cap has been removed.

**SUSPENSION**                              Single suspension lug approximately 10" from nose of bomb, secured by two bolts.

**EXPLOSIVE COMPONENTS**                      Detonator: No. 52, non-delay, A.S.A. and C.E. pellets.  
 Exploder: 3 C.E. pellets  
 Filling: Pentolite

**REMARKS**                                      This bomb is designed to be used in training operations of ground personnel, simulating realistic bombing attacks.

# 250 LB. BUOYANCY BOMB



BRITISH BOMB

**250 LB "B"**

**Mk. IV  
(Service)**

FUZZING . . . . . Tail Fuse No. 850  
 COLOR & MARKINGS . . . Dark grey overall; 1/2" red  
 band 3" from nose; 1/2" green  
 band 9-1/2" from nose.  
 TAIL NO. . . . . No. 23, Mk I (Mk III body)  
 OVERALL LENGTH . . . . 72 in.  
 BODY LENGTH . . . . . 42 in.  
 MAX. BODY DIAMETER . . 14.3 in.  
 WALL THICKNESS . . . .  
 TAIL LENGTH . . . . . 28 in.  
 TAIL WIDTH . . . . . 14.3 in.  
 TOTAL WEIGHT . . . . . 250 lbs. (approx.)  
 CHARGE/WEIGHT RATIO. . 40% (approx.)

**BODY CONSTRUCTION** The bomb consists of a truncated cone-shaped charge case with a concave nose welded on, a buoyancy chamber secured to the charge case by twelve nuts, and a clip-on tail. A convex nose attachment can be fitted to the nose by means of three brackets equi-spaced around the edge of the nose. The buoyancy chamber has twelve hand clearance pockets around the forward end to permit access to the twelve bolts securing the charge case. Internal reinforcements are spot welded to the interior forward half of the buoyancy chamber and two circular stiffeners extend athwartships through the chamber, spot welded to the chamber wall. An exploder tube extends centrally through the buoyancy chamber and charge case, welded at the rear to the joint ring fitting inside the fuze pocket, and supported by the stiffening ring in the middle of the buoyancy chamber.

**TAIL CONSTRUCTION** No. 23 Mk I tail, used on the Mk III body, consists of a tail cone with cylindrical strut secured by four fins riveted to strut and tack welded to tail cone. Tail assembly attached to body by spring clips, the assembly coming off when bomb enters water.

**FUNCTIONING** On striking the water, the nose attachment is dished in and the tail breaks away. When the tail breaks away it uncovers a wheel shaped disc on the base of the bomb. This is the contact disc, to which are attached three chains, the other ends being fastened to the support ring on the bomb base. If these chains are tight the fuze is armed because the contact disc rises during the arming process. If the bomb fails to hit a ship upon rising, it sinks after a short period.

**SUSPENSION** Suspended by a single lug secured by four screws threaded into a suspension lug stiffener and boss spot welded to the interior of the buoyancy chamber.

**EXPLOSIVE COMPONENTS** Exploders: C.E. exploders in central tube.  
 Filling: 113.2 lbs. Torpex 2, with 3.25 lbs. T.N.T. topping in aft end of charge case.

**REMARKS** This bomb is designed to be dropped in front of ships underway, and to rise and detonate on contact with the ship's bottom.

# 250 LB. BUOYANCY BOMB



# OBSOLETE BOMBS



## RESTRICTED

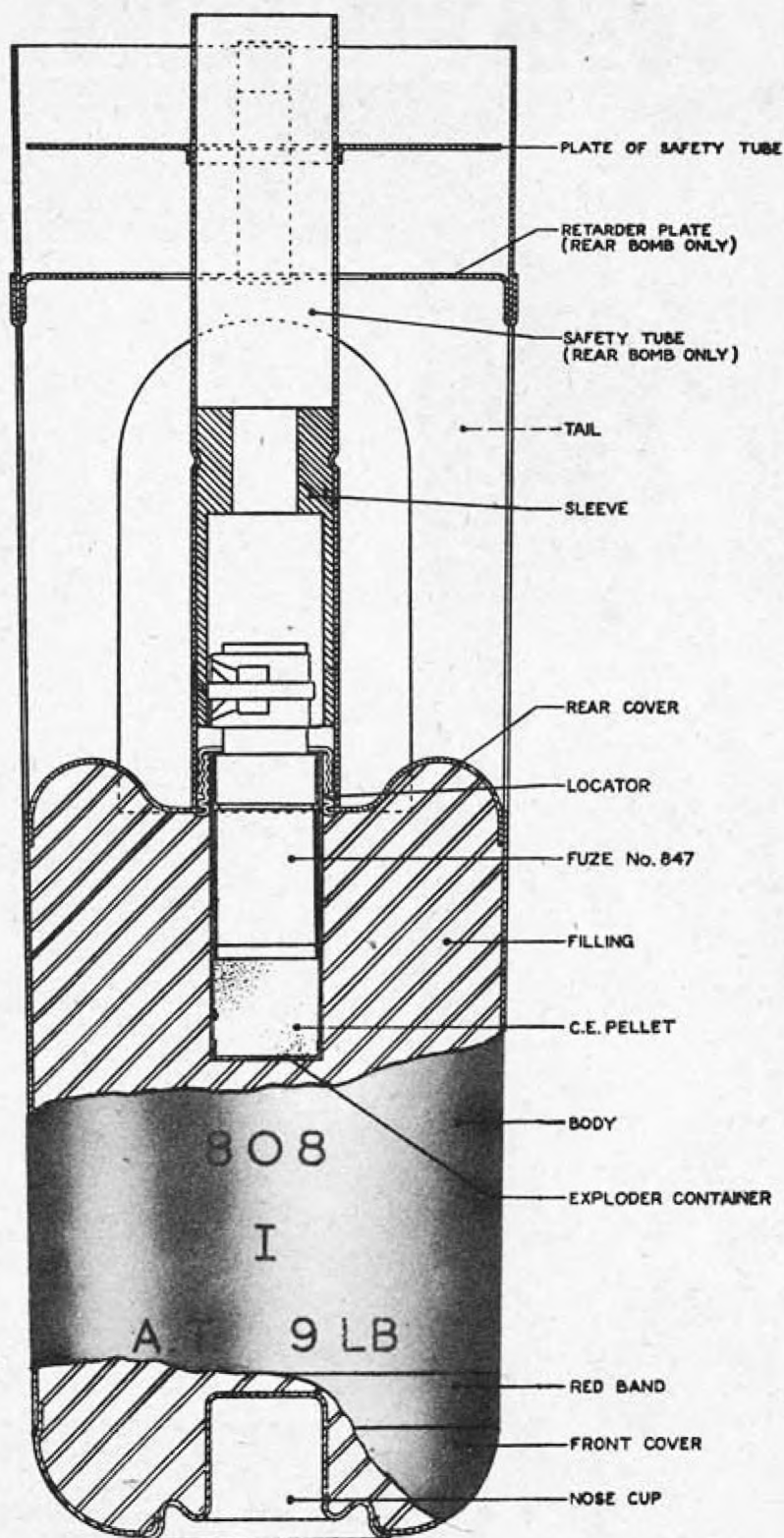
The bombs included in this section have all been declared obsolete, but because they may still be found in the field and because some of them may have been captured by the enemy and adapted for re-use, it is deemed desirable to give complete information regarding them.

The following bombs are thus included:

1. A.T. 9 lb. Mk I
2. H.E. 20 lb. Mk I.
3. G.P. 120 lb. Mk I & II
4. G.P. 250 lb. Mk I, II, & III
5. G.P. 500 lb. Mk I, II, III
6. A.S. 35 lb. Mk I & II
7. D.C. 450 lb. Mk VII
8. I.B. 25 lb. Mk I & II
9. I.B. 250 lb. Mk I & II
10. H.C. 2000 lb. Mk I
11. R.L. 112 lb. Mk V, VI, VII

Older obsolete bombs, included only as a matter of interest, are presented in chart form.

## 9 LB. ANTITANK BOMB



FUZZING . . . . . No. 847 Tail Fuze  
 COLOR & MARKINGS . . . . . Dark green overall; 1/2" red  
 band around nose.  
 TAIL NO. . . . .  
 OVERALL LENGTH . . . . . 14. in.  
 MAX. BODY DIAMETER . . . . . 4-1/2" sq.  
 TOTAL WEIGHT . . . . . 8.5 lbs.  
 CHARGE/WEIGHT RATIO. . . . . 80%

BRITISH**9 LB. A.T.**

Mk I (Obsolete)

(9 lb. Practice, See REMARKS 2)

**BODY CONSTRUCTION** Body is made of thin sheet metal, approximately rectangular shape, having square cross-section with rounded corners. Tapers slightly from rear toward nose. Incorporates steel cone shaped charge; closed at nose end by a front cover housing a nose cup, which is taped and cemented in. Nose cup of rear bomb forms safety device for the fuze in front bomb of a pair, as bombs are dropped in pairs. Approximately half-way through bomb is the rear cover.

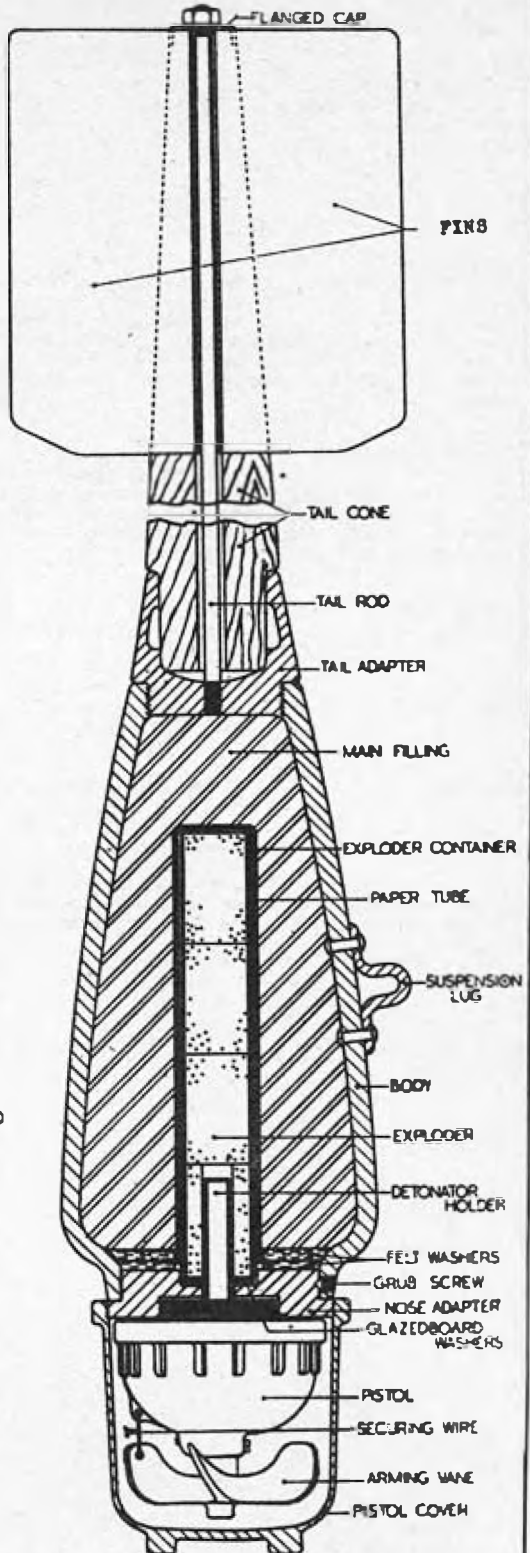
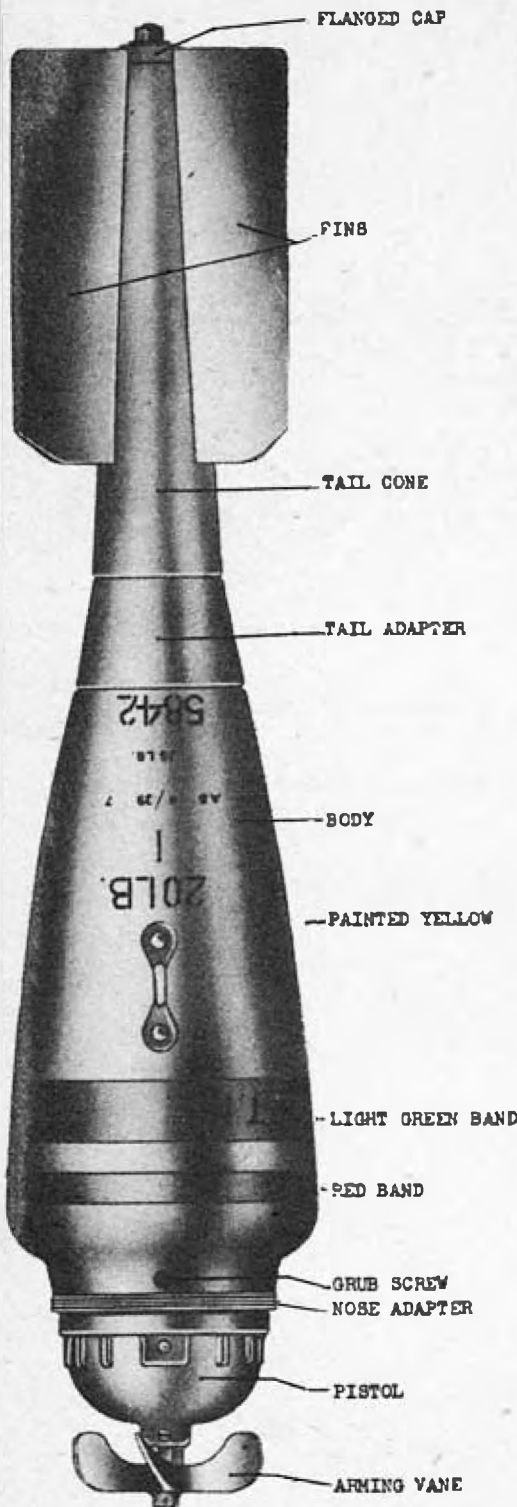
**TAIL CONSTRUCTION** Tail is integral with the body, being but a continuation of the thin metal case. Rear bomb of pair has a retarder plate to pull rear bomb free of front one when dropped from container. Tail also has a safety tube of light-gauge metal with a cardboard inner sleeve, forming a safety device for the fuze of the rear bomb of a pair. Locating plate near rear of safety tube locates the tube in the tail of the bomb.

**SUSPENSION** Carried in 250 lb. Small Bomb Container, which holds 24 bombs, dropped in pairs, with nose of rear bomb housed in tail of front bomb.

**EXPLOSIVE COMPONENTS** Exploder: C.E. pellet housed in bottom of exploder container. Filling: Nobel's explosive No. 908, with shaped charge effect.

**REMARKS** (1) The bomb is designed for use against tanks and armored vehicles. Will blow a hole approximately nine inches in diameter in armor plating 2" thick, and effective at striking angles up to 45 degrees.  
 (2) The 9 lb. A.T. Practice, Mk I is approximately same shape, size, and filled weight, with approximately same ballistic characteristics. It has, however, neither exploder or detonator, but its body breaks up on impact with the target to release a white filling clearly visible from the air.

# 20 LB. H.E. BOMB



BRITISH

20 LB. HE.

Mk I

(Obsolete)

FUZZING . . . . . Nose Pistol No. 16  
 COLOR & MARKINGS . . . . . dark green overall; 1/2" red band and 1" light green band around nose. (Originally yellow overall).  
 OVERALL LENGTH . . . . . 25 in.  
 BODY LENGTH . . . . . 11 in. (approx., without tail adapter)  
 MAX. BODY DIAMETER . . . . . 5.175 in.  
 TAIL LENGTH . . . . . 12 in. (approx. with tail adapter)  
 TAIL WIDTH . . . . . 8 in. (approx.)  
 TOTAL WEIGHT . . . . . 27 lbs. (approx.)  
 CHARGE/WEIGHT RATIO. . . . . 20% (approx.)

**BODY CONSTRUCTION** Steel, semi-steel, or malleable iron body, hollow and open at both ends, with forward end threaded internally to receive the nose adapter and rear end internally threaded to take tail adapter. Nose adapter has three different size threads, to take detonator holder and exploder container from rear and pistol from front. Flange of nose adapter is externally threaded to receive screw-on pistol cover. Tail adapter tapered to conform to rearward streamlining of body, with a central bore threaded to receive tail rod.

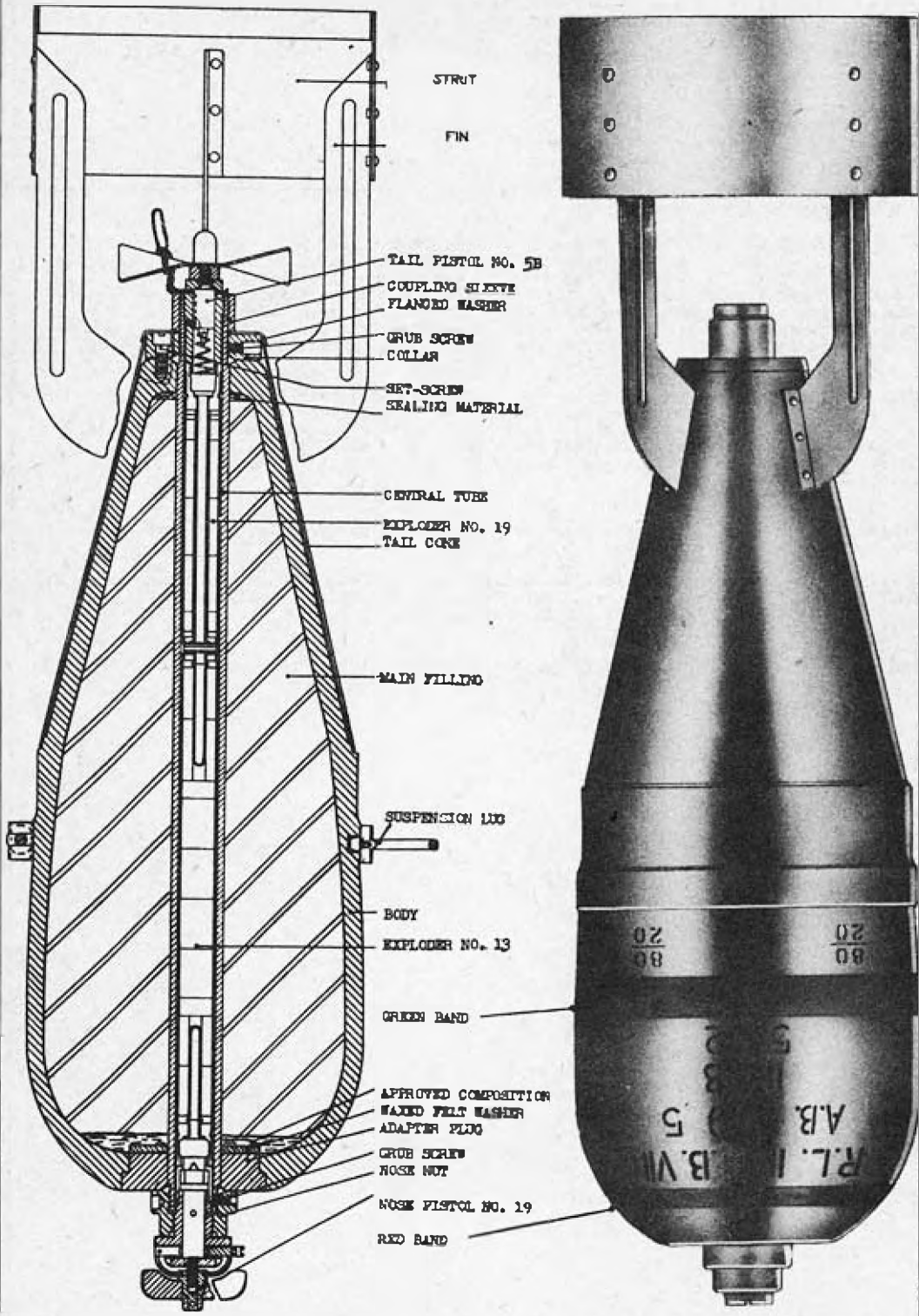
**TAIL CONSTRUCTION** Wooden tail cone, conforming to streamlined shape of body, with two diametrical saw-cuts at right angles extending from rear end over a slightly greater length than that of the tail vanes, to accommodate the four sheet metal tail vanes which are made in integral pairs. Tail cone is bored through axially to take the tail rod and fits into the cavity in the tail adapter.

**SUSPENSION** A wrought iron or mild steel suspension lug is riveted to the bomb body.

**EXPLOSIVE COMPONENTS** Detonator: Non-delay; fulminate composition and 2 C.E. pellets  
 Exploder: 3 solid and 1 perforated C.E. pellets.  
 Filling: 8 lb. approx. T.N.T.

**REMARKS** Intended for attacking personnel, air strips, and road transports.

# 112 LB. R.L. BOMB



BRITISH**112 LB. R.L.**

Mks V, VI, VII

(Obsolete)

FUZING . . . . . Nose Pistol No. 8, Mk I.  
   Nose Pistol No. 19, Mk I & II  
   Tail Pistol No. 5B, Mk I & II  
 COLOR & MARKINGS . . . Yellow overall 1/2" red band  
   around nose and 1" light  
   green band around body.  
 TAIL NO. . . . .  
 OVERALL LENGTH . . . . . 29.0 in.  
 BODY LENGTH . . . . . 25.3 in.  
 MAX. BODY DIAMETER . . . . . 9.0 in.  
 WALL THICKNESS . . . . . 0.8 in.  
 TAIL WIDTH . . . . . 18 in.  
 TOTAL WEIGHT . . . . . 126.0 lbs.  
 CHARGE/WEIGHT RATIO. . . 16.7%

**BODY CONSTRUCTION**           The body of these bombs is a single streamlined casting, steel for Mk V and VII and iron for Mk VI, threaded at the nose and tail to take adapters for the central exploder tube.

**TAIL CONSTRUCTION**       Mk V: The tail consists of four tail fins which fit over the body and are fastened in place with screws. Two sets of box-type struts reinforce the tail fins.

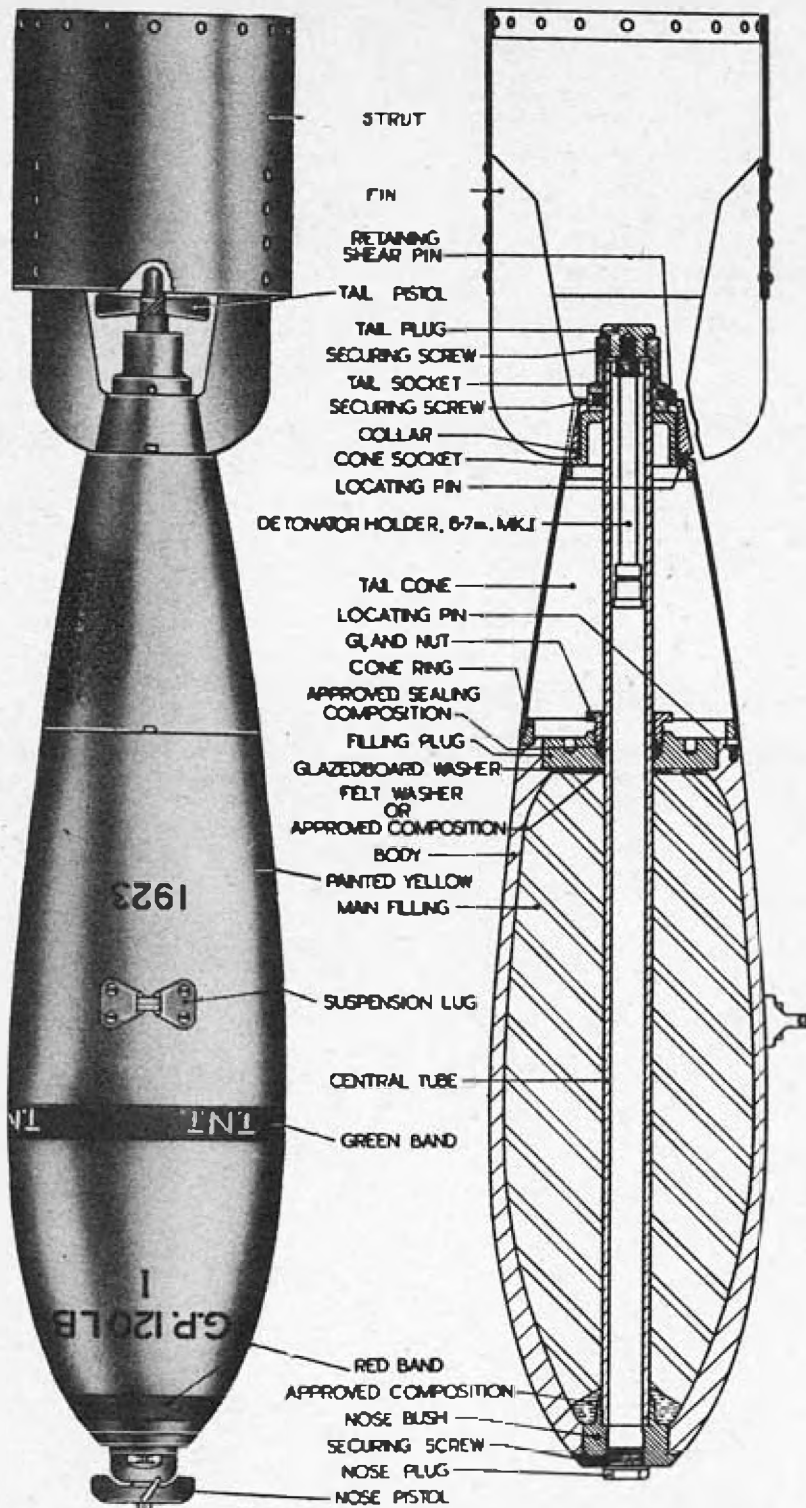
Mk VI & VII: The tail assemblies of these Marks consists of a tail cone which slides over the rear end of the bomb body and is secured by a lock-nut on the exploder tube. Four tail fins are riveted on the cone and are held in place by two sets of box-type struts.

**SUSPENSION**               Mk V: A U-shaped eye-bolt secured to the body with screws at the center of gravity.

Mks VI & VII: A U-shaped eye-bolt fastened to a suspension band around the center of gravity.

**EXPLOSIVE COMPONENTS**   Detonators:       Instantaneous  
 Exploders:       T.N.T. and C.E. pellets.  
 Filling:          Amatol 80/20 or T.N.T.

# 120 LB. G.P. BOMB



FUZING . . . . . No. 19 Nose Pistol  
   No. 21 Tail Pistol  
 COLOR & MARKINGS . . . Yellow overall, with 1/2" red band around nose and 1" light green band around body. Longitudinal green bar on body and tail indicates exploding scheme.

TAIL NO. . . . .  
 OVERALL LENGTH . . . . 42.4 in.  
 BODY LENGTH . . . . . 21.5 in.  
 MAX. BODY DIAMETER . . . 8.1 in.  
 WALL THICKNESS . . . . 0.5 in.  
 TAIL LENGTH . . . . . 15.7 in.  
 TAIL WIDTH . . . . . 8 in.  
 TOTAL WEIGHT . . . . . 120 lbs. (Amatol 80/20)  
 CHARGE/WEIGHT RATIO. . 25%

BRITISH

# 120 LB. G.P

Mks I & II

(Obsolete)

**BODY CONSTRUCTION** Streamlined steel casting or forging, threaded at the nose to take the nose adapter which holds the central exploder tube; at the other end of the casting is a threaded base plug through which the exploder tube passes. Welded to the end of the casting is a streamlined section of thin metal, containing no explosive, but which is tapered to take the tail ring. The exploder passes through this section also.

**TAIL CONSTRUCTION** Truncated cone fits over the rear section of body and is held to it by a lock nut over the exploder tube; three mild steel fins are fastened to the cone, and are reinforced by a cylindrical strut.

**SUSPENSION** Single suspension lug secured to body by four screws.

**EXPLOSIVE COMPONENTS** Detonators: Instantaneous  
 Exploders: T.N.T. and C.E. pellets  
 Filling: 32.5 lbs. T.N.T., or 30 lbs. Amatol 80/20

BRITISH

FUZING . . . . . Moss Pistol No. 19  
    Tail Pistol No. 22  
    Tail Pistol No. 17  
 COLOR & MARKINGS . . . . . Yellow overall with  $\frac{1}{2}$ " red  
    band around nose, 1" light  
    green band around body;  
    longitudinal green bar on  
    body and tail indicates  
    exploding scheme.  
 TAIL NO. . . . . No. 1 Mk I (Mk III only)  
 OVERALL LENGTH . . . . . 54.2 in.  
 BODY LENGTH . . . . . 28 in.  
 MAX. BODY DIAMETER . . . . . 10.3 in.  
 WALL THICKNESS . . . . . 0.6 in.  
 TAIL WIDTH . . . . . 10.2 in.  
 TOTAL WEIGHT . . . . . 247 lbs. (TNT)  
 CHARGE/WEIGHT RATIO . . . . . 27%

250 LB. G.P.

Mks I, II, &amp; III

(Obsolete)

**BODY CONSTRUCTION** Streamlined steel casting or forging threaded at the nose to  
 take a nose adapter which holds the central exploder tube;  
 at the other end of the casting is a threaded bass plug  
 through which the exploder tube passes. Welded to the end of the casting is a stream-  
 lined section of thin metal, containing no explosive, but which is tapered to take the  
 tail ring. The exploder passes through this section also.

**TAIL CONSTRUCTION** Truncated cone which fits over rear section of body and is  
 held to it by a lock nut over the exploder tube. Four mild  
 steel fins are fastened to the cone and are reinforced by a  
 cylindrical strut.

**SUSPENSION** Single suspension lug secured to the body by four screws.

**EXPLOSIVE COMPONENTS** Detonators: Instantaneous  
 Exploders: T.N.T. and C.E. pellets  
 Filling: 68 lbs. T.N.T. or 63 lb. Amatol 80/20.

**REMARKS** Tail fins are usually painted red when time pistol is used.

FUZZING . . . . . No. 19 Nose Pistol  
 No. 22 Tail Pistol  
 No. 17 Tail Pistol

COLOR & MARKINGS . . . Yellow overall; 1/2" red  
 band around nose and 1" light  
 green band around body. Light  
 green bar on body and tail  
 indicates exploding scheme.

TAIL NO. . . . . No. 1 Mk I (Mk III only)

OVERALL LENGTH . . . . . 68.7 in.

BODY LENGTH . . . . . 35.7 in.

MAX. BODY DIAMETER . . . . . 13 in.

WALL THICKNESS . . . . . 7/8 in.

TAIL WIDTH . . . . . 13 in.

TOTAL WEIGHT . . . . . 509 lbs. (T.N.T.)

CHARGE/WEIGHT RATIO. . . . . 28 %

BRITISH**500 LB G.P**

Mks I, II, III

(Obsolete)

**BODY CONSTRUCTION** Streamlined steel casting or forging threaded at the nose to take the nose adapter which holds the central exploder tube. At the other end is a threaded base plug through which the exploder tube passes. Welded to the end of the body is a streamlined cone of thin metal, containing no explosive, but which is tapered to take the tail ring. The exploder passes through this section also.

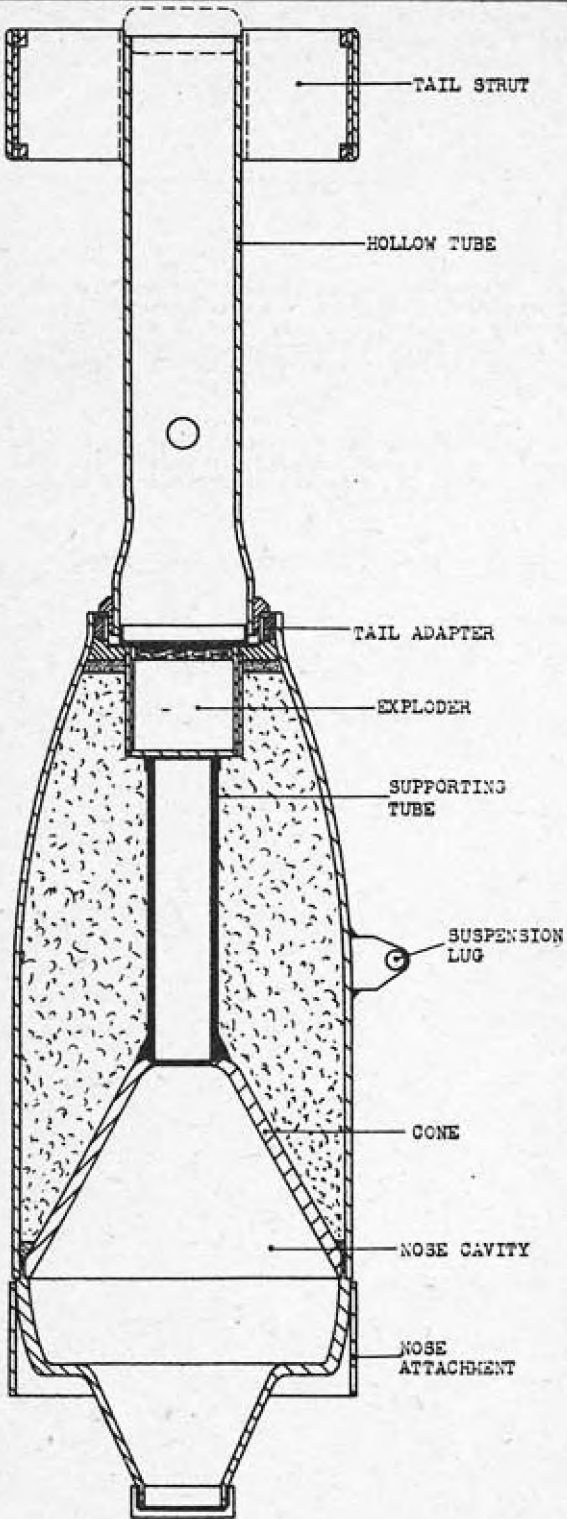
**TAIL CONSTRUCTION** Truncated cone which fits over the rear section of the body and is held to it by a lock nut over the exploder tube. Four mild steel fins are fastened to the cone and are reinforced by a cylindrical strut.

**SUSPENSION** Single suspension lug secured to the body by four screws.

**EXPLOSIVE COMPONENTS** Detonators: Instantaneous  
 Exploders: T.N.T. and C.E. pellets.  
 Filling: 143 lbs. of T.N.T. or 134 lbs. of Amatol 80/20

**REMARKS** Tail fins usually painted red when time pistols are used.

# 35 LB. A.S. BOMB



**35 LB. A.S.**

Mks I & II

(Obsolete)

FUZZING . . . . . Nose Fuze No. B68  
 COLOR & MARKINGS . . . . . Dark green overall, 1/2" red  
 band and 1" light green  
 band around body.

TAIL NO. . . . .  
 OVERALL LENGTH . . . . . 29.2 in.  
 BODY LENGTH . . . . . 17.2 in.  
 MAX. BODY DIAMETER . . . . . 7 in.  
 WALL THICKNESS . . . . . 0.064 in.  
 TAIL LENGTH . . . . . 17 in. (approx.)  
 TAIL WIDTH . . . . . 7 in.  
 TOTAL WEIGHT . . . . . 35 lbs.  
 CHARGE/WEIGHT RATIO. . . 46%

**BODY CONSTRUCTION** Parallel sides, with nose adapter and rear taper. Tail adapter secures tail to body. Explosive charge is cone shaped, employing principle of Munroe shaped charge. Cylindrical nose attachment welded on to nose adapter by four tack welds. Exploder is in rear of body and is initiated by flash from nose fuze, communicated through supporting tube extending from nose cavity to exploder.

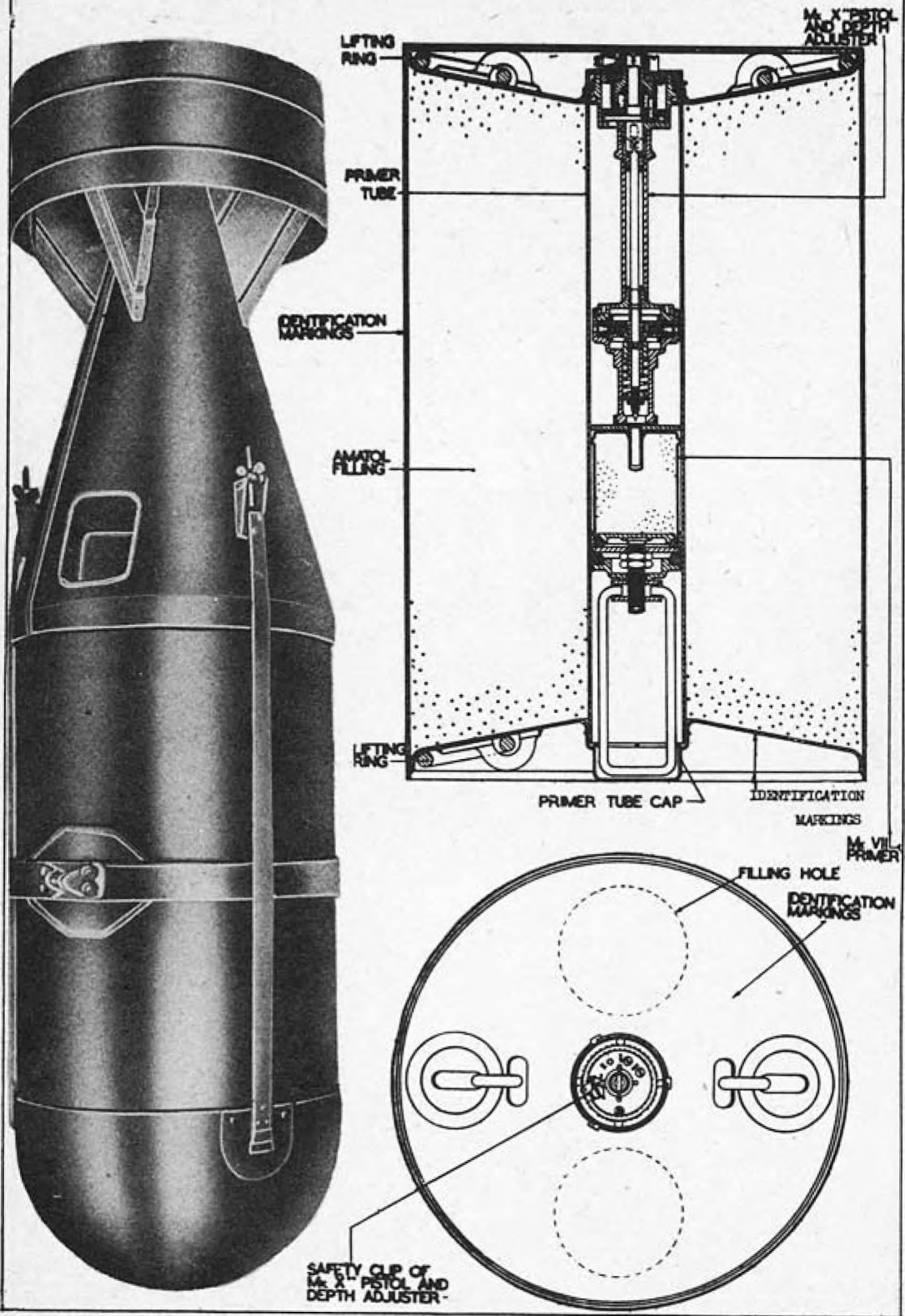
**TAIL CONSTRUCTION** Long hollow tube with cylindrical strut attached by six fins. Tail threads into tail adapter, secured by locking screw. The six fins are formed by three sets of W-shaped supports welded to tail tube.

**SUSPENSION** Mk I - Single lug for use by aircraft.  
 Mk II- No lug; fired from shipboard.

**EXPLOSIVE COMPONENTS** Exploder: C.E. pellets  
 Filling: 16 lbs. R.D.X./T.N.T. 60/40  
 Rear end sealed by 1/4" topping of T.N.T.

**REMARKS** Mk I: Designed for use by coastal command, RAP, and dropped from aircraft.  
 Mk II: Has no suspension lug, and is intended for spigot propulsion off ships.

# 450 LB. A/C DEPTH CHARGE



BRITISH

450 LB. D.C.

Mk VII

(Obsolete)

FUZING . . . . . Mk X<sup>98</sup> pistol and depth  
adjuster.  
 COLOR & MARKINGS . . . . . Dark green overall with cir-  
cumferential red and green  
bands. (Originally grey  
overall).  
 TAIL NO. . . . .  
 OVERALL LENGTH . . . . . 67.25 in.  
 BODY LENGTH . . . . . 27.75 in.  
 MAX. BODY DIAMETER . . . . . 17.5 in.  
 WALL THICKNESS . . . . .  
 TAIL LENGTH . . . . . 32 in. (approx.)  
 TAIL WIDTH . . . . . 17.5 in.  
 TOTAL WEIGHT . . . . . 450 lbs.  
 CHARGE/WEIGHT RATIO. . . . . 64%

**BODY CONSTRUCTION** Welded cylindrical case, closed by two covers connected by a central tube, called the primer tube. This tube houses the primer, pistol, and depth adjuster, having internal diameter of 3.5 in. Three lifting eyes with rings are provided, one on cover at primer end, and two on cover at other end. Cover at primer end has two filling holes with bungs. May or may not have nose attachment and tail. Carried on aircraft with primer end forward, except when fitted with parachute attachment, in which case pistol and depth adjuster.

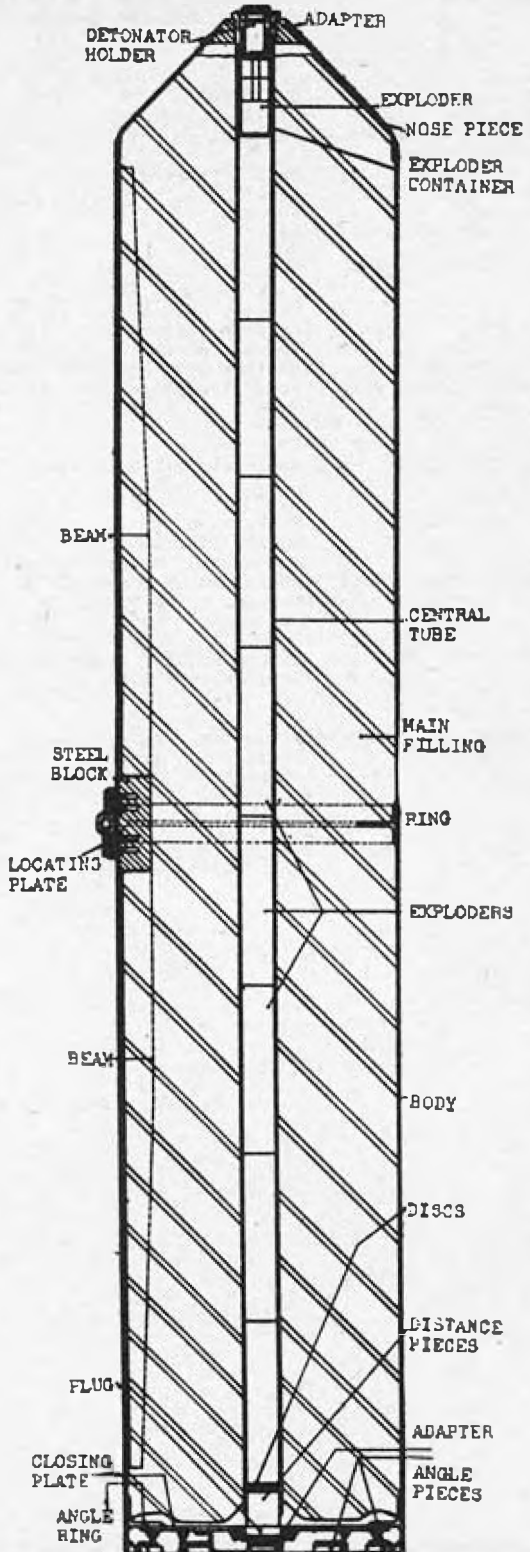
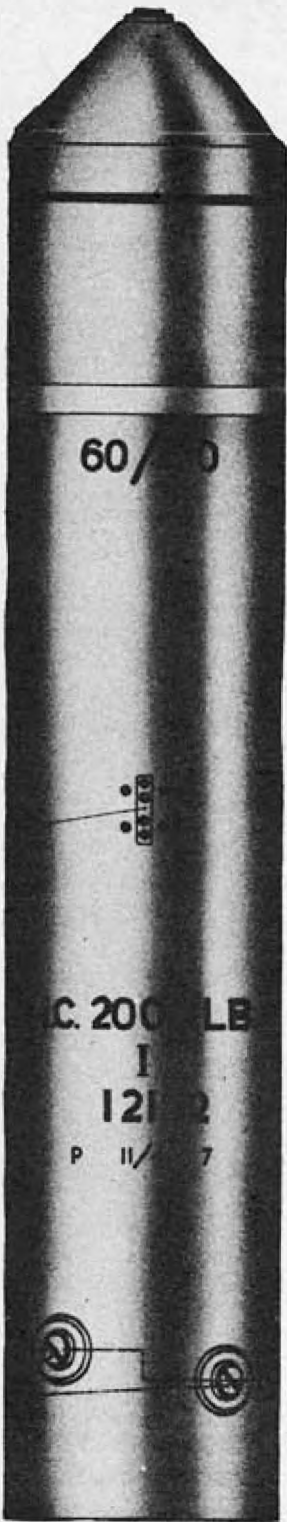
**NOSE ATTACHMENT** Hemispherical hollow nose held on by side strap.

**TAIL CONSTRUCTION** Tail, when fitted, consists of cylindrical strut attached to hollow tail cone by four fins. Three brackets equi-spaced around cone fitted to take ends of straps which secure nose and tail attachments, both of which break off on impact with water. May have parachute attachment on primer end if dropped from high speed aircraft.

**SUSPENSION** Suspended by a single lug on a suspension band around center of gravity.

**EXPLOSIVE COMPONENTS** Detonator: Mk VII, A.S.A. and C.E.  
 Primer: Mk VIII, 1 perforated and 1 solid C.E. pellet.  
 Filling: 290 lbs. Amatol.

# 2000 LB. H.C. BOMB



BRITISH

FUZZING . . . . . Only one nose pistol, No. 27, 42, or 44.

COLOR & MARKINGS . . . . . Dark green overall, 1/2" red band 3-1/2" from front edge of cylindrical shell, and 2" light green band 16" from edge.

TAIL NO. . . . . No. 32 Mk I, or Parachute attachment.  
No. 10, Mk I or II.

OVERALL LENGTH . . . . . 182"

BODY LENGTH . . . . . 99.5"

MAX. BODY DIAMETER . . . . . 18.5"

WALL THICKNESS . . . . . 0.19"

TAIL LENGTH . . . . . 60"

TAIL WIDTH . . . . . 18.6"

TOTAL WEIGHT . . . . . 1842 lbs.

CHARGE/WEIGHT RATIO. . . . . 73%

2000 LB. H.C.

Mk I

(Obsolete)

**BODY CONSTRUCTION** Cylindrical steel shell with hollow conical nose piece welded to one end, parallel sides, and a closing plate bolted to an angle ring welded in position at a short distance within the other end. Strengthening band welded internally at center of gravity, the ends welded to a steel block. Tapping holes through the shell and steel block receive suspension lug screws. Side pockets for supplementary fuzing are present near the base end, but are not used. Shell is strengthened longitudinally by two channel-section beams welded to each end of central steel block and to shell interior.

**TAIL CONSTRUCTION** No. 32 Mk I: Cylinder of light gauge metal with a metal tray secured in its forward end and a strengthening ring in its open rear end. Tray has welded to it a series of equi-spaced bayonet dogs for attaching to the body bayonet joints. Cylinder has a number of openings to give it stability.

Parachute attachment: Parachute is 5' 6" in diameter, attached to metal tray having bayonet dogs for attaching to body. Retained by waterproofed fabric and a retaining pin. Retaining pin attached to a static cord stitched on outside of last protective panel and connected to bomb carrier or aircraft. On release the cord pulls the retaining pin and chute free, breaking off from plane when chute is extended.

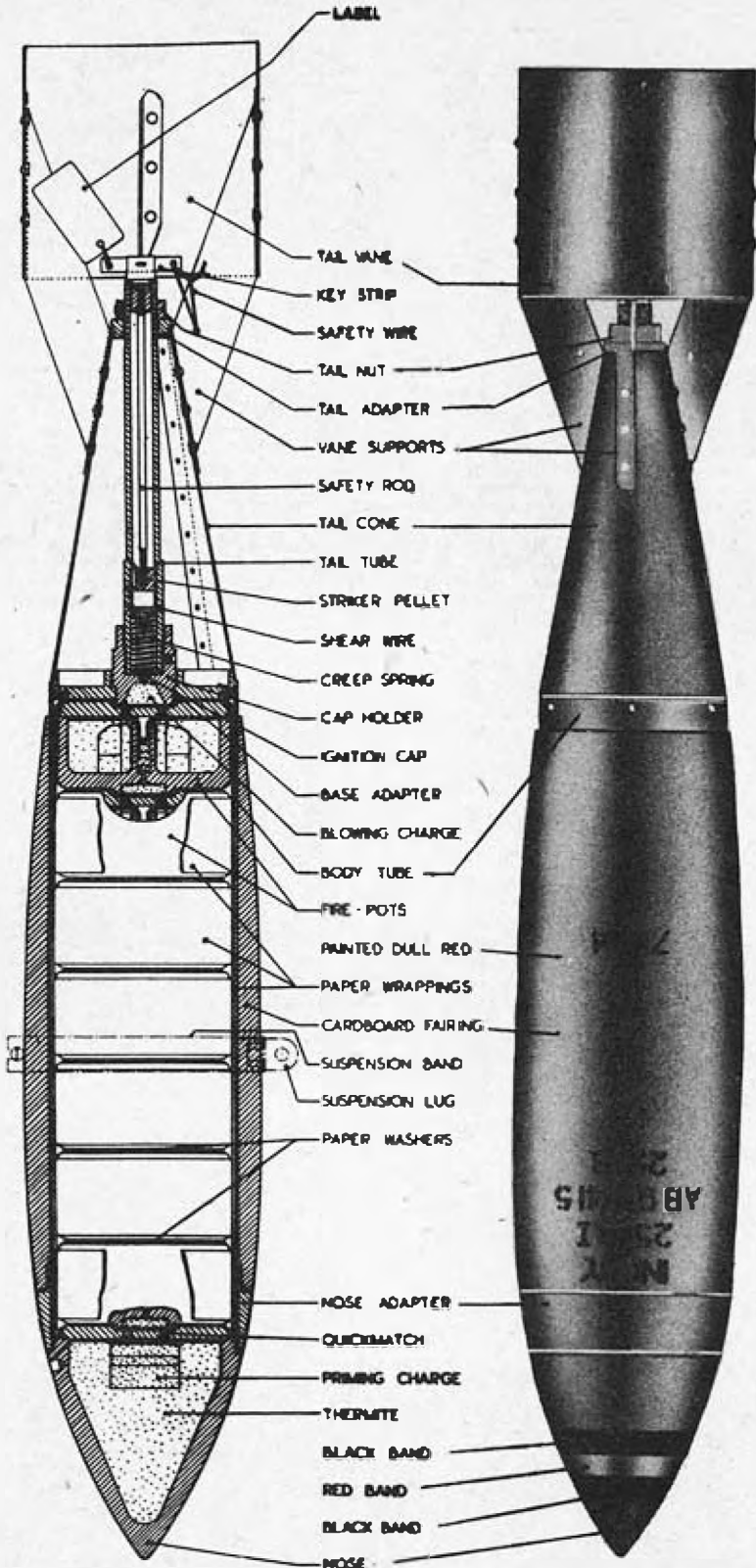
**SUSPENSION** Single suspension lug bolted to body and internal steel block at center of gravity. Screw holes closed by transit screws until bomb is to be used, when lug is attached.

**EXPLOSIVE COMPONENTS** Detonators: (See Appendix I, page 309)  
Exploders: Central exploder tube extending from nose exploder container. Tube contains eight 33-1/4 oz. T.N.T. exploders. Exploder container contains a 9 oz. T.N.T. Exploder.  
Filling: 1340 lb. Amatol 60/40 sealed at ends with approved composition.

**REMARKS** (1) This bomb may be fitted with a nose attachment of light gauge metal to retard the bomb in flight. It is a cylinder fitting over the forward end of the body shell and projecting forward beyond it around the conical nose piece.

(2) Two side fuzing pockets usually not used, but might contain the No. 47 time pistol.

# 25 LB. INCEND. BOMB



BRITISH

25 LB. I.B.

Mks I &amp; II

(Obsolete)

FUZING . . . . . Simple impact striker.  
 COLOR & MARKINGS .. . Dull red overall, with two  
 1/2" black bands separated  
 by 1/2" red band painted  
 around the nose.  
 OVERALL LENGTH . . . . . 32.6 in.  
 MAX. BODY DIAMETER . . . . . 5.03 in.  
 TAIL LENGTH . . . . . 13.55 in.  
 WT. EMPTY BOMB . . . . . 17 lbs.  
 WT. FILLED BOMB . . . . . 25 lbs.  
 INCENDIARY FILLING . . . . . 1 lb. Thermite, 5 lb. 4 oz.  
 magnesium.  
 SUSPENSION . . . . . Small Bomb Container, or by  
 a lug on a band from a bomb carrier.

## DESCRIPTION

Mk I: The Bomb consists of a cylindrical steel tube secured to a hollow sharp-pointed nose by a nose adaptor (built up externally to streamline form by a cardboard fairing), a column of seven closed containers, tapered fire-pots, accommodated in the body tube, a flanged base adapter which affords a mounting for a cap holder, a tail cone with a cylindrical tail vane secured to it by four vane supports, and a tail tube which accommodates a striker pellet, with a shear wire and creep spring, and a safety rod. Each of the seven fire-pots consists of a cylindrical container made of magnesium alloy and formed with a central tube which communicates, through a fire hole, with a recess in a central boss on the base of the container. The container is closed by a magnesium alloy lid which has a shallow central recess in its outer side, and holes through the lid place this recess in communication with the interior of the container. The ignition cap contains a layer of gunpowder and a layer of detonating composition. The central tube of each of the fire-pots houses a delay charge and is surrounded by a delay charge and a priming charge for the thermitic and magnesium filling, which occupies the remainder of the annular chamber in the fire-pot. A loop of quickmatch extends into the bore of the central tube and has its two ends carried out through the slots in the tube and through two of the holes in the lid. An ejection charge of gunpowder is retained in the recess in a central boss of each fire-pot by a paper disc, which is secured in position by shells. The tail cone fits over the flange of the base adapter and is held assembled to the bomb body by a tail nut which screws on to the rear end of the tail tube against a tail adapter, which fits into the rear end of the tail cone. The striker pellet has a sharp-point at the forward end and is held in the safe position by a shear wire passed through holes in the striker pellet and tail tube. The ends of the shear wire are soldered over to prevent removal. The rear end of the striker pellet receives the forward threaded end of the safety rod. The creep spring is housed in the forward end of the tail tube and bears against the cap holder and the striker pellet. The safety rod passes through the tail tube and is screwed into the threaded bore of the striker pellet.

Mk II: Mk II has only a slight difference in the tail plate.

## PARACHUTE ATTACHMENT

Either of two parachute attachments are used with this bomb: No. 1, Mk I and No. 1, Mk II. No. 1 Mk I consists of a small parachute housed in a container of sheet metal consisting of a cylindrical housing plate and a cover. It fits loosely in the cylindrical strut of the bomb tail. The chute is 15 in. in diameter and vented at the peak. No. 1 Mk II is similar except that it is housed in a collapsible cardboard container between cardboard packing discs.

## STRIKER ATTACHMENT

There are two striker attachments: No. 1 Mk I, and No. 1 Mk II. No. 1 Mk I consists of a coupling fork, a snatch rod, a striker rod, a coupling socket, and a retaining sleeve which houses a spring. No. 1 Mk II is similar except that the coupling fork is fitted with a quick-release pin.

## FUNCTIONING

With No. 1 Mk I parachute and striker: When bomb is released the cover pulls the chute out, the chute opens and pulls the snatch rod against the action of the spring until the striker rod retaining balls escape into the annular recess in the retaining sleeve. The striker rod then moves down against the striker pellet. On impact, the inertia of the rod and pellet combine to shear the shear wire, overcome the creep spring, and pierce the ignition cap, igniting the blowing charge and blowing the base adapter and complete tail and parachute assembly from the body tube; also igniting the quickmatch which passes through the lid and into the central tube of the rearmost magnesium alloy fire-pot. The quickmatch ignites the delay charges in and around the central tube of the fire-pot, and while the central tube delay charge is burning through, the outer delay charge initiates the surrounding priming charge, which, in turn, ignites the incendiary composition around it. Meanwhile the central delay charge burns through and fires the ejection charge in the base of the fire-pot; this has the effect of ejecting the active fire-pot from the bomb and also igniting the quickmatch of the second fire-pot, etc. Each ejected fire-pot will continue to burn for approximately 10 minutes, the magnesium alloy container and lid being consumed. Finally, the quickmatch in the lid closing the nose of the bomb, ignited by the last ejection charge, initiates the priming charge which, in turn, ignites the incendiary composition of the nose and provides an additional fire source.

With No. 1 Mk II parachute & striker: Parachute is blown out of cylindrical shroud on tail and falls apart to allow chute to open, freeing the striker mechanism. Functioning after this is same as that with No. 1 Mk I attachments.

FUZZING . . . . . Nose Fuze No. 36, Mk II, M.D. with No. 2, Mk I ejector charge.

COLOR & MARKINGS . . . . Red overall; two 2" black bands separated by 2" bright red band near the nose.

TAIL NO. . . . . No. 1, Mk I

OVERALL LENGTH . . . . . 61" (approx.) without fuze.

BODY LENGTH . . . . . 34.1"

MAX. BODY DIAMETER . . . . 12"

TAIL LENGTH . . . . . 27.2"

TAIL WIDTH . . . . . 11.7"

FUEL WEIGHT . . . . . 68 lbs.

TOTAL WEIGHT . . . . . 123 lbs.

**250 LB. I.B.**

Mks I & II  
(Obsolete)

**DESCRIPTION** . . . . . Cylindrical shaped body with hemispherical nose and parallel sides. An ejector charge container is screwed and cemented into the nose and takes the nose fuze. The tail consists of a tail cone and a cylindrical strut attached to the cone by four fins. The aft end of the body is closed by a tail plate, lightly secured to the body.

**SUSPENSION** . . . . . Single suspension lug.

**FILLING** . . . . . Mk I is filled with phosphorous-rubber-benzene, and Mk II is filled with a "sticky inflammable liquid". Ejector charge consists of black powder.

**FUNCTIONING** . . . . . On impact, the fuze functions and ignites the gunpowder ejection charge, which in turn ignites the incendiary filling and ejects it with the tail and tail plate.

**REMARKS** . . . . . This bomb is intended primarily for attacking forested areas and can be dropped from heights up to 3000 feet.

| <u>DATA</u>         | <u>50 lb. G.P.<br/>Mk I</u>  | <u>250 lb. R.L.<br/>Mk II</u> | <u>230 lb. R.F.C.<br/>Mks I,II,III</u> | <u>500 lb. R.A.F.<br/>Mk I</u> | <u>520 lb. R.L.<br/>Mk I</u> | <u>550 lb. R.A.F.<br/>Mk I</u> | <u>550 lb. R.L.<br/>Mk I</u> | <u>1400 lb. S.N.</u> |
|---------------------|------------------------------|-------------------------------|--|--------------------------------|------------------------------|--------------------------------|------------------------------|----------------------|
| Puzing: Nose        | No.19 pistol                 | No.19 pistol                  | None                                   | No.8 pistol                    | No.9 pistol                  | No. 8 pistol                   | No.9 pistol                  | No.13 pistol         |
| Tail                | No.21 pistol                 | No.20 pistol<br>No.5B pistol  | No.5B pistol                           | No.19 pistol<br>No.5B pistol   | No.20 pistol<br>No.5B pistol | No.19 pistol<br>No.5B pistol   | No.20 pistol<br>No.5B pistol | No.12 pistol         |
| Overall Length      | 30.7"                        | 35.0"                         | 50.7"                                  | 61.6"                          | 60.7"                        | 61.1"                          | 60.8"                        | 133.1"               |
| Body Length         | 15.0"                        | 30.5"                         | 46.0"                                  | 55.0"                          | 54.0"                        | 48.5"                          | 42.0"                        | 93.0"                |
| Body Diameter       | 5.9"                         | 12.5"                         | 10.0"                                  | 19.0"                          | 19.6"                        | 15.0"                          | 15.0"                        | 18.5"                |
| Wall Thickness      | 0.38"                        |                               | .22"                                   | 0.15"                          | 0.25"                        | 0.9%                           | 0.9"                         | 0.51"                |
| Tail Length         | 15.7"                        | 19.0"                         | 18.0"                                  | 19.0"                          | 18.5"                        | 21.0"                          | 24.0"                        | 49.0"                |
| Tail Width          | 5.9"                         | 18.0"                         | 19.5"                                  | 19.0"                          | 19.6"                        | 15.0"                          | 15.0"                        | 20.0"                |
| Type filling        | a. T.N.T.<br>B. Amatol       | T.N.T.                        | a. T.N.T.<br>b. Amatol                 | a. T.N.T.<br>b. Amatol         | a. T.N.T.<br>b. Amatol       | a. T.N.T.<br>b. Amatol         |                              | Amatol               |
| Filling Weight      | a. 8.3 lbs.<br>b. 11.8 lbs.  | 86.0 lbs.                     | a. 140 lbs.<br>b. 110 lbs.             | a. 356 lbs.<br>b. 280 lbs.     | a. 354 lbs.<br>b. 273 lbs.   | a. 200 lbs.<br>b. 157 lbs.     |                              | 709 lbs.             |
| Total Weight        | a. 45.3 lbs.<br>b. 47.8 lbs. | 255 lbs.                      | a. 240 lbs.<br>b. 210 lbs.             | a. 536 lbs.<br>b. 460 lbs.     | a. 534 lbs.<br>b. 453 lbs.   | a. 566 lbs.<br>b. 523 lbs.     |                              | 1433 lbs.            |
| Charge/Weight Ratio | a. 20.4%<br>b. 24.3%         | 33.9%                         | a. 58.5%<br>b. 52.5%                   | a. 66.6%<br>b. 61.0%           | a. 66.5%<br>b. 60.0%         | a. 35.4%<br>b. 30.0%           |                              | 49.5%                |

These bombs are all general purpose type bombs but are now obsolete.  
All had a central burster tube running the entire length of the bomb.

OBSOLETE BOMBS

RESTRICTED

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# **SECTION II**

**BRITISH**

**FUZES & PISTOLS**

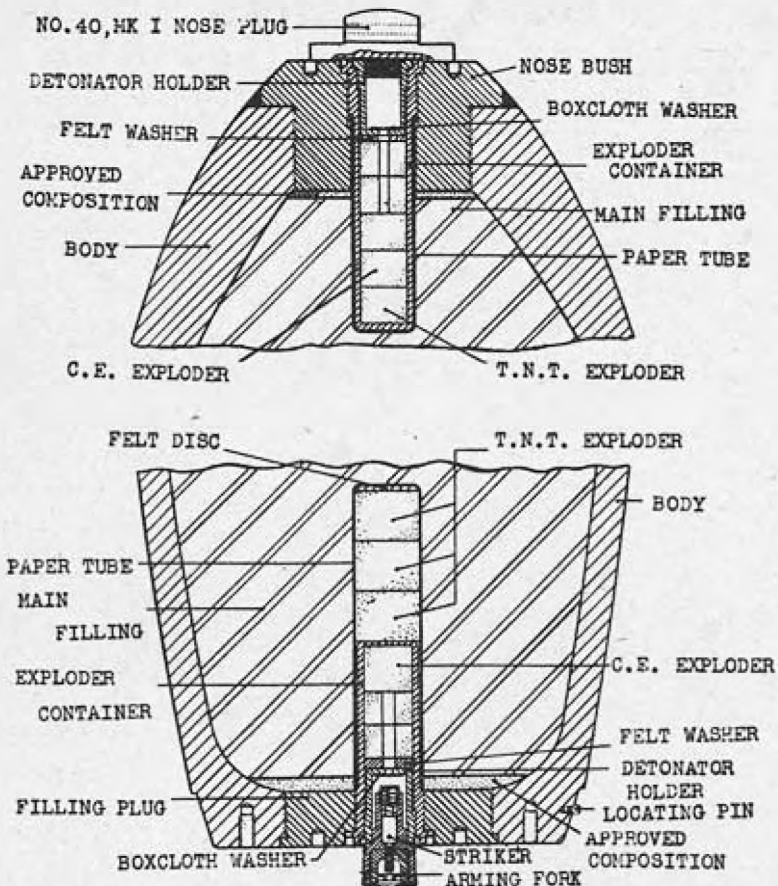
## BRITISH FUZES AND PISTOLS

Initiating devices for British bombs are divided into two distinct groups, pistols and fuzes. The term PISTOL is used to describe an initiating device which contains no explosive components (primer, detonator, or booster) as it is normally shipped or issued. A PISTOL is purely a mechanical device for initiating explosive components which are inserted in the bomb as a separate entity. Initiating devices which contain explosive components as integral parts, however, are termed FUZES. Generally, in addition to a primer-detonator combination, FUZES also are fitted with burster charges or boosters.

As a general rule, British pistols are used to initiate high explosive bombs, while British fuzes are employed in miscellaneous types of missiles, such as smoke bombs, flares, etc. Many exceptions, however, will be found to this rule.

In most instances, fuzes and pistols are designed so that they may be dropped "SAFE" by leaving some form of safety device (safety fork, safety pin, or safety clip) in place. Certain fuzes and pistols, however, may not be dropped "SAFE", due to the absence of safety devices or to the automatic removal of such devices when the bomb is released.

In bombs of 500 lbs. and under in weight, fuzes cannot be used, and pistols are screwed directly into an exploder container, which contains booster pellets and a detonator. In bombs over 500 lbs., the pistol is screwed into a detonator holder, which in turn is threaded into the exploder container of the bomb. In this size bomb, if a fuze is to be used, the detonator holder is omitted, and the fuze is screwed directly into the exploder container. A discussion of the detonators used with British pistols will be found in Appendix I. Suffice it to say here that relatively insensitive anvil-type detonators are employed with pistols which have blunt strikers. Sensitive "capsule" detonators are used with pistols containing needle-pointed strikers. The following diagram shows the typical fuzeing arrangement for a bomb of more than 500 lbs. in weight.



Tail fuzes normally have arming vanes as an integral part of the fuze mechanism. Tail pistols, on the other hand, generally are armed by an arming fork, which engages a similar fork on the reach rod attached to the arming vanes incorporated as an integral part of the standard British tail unit.

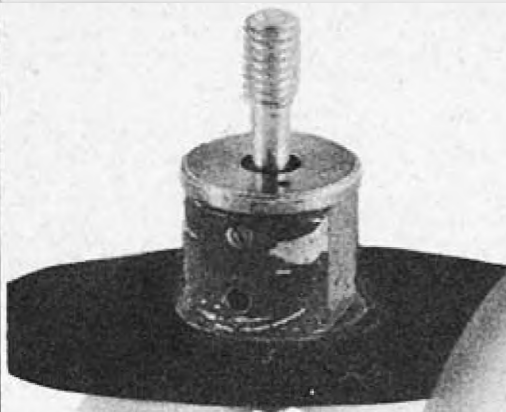
A novel type of device is employed by the British to secure their pistols in bombs. This device consists of a spring clip or "tab locking device" fitting around the base of the pistol. The clip has a series of dents which fit into cavities located around the pistol body. A small tab, about 1/4" long, projects below the clip, and when the pistol is screwed into the bomb, the tab engages one of the small holes drilled in the top of the exploder container. This prevents the clip from moving around with the pistol and provides a ratchet effect. This device prevents the pistol from working loose while in the plane and yet leaves the pistol only hand tight in the bomb, so that it may be easily removed.

Most British bombs are equipped for both nose and tail fuzeing, and occasionally dual fuzeing is used. However, it is the more common practice for British armorers to fuze either nose or tail, using only one fuze. Generally, if a delay is desired, the bomb is fuzed in the tail, while nose pistols or fuzes will be used for instantaneous action.

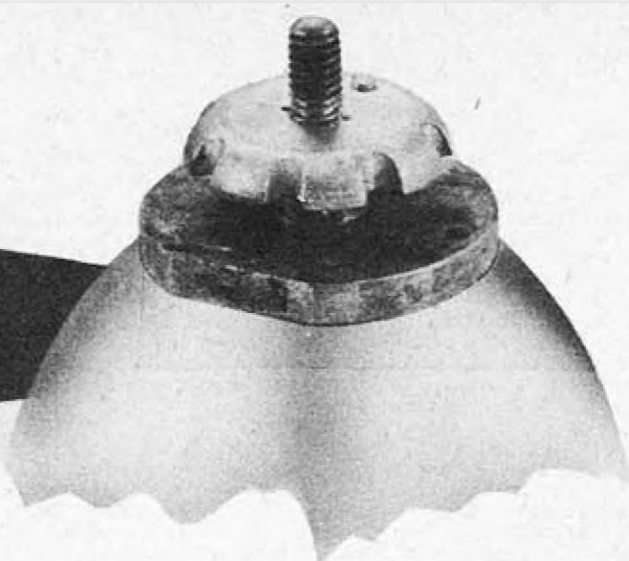
Included in this publication are all British pistols and fuzes currently in service use. In addition, obsolescent pistols and fuzes, which are no longer in manufacture but stocks of which are still available for use, are also presented. Certain pistols and fuzes have been declared obsolete by the British, but because of their former importance or as a matter of interest have been included in the book. More important obsolete items, such as the No. B45 fuze, are presented in the main body of this section. Other obsolete items are included in chart form at the end of this section.

British fuzes and pistols are designated by a number and a mark, the number corresponding to the U.S. "Mark" designation, the Mark (always expressed in Roman numerals) equivalent to the U.S. "mod". Since some British pistols carry the same number and mark designations as a British fuze, the name "Pistol" or "Fuze" must always follow the number and mark designation, as: No. 38 Mk.I Pistol, No. 38 Mk.I Fuze, etc.

Although the fuze or pistol designation is almost invariably stamped on the external surface of the fuze or pistol, in many cases this designation is not visible when the fuze or pistol is inserted in the bomb. Since some British fuzes and pistols contain anti-withdrawal devices and others are inherently dangerous to remove, it becomes necessary to recognize fuzes and pistols from their external appearance alone. To assist recognition the following section has been included in this publication. In all cases, the fuzes and pistols are shown in the armed position, and only so much of the fuze or pistol which remains visible when inserted in the bomb is pictured. Reference numbers indicate the pages in this publication where diagram sketches and complete descriptions of the item in question may be found.



TAIL PISTOL NO. 17  
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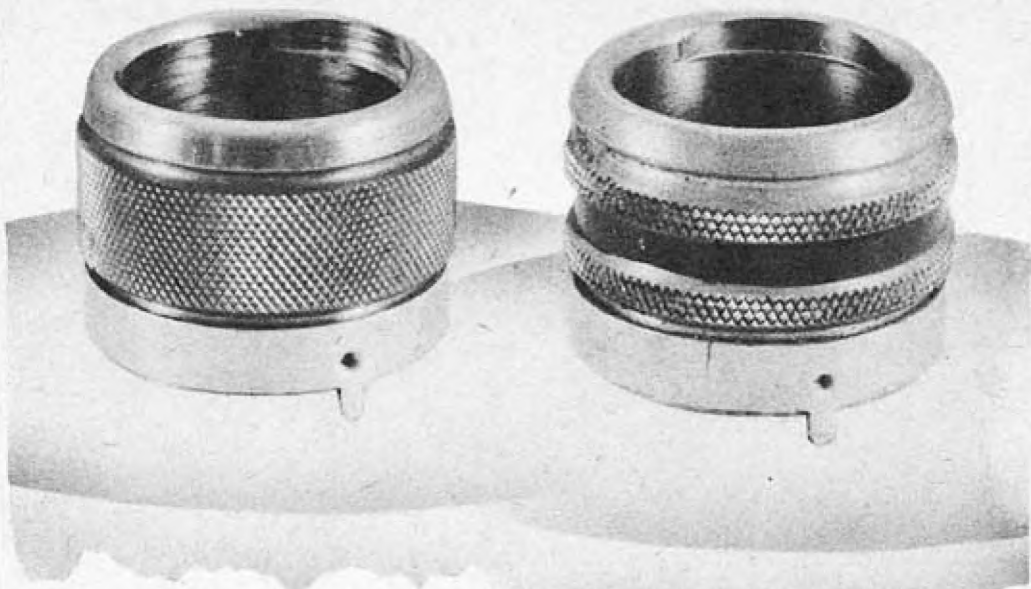
NOSE PISTOL NO. 19  
Page 225



TAIL PISTOL NO. 23  
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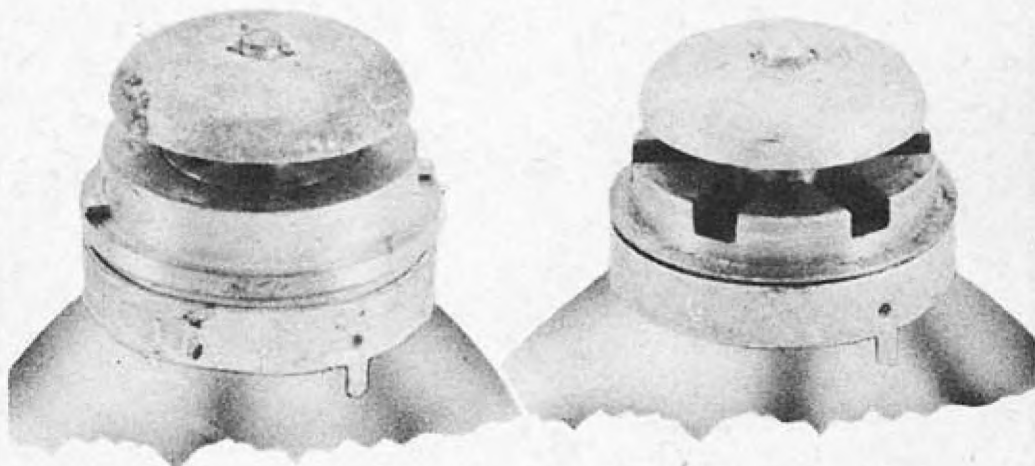


TAIL PISTOL NO. 37  
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TAIL PISTOL NO. 29  
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TAIL PISTOL NO. 30  
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NOSE PISTOL NO. 33  
Page 235

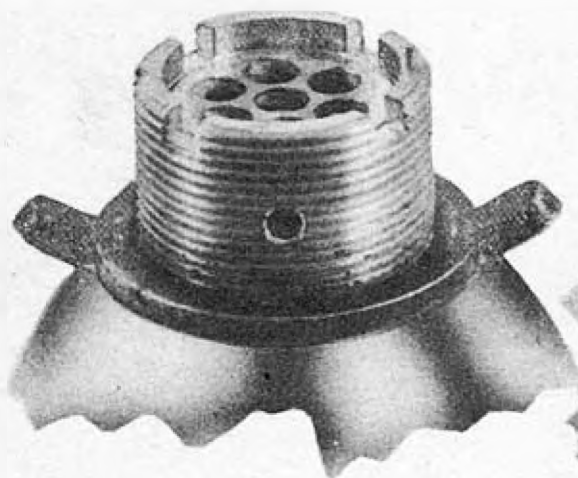
NOSE PISTOL NO. 34  
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NOSE PISTOL NO. 38  
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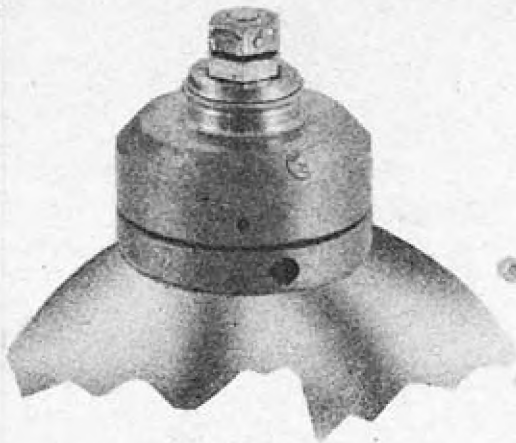
NOSE PISTOL NO. 27  
Page 231



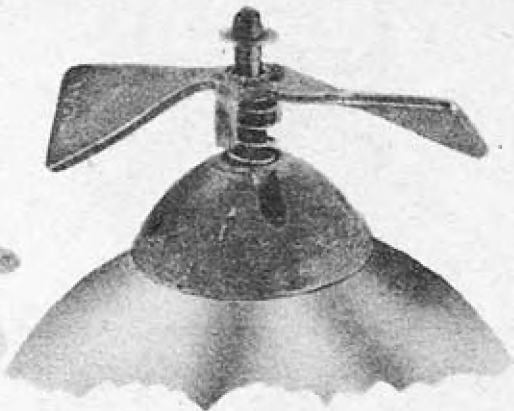
NOSE PISTOL NO. 45  
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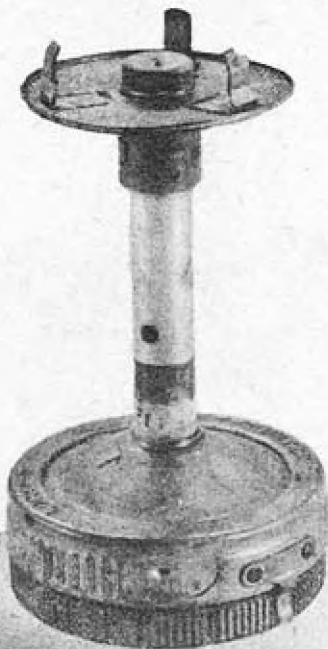
TAIL PISTOL NO. 48  
Page 251



NOSE FUZE NO. 38  
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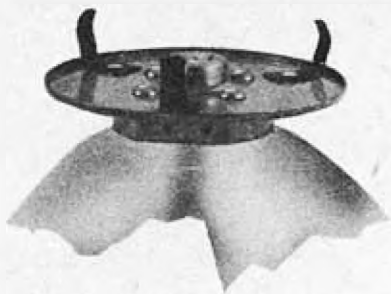
NOSE FUZE NO. 845  
Page 279



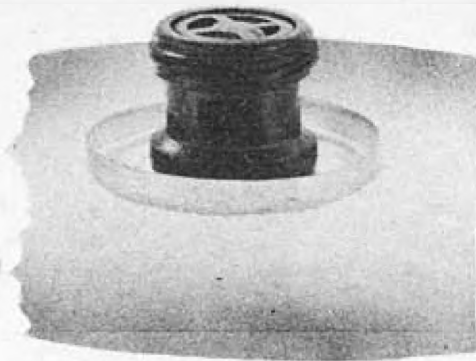
NOSE FUZE NO. 849  
Page 285



NOSE OR TAIL FUZE NO. 42  
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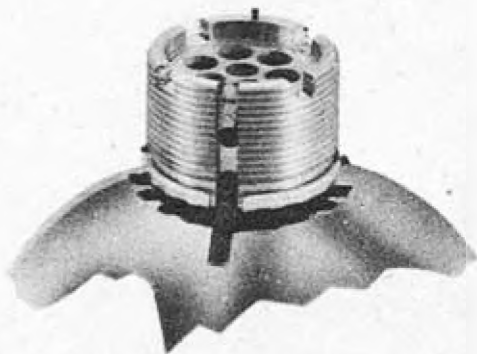
NOSE FUZE NO. 855  
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TAIL FUZE NO. 854  
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NOSE FUZE NO. 860  
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NOSE FUZE NO. 873  
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TAIL FUZE NO. 29  
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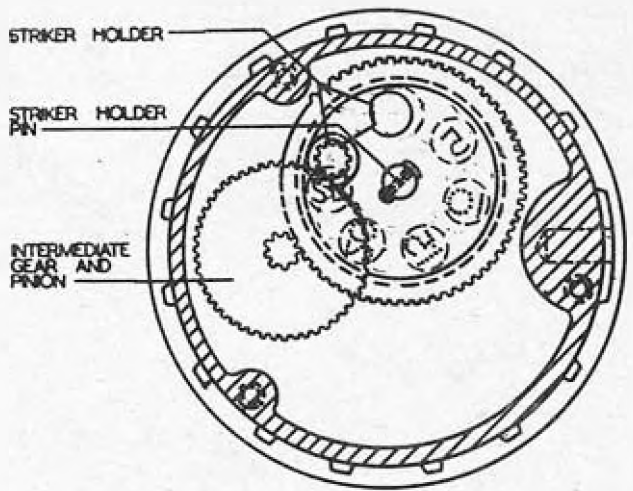
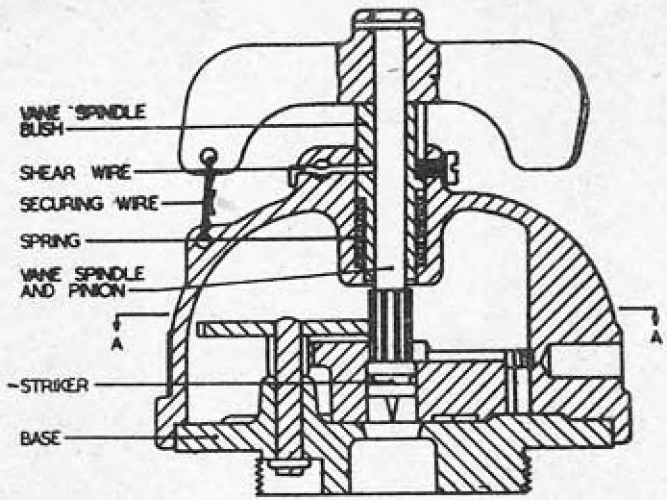
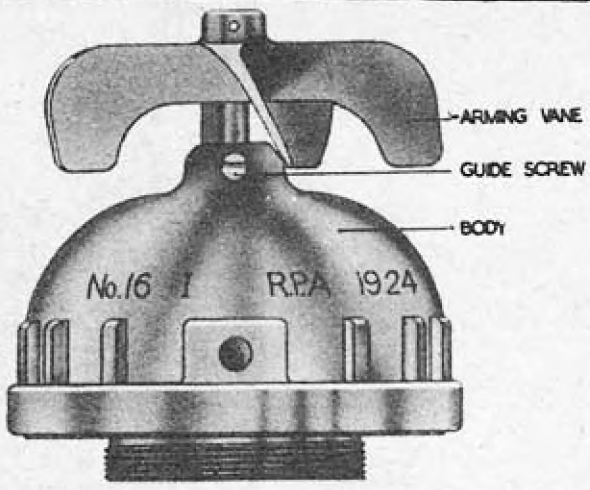


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NOSE FUZE NO. 32  
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# BRITISH NOSE PISTOL NO. 16



BRITISH NOSE PISTOL

BOMBS USED IN . . . H.E. 20 lb. Mk I  
 FUNCTIONING . . . Instantaneous; impact  
 ARMED CONDITION . . . When striker can be seen  
 through central hole in base  
 of fuze.  
 PUZZES USED WITH . . . None  
 ARMING TIME . . . From 5 to 25 vane revolutions,  
 depending on setting  
 VANE SPAN . . . 3.1" (8 vanes)  
 MAX. BODY DIAMETER. . . 3.3"  
 OVERALL LENGTH . . . 3.3" (less booster)

**NO. 16**

Mk I

(For other Marks see REMARKS below)

(Obsolescent)

**DESCRIPTION:**

The body is a hollow dome-shaped casting, recessed at the bottom to take the base, which is secured to the body by three screws.

The top of the body has a boss bored to take an arming spindle bush which houses an arming spindle and pinion. Located between a shoulder in the bore of the boss and a shoulder on the bush is a spring, which tends to keep the bush from moving inwards should the shear wire be broken. The bush has a slot cut in its side, to accommodate a guide screw. The arming vane is locked by a securing wire, which is threaded through a hole in the arming vane and a hole in a lug cast on the body. The base is threaded at the lower end to screw into the bomb body, and is bored centrally to allow the striker access to the detonator in the bomb. The safety gear train is formed by the arming spindle and pinion, which engages with an intermediate gear and pinion. The pinion of the intermediate gear engages with teeth cut on the striker holder, which is in the form of an interrupted-tooth gear wheel, having on its upper surface a triangular shaped stop which contacts the arming spindle and pinion after a predetermined number of revolutions of the arming vane. The striker is press-fitted into a hole in the striker holder adjacent to the triangular stop, and the striker is in alignment with the arming spindle. The striker holder has marked on its underside the numbers 5, 10, 15, 20 and 25 on the same pitch circle as the hole which houses the striker. When any one of these numbers is opposite the central hole in the base, approximately that number of revolutions of the arming vane will be required to bring the striker opposite the central hole in the base. The normal setting is 25. The striker holder rotates on a striker holder pin which is riveted to the base of the pistol, the striker holder being retained on the pin by a split pin.

**OPERATION:**

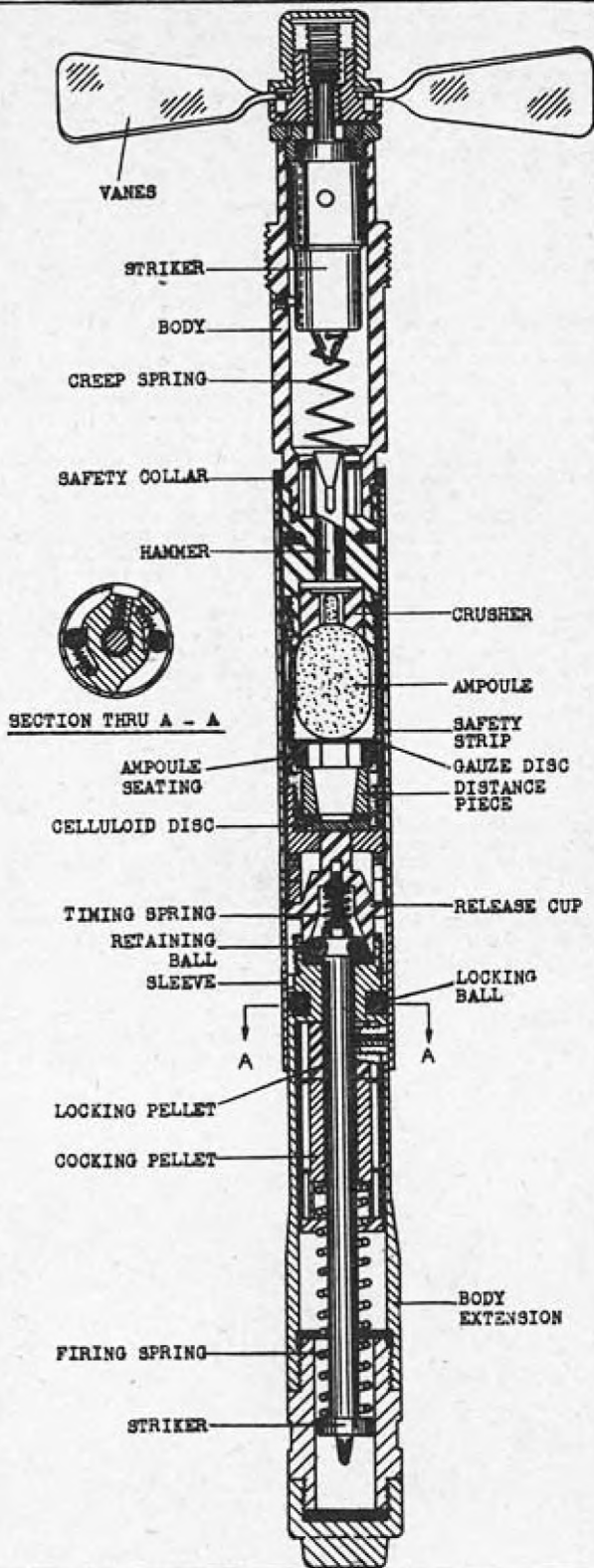
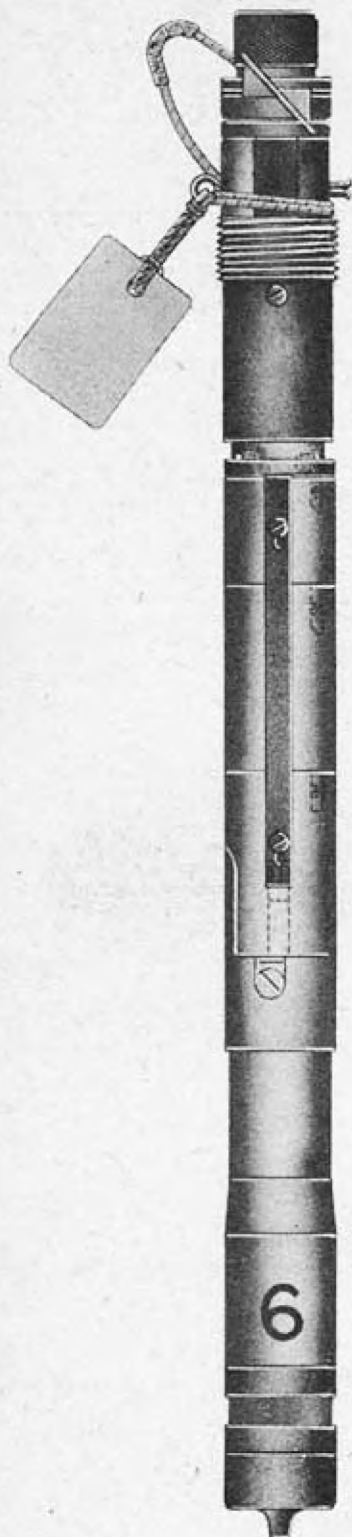
On release of the bomb, the vanes rotate and act through the arming spindle and pinion to rotate the intermediate gear and its pinion in a counter-clockwise direction. The pinion on the intermediate gear rotates the striker holder in a clockwise direction. After a predetermined number of revolutions the triangular stop on the upper surface of the striker holder comes into contact with the arming spindle pinion, aligning the striker with the arming spindle and hole in the base, and preventing further rotation of the striker holder. On impact, the arming vanes, arming spindle and pinion, and spindle bush are forced inwards against the spring, breaking the shear wire. The inner end of the arming spindle and pinion forces the striker into contact with the cap of the detonator in the bomb.

**REMARKS:**

If the pistol is not in the bomb, visual inspection through the hole in the base will indicate the number of vane revolutions required to align the striker with the pinion and the hole in the base, since the numbers 5, 10, 15, 20 and 25 are marked on the bottom of the striker holder and are visible when opposite the hole in the base.

No. 16 is obsolete; No. 16 Mk I, formerly the No. 7 Mk I, is obsolescent.

# BRITISH TAIL PISTOL NO.17



BRITISH TAIL PISTOL

NO. 17

Mks I - III

(Obsolescent)

BOMBS USED IN . . . . 250 lb. G.P., Mks I, II,  
 III and V.  
 500 lb. G.P. Mks I, II  
 III and V.

FUNCTIONING . . . . Chemical delay of from 1/2  
 to 36 hours. A/W if dropped.

ARMED CONDITION . . . . No external evidence of  
 arming.

FOZES USED WITH . . . . None

ARMING TIME . . . . 8 vane revolutions

VANE SPAN . . . . 6.6"

MAX. BODY DIAMETER . . . . 1-1/8"

OVERALL LENGTH . . . . 12-3/4" (only 1.67" visible)

COLOR . . . . . Part protruding from bomb  
 is painted red.

DESCRIPTION: This pistol employs three basic principles of operation: mech-  
 anical impact, chemical action, and anti-withdrawal. Principal  
 parts consist of the arming vanes, retaining balls, safety  
 strips, sleeve, and locking balls.

OPERATION: After safety pin has been withdrawn and bomb released, vanes  
 rotate up and off in approximately 8 revolutions. On impact,  
 the striker weight moves down against the hammer, forcing it  
 against the crusher, which mashes the ampoule against the perforated disc and ampoule  
 seating. Two other things occur simultaneously with this action: the thin brass  
 safety spider moves down, the four protruding ends being pulled free from above the  
 safety collar; and the locking and cooking pellets move down, the locking pellet  
 pulling the sleeve with it. As the sleeve clears the two locking balls, their springs  
 force them into the narrower parts of the grooves in which they ride and lock the  
 lower part of the pistol body in the exploder. Since the safety collar is no longer  
 retained by the safety spider, the two safety strips resting against it are free to  
 be forced up. The acetone acts on the delay disc, the time of the action being pre-  
 determined, and as the disc is dissolved or softened, the timing spring forces the  
 firing pin release cup up. Two projections on this cup force the safety strips up  
 with the cup. (These strips could not rise until after impact when the safety spider  
 pulled free from above the safety collar). As the firing pin release cup rises, the  
 firing pin retaining balls are forced out by the cocked firing pin into the gradually  
 increasing area, until they finally clear the groove in the upper part of the firing  
 pin spindle, and release the firing pin to be forced against the detonator.

If an attempt should be made to extract the pistol after it has  
 been dropped and the locking balls have been forced by their springs between the  
 narrow part of the groove and the exploder, such an attempt would merely tend to bind  
 the lower part of the pistol more firmly; the result being that the upper part would  
 be unthreaded and the firing pin release cup pulled clear of the firing pin retaining  
 balls. As the balls clear the groove in the firing pin spindle, the cocked firing  
 pin would be forced against the detonator and detonate the bomb. Approximately one  
 or two turns would activate the anti-withdrawal functioning of the pistol.

REMARKS: (1) Early Marks had lead anti-withdrawal lug instead of lock-  
 ing balls.  
 (2) THIS PISTOL SHOULD NEVER BE WITHDRAWN FROM A BOMB THAT HAS  
 BEEN DROPPED FROM AIRCRAFT.

(3) Delays which may be incorporated in this pistol, and the  
 corresponding color of the groove in the lower body extension housing the firing pin  
 head are as follows:

|          |                    |  |
|----------|--------------------|--|
| 17 Mk I  | 30 min . . . . .   | Upper half red, lower half green       |
| 17A Mk I | 1 hr . . . . .     | Upper half red, lower half black       |
| 17B Mk I | 2 hrs . . . . .    | Upper half red, lower half yellow      |
| 17D Mk I | 3 hrs . . . . .    | Upper half red, lower half light blue. |
| 17E Mk I | 6 hrs . . . . .    | White                                  |
| 17F Mk I | 8 hrs . . . . .    | Yellow                                 |
| 17G Mk I | 12 hrs . . . . .   | Green                                  |
| 17H Mk I | 18 hrs . . . . .   | Red                                    |
| 17J Mk I | 24 hours . . . . . | Black                                  |
| 17K Mk I | 36 hrs . . . . .   | Light blue.                            |

(4) The delay is also engraved in the pistol body just above  
 the colored groove.

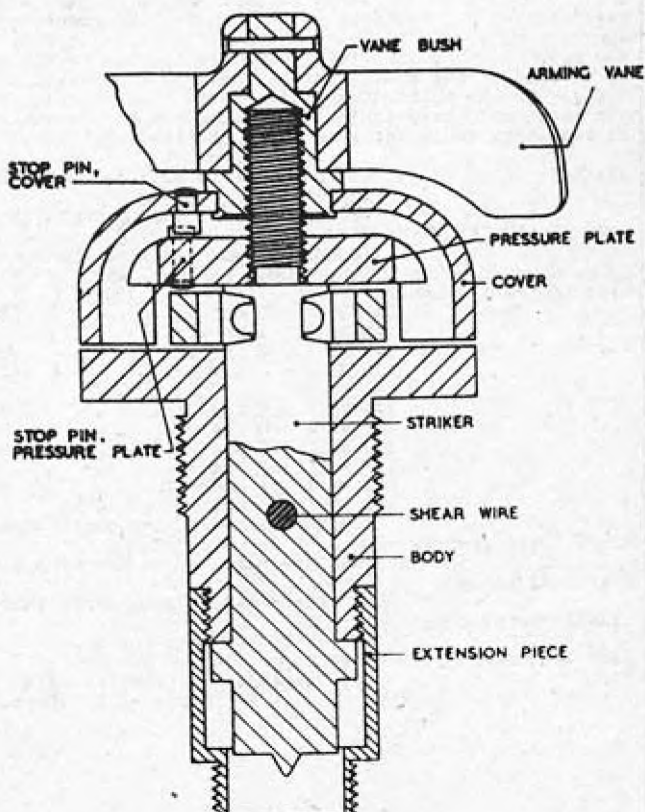
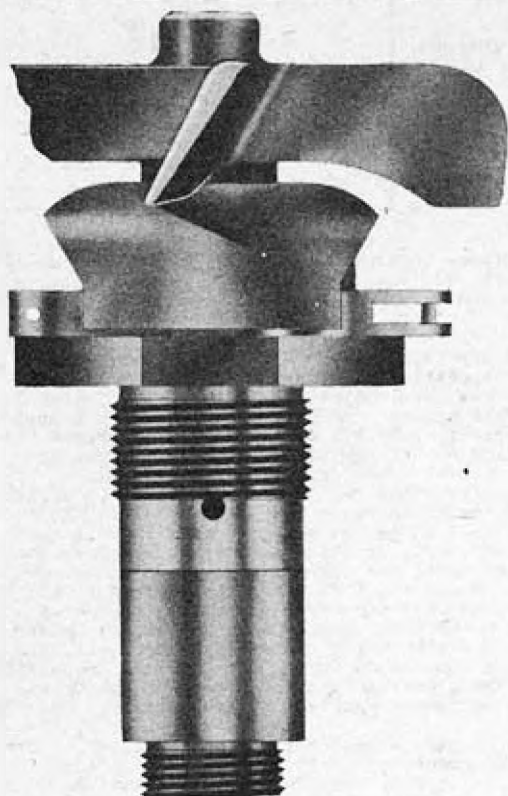
(5) The arming screw has left hand threads, all other threads  
 are right handed.

(6) The fins of bombs using this pistol and the arming vanes are  
 usually painted red.

(7) Mk II has same letter and time designations as Mk I, but the  
 anti-withdrawal device is not present on the latter.

(8) The Mk III is similar to Mk II, except that it has a lighter  
 spider, and the safety pin hole is increased in diameter.

## BRITISH NOSE PISTOL NO. 19



BOMBS USED IN . . . . H.E.R.L. 112 lb. Mk VII and  
 Mk VIIC  
 H.E.R.L. 120 lb.  
 H.E.R.L. 250 lb.  
 R.A.F. 500 lb. & 550 lb.  
 O.P. 120 lb.  
 O.P. 250 & 500 lb. Mk I - III

FUNCTIONING . . . . Impact; instantaneous  
 ARMED CONDITION . . . . When vanes and vane cap are  
 off.

FUZES USED WITH . . . .  
 ARMING TIME . . . . 6 vane revolutions  
 VANE SPAN . . . . 2-3/4"  
 BODY DIAM.(MAX.) . . . . 2.0"  
 OVERALL LENGTH . . . . 4-1/8"  
 COLOR . . . . Black vanes; aluminum vane cap and upper body; brass lower body.

BRITISH NOSE PISTOL**NO. 19**

Mks I &amp; II

**NO. 20**

Mks I - III

(Obsolescent)

**DESCRIPTION:**

The pistol consists of an aluminum upper body and a brass lower body which are bored to receive the striker. The striker has a flange which can move in an enlarged channel in the lower body.

There is a 5/32" brass shear pin through the striker and the upper body holding the striker up. On the upper part of the striker is a pressure plate which is screwed on and which has 8 notches in its circumference. The vane cap, to which is riveted the vane bush and the black vanes, threads onto the upper part of the striker. The vane cap and pressure plate are provided with stop pins to prevent the vane cap from screwing down and binding on the pressure plate. Opposite sides of the vane cap are cut out to receive the safety clip in which is a clip spring that goes around the striker, holding the safety clip on. The stop pin of the safety clip fits into one of the notches in the pressure plate. The safety pin with the instruction tablet goes through the ends of the arms of the safety clip.

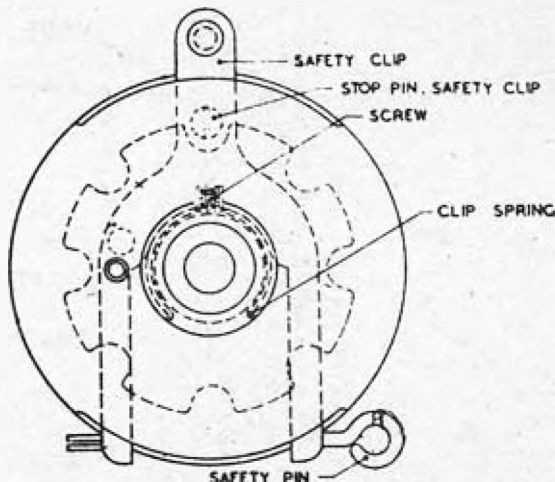
**OPERATION:**

The safety pin is pulled when the bomb is put in the plane; and the safety clip, when the bomb is released. The vanes and vane cap are then free to rotate and after six revolutions fall off,

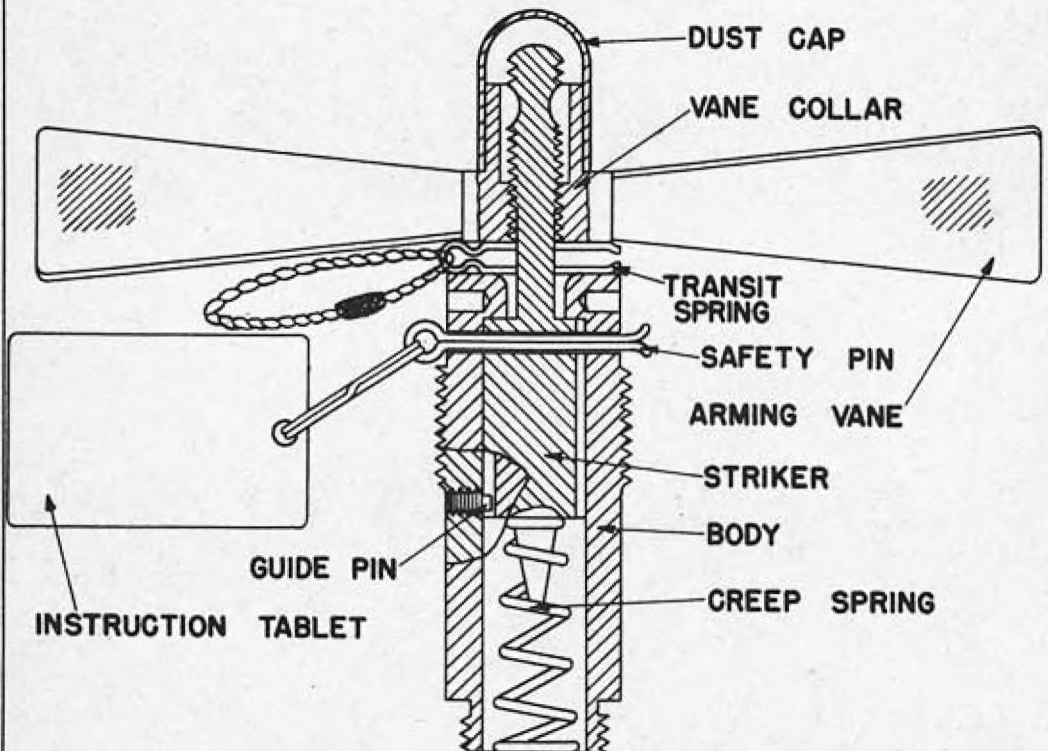
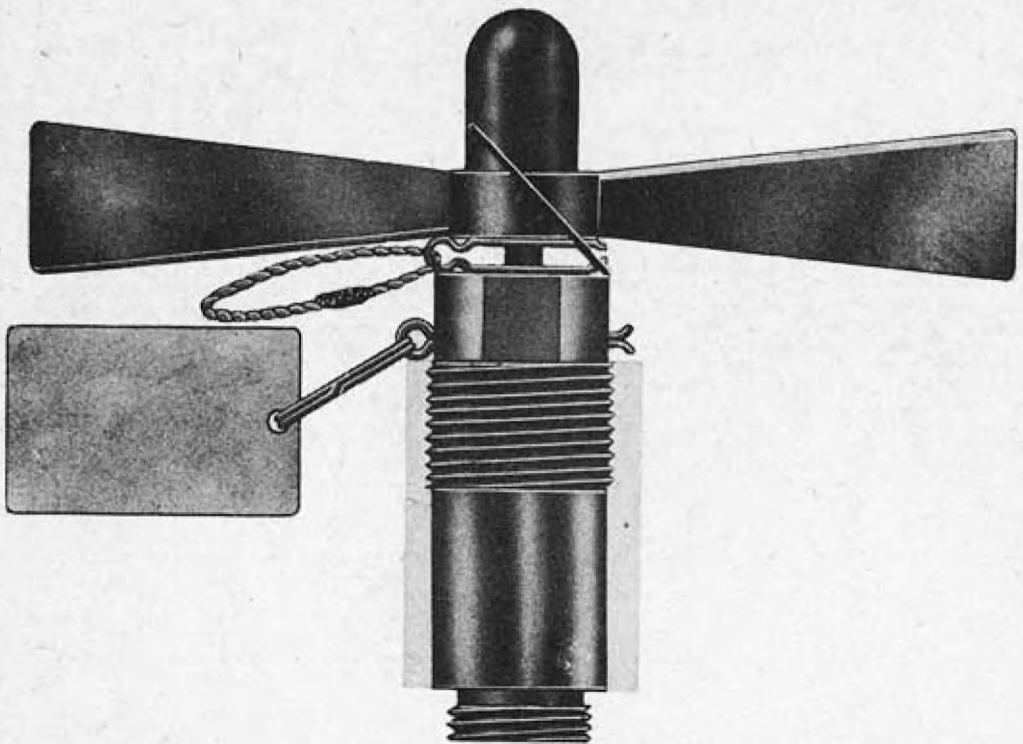
leaving the end of the striker and the pressure plate exposed. On impact the shear wire is sheared and the firing pin forced against the detonator.

**REMARKS:**

No. 20 fuzes are similar to the No. 19 except that they have Admiralty taper nose threads instead of standard parallel threads



# BRITISH TAIL PISTOL NO. 21



BOMBS USED IN . . . . (a) G.P. 120 lb. Mks I & II  
 G.P. 50 lb. Mk I  
 (b) G.P. 250 lb. Mks I, II, III  
 G.P. 500 lb. Mks I, II, III

FUNCTIONING . . . . Impact; instantaneous

ARMED CONDITION . . . . When the vanes are off or  
 when the red ring is visible  
 on the striker neck.

FUZES USED WITH . . . . Hose Pistol No. 19

VANE SPAN . . . . (a) 3.25"  
 (b) 5.5"

MAX. BODY DIAMETER. . . (a) 1.1"  
 (b) 1.1"

OVERALL LENGTH . . . . (a) 4.0"  
 (b) 4.0"

COLOR . . . . . (a) Brass body  
 (b) Brass body

BRITISH TAIL PISTOLS**NO. 21**

Mks I &amp; II

**NO. 22**

Mks. I &amp; II

(Obsolete)

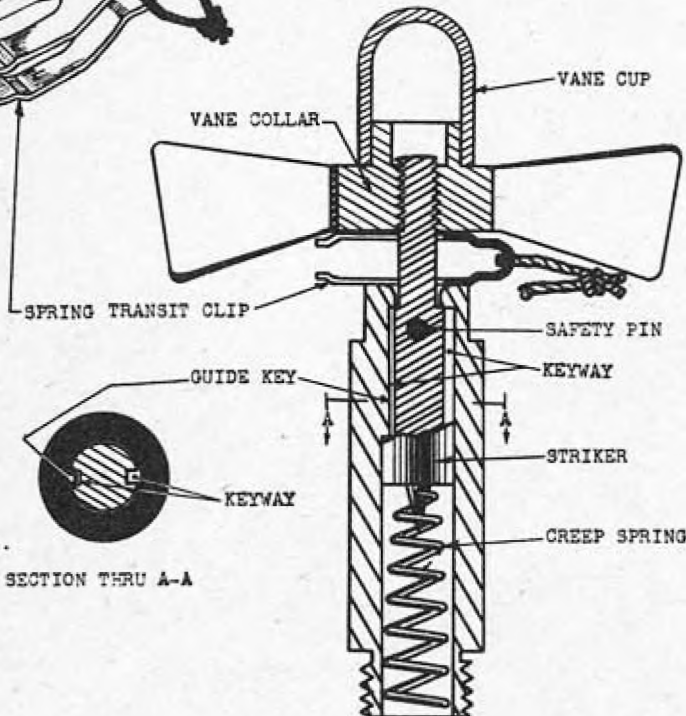
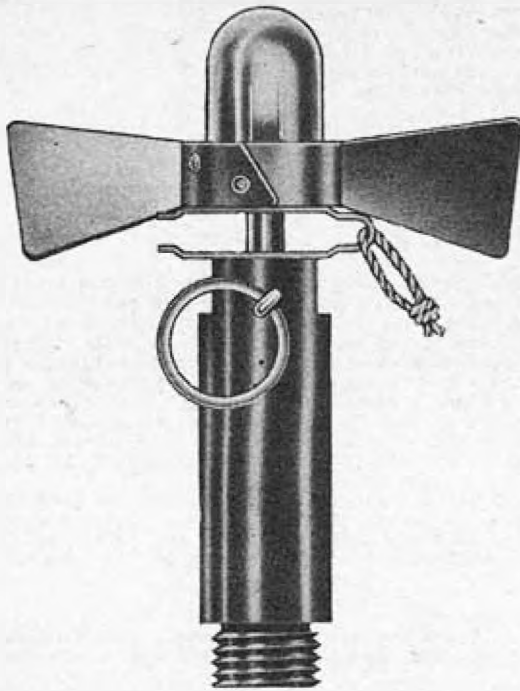
DESCRIPTION: The pistols consist of a brass body, a steel striker, and a copper safety pin. The body has two spanner flats above the threads, and the lower end is threaded to receive the detonator. The striker rides on a creep spring and has four longitudinal grooves in the body, three of which are air escape grooves and the fourth containing a guide key to prevent rotation of the striker. The upper part of the striker is threaded to receive the vanes and the vane collar, attached to which is a cap to prevent dust from accumulating in the striker threads. On the upper end of the threaded striker spindle is a neck which is painted red. A transit spring rests between the vane collar and the pistol body; and the safety pin fits through the pistol and striker bodies.

OPERATION: The transit pin is removed before the bomb is put in the plane and the safety pin when the bomb is placed in the rack. On release, the vanes are freed and rotate off, leaving the end of the striker exposed. On impact the creep spring is overcome and the striker hits the detonator.

REMARKS: (1) These pistols are of similar construction except for the vane span. The Mk I pistols are converted No. 5B pistols.

(2) These pistols are obsolete, as are the bombs in which they are used.

# BRITISH TAIL PISTOL NO. 23



BOMBS USED IN . . . . Smoke Float, Aircraft Navigation No. 1  
 FUNCTIONING . . . . Impact; instantaneous  
 ARMED CONDITION . . . . When vanes are off  
 VANE SPAN . . . . 3.1"  
 MAX. BODY DIAMETER. . . . 0.8"  
 OVERALL LENGTH . . . . 3.7"  
 COLOR . . . . Aluminum

BRITISH TAIL PISTOL**NO. 23**

(No. 23, Mk I - See REMARKS)

(Service)

**DESCRIPTION:**

The pistol consists of an aluminum body threaded at the bottom to screw into the float, and a steel striker which rests on a creep spring and is prevented from rotating by a longitudinal guide key moving in a groove in the striker body. A safety pin passes through the pistol and striker bodies. On the upper end of the striker are threads for the vane collar and the vanes, and to these is attached a vane cup to protect the threads of the striker. A transit clip fits between the vane collar and the pistol body.

**OPERATION:**

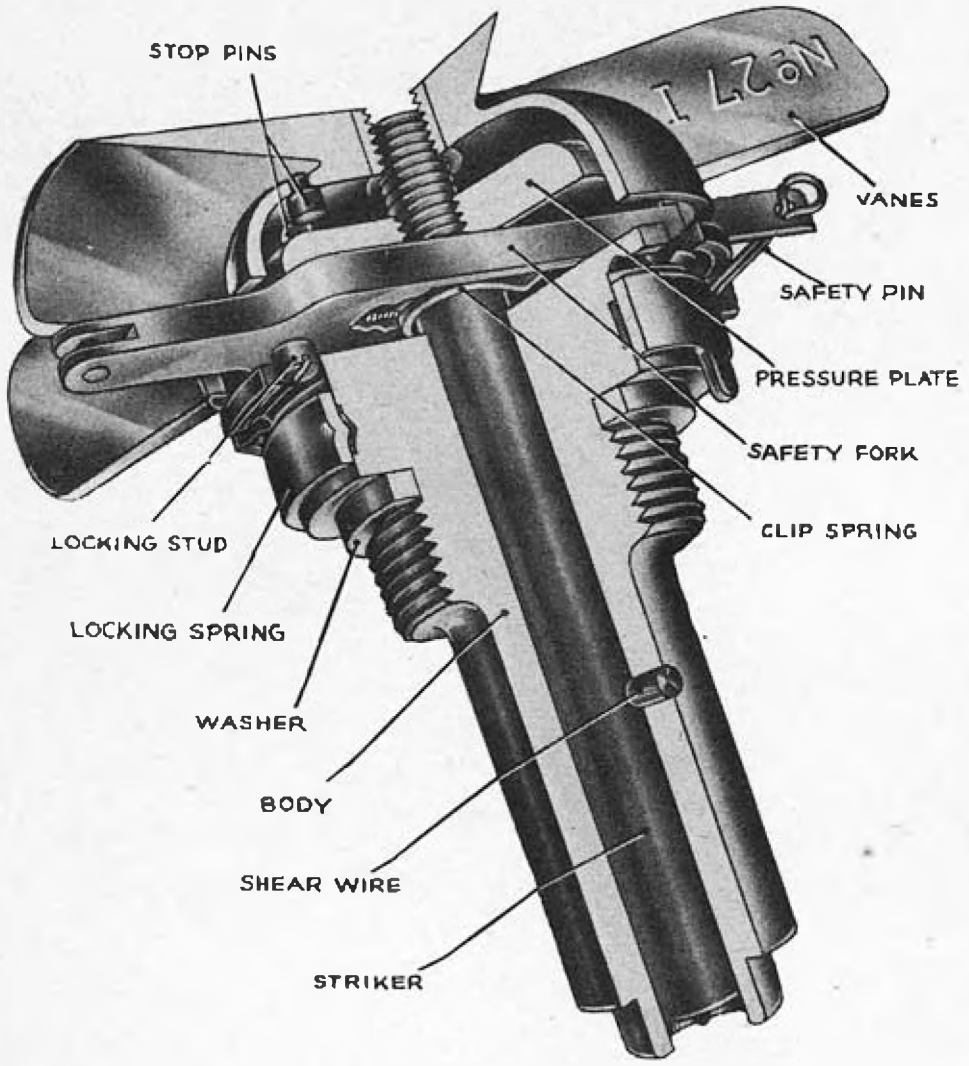
The transit clip is removed when the pistol is put in the float and the safety pin when the float is placed in the dropping gear. The vanes and vane collar rotate up and off leaving the striker riding on its creep spring. On impact the spring is overcome and the sharp firing pin hits the detonator.

**REMARKS:**

(1) This pistol is similar to the obsolete No. 5B except; (a) the body is aluminum, (b) it has no body threads, (c) the arming vanes are secured to the vane collar by screws, (d) the 5B has a guide screw engaging the striker groove, rather than a long key.

(2) The No. 23 Mk I is the same as the No. 23 except that it has a black plastic body.

# BRITISH NOSE PISTOL NO. 27



BOMBS USED IN . . . . G.P. 250 lb. Mk IV  
 G.P. 500 lb. Mk IV  
 G.P. 1000 lb. Mks I & II  
 G.P. 1900 lb.  
 G.P. 4000 lb.  
 All MC and HC bombs.  
 I.T. 80 lb. H.E.

FUNCTIONING . . . . Impact; instantaneous; direct  
 acting.

ARMED CONDITION . . . . When the vane boss is 3/16"  
 above top of flange on body.

FUZES USED WITH . . . . No. 28 and 30 Tail Pistols

ARMING TIME . . . . 3 vane revolutions

VANE SPAN . . . . 4.0"

MAX. BODY DIAMETER . . . . 1.9"

OVERALL LENGTH . . . . 4.2"

COLOR . . . . Aluminum vane cap, brass body, steel striker and pressure plate.  
 (No. 42 has green painted vane cap).

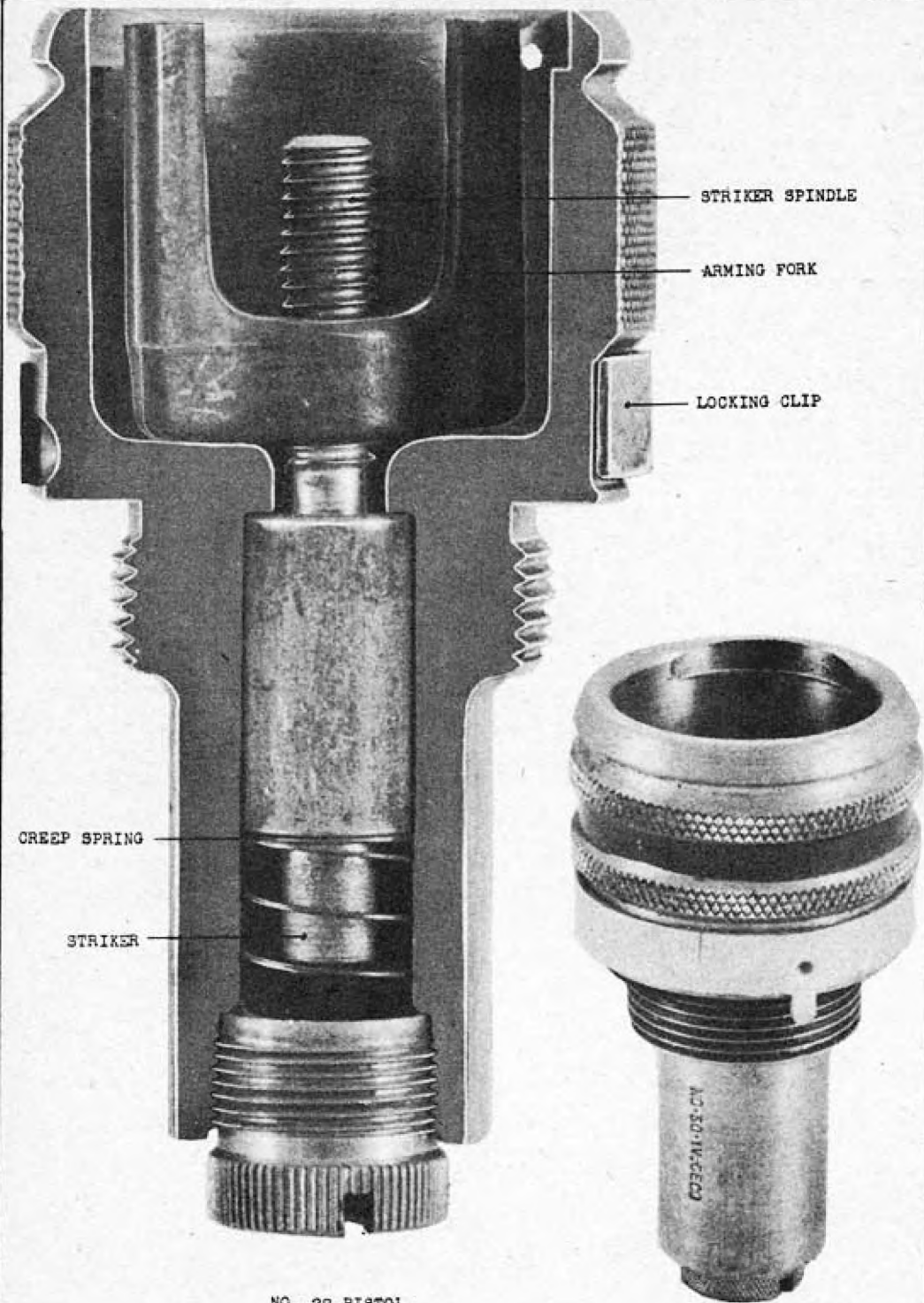
BRITISH NOSE PISTOL**NO. 27**Mks I, I<sup>o</sup>, & II**NO. 42**Mks. I & II  
(Service)

DESCRIPTION: The construction of these pistols is essentially the same, the differences being noted in "REMARKS" below. The brass body has a flange on the top which has eight notches to receive the stop pin of the safety clip. The lower end is reduced in diameter to receive the detonator with which it makes a friction fit. The pistol body is bored centrally to receive the steel striker, which is threaded on one end, and onto which is screwed the pressure plate and the vane cap. Both the pressure plate and the vane cap have stop pins to prevent the cap from being screwed down too hard on the plate. A shear wire through the striker and the pistol body holds the striker up. The vane cap is aluminum with 5 vanes, cast in one piece. On one of the vanes is stamped the number and mark number of the pistol. The vane cap is riveted to a brass vane bush which screws onto the striker. Opposite sides of the vane cap are cut away to receive the brass safety clip having a steel clip spring. The latter fits around the striker and holds the safety clip in place. The stop pin on the safety clip fits into one of the eight notches in the flange on the pistol body. The safety pin with the instruction tablet goes through the ends of the arms of the safety clip. Around the pistol body below the notched flange is a tab locking device.

OPERATION: The safety pin is pulled out before the bomb is put in the plane, and the safety clip is removed when the bomb is released. The vane cap is now free to rotate, and after approximately 7 rotations, falls off. The pistol is now armed. On impact, the shear wire is sheared and the firing pin hits the detonator.

REMARKS: (1) The No. 27 Mk I has a bronze shear wire and blunt firing pin.  
 (2) The No. 42 differs from the No. 27 in that it has; (a) an aluminum shear wire, (b) a sharp firing pin, (c) green vane cap, vanes, and locking ring.  
 (3) The No. 42 is now replacing the No. 27.  
 (4) It is considered inadvisable to drop this pistol safe from over 3000 feet.

# BRITISH TAIL PISTOL NO. 28 & 30



NO. 28 PISTOL

NO. 30 PISTOL

BRITISH TAIL PISTOLS

## BOMBS USED IN:

**NO. 28**

No. 28 . . . . . G.P. 250 & 500 lb. Mk IV  
1000, 1800, and 4000#  
All M.C. bombs.  
S.A.P. 250 & 500 lb. Mk V.  
A.P. 2000 lb. Mk IV  
A.S. 100, 250 and 500 lb.  
Mk IV, when used for land  
bombardment.  
L.C. 500 lb.

Mks II<sup>o</sup>, III & IV**NO. 30**Mks. III<sup>o</sup> & IV  
(Service)

No. 30 . . . . . A.S. 100, 250 & 500 lb.  
Mk IV; may also be used  
in any of above bombs  
when sensitive type tail  
initiation is required.

FUNCTIONING . . . . . Instantaneous impact; may be used with detonators having delays up to 11 sec.

ARMED CONDITION . . . . . When arming fork is less than two rotations from being completely unthreaded from striker stem.

FUZES USED WITH . . . . . Nose Pistols No. 27, 42, or 44; tail pistol No. 28 might be found in A.S. 100 lb. Mk V with Nose Fuse No. 858. (These pistols will not necessarily be found in a bomb with nose pistols, since British generally fuze their bombs in the tail only, but might also add a nose pistol).

ARMING TIME . . . . . 13 arming fork revolutions (arming fork unthreads completely in 15 revolutions).

MAX. BODY DIAMETER . . . . . 2"

OVERALL LENGTH . . . . . 3-7/8"

IDENTIFICATION . . . . . No. 28 has 5/8" knurled surface around upper part of pistol body; No. 30 has 1/4" green groove in center of knurled surface around upper part of body.

## DESCRIPTION:

These two pistols consist principally of a body with 1.1" standard threads, a striker threaded at the top end to take the arming fork, and a creep spring to prevent the striker from striking the detonator until impact. The creep spring is housed in a creep spring holder which threads into the bottom of the pistol body. A tab locking device for securing the pistol in the bomb is fitted around the body just below the knurled section, and a washer is fitted just above the body threads. Until placed in the bomb, the arming fork is prevented from rotating by a safety plate resting on two narrow recesses inside the upper part of the body, and extends between the arming fork arms. When issued, the pistols are covered at the top by a press-cap and overseal. A guide pin threaded into the side of the lower body extension engages in one of two grooves in the striker and prevents it from rotating.

The No. 28 and No. 30 pistols are distinguished from each other in that the No. 28 has a blunt striker, whereas the No. 30 has a needle type striker.

## MARK NOS. COMPARED:

No. 28 Mk II<sup>o</sup> is a converted Mk II, which is obsolete, and the Mk III is of new manufacture; the Mk IV is of similar construction but the body, safety plate, and creep spring holder are of moulded plastic material. Also in the Mk IV an internal projection in the central bore replaces the guide pin of the earlier marks.

No. 30 Mk III<sup>o</sup> and IV pistols are similar to the No. 28 Mk II<sup>o</sup> and III pistols except the striker has a long sharp point and the knurled section of the body has a green groove around it.

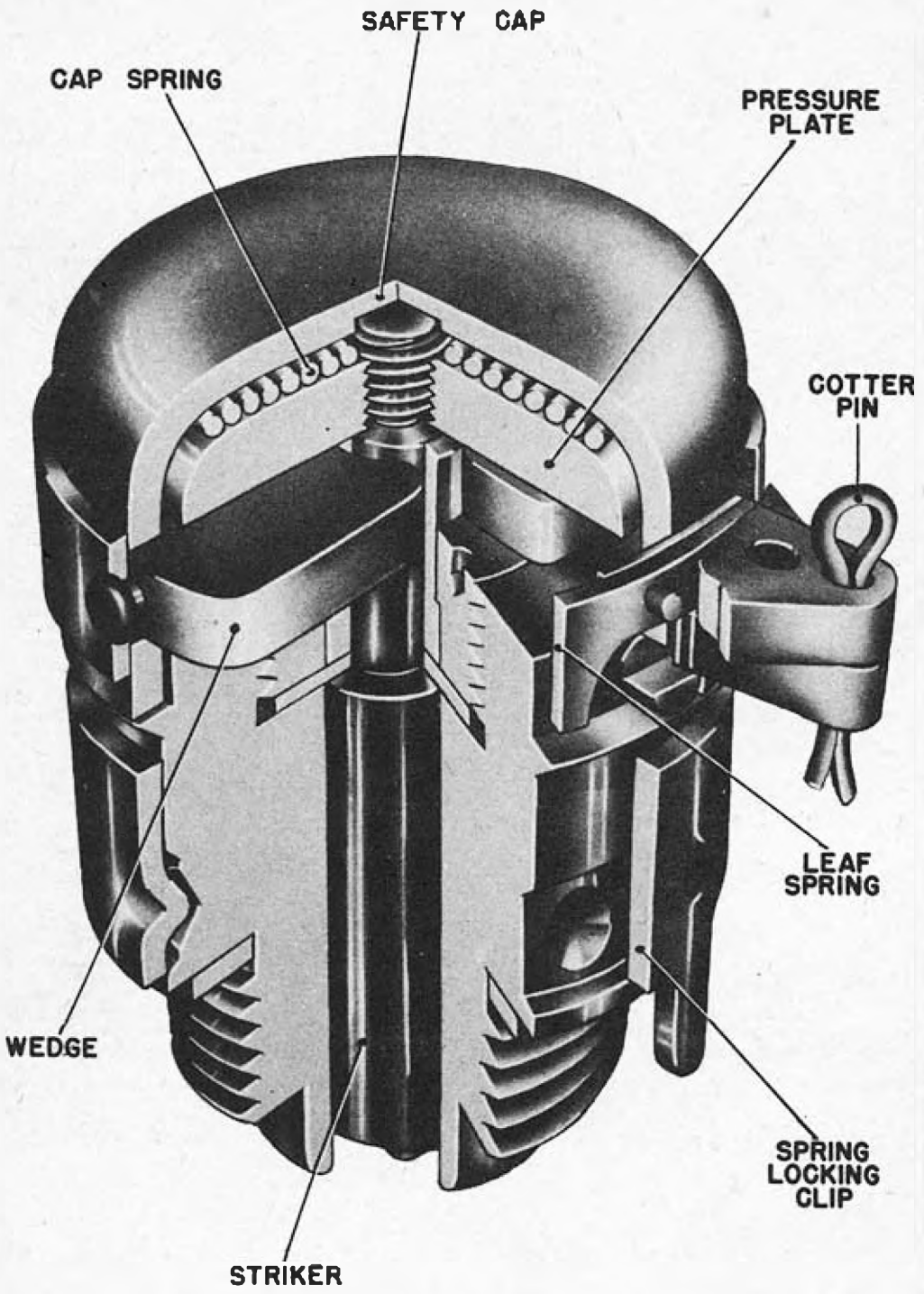
## OPERATION:

When the bomb is loaded in the plane, the arming fork of the pistol is engaged with the arming fork on the end of the reach rod which extends through the tail unit. When the bomb is released, the arming vane on the end of the reach rod rotate and thus unthread the arming fork of the pistol until it rises clear of the threaded end of the striker stem. At this point the pistol is armed, and on impact the weight of the striker body is sufficient to overcome the creep spring and force the striker point against the cap in the detonator, which may be instantaneous acting or have a short delay up to 11 sec.

## REMARKS:

The No. 30 pistol, though originally intended primarily for use in the A.S. bombs, is gradually replacing the No. 28 in other types of bombs in which a sensitive type tail initiation might be required. The No. 30, then, is now considered the standard British tail pistol.

# BRITISH NOSE PISTOL NO. 33



BOMBS USED IN . . . . P 20 lb. with parachute  
 G.P. 40 lb. with parachute  
 FUNCTIONING . . . . Impact; instantaneous  
 ARMED CONDITION . . . . When safety cap is off  
 FUZES USED WITH . . . . None  
 ARMING TIME . . . . Instantaneous with opening of  
 parachute.  
 MAX. BODY DIAMETER. . 2"  
 OVERALL LENGTH . . . 2-5/8"

## BRITISH ROSE PISTOL

**NO. 33**

Mk I (D.A.)

(Service)

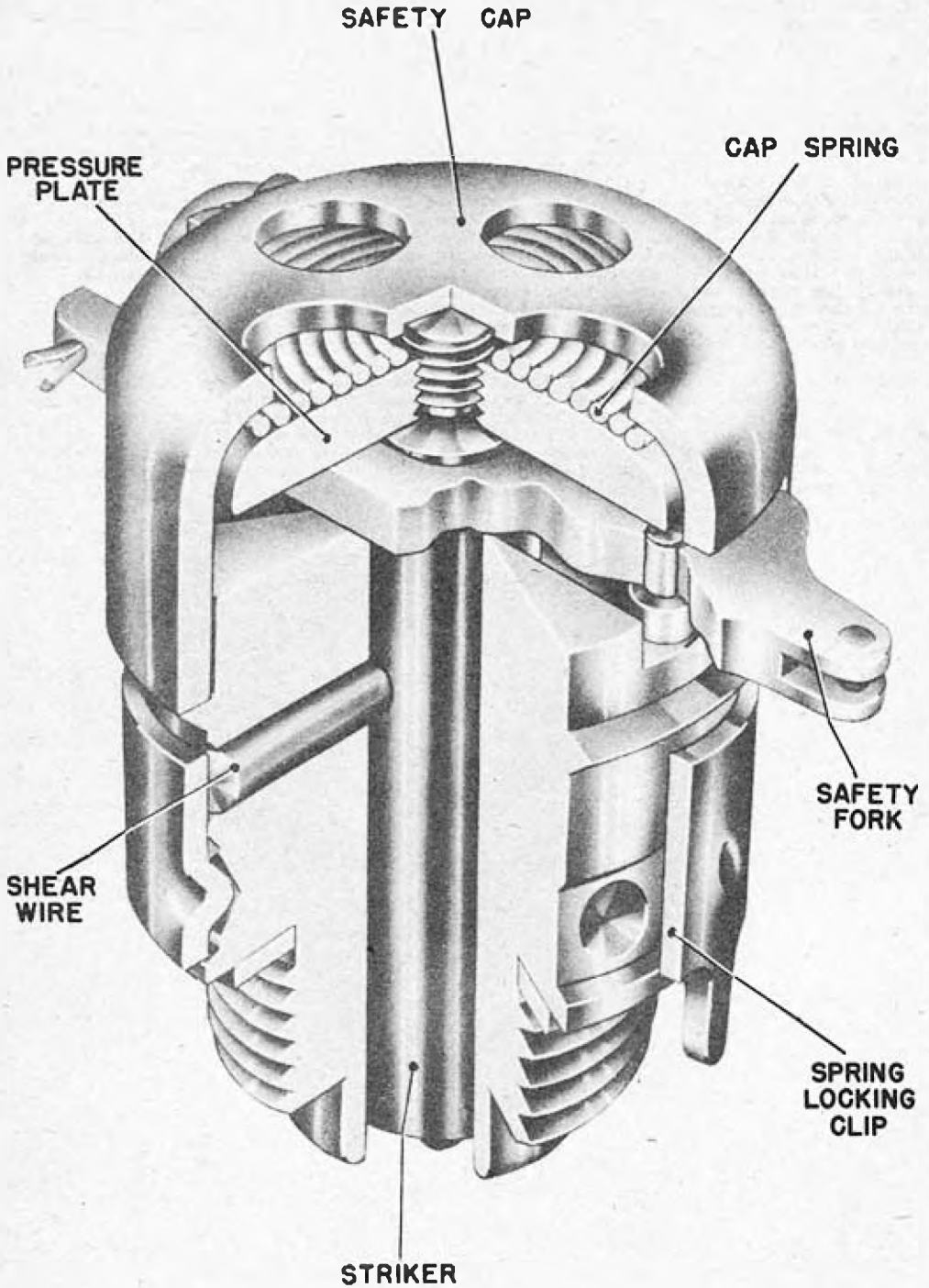
**DESCRIPTION:** The pistol consists of a body bored centrally to receive a striker and counterbored and threaded at one end to receive a screwed collar which retains a .003 in. thick copper shear washer in position on the bottom of the counterbore. The lower end of the body is threaded to screw into the bomb, and a tab locking device is fitted around the body above the threads to secure the pistol in the bomb. A pressure plate is threaded onto the upper end of the striker, and the shear washer is located between the bottom of the striker sleeve and the striker shoulder. A dome-shaped safety cap is placed over the pressure plate, retained by a circlip which has two safety stops which project through two slots in the safety cap between the pressure plate and the pistol body. The outer ends of the circlip have a lug attached, through which is inserted a safety pin to retain the circlip in position during storage and transit. Located between the pressure plate and the safety cap is a conical coiled safety cap spring.

**OPERATION:** When the bomb is to be loaded on the plane. The arming link of the parachute is passed through the inner holes on the circlip lugs. When the bomb is released and the parachute opens, the arming link is pulled free of the circlip lugs, allowing the spring circlip to fly off. The coiled conical spring under the safety cap forces the safety cap off, arming the pistol. On impact, the pressure plate is driven inward, the striker shearing the thin shear washer and striking the cap in the detonator.

**REMARKS:**

- (1) The striker of this pistol is of the blunt type.
- (2) Striker spindle could shear through pressure plate on impact even if circlip still in position.

# BRITISH NOSE PISTOL NO. 34



BOMBS USED IN . . . P 20 lb. (without parachute)  
 U.P. 40 lb. (without parachute).  
 I.T. 5 lb. H.E.  
 FUNCTIONING . . . Impact; instantaneous  
 ARMED CONDITION . . . When safety cap is off  
 FUZES USED WITH . . . None  
 ARMING TIME . . . Armed immediately upon release from the plane.  
 MAX. BODY DIAMETER. . . 1.8"  
 OVERALL LENGTH . . . 2.46"  
 COLOR . . . Brass body, steel striker and pressure plate, and steel safety cap.

BRITISH NOSE PISTOL**NO. 34**

Mk. I

**NO. 29**Mk. I  
(Service)**DESCRIPTION:**

The pistol consists of a brass body, steel striker, and safety cap. The upper part of the body has 6 notches to receive the stop pin of the safety clip. The lower end is of reduced diameter to fit into the detonator. There are twelve depressions around the pistol body to hold the tab locking device. The striker is threaded on the upper end to take the pressure plate, and on the lower end there is a blunt firing pin. An aluminum shear wire passes through the striker and pistol bodies and holds up the striker. The steel safety cap is slotted to receive the safety clip which goes through these slots and under the pressure plate. Under the safety cap is the safety cap spring which serves to throw the cap free when the safety clip is removed. The safety pin passes through the ends of the arms of the safety clip.

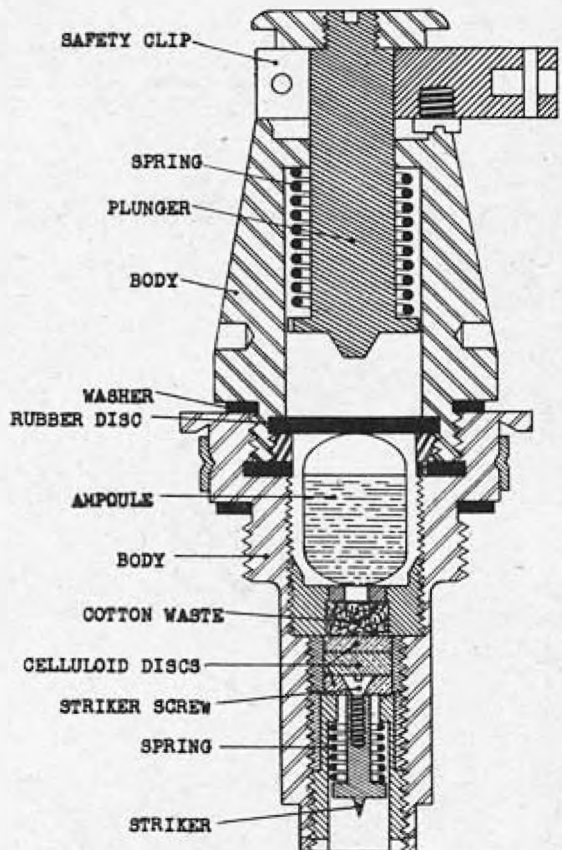
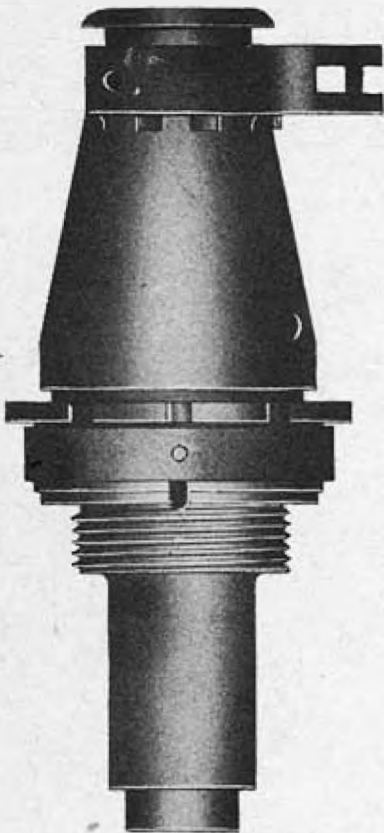
**OPERATION:**

Before the bomb is put in the plane the safety pin is removed. The safety clip is removed upon release and the safety cap spring throws the safety cap free. The pistol is now armed, and upon impact the shear wire is sheared and the firing pin is forced down on the detonator. When used in the 250 lb. Small Bomb Container, the arming forks are removed when the bombs are placed in the containers.

**REMARKS:**

(1) The No. 29 pistol is like the No. 34 except that it has no holes in the top of the vane cap, and it has a bronze shear wire.  
 (2) The No. 29 is an obsolescent pistol and is being converted to the No. 34 because the spring cannot push the cap off.

## BRITISH NOSE OR TAIL PISTOL NO. 35



BOMBS USED IN . . . . G.P., M.C., and H.C. bombs  
 FUNCTIONING . . . . Chemical Long Delay  
 ARMED CONDITION . . . . When the safety fork is re-  
 moved or when it has been  
 dropped.  
 FUZZES USED WITH . . . . None  
 MAX. BODY DIAMETER. . . 1.9"  
 OVERALL LENGTH . . . . 4.9"  
 COLOR . . . . Green

BRITISH CHEMICAL LONG DELAY MINE  
 OR TAIL PISTOL

**NO. 35**

Mk I

(Not in Service)

**DESCRIPTION:**

This pistol is of the chemical long delay type, and has a two piece body. The upper body is a truncated cone containing a plunger which is spring-loaded down. This spring is compressed when the safety fork is under the plunger cap. The upper body screws onto the flanged lower body, in which is the acetone ampoule covered by a rubber disc which prevents the escape of acetone into the upper body. Beneath the acetone ampoule are celluloid discs which hold up the striker screw, which is, in turn, attached to the spring-loaded striker. The diameter of the lower end of the pistol body is reduced to fit into the detonator.

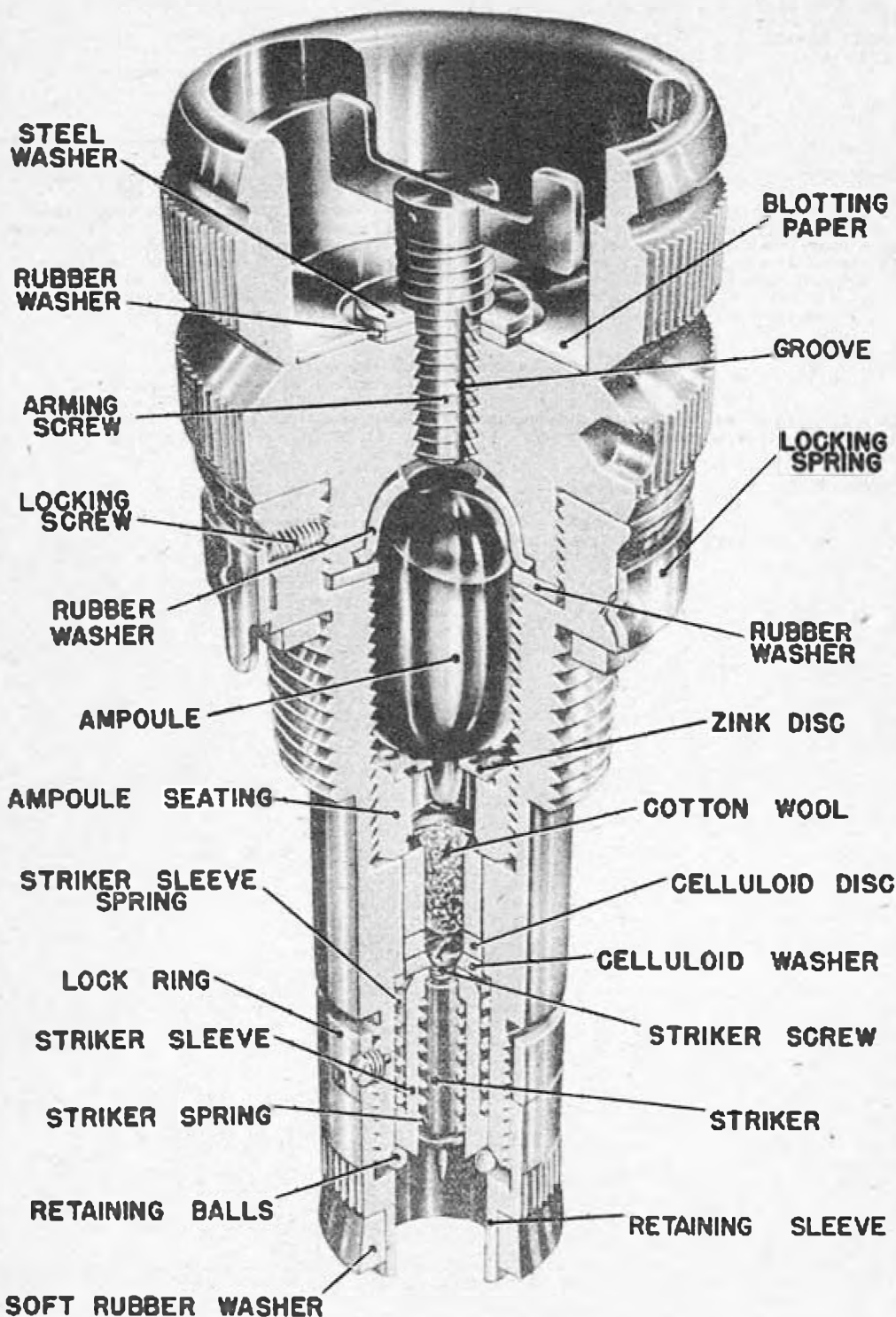
**OPERATION:**

When the bomb is dropped the safety fork is pulled, and the plunger is forced down by its spring onto the acetone ampoule. The ampoule is broken and the acetone allowed to flow down onto the celluloid discs, softening them enough to allow the spring-loaded striker to pull the striker screw through thus forcing the firing pin down onto the detonator.

**REMARKS:**

- (1) The delay is from 5 hours to 144 hours, with settings similar to the No. 37 Chemical Long Delay pistol.
- (2) It must be assumed that the acetone ampoule is broken if the bomb has been dropped, even though the safety fork is still in place.
- (3) No anti-withdrawal device is used with this pistol as yet.

# BRITISH TAIL PISTOL NO. 37



BOMBS USED IN . . . . G.P. 250 & 500 lb. Mk's I, II, and IV; 1000, 1900 and 4000 lbs.

M.C. Bombs  
S.A.P. 250 & 500 lb. Mk V.  
A.P. 2000 lb. Mk's I, II, III  
(actually the dimensions of this pistol are identical to the No. 20 & No. 30 pistol, so theoretically could be used in any bombs they might be used in.

BRITISH TAIL PISTOL**NO. 37**Mks IV, IV<sup>a</sup> & V

(Service)

FUNCTIONING . . . . Chemical Long delay, 6 to 144 hrs. (affected by temperature)

ARMED CONDITION . . . Assumed armed if dropped; armed if arming fork is threaded down to bottom of arming fork cavity in pistol. Mks IV<sup>a</sup> & V have white blot paper ring in arming fork cavity to indicate broken ampoule.

FUZES USED WITH . . . None (formerly used with No. 845 anti-disturbance nose fuze, which is now obsolete).

ARMING TIME . . . . 8 arming fork revolutions, or instantaneous if dropped from sufficient height to break ampoule.

IDENTIFICATION . . . Similar to No. 28 & No. 30 tail pistols, except for a V-shaped notch around pistol in center of knurled exterior. Knurling is in form of cuts along longitudinal axis of pistol, instead of cross-cuts as in the Nos. 28 & 30. Arming vanes colored red.

MAX. BODY DIAMETER. . . 2"

OVERALL LENGTH . . . 4.25"

**DESCRIPTION:** This pistol is a chemical long delay type, the delays being obtained by the solvent action of acetone on celluloid; the alternative delays are provided by varying the number of discs used. The pistol is constructed in three main parts: the head, the body, and the anti-removal device. The head and body are screwed together and locked by a locking screw. A rubber insertion washer and a soft rubber washer are located between the head and the body when the two components are assembled. Into the head of the pistol is fitted an arming screw, on the spindle of which is assembled a soft rubber washer and a steel washer, which seal the acetone in the fuze when the arming screw is threaded inwards sufficiently to break the ampoule. The glass ampoule containing acetone fits into the body of the pistol, resting on a perforated zinc disc over the wedge-shaped seating. This seating is threaded down into the body. The striker spring is held in compression by the head of the striker screw which is engaged in a countersunk celluloid disc inserted at the top of the assembly. The striker sleeve is retained by 16 retaining balls seating on the retaining sleeve. The compressed striker sleeve spring is located between a shoulder in the bore of the pistol body and a shoulder on the striker sleeve. The anti-withdrawal device consists of a soft rubber washer assembled over a retaining sleeve which is screwed on to the bottom of the pistol body, and which is reduced in diameter at the bottom to fit into the head of the detonator when in the bomb. The retaining sleeve is locked in position in the detonator head by the soft rubber washer. A step is provided on the retaining sleeve which is positioned against a corresponding step on a lock ring when in the bomb. The lock ring is secured to the pistol body by a locking screw. The pistol is fitted with a tab locking device and is provided with a safety plate which has slots to allow it to fit down over the fork of the arming screw and onto two recesses in the pistol head.

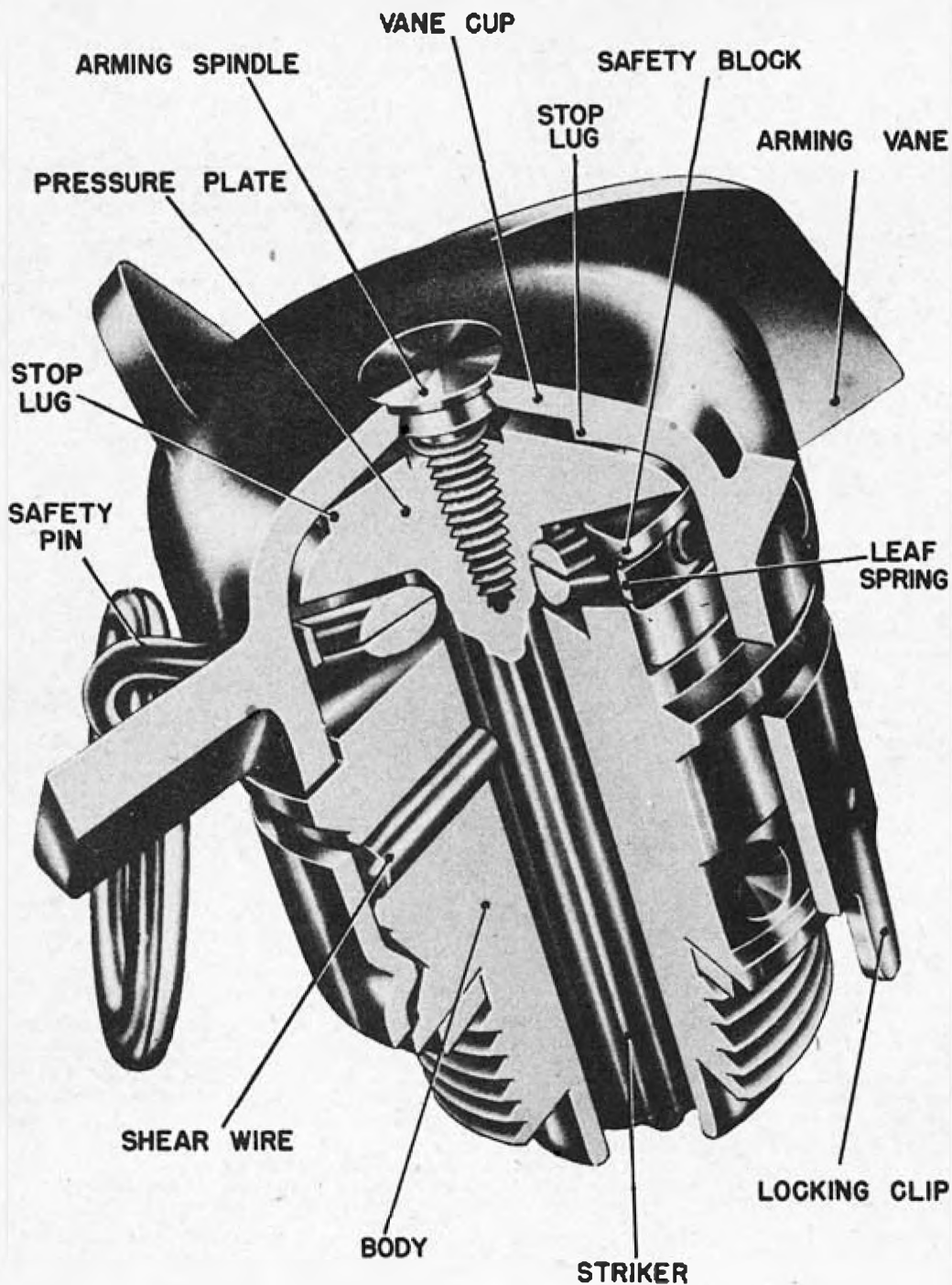
**OPERATION:** On release of the bomb, the arming screw of the pistol is screwed down by rotation of the arming vanes of the bomb tail and crushed the ampoule, thus releasing the acetone. In descending, the head of the arming screw compresses the soft rubber washer, which seals the acetone in the pistol. The solvent action of the acetone on the celluloid disc or discs continues until the countersunk head of the striker is released from the countersunk celluloid disc, thus allowing the striker to be moved forward by the action of the striker spring.

The retaining sleeve is locked in the detonator head by the soft rubber washer, and any attempt to remove the pistol from the bomb by unscrewing the body will result in the body's unscrewing from the retaining sleeve. After unscrewing the body approximately one-half turn, the retaining balls are released, allowing the striker assembly to move forward by action of the striker spring and force the striker against the cap in the detonator.

**EARLY MARKS COMPARED:** Mks I & II are obsolete; Mk I did not have anti-withdrawal device. Mk III incorporated anti-withdrawal device, arming screw had left-hand threads. Mk IV has right hand thread arming screw. Mks IV<sup>a</sup> and V are similar to Mk IV, but have a white blotting paper ring to indicate a broken ampoule.

**REMARKS:** (1) This pistol has a needle striker, and all marks use No. 39 or other sensitive type detonator.  
(2) Delays intended for this pistol are indicated by a letter after the number: No. 37, 6 hours; No. 37A, 12 hours; No. 37B, 36 hours; No. 37D, 72 hours; No. 37E, 144 hours.  
(3) DO NOT WITHDRAW THIS PISTOL FROM A BOMB.  
(4) Bombs in which used usually have arming vanes and fins painted red.

# BRITISH NOSE PISTOL NO. 38



BOMBS USED IN . . . . F 80 lb. without parachute  
 G.P. 40 lb. without parachute  
 FUNCTIONING . . . . Impact; instantaneous  
 ARMED CONDITION . . . . When the safety cap is off  
 FUZZES USED WITH . . . . None  
 MAX. BODY DIAMETER. . . . 2.0"  
 OVERALL LENGTH . . . . 2.5"  
 COLOR . . . . . Aluminum colored body, vane  
 cap and vanes.

BRITISH NOSE PISTOL

**NO. 38**

Mk I

(Mks IM - IV, See REMARKS)

(Service)

**DESCRIPTION:**

The pistol is made entirely of mazak, a zinc base alloy, and has a body, striker, and vane cap. The upper pistol body has four slots for locating the safety pin, which passes through the vane cap and rests in front of one of the parts of the pistol body, thus preventing the rotation of the vanes. The lower end of the pistol body is of reduced diameter and fits into the detonator. Around the body are twelve depressions which hold the tab locking device. The striker and pressure plate are cast in one piece with a threaded hole in the top of the striker to receive the vane cap screw. On the top of the pressure plate there is also a stop pin to prevent the vane cap from being screwed down too tightly. Through the striker and the pistol bodies is an aluminum shear wire. The vane cap has four vanes integrally cast with it, and it is riveted to the vane screw. In the side of the vane cap is a small hole to accommodate the safety pin.

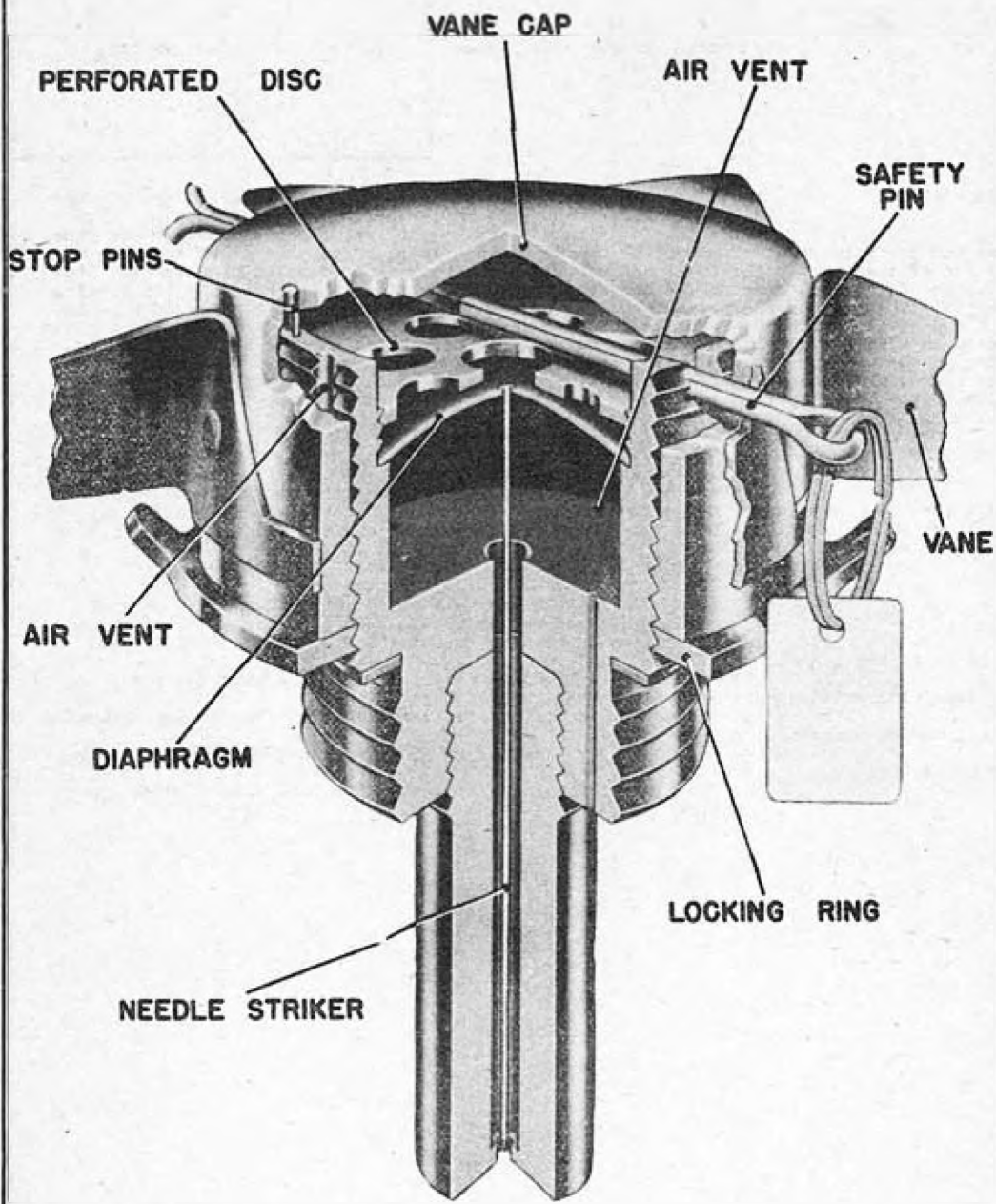
**OPERATION:**

When the bomb is put in the plane the safety pin is removed, and upon release the vanes are freed to rotate. The vane screw threads out of the pressure plate and the vane cap and vanes fall away leaving the striker and pressure plate exposed. (Spring loaded wedges fly out - Mk IM to IV). On impact the shear wire is sheared and the blunt firing pin hits the detonator.

**REMARKS:**

- (1) The Mk IM is like the Mk I except that there is a pair of spring loaded mazak wedges fitted into opposite slots under the pressure plate to prevent the pistol from firing when dropped safe on a hard target.
- (2) The Mk II is the same as the Mk I except that the body, striker, and vane cap are of brass rather than of mazak.
- (3) The Mk IIM is similar to the Mk II but with two spring-loaded brass wedges under the pressure plate.
- (4) The Mk IIM is like the Mk IM except that the shear wire is of brass.
- (5) The Mk IV is the same as the Mk IIM, but with a brass shear wire.

# BRITISH NOSE PISTOL NO. 44



BOMBS USED IN . . . . G.P. 250 lb. Mk IV  
 G.P. 500 lb. Mk IV  
 G.P. 1000 lb. Mk I & II  
 G.P. 1900 lb.  
 G.P. 4000 lb.  
 All MC and HC bombs

FUNCTIONING . . . . Impact; instantaneous; dia-  
 phragm operated.

ARMED CONDITION . . . . When the vane cap is off

FUZES USED WITH . . . . No. 28 or No. 30 Tail Pistols

ARMING TIME . . . . 13 revolutions of the vane cap

VANE SPAN . . . . 4"

MAX. BODY DIAMETER. . . 1.75"

OVERALL LENGTH . . . . 3.8"

COLOR . . . . Brass

BRITISH MOSE PISTOL**NO. 44**

Mk. I

**NO. 55**

Mk. I

(Service)

**DESCRIPTION:** The pistol consists of a vane cap, body and body extension, all of which are made of brass. The vane cap is cast and has five vanes. There are two small holes on opposite sides of the cap for the safety pin. In the top of the vane cap there is a steel stop pin and a similar one on the pistol body to prevent the cap from being screwed down too tightly. In the upper pistol body, above the diaphragm, a steel retaining disc is threaded in. In this disc are drilled seven holes to allow the air to pass through. Under the retaining disc is a 1-1/4" sheet brass diaphragm to which is soldered a 3-1/8" steel needle striker which goes down into the body extension. There are two air pressure holes in the pistol body for the purpose of equalizing the air pressure under the diaphragm to prevent detonation while the bomb is falling. Around the pistol body is a prominent brass locking ring.

**OPERATION:** The safety pin is removed when the bomb is put in the plane, and the vanes are freed to rotate upon release. The vane cap rotates off after approximately 13 revolutions leaving the steel disc and the diaphragm exposed. Detonation occurs on impact or by the blast wave of the preceding bomb. It has been reported that the diaphragm has also been reversed by the cushion of air that is built up as the bomb gets within a few inches of the ground.

**REMARKS:**

(1) If, on examination, it is determined that the diaphragm has been reversed, it must be assumed that the pistol is in a fired condition with the striker imbedded in the detonator.

(2) Designed to replace No. 27 pistol.

(3) No. 55 Mk I is similar to No. 44 Mk II, has anemometer type vanes. It is used in side pockets of HC 2000, 4000, 8000, 12000.

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BOMBS USED IN . . . . (a) P 20 lb.  
 G.P. 40 lb.  
 (b) All U.S. AN-QP Bombs  
 FUNCTIONING . . . . Impact, instantaneous; dia-  
 phragm operated.  
 ARMED CONDITION . . . Vane cap unscrewed  
 FUZES USED WITH . . . None  
 ARMING TIME . . . . 12 vane revolutions  
 VANE SPAN . . . . (a) 4.0"  
 (b) 3.75"  
 MAX. BODY DIAMETER. . (a) 1.75"  
 (b) 2.0"  
 OVERALL LENGTH . . . 2.5"  
 COLOR . . . . Brass body and locking ring;  
 black vane cap and vanes.

BRITISH NOSE PISTOL**NO. 45**

Mks I &amp; II

**NO. 52**Mk. I  
(Service)**DESCRIPTION:**

The pistol consists of a vane cap, body, and body extension. The pistol is similar to the No. 44 Pistol, but the pistol itself and all its parts are smaller so that it may fit in smaller bombs. Six vanes in pairs are riveted to the black vane cap. A steel stop pin on the inside of the vane cap engages a similar pin on the top of the pistol body to prevent the cap from screwing down too tightly and binding. In the upper part of the pistol body there is screwed a steel retaining disc, in which are drilled seven holes to allow air passage. Located under the disc is a sheet brass diaphragm to which is soldered a steel needle striker, which extends into the body extension. There are two air pressure holes in the side of the body which equalize the pressure above and below the diaphragm as the bomb falls. Around the pistol body is a brass locking ring.

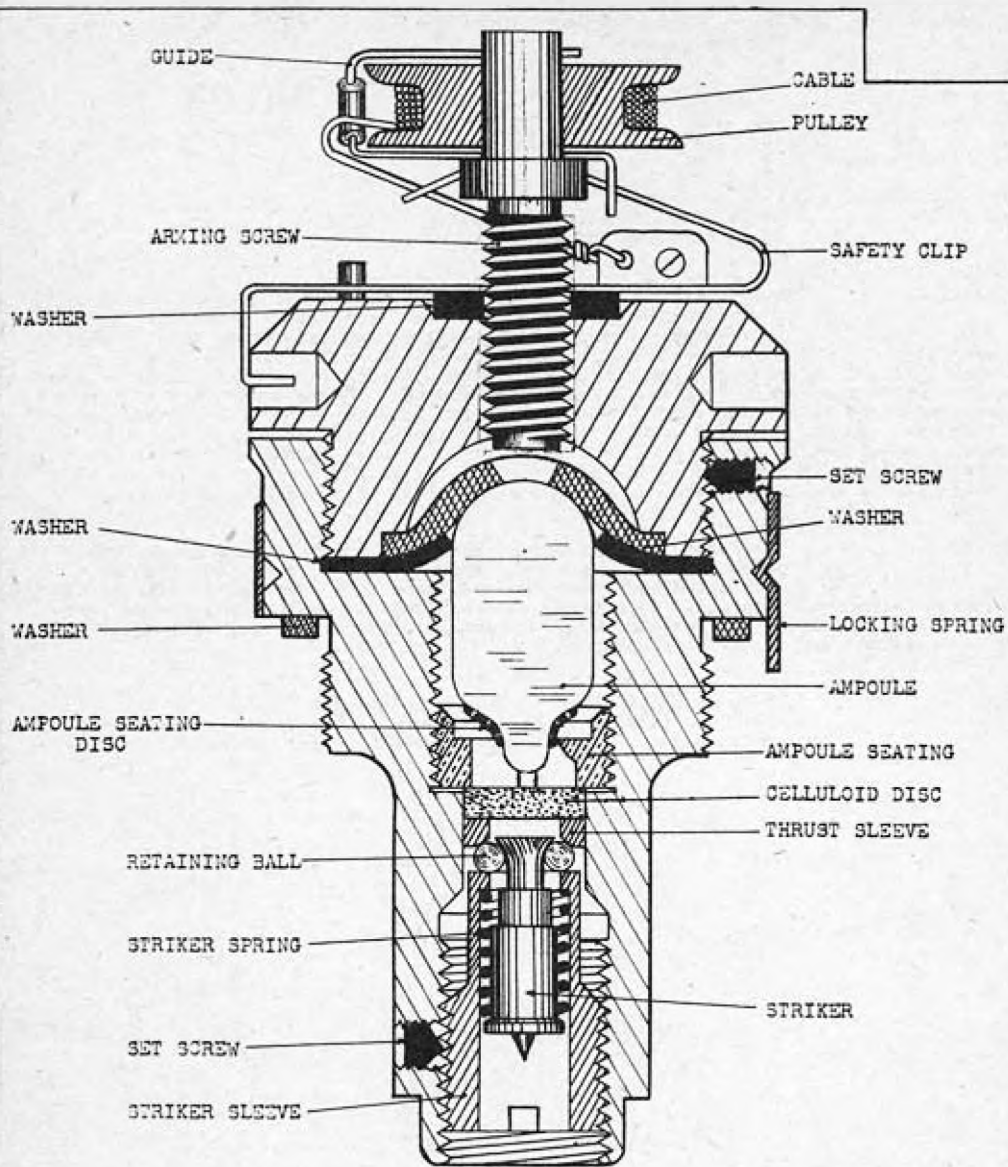
**OPERATION:**

The safety pin is removed when the bomb is loaded aboard the plane. Upon release, the arming vanes rotate, and after 12 revolutions the vane cap and vanes fall away leaving the retaining disc and diaphragm exposed. On impact, the diaphragm is reversed by the compressed air beneath the fuze, and the striker is driven into the detonator. The blast wave of the preceding bomb may fire the pistol.

**REMARKS:**

If on examination it is determined that the diaphragm has been reversed, it must be assumed that the pistol is in the fired condition, with the striker imbedded in the detonator.

# BRITISH SIDE POCKET PISTOL



BOMBS USED IN . . . . O.P. 4000 lb. Mk I  
 E.C. 2000 lb. Mk I  
 H.C. 4000 lb. Mk I & II

FUNCTIONING . . . . Chemical Long Delay

ARMED CONDITION . . . . When the arming screw is down,  
 or when the pistol is found  
 dropped even in a safe condi-  
 tion.

FUZES USED WITH . . . . No. 27, 42, 44 Nose Pistols  
 No. 28, 30, 37 Tail Pistols

MAX. BODY DIAMETER. . . 2.0"

OVERALL LENGTH . . . . 4.5"

COLOR . . . . . Brass body with steel arming  
 screw.

BRITISH SIDE POCKET PISTOL**NO. 47**

Mk I

(Service)

**DESCRIPTION:** This pistol is of the chemical long delay type used in the side pockets of the above-mentioned bombs. Extending out of the brass body is a steel arming screw. At the top of the arming screw is fastened a brass or steel pulley, around which is wrapped a phosphor-bronze wire. This wire is secured to the pulley, runs out through a guide key, and is soldered to the safety clip, which is located between the pulley and the head of the pistol. The safety pin passes through the arms of the safety clip preventing the latter from being removed accidentally. Below the arming screw is an ampoule of acetone which is sealed in by a rubber washer above it. Below the acetone ampoule is a zinc seating disc, which acts as a knife edge to break the ampoule, and a celluloid disc which holds up the spring loaded striker and its retaining balls.

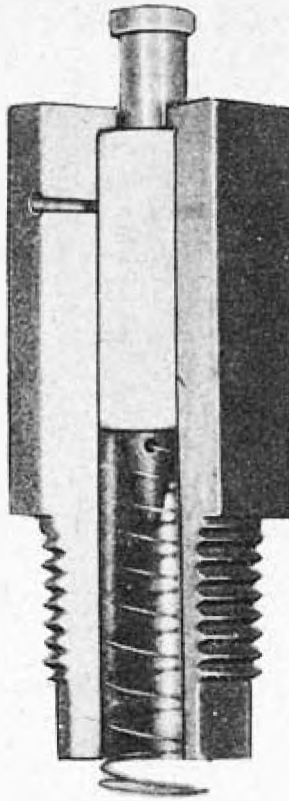
**OPERATION:** When the bomb is put in the plane the safety pin is removed. Upon release, the safety clip is pulled out and the wire which is attached to it and also around the pulley is reeled off the pulley. This screws the arming screw down into the acetone ampoule, breaking it and allowing the acetone to run out onto the celluloid disc. When the celluloid has become softened, the force of the compressed firing spring cans the release balls out and forces the striker against the detonator.

**REMARKS:**

- (1) This pistol has a 1/2 hour delay.
- (2) There is no anti-withdrawal device incorporated in this pistol.



# BRITISH TAIL PISTOL NO. 48



AMERICAN FUZING  
IF THE FLOAT IS NOT DROPPED THE  
PISTOL IS TO BE REPLACED ON  
FLOAT, AND FUZING LINK IS TO BE REMOVING FLOAT  
ATTACHED, AND FUZING LINK IS TO BE REMOVING FLOAT  
BEFORE REMOVAL OF THE AMERICAN  
SAFETY PIN. WITHDRAWN  
ACED.

BRITISH TAIL PISTOL

**NO. 48**

Mk I

(Service)

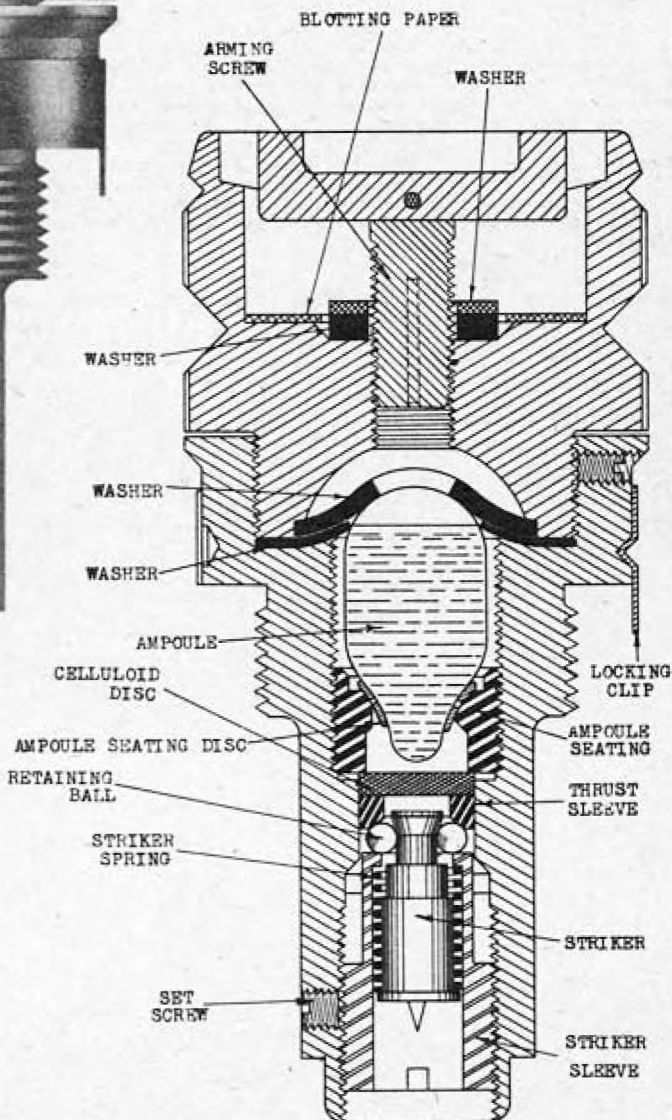
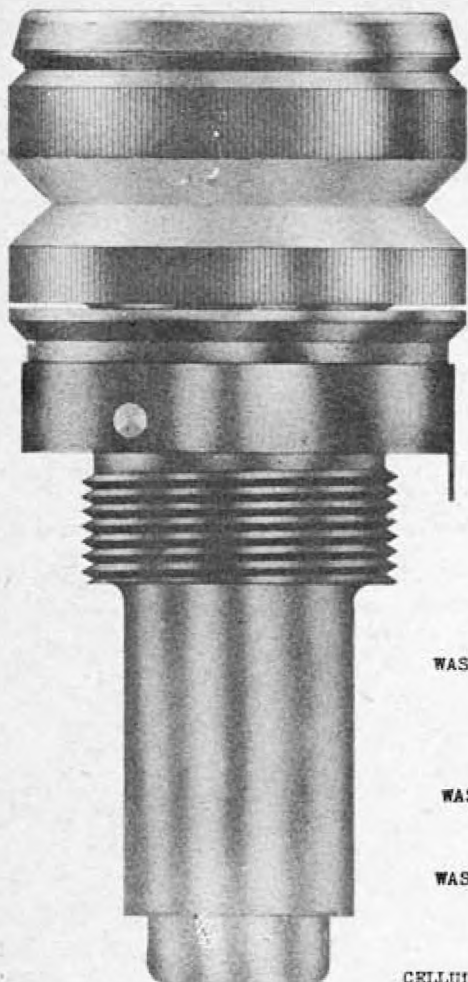
BOMBS USED IN . . . . Smoke Float No. 2 Mk II  
 FUNCTIONING . . . . Impact; instantaneous  
 ARMED CONDITION . . . . When the safety clip is removed.  
 FUZES USED WITH . . . . None  
 ARMING TIME . . . . Instantaneous  
 MAX. BODY DIAMETER. . 7/8"  
 OVERALL LENGTH . . . . 2-3/4"  
 COLOR . . . . . Black

DESCRIPTION: This pistol is a simple inertia type striker resting on a creep spring. The pistol body is hexagonal, and in each side approximately 1/2" from the top is a hole for the insertion of a safety pin. The inside of the body is round, and it accommodates a square striker which is rounded at the top to receive the safety clip. The creep spring is attached to the firing pin. The lower end of the pistol body is threaded to go into the smoke float.

OPERATION: When the float is placed in the dropping gear the safety pin is removed. Upon release the safety clip is pulled, and the striker is left riding on its creep spring. On impact the spring is overcome, and the firing pin hits the percussion cap which fires the ignition charge.

REMARKS: This pistol is replacing the No. 844 fuse in this smoke float.

# BRITISH TAIL PISTOL NO. 53



BOMBS USED IN . . . G.P. 250 & 500 lb. Mk I, II, IV; 1000, 1500, & 4000 lbs. M.C. bombs, all. S.A.P. 250 & 500 lb. Mk V A.P. 2000 lb. Mk I, II, & III (dimensions are identical to those of No. 28 & No. 30 pistols, thus could be used in any bombs in which the latter are used).

FUNCTIONING . . . Chemical Long Delay; 1/2 and 1 hour delays.

ARMED CONDITION . . . Assumed armed if dropped; armed if arming fork is threaded down to bottom of arming fork cavity in pistol.

FUZES USED WITH . . . None

ARMING TIME . . . Eight arming fork revolutions, or if dropped from sufficient height to break ampoule.

IDENTIFICATION . . . Similar to No. 37 Mk IV pistol, except V-shaped notch around pistol in center of knurled exterior is painted white.

MAX. BODY DIAMETER. . . 2"

OVERALL LENGTH . . . 4.25"

BRITISH TAIL PISTOL**NO. 53**

(No. 53A - See REMARKS below)

(Service)

DESCRIPTION: This pistol is similar in appearance to the No. 37 Mk IV, except that the notch around the knurled exterior is painted white, and there is no anti-withdrawal device incorporated. Internally, the fuse differs from the No. 37 Mk IV in that a modified striker assembly is used to enable shorter delays to be obtained. The striker is retained by a row of balls around its head. The balls retain the striker by their contact with a chamfered thrust sleeve which, in turn, is located by a celluloid disc. The pistol is fitted with a broken ampoule indicating device, similar to that incorporated in the No. 37 Mk V, consisting of a blotting paper indicating ring fixed to the base of the pistol head. The arming screw is provided with three slots along a portion of its screwed length. If an ampoule breaks, the tinted acetone passes through these slots into the head of the pistol and stains the blotting paper.

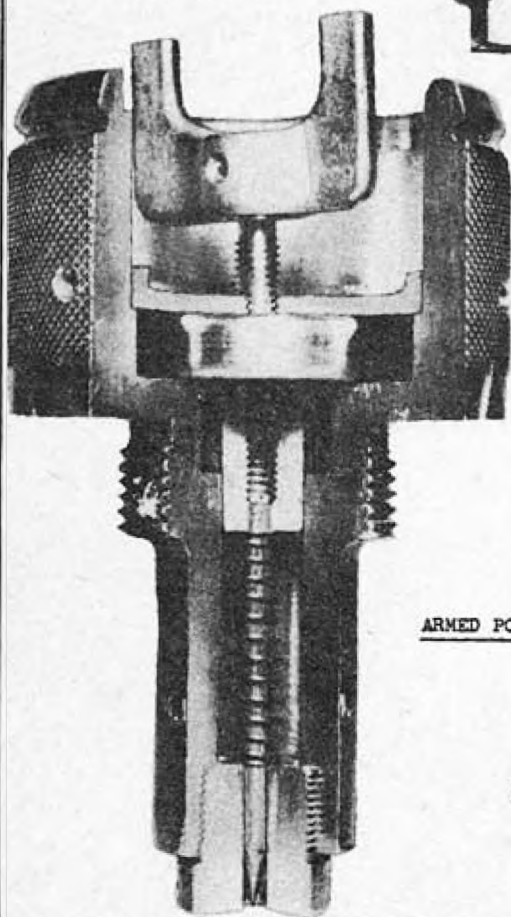
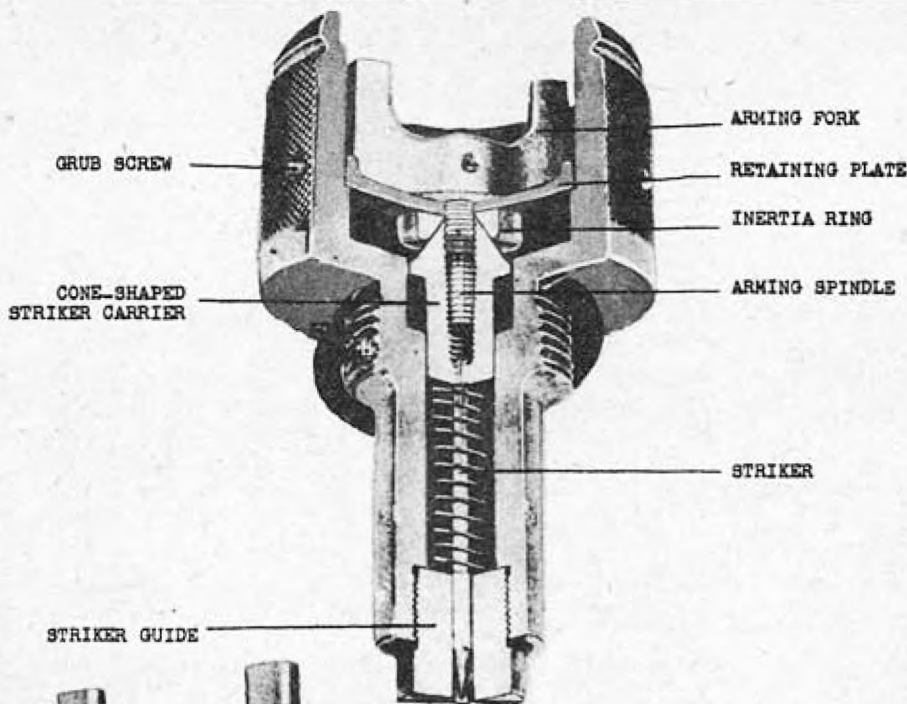
OPERATION: These pistols are issued assembled for use. When a bomb is fused with this pistol, the press cap and safety plate are removed, and the arming screw engaged by the arming fork of the tail. The standard arming vanes on the tail unit will be replaced by the special red colored vanes packed in the pistol box. When the bomb is released from the carrier, the arming screw of the pistol is screwed down by the rotation of the arming vane of the tail unit and crushes the ampoule, releasing the acetone. The forward movement of the arming screw then continues, and the head of the screw compresses the soft rubber washer, sealing the acetone in the pistol. The solvent action of the acetone softens the celluloid disc so that the thrust sleeve is allowed to move upward, forced by the camming force of the retaining balls against its chamfered edges. The balls are then released, and the striker allowed to operate.

REMARKS: (1) The 30-minute delay is obtained with Pistol No. 53; the one hour delay, with pistol No. 53A. The alternative delays are provided by varying the strength of the acetone, which is tinted green for the thirty minute delay and violet for the one hour delay. The pistols are shipped with the ampoules assembled, and the ampoules are not to be changed. The times of delay quoted are subject to a variation of approximately plus or minus 30%.

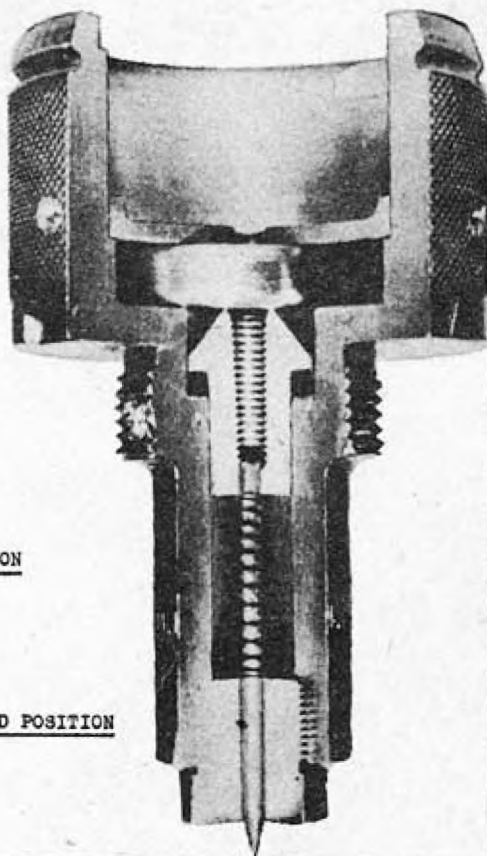
(2) Should a bomb fused with a No. 53 or No. 53A Pistol be dropped from a height of 12 inches or more, the bomb must be treated as armed.

(3) It is the practice of the R.A.P. Bomber Command to paint the arming vanes of the tail unit white, but this practice is not general.

# BRITISH TAIL PISTOL NO. 54



ARMED POSITION



FIRED POSITION

BRITISH TAIL PISTOL

BOMBS USED IN . . . . G.P. 250 & 500 lb., Mk IV  
 G.P. 1000, 1900 & 4000 lb.  
 All M.C. bombs.  
 S.A.P. 250 & 500 lb. Mk V.  
 A.P. 2000 lb. Mk IV.  
 A.S. 100, 250 & 500 lb. Mk V.  
 L.C. 500 lb.

FUNCTIONING . . . . Impact instantaneous, all-  
 ways action.

ARMED CONDITION . . . . When arming fork stud is  
 unthreaded from striker head.

FUZES USED WITH . . . . Nose pistols No. 27, 42, or  
 44.

ARMING TIME . . . . 15 arming fork revolutions  
 (approx.)

MAX. BODY DIAMETER. . . . 2.4<sup>1/2</sup>"

OVERALL LENGTH . . . . 3.6" without striker guide.

**NO. 54**

Mk I

(Service)

**DESCRIPTION:**

This pistol is a newly designed all-ways action pistol, resembling the No. 28 pistol externally. It is composed of a body having a hollow cavity into which is placed the striker assembly, an inertia ring, a disc, and an arming fork with a threaded spindle. The striker assembly consists of a striker head, bored and threaded internally to take the arming stud, and a striker needle positively secured to the striker head and positioned by a striker guide threaded into the lower extension of the body. A creep spring bears upwards against the striker head, and a guide pin prevents the striker head from rotating. The body is cut out to permit downward movement of the striker head, and has an internal ledge in the cavity to seat the disc, which is secured by a grub screw. The arming spindle is pinned to the arming fork, and threads through the disc and into the striker head. The inertia ring fits loosely under the disc and is beveled to mate with the conical shaped striker head.

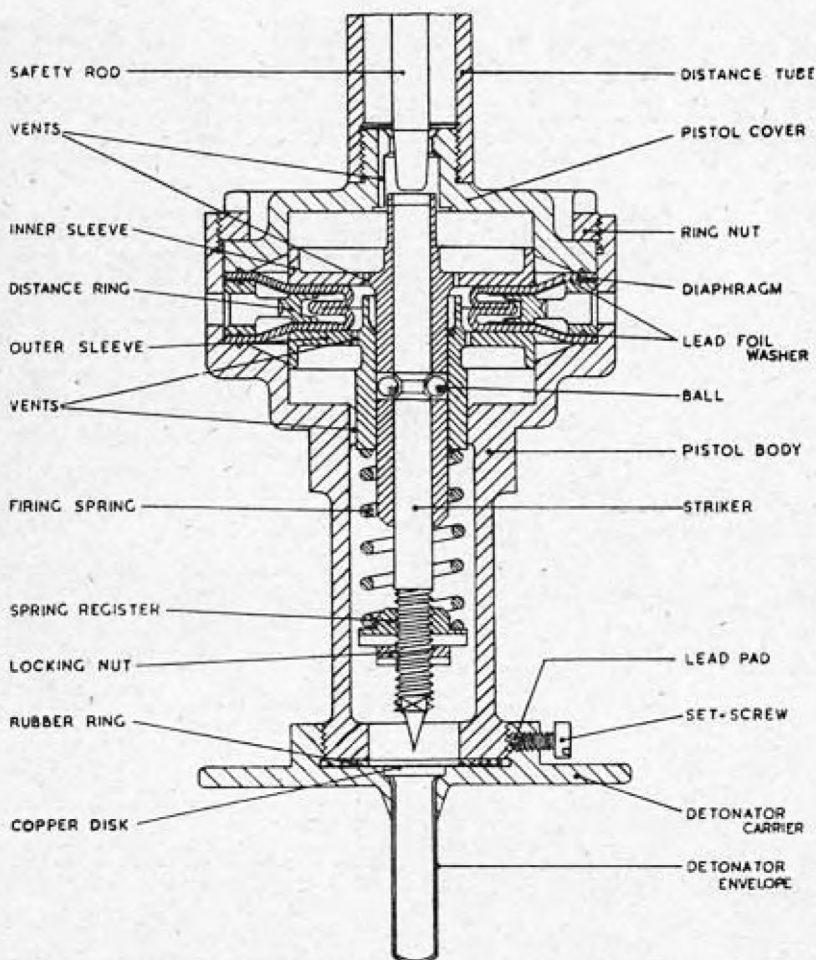
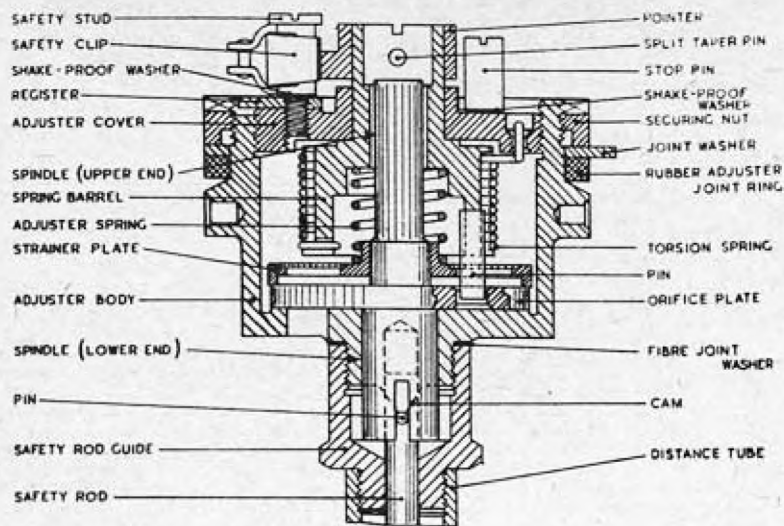
**OPERATION:**

When the bomb is released, the arming vanes of the tail assembly rotate and in so doing rotate the arming fork and attached stud. After approximately 15 vane revolutions, the stud is unthreaded from the striker head and disc, the striker head now being retained only by the creep spring. On impact, the striker head overcomes the resistance of the creep spring, driving the striker needle against the detonator. Should the bomb land on its side, the inertia ring would move sideways, bearing against the beveled top of the striker head and driving it inward against the creep spring, thus firing the detonator.

**REMARKS:**

This pistol when issued is fitted with a press cap and oversool to prevent dust from entering the body cavity, and a safety plate which rests on two notches in the body cavity wall, extending between the two arming forks and making the pistol safe until removed.

## BRITISH DEPTH CHARGE PISTOL MK. X \*\*



DEPTH CHARGES  
USED IN . . . . . Mk VII & VIII.

FUNCTIONING . . . . . Hydrostatic; variable setting-50, 100 & 150 feet.

ARMED CONDITION . . . . . No external evidence of arming.

MAX. BODY DIAMETER . . . 3.48"

OVERALL LENGTH . . . . 16"

COLOR . . . . . Brass

BRITISH DEPTH CHARGE PISTOL

**MK. X\*\***

(Obsolete)

**DESCRIPTION:**

The depth adjuster comprises a cylindrical body in which is housed an orifice plate containing 3 leak holes of different sizes, corresponding to firing depths of 50, 100, & 150 feet. Located on top of the orifice plate is a strainer plate and an adjuster spring which holds the strainer plate in position and the orifice plate on its seating. The orifice plate is mounted on a spindle, the lower end of which fits in a hole in the bottom of the adjuster body and is hollow and slotted to receive a safety rod. Fitted loosely on the upper end of the spindle is a spring barrel, an extension of which fits in a hole in the center of an adjuster cover. A pointer is secured to the spring barrel extension, and both extension and pointer are slotted for the use of a winding tool. A pin in the bottom of the spring barrel projects through the strainer plate into a hole in the orifice plate, and coupled to the bottom of the spring barrel at its lower end and to the adjuster cover at its upper end is a torsion spring which tends to rotate the orifice plate and the pointer in a clockwise direction.

The adjuster body is closed by the adjuster cover. Marked on the cover is the word "SAFE", and the depth setting numbers 50, 100, and 150; at the side of "SAFE" is a hole to receive the safety stud, and beside each number a hole for a stop pin. Three inlet holes in the cover allow water to enter the adjuster body. In the safety position the pointer is secured to the safety stud by a safety clip.

In the bottom of the adjuster body is a hole which allows water to enter the primer tube of a depth charge when any particular leak hole in the orifice plate is in line with it, but it is blanked by a plain section of the orifice plate when the depth adjuster is set at "SAFE".

Screwed to a spigot on the bottom of the adjuster body is a safety rod guide to which is screwed the upper end of the distance tube. This tube houses a safety rod through the upper end of which is inserted a pin which engages in the slots in the orifice plate spindle and also with two cams formed on the spigot on the bottom of the adjuster body. When the depth adjuster is set at "SAFE", the safety rod is held in the lowered position.

The pistol comprises a cylindrical body which houses a firing mechanism. The body is closed at the upper end by a pistol cover which is screwed to the lower end of the distance tube and is secured in the pistol body by a ring nut. In the pistol cover and the pistol body respectively slide an inner and outer flanged sleeve, each sleeve having a hollow stem, the stem of the outer sleeve sliding over that of the inner. Between the flanges of the sleeves is a double acting rubber diaphragm, the two discs of which are separated by a distance ring. Between each disc of the diaphragm and the distance ring is a lead foil washer to prevent adhesion. The pistol cover, pistol body, and sleeves have air vents to equalize the internal pressure. The pistol body and distance ring both have six evenly spaced holes through which is transmitted the pressure which expands the diaphragm, thereby moving the sleeves in opposite directions. The fact that the inner and outer sleeves move in opposite directions to operate the firing mechanism renders the pistol inertia proof, as no shock can produce these opposed motions simultaneously. The striker slides in the stem of the inner sleeve and is held cocked by two balls, located in the inner sleeve, engaging in a groove in the striker. When the depth adjuster is set at "SAFE", the striker is prevented from moving upwards by the safety rod.

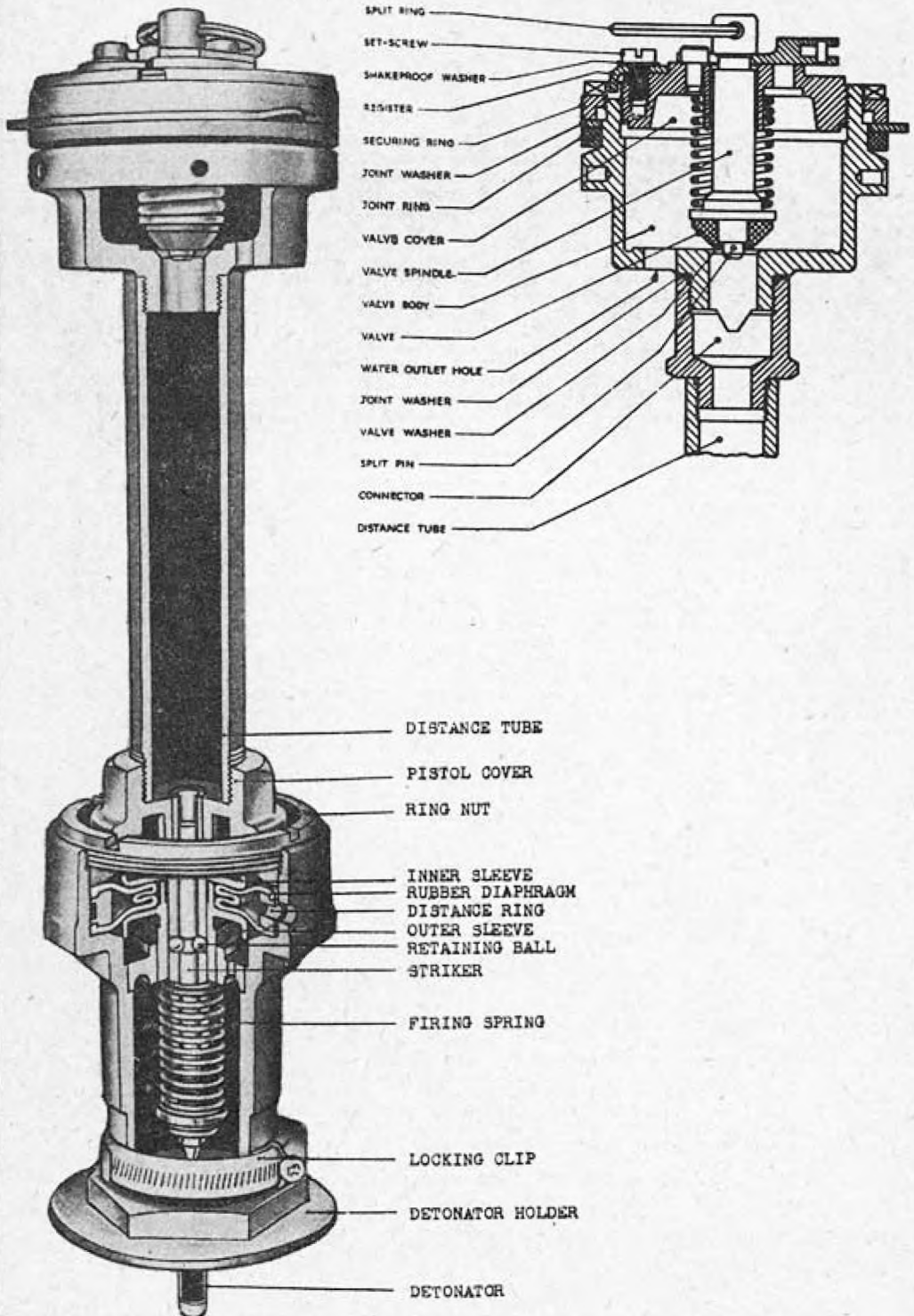
**OPERATION:**

On release from the plane the safety clip is pulled free by the fuse setting control link. When the depth charge becomes submerged, water enters the adjuster body and passes through the strainer plate, the particular leak hole in the orifice plate, and the hole in the bottom of the adjuster body, to the primer tube where pressure is built up. While the depth charge is sinking the increased pressure is transmitted through the holes in the pistol body and distance ring to the two discs of the diaphragm, which begins to expand and move the sleeves and striker, compressing the firing spring. When the depth charge has sunk to its set depth, the two sleeves have moved through their maximum travel, and the balls are forced out into a recess formed in the stem of the outer sleeve, thereby releasing the striker, which fires the detonator.

**REMARKS:**

1. Some Mk X\*\* depth charge pistols have an adjuster with holes drilled for 250, 350, and 500 feet.
2. This pistol, though no longer used for aircraft depth charges remains the standard depth charge pistol for charges dropped by surface craft.
3. An identical copy of this pistol has been developed and used by the Japanese.

BRITISH DEPTH CHARGE PISTOL MKS. XIV, XVI



BRITISH DEPTH CHARGE PISTOL

DEPTH CHARGES USED IN . . . . Mk VII, VIII, XI, XI\*

FUNCTIONING . . . . Hydrostatic action; fixed setting (a) 20-24 ft; (b) 14-18 ft

ARMED CONDITION . . Safety fork missing

MAX. BODY DIAMETER , 3.5"

OVERALL LENGTH . . . (a) 16"; (b) 15.8"

COLOR . . . . . Brass

**MKS. XVI & XVI \*****MKS. XIV & XIV \***

(Service)

**DESCRIPTION:** The depth charge pistol consists of a valve unit, distance tube, and pistol mechanism. The valve unit is made of brass and is cylindrical, being threaded internally in the upper part to receive the valve cover and externally on the lower end to fit into the connector of the distance tube. Centrally through the valve cover is drilled a hole for the valve spindle, and around this hole are 4 smaller ones acting as water entry ports. Around the upper end of the valve spindle there fits the safety clip which has flattened arms which cover the water entry ports. On the lower end of the valve spindle is a shoulder to which is seated a valve washer held on by a cotter pin. The washer seats on a shoulder of the lower valve body. Continual pressure is being exerted downward by the compressed valve spring which rides between the valve cover and the shoulder on the valve spindle. The valve cover is held in place by a shakeproof washer and a set screw. The pistol mechanism is cylindrical and fits into the primer tube. The pistol cover is held into the pistol body by a locking ring and is screwed into the lower end of the distance piece. Around the sides of the pistol body are drilled 6 water entry ports, and there are also entry ports in the brass distance ring which fits in the rubber diaphragm. This diaphragm fits between an inner and an outer sleeve. The diaphragm is double acting and is separated from the distance piece by a lead foil ring which keeps it from sticking. In the inner sleeve are drilled two holes which contain two retaining balls engaged with a grooved neck of the spring-loaded striker. The striker spring rests between a shoulder on the lower end of the striker and the outer sleeve, so that as the diaphragm expands and moves the two sleeves apart the striker spring is compressed. To the lower end of the pistol body is threaded the detonator carrier and detonator.

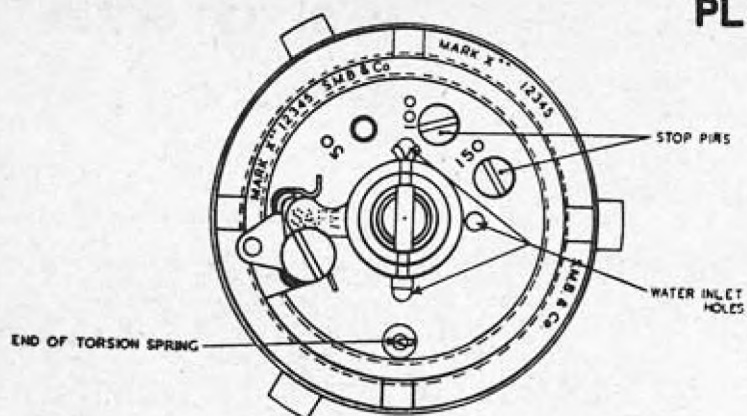
**OPERATION:** On release from aircraft the safety clip is pulled allowing the compressed valve spring to close the valve, and uncovering the water entry ports. On water travel water enters the holes in the upper valve body and passes out through those in the bottom of the valve cylinder into the primer tube. It then enters the water entry ports in the sides of the pistol body and in the distance piece. This expands the rubber diaphragm and moves the inner and outer sleeves apart until at the set depth (20-24 ft.) the balls in the inner sleeve are cammed out into a groove in the outer sleeve, and the compressed firing spring forces the striker into the detonator. When dropped safe the safety clip covers the water entry ports preventing the entry of water into the primer tube. Any leakage, moreover, cannot cause the diaphragm to expand, because the valve is still up and pressure will be exerted on both sides of the diaphragm.

**REMARKS:**

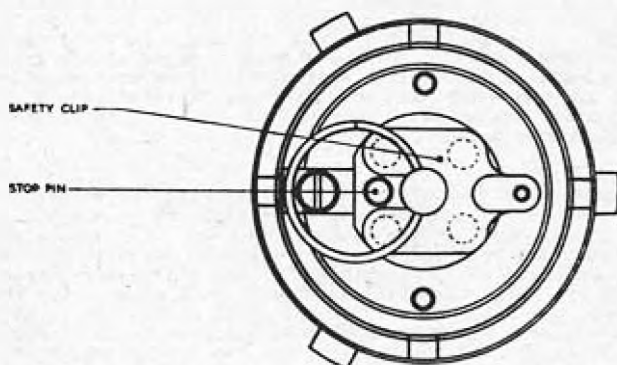
1. The Mk XVI\* is the same as the Mk XVI, except that (1) it is modified to be secured more easily into the Mk VIII or IX depth charges, (2) an inertia safety clip is fitted, (3) the distance tube is sweated to the adjuster body to prevent leakage into the distance tube.
2. The Mk XIV\* has the same modifications of the Mk XIV as the Mk XVI\* has of the XVI.

# BRITISH DEPTH CHARGE PISTOLS

## PLAN VIEWS



Mk. X



Mks. XIV & XIV  
Mks. XVI & XVI



Mks. XIX & XX

DEPTH CHARGE  
USED IN . . . . Mks XI and IX\* with Mk IV tail.

FUNCTIONING . . . . Hydrostatic; fixed setting  
(a) 20 - 24 feet  
(b) 14 - 18 feet.

ARMED CONDITION . . . . No external evidence.

MAX. BODY DIAMETER . . . . 3.5"  
OVERALL LENGTH . . . . 15.75"  
COLOR . . . . . Brass valve and pistol assembly; black distance tube.

## BRITISH DEPTH CHARGE PISTOL

## MKS. XIX &amp; XX

(Service)

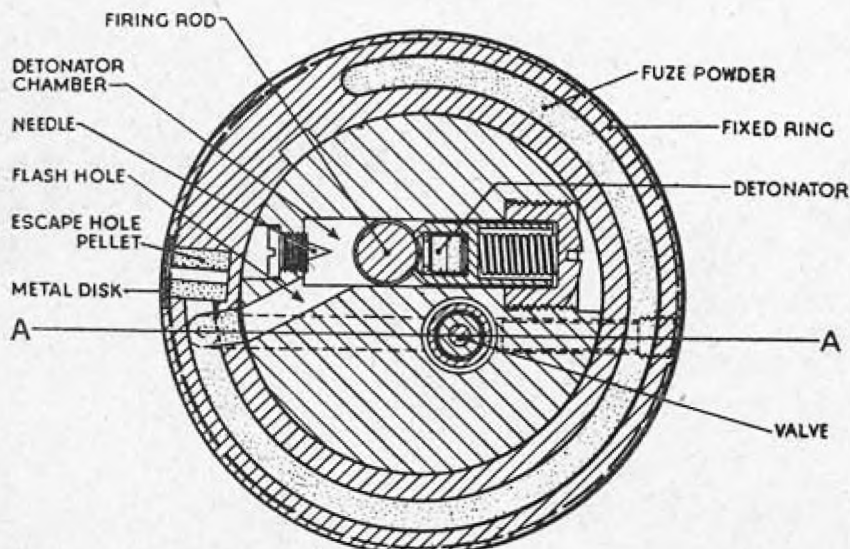
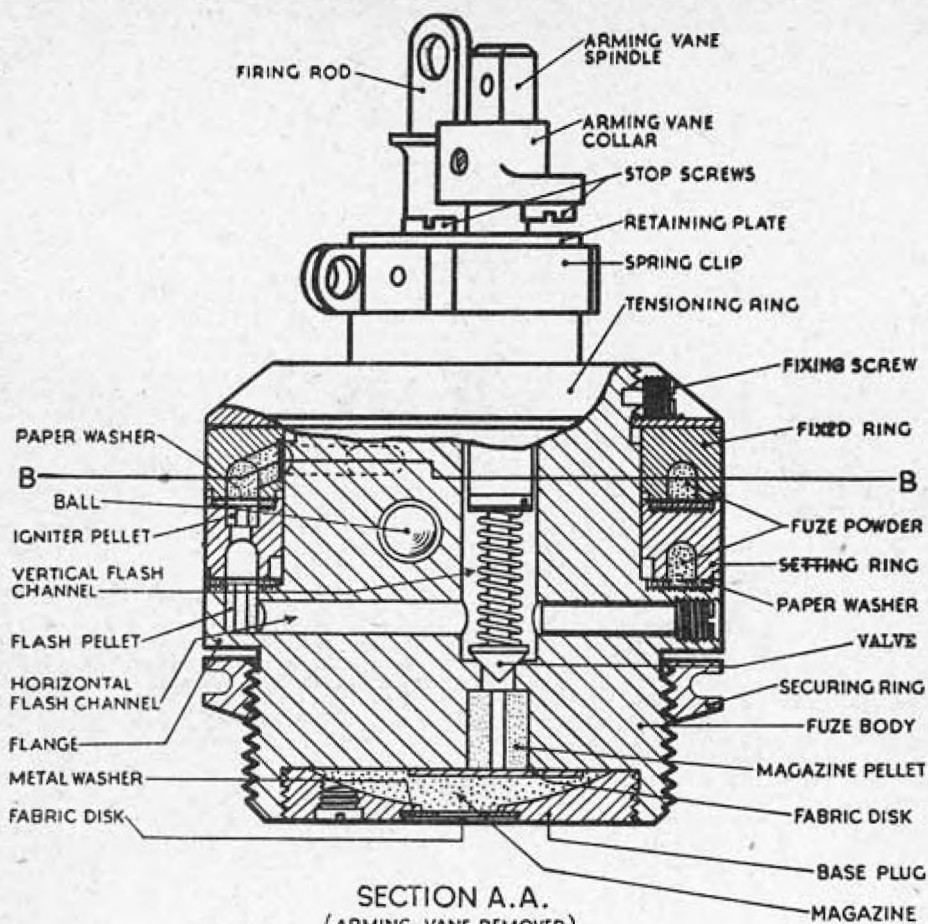
## DESCRIPTION:

The pistol and valve units are separated by a distance tube. The valve body is internally threaded to receive the valve cover, which is drilled centrally and tapped to accommodate the valve spindle. To the top of the valve spindle is fixed an arming fork, which engages a similar fork on the end of the reach rod of a standard British tail unit. On the lower end of the valve spindle is a shoulder to which is fitted a beveled rubber washer, secured to the shoulder by a cotter pin and fitting into the lower valve body. The valve cover screws into the valve unit and is held in place by a set screw. On the lower end of the distance tube is located the pistol assembly. The cover of the pistol body is threaded to the distance tube and is held into the pistol body by a locking ring. Around the sides of the pistol body are six water entry ports, extending through the distance piece which fits into the rubber diaphragm. The diaphragm is located between an inner and an outer sleeve. In the inner sleeve are two holes containing retaining balls, which engage and retain the spring-loaded striker. The striker spring rests on a shoulder on the lower end of the striker and on the outer sleeve, so that as the diaphragm expands and the sleeves move apart, the striker spring is compressed. To the lower end of the pistol body is threaded the detonator carrier.

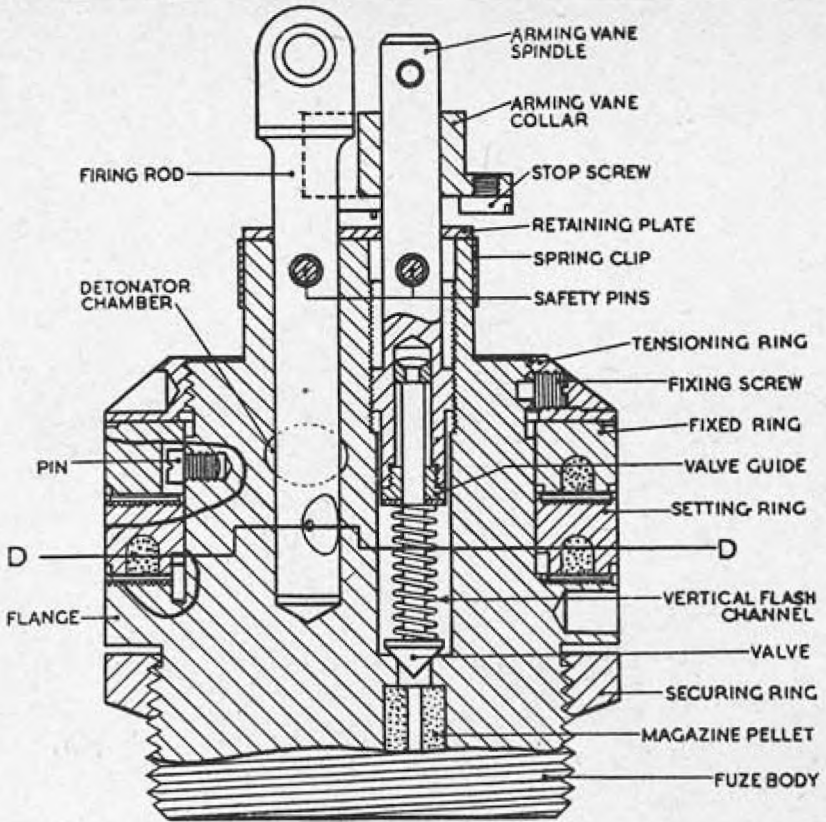
## OPERATION:

When the depth charge is dropped the safety wire is pulled and the arming fork is rotated by the reach rod and the vanes. After about 11 revolutions of the vanes the valve spindle has threaded the valve down onto the shoulder of the valve body, thus closing the valve and preventing water from entering the distance tube. After the depth charge enters the water, the water enters the water entry ports in the top of the valve unit, and passes through to the primer tube. The water then enters the entry ports on the side of the pistol body and passes through the distance piece, and the rubber diaphragm begins to expand. This moves the inner and outer sleeves apart. At the depth of 20 - 24 feet the sleeves have traveled sufficiently to allow the retaining balls to be carried out into a shoulder in the outer sleeve, and the compressed striker spring forces the striker into the detonator.

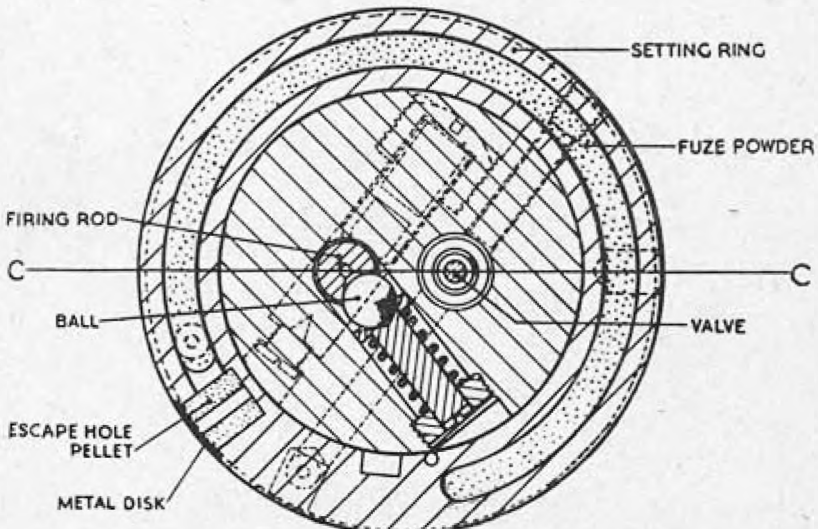
# BRITISH NOSE FUZE NO. 28B



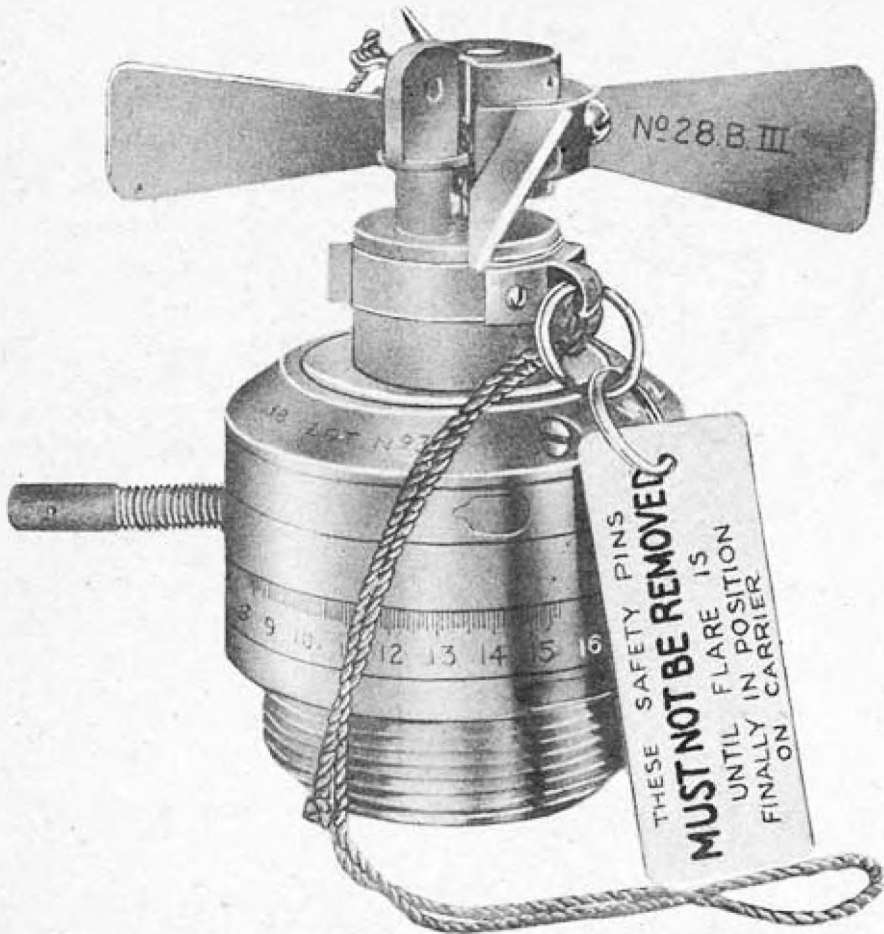
# BRITISH NOSE FUZE NO. 28B



SECTION C.C.  
(ARMING VANE REMOVED)



# BRITISH NOSE FUZE NO. 28B



BOMBS USED IN . . . Flares and Photo-flash bombs.  
 FUNCTIONING . . . . . Aerial burst, pyrotechnic  
 delay.

ARMED CONDITION . . . . . When safety pin hole in arming  
 spindle has risen 1/4" above  
 fuze body and firing rod has  
 been withdrawn.

FUZES USED WITH . . . . . None  
 ARMING TIME . . . . . 12 vane revolutions  
 VANE SPAN . . . . .  
 OVERALL LENGTH . . . . . 3.75"  
 MAX. BODY DIAMETER. . . . . 2.4"

BRITISH NOSE FUZE**NO. 28B**

Mks II, III

(Obsolescent)

**DESCRIPTION:** The No. 28B is a pyrotechnic delay, aerial burst fuze, with possible time settings from 0 - 32 seconds, though 7 seconds is generally the minimum employed. The fuze consists of a body, an igniting mechanism, a fixed ring and a setting ring, each containing a pyrotechnic delay element, a valve mechanism to prevent premature functioning of the fuze, and a magazine containing a gunpowder charge for igniting the flash or flare.

The fuze body has a flange, on the upper surface of which the fixed ring and the setting ring rest. Below the flange the body is externally threaded for insertion into the flash of flare, and a securing ring screwed on to the threads locks the fuze in position.

A spring-loaded detonator is housed in a chamber in the fuze body, opposite a fixed striker, the detonator is held in position by the firing rod, movement of which is impeded by a spring loaded ball engaging a groove in the rod. A flash channel extends from the detonator chamber to the delay element in the fixed ring.

The movable setting ring rests on a flange on the fuze body, and is placed below the fixed ring, which is secured by a screw to the fuze body. The delay elements are placed on the under surface of each ring in a circular groove, broken by a metal bridge. Communication between the grooves is effected by a hole in the top of the setting ring. An igniter pellet is placed in the upper end of this hole, and when the fuze is set on SAFE, this pellet is masked by the bridge on the fixed ring. When the fuze is set live, the setting ring is moved to a position where its delay powder is above a flash pellet, located in a hole in the body. This hole communicates with a horizontal flash channel, which opens into a vertical flash channel. Freedom of movement of the setting ring is restricted by a tensioning ring, which is locked in position by fixing screws.

A spring loaded valve is located in the vertical flash channel, and is supported in a valve guide carried by a threaded arming vane spindle. To the upper end of the spindle an arming vane collar, with vanes attached, is secured by a split pin. Rotation of the spindle is prevented by the firing rod, part of which is located in a groove in the arming vane collar. A retaining plate prevents the spindle and the arming vane from being separated from the fuze. To prevent the valve from binding, should the vane be rotated downwards, a stop screw in the vane collar can engage with a similar screw in the retaining plate.

Two safety pins connected to a spring clip prevent movement of the spindle and the firing rod.

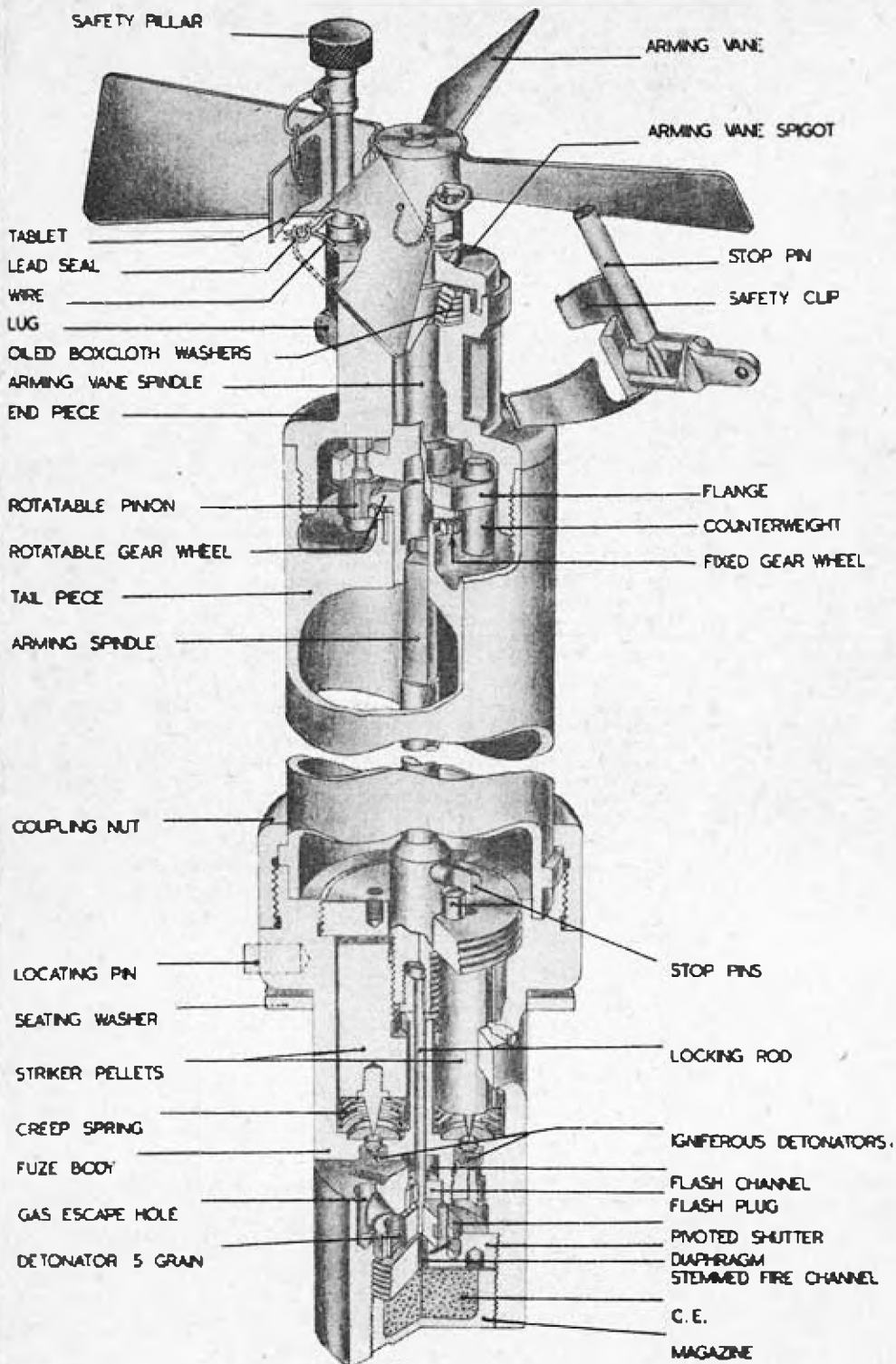
**OPERATION:** When the firing rod is withdrawn, upon release from the plane, the spring-loaded detonator is released and forced against the fixed striker. The flash from the detonator passes through the flash hole and ignites the delay powder in the fixed ring. The delay powder burns for an interval of time determined by the position of the setting ring. At the end of this interval the igniter pellet in the setting ring is fired and ignites the delay powder in the setting ring. The delay train in the setting ring burns until it reaches the flash pellet, which is then ignited.

While the fuze powder has been burning, the arming vane spindle has been rotating until the valve has been raised from its seating, so that, when the flash pellet is ignited, the flash passes through the horizontal and vertical channels and ignites the magazine pellet. The pellet fires the magazine charge and ignites the flare or photoflash into which the fuze is inserted.

**REMARKS:** 1. This fuze is obsolescent, and is similar to early No. 28 fuzes which are now obsolete.

2. Although the fuzes are calibrated from 0 - 22 seconds, generally the numerals from 0 to 4 are painted out, and in some cases the numbers start at 4. In actual practice, no setting below 7 is authorized to be used, due to the possibility of "blinds" or misfires.

# BRITISH TAIL FUZE NO. 30



**BOMBS USED IN:**  
 No. 30: . . . 250 & 500 lb. S.A.P., Mks II-IV  
 No. 37 . . . 2000 lb. A.P., Mks I - III

**FUNCTIONING** . . . .1sec. delay (No. 30, Mk I only has additional special delay of .01 sec.)

**ARMED CONDITION** . . . No external indication

**FUZES USED WITH** . . . None

**ARMING TIME** . . . .490 vane revolutions approx.

**OVERALL LENGTH** . . . No. 30: 14.5"  
 No. 37: 23.5"

**MAX. BODY DIAM** . . . No. 30: 2.75"  
 No. 37: 2.75"

**COLOR** . . . . . No. 30: Brass and unpainted metal.  
 No. 37: Black

BRITISH TAIL FUZES**NO. 30**

Mks. I - III

**NO. 37**

Mk. I

(Service)

**DESCRIPTION**

These fuzes are fundamentally the same, the principal difference between the No. 30 and No. 37 being in length, and the fact that, because of its additional length, the No. 37 arming spindle is fitted with two universal joints. The differences between the various Mks of the No. 30 are explained in "REMARKS" below. The fuse body is of tubular section and is externally threaded at one end to receive a coupling nut which secures a tubular tail piece to the fuse body. Screwed into a flange on the fuse body is a locating pin for insertion into the slot in the exploder container of the bomb. The lower end of the fuse body is closed by a C.E. filled magazine, which has a thin bottom wall. The upper end of the magazine is closed by a diaphragm having a fire channel communicating with the magazine, the fire channel being stemmed with C.E.

An arming vane is secured to the end of the arming vane spigot, and a flanged arming vane spindle supports a rotatable pinion and counter-weight. The pinion meshes with two gear wheels, one fixed to the tail piece and having 59 teeth, the other engaging the arming spindle and having 60 teeth. Secured to the arming spindle is a locking rod projecting into and retaining a pivoted shutter in the unarmed position. The shutter contains a detonator and has a spring which forces it about its pivot to line up with the firing channel when the locking rod is withdrawn.

The fuse has two identical delay mechanisms, each consisting of a striker, a creep spring, an igniferous detonator, a delay pellet, and an adjoining powder pellet so positioned that the powder pellet extends over a flash channel, and one end of the delay pellet adjoins a firing hole which opens into the bottom of the striker chamber. The strikers are retained in the unarmed position by the arming spindle which is screwed into the sides of the strikers. Stop pins prevent the arming spindle and the strikers from jamming.

**FUNCTIONING:**

When the fused bomb is released, the safety clip is pulled free and the arming vanes rotate. The pinion is revolved around the fixed and rotatable gears, and because of the difference in the number of teeth, rotates the movable gear and hence the arming spindle once every 60 vane revolutions. As the arming spindle is rotated, it unthreads from the strikers and draws the locking rod out of the shutter. When the locking rod clears the shutter, its spring forces it about its pivot, lining the detonator up with the firing channel. The shutter is locked in this position by a pivoted, spring-controlled locking pawl which snaps into position behind the shutter, the pawl being locking by a spring actuated plunger which moves down into a groove in the pawl. As the arming spindle clears the strikers, it slides upwards through the rotatable gear wheel. The fuse is now armed.

On impact the strikers move downwards, overcoming the creep springs, and fire the igniferous detonators, the flashes from which pass through the firing holes and ignite the delay pellets, which in turn ignite the powder pellets. The flashes from the powder pellets pass through the flash channel and the flash plug and ignite the detonator which, by igniting the C.E. in the stemmed fire channel, fires the C.E. in the magazine. Impact of the fused bomb with the light superstructure of the ship, or with the surface of the sea, is sufficient to cause the fuse to function.

**REMARKS:**

(1) The No. 30, Mk I includes a special and a normal delay. The arming mechanism is the same, but the delay mechanism differs in that the striker for the special delay is, when released by the screwed arming spindle, supported by a shear wire. There is no creep spring beneath this pellet. The normal delay functions the fuse as described above, but the special delay functions when the fused bomb strikes 1 inch mild steel plate with a velocity of 500 ft. per sec. When this occurs, the wire supporting the striker is sheared and the striker moves against and fires the igniferous detonator below it. The flash from the detonator passes through the firing hole to the delay pellet which ignites the powder pellet. The flash from the powder pellet passes through the flash channel and the flash plug and ignites the detonator, 5 grain, which by igniting the C.E. in the stemmed fire channel, fires the C.E. in the magazine.

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BRITISH TAIL FUZES**NO. 30**

Mks. I - III

**NO. 37**

Mk. I

CONTAINED

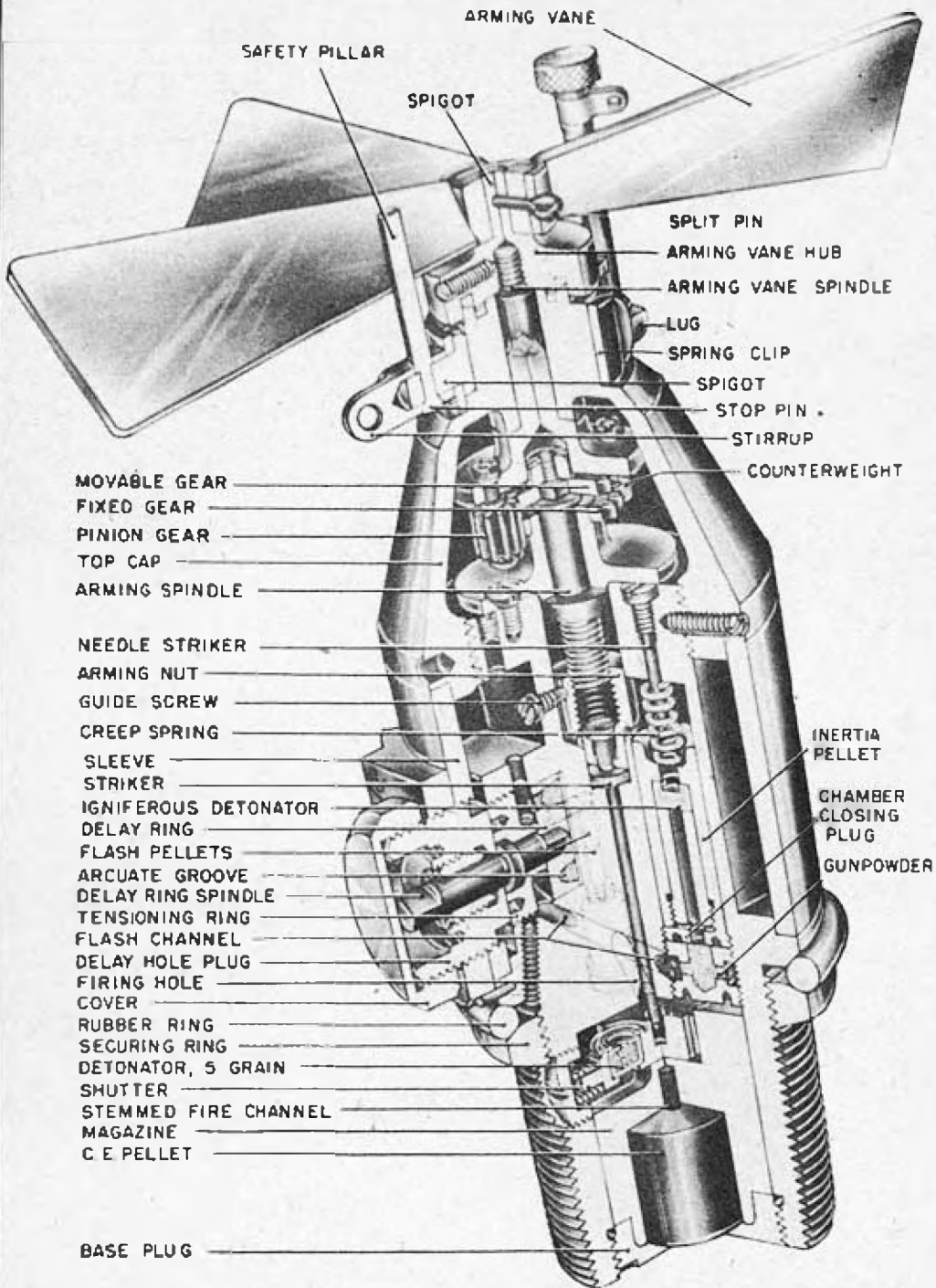
(Service)

REMARKS cont'd: (2) The No. 30, Mk I\* is the same as the Mk II fuze as described above.

(3) The No. 30, Mk III is similar to the Mk II, except that it is fitted with a stirrup and a packing washer and has a fork secured to the safety clip to press the arming vane spigot firmly against the packing washer to form a water-tight joint while the fuze bomb is being taxied over water.

(4) The fuzes are not capable of giving direct action; and bombs fuze with them can, in an emergency, be dropped safe.

# BRITISH NOSE FUZE NO. 32



- ARMING VANE
- SAFETY PILLAR
- SPIGOT
- SPLIT PIN
- ARMING VANE HUB
- ARMING VANE SPINDLE
- LUG
- SPRING CLIP
- SPIGOT
- STOP PIN
- STIRRUP
- COUNTERWEIGHT
- MOVABLE GEAR
- FIXED GEAR
- PINION GEAR
- TOP CAP
- ARMING SPINDLE
- NEEDLE STRIKER
- ARMING NUT
- GUIDE SCREW
- CREEP SPRING
- SLEEVE
- STRIKER
- IGNIFEROUS DETONATOR
- DELAY RING
- FLASH PELLETS
- ARCUATE GROOVE
- DELAY RING SPINDLE
- TENSIONING RING
- FLASH CHANNEL
- DELAY HOLE PLUG
- FIRING HOLE
- COVER
- RUBBER RING
- SECURING RING
- DETONATOR, 5 GRAIN
- SHUTTER
- STEMMED FIRE CHANNEL
- MAGAZINE
- C E PELLET
- BASE PLUG
- INERTIA PELLET
- CHAMBER CLOSING PLUG
- GUNPOWDER

BOMBS USED IN . . . AS 250 lb. Mks I - III  
 AS 500 lb. Mks I - III  
 FUNCTIONING . . . Impact; instantaneous, or delay  
 of .5, 1.0, 1.5, or 2.0 seconds.  
 ARMED CONDITION . . . No external evidence.  
 ARMING TIME . . . 200 ft. of air travel at 100 mph  
 MAX. BODY DIAM . . . 2.5"  
 OVERALL LENGTH . . . 7.0"

BRITISH NOSE FUZE**NO. 32**

Mks II\* &amp; III

(Obsolescent)

## DESCRIPTION:

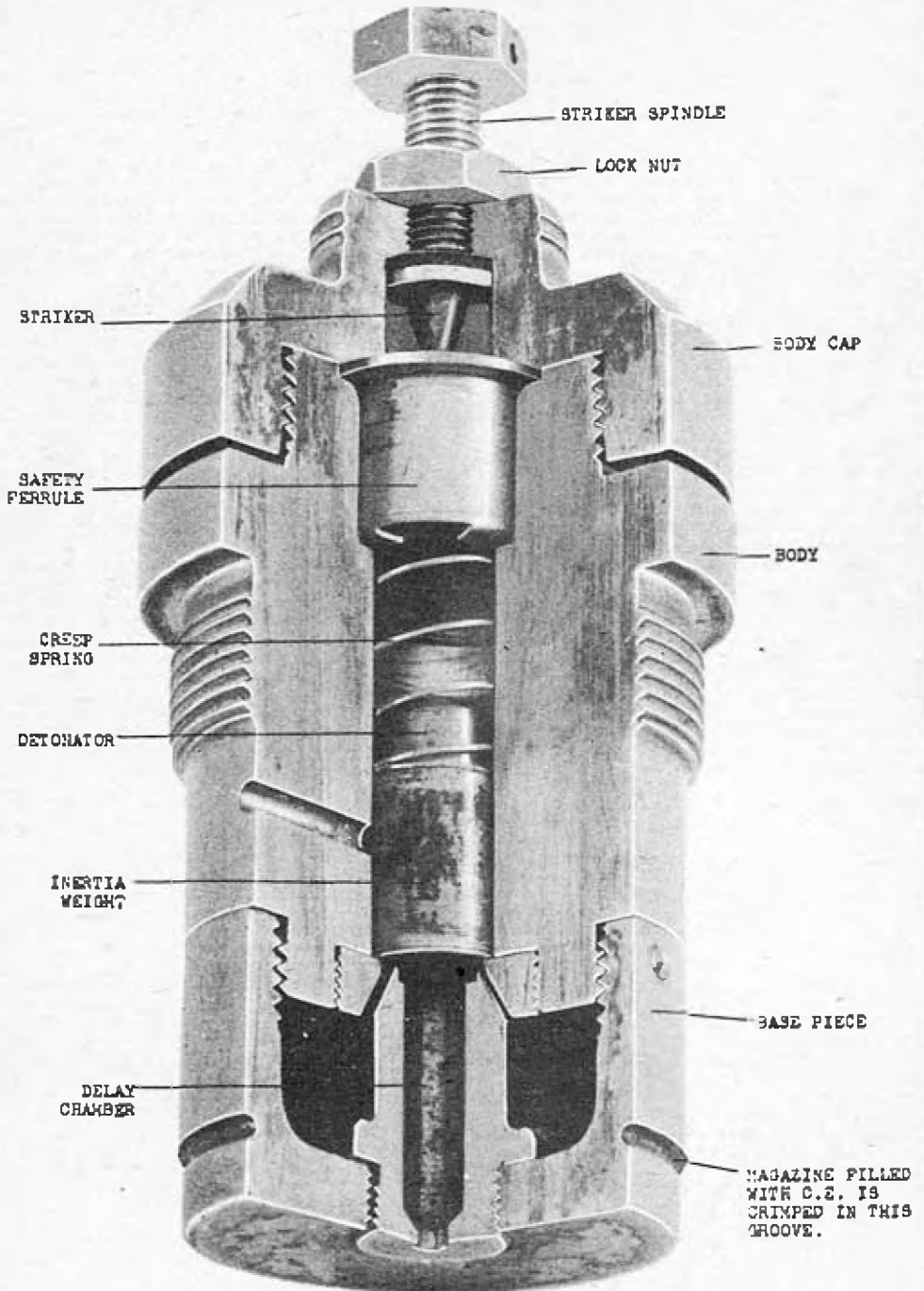
This fuze consists of a two-piece body, the upper part of aluminum, the lower of brass. Both parts, however, may be painted black, so this difference is not readily apparent. The lower body is cylindrical, while the upper body is sloping. Through the upper body extends the vane hub and arming vanes, and on the sides are attachments for the safety pillar and the safety wire. On the lower body is found the delay ring with the markings ZERO, 0.5, 1.0, 1.5, 2.0, and BRIDGE. The delay setting spindle is covered by the setting ring cap.

Within the upper body is housed the gear system, consisting of a movable and a stationary gear. The former is attached to the end of the arming spindle and has 60 teeth; the latter is fixed to a bearing in the fuze body and has 69 teeth. Around these move a rotatable pinion and counterweight. To the lower end of the arming spindle is threaded the arming nut, into which is fitted the upper end of the striker. The arming nut is prevented from rotating by a guide screw moving in a longitudinal slot in the arming nut. In the unarmed condition the striker rests in a hole in the spring-loaded shutter, preventing it from moving into the armed position. When the gear system has moved the arming nut up and removed the striker from the detonator shutter, the shutter is forced over by its spring and locked in place by a spring-loaded plunger. Located to one side of the arming nut is an igniferous detonator, held off a needle striker by a creep spring. This detonator is carried in an inertia pellet which contains a flash channel. This pellet is prevented from moving against the creep spring until after the arming nut is raised on the spindle. At the lower end of the flash channel in the inertia pellet are two chamber closing plugs, in one of which is loose gunpowder. The plug containing this powder has radial holes extending from the powder cavity to an annular groove on the outside of the plug. A flash channel from the annular groove extends through the fuze body to a space between the delay ring and the tensioning ring. A hole housing the ignition pellet extends from the tensioning ring to the delay ring, which contains the circular groove holding the delay train. From the end of the delay train to the firing hole there is a flash hole pellet and two connecting hole pellets. The firing hole leads into a detonator located in the detonator shutter. Below this is a C.E. stemmed channel which leads into the magazine with its C.E. pellet. Around the threaded lower body of the fuze is a securing ring, above which is a rubber ring to afford a water-tight seal in the bomb.

## OPERATION:

When the bomb is fused and loaded aboard the plane, the safety pillar is removed. The safety clip with the stop pin is pulled free when the bomb is released. The vanes rotate and turn the pinion gear and counterweight around the movable and stationary gears. For each sixty rotations of the vanes the movable gear is rotated once. This action threads the arming nut upwards on the arming spindle, thus removing the striker from its hole in the shutter. The detonator shutter spring lines up the detonator with the striker and above the stemmed fire channel. The shutter is locked in this position by a spring-loaded plunger. The fuze is now armed. The delay mechanism is in operative condition as soon as the arming nut has been threaded up the arming spindle. The inertia pellet is then free to move forward and force the igniferous detonator against the striker. The fuze functions either on impact or with delay. If it strikes steel plate at 3/8" or thicker, the sides of the upper body will crush and force the striker down into the detonator. If, on the other hand, the fuze hits the water from 500 to 4000 feet, or hits a target not sufficiently hard to crush the upper body, the igniferous detonator and the inertia pellet move forward compressing the creep spring and hitting the needle striker. The flash travels down the channel in the inertia pellet and ignites the loose gunpowder. The flash from the gunpowder passes through the flash channel firing the ignition pellet and the delay train. When the latter has burned out, the flash hole pellets and the connecting hole pellets are fired and send a flash down through the firing hole to the detonator. The magazine pellet is then fired, initiating the explosion of the bomb.

# BRITISH NOSE FUSE NO. 38



BOMBS USED IN . . . . (a) 30 lb. L.C. Mks I & II  
 30 lb. I.B. Mks I & II  
 (b) 120# Smoke Bomb

FUNCTIONING . . . . (a) .5 sec. delay on No. 38  
 Mks I & II  
 (b) 2.5 sec. delay

ARMED CONDITION . . . . When the striker is screwed  
 down.

FUZES USED WITH . . . . None

MAX. BODY DIAMETER. . . . 2.25"

OVERALL LENGTH . . . . 5.5" (Striker up)

COLOR . . . . . Brass

## BRITISH NOSE FUZE

**(A) NO. 38**

Mks. I &amp; II

**NO. 38 ND**

Mk. II

**(B) NO. 864**

(Service)

DESCRIPTION The fuze consists of a cap, body, and base piece. In the cap is screwed the needle striker which is locked by a lock nut. Below this is a ferrule against the notches of which rests a creep spring which holds down an inertia pellet containing the detonator. Below the detonator in the inertia pellet there is a flash channel leading to the delay element and the magazine.

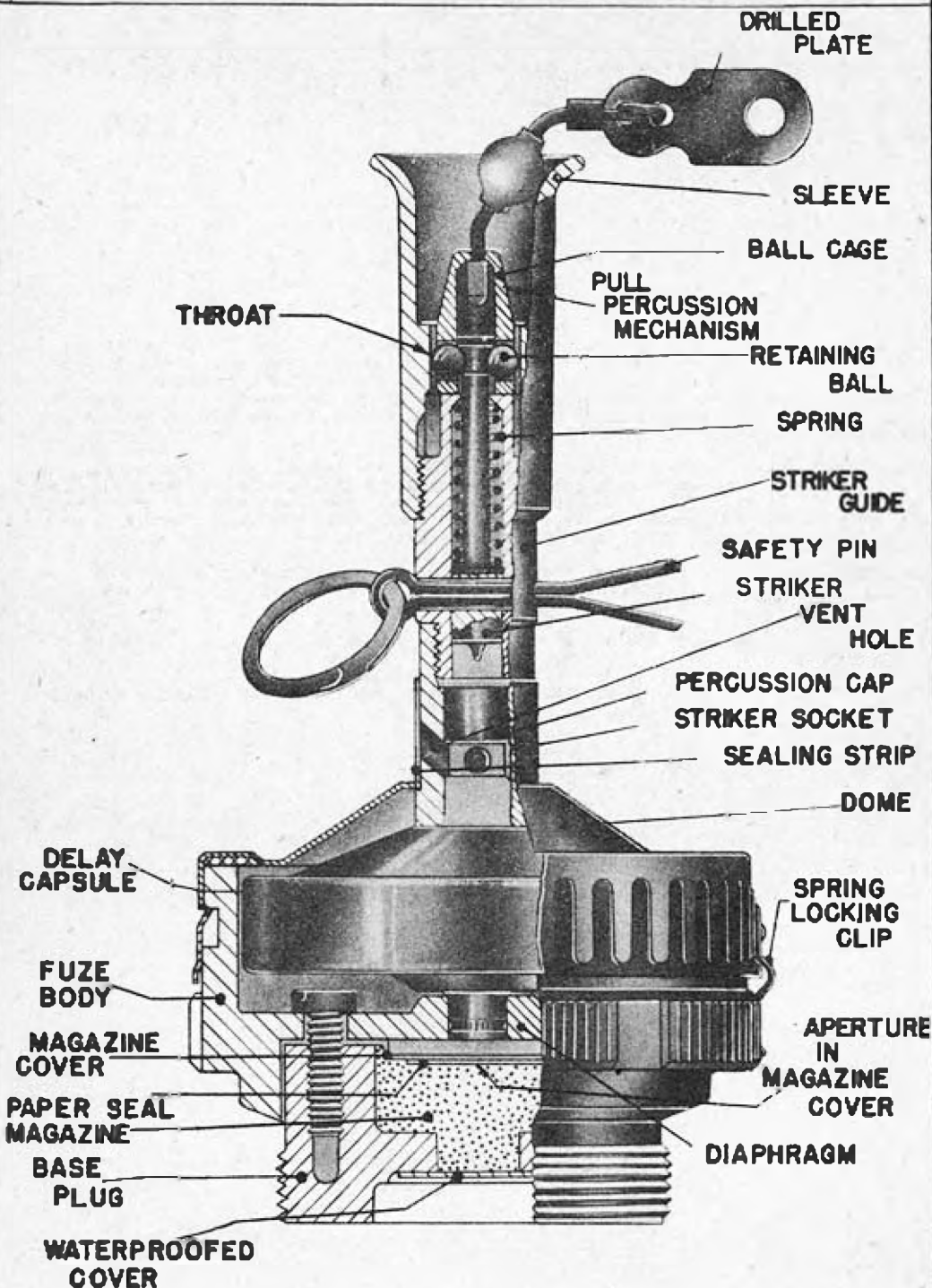
OPERATION: When the bomb is put in the plane the lock nut is loosened, the striker is screwed down, and the lock nut is re-tightened. The fuze is now armed. Upon impact, the inertia pellet overcomes the creep spring and carries the detonator down against the striker. The flash ignites the delay element which in turn fires the magazine.

REMARKS: (1) The Mk II differs from the Mk I in that it does not have the strengthening collar to meet conditions of oblique impact. This is also true of the Mk II ND.

(2) The No. 38 ND Mk II has gunpowder in place of the delay element.

(3) The No. 864 Mk I differs from the No. 38 by having a smaller magazine.

# BRITISH NOSE OR TAIL FUZE NO. 42



BOMBS USED IN . . . . 4.5" Flare, 3.5" Flare,  
 No. 1 Mk I Cluster,  
 No. 14 Mk I Cluster,  
 No. 15 Mk I & II Cluster.

FUNCTIONING . . . . Pyrotechnic serial burst,  
 variable delay.

ARMED CONDITION . . . . When safety pin is removed.

ARMING TIME . . . . Fired on release from plane.

MAX. BODY DIAMETER. . . . 3.0"

OVERALL LENGTH . . . . 5.25"

COLOR . . . . . Brass throat and aluminum  
 fuse body.

BRITISH ROUSE OR TAIL FUZE

NO. 42

Mks I - IV

(Obsolescent)

## DESCRIPTION:

The fuse consists of a brass throat attached to an aluminum upper fuse body, and a cast lower fuse body. The upper body is attached to the lower body by means of a bayonet joint. The base piece containing the magazine is attached to the lower fuse body by three screws. Located in the throat is a pull percussion mechanism consisting of a drilled plate attached to a ball cage by a length of cord. The ball cage contains two retaining balls which engage in a groove in the striker and bear against the wall of the throat. A safety pin passing through the striker and the throat is removed just before the bomb is loaded aboard the plane. The striker is spring-loaded downwards, and under it is located the primer, which leads to the delay train. The delay element is housed in the delay capsule in the lower fuse body. In the safe condition this fuse may be found with a rubber waterproof cover over the top of the throat with only the drilled plate extending out of it.

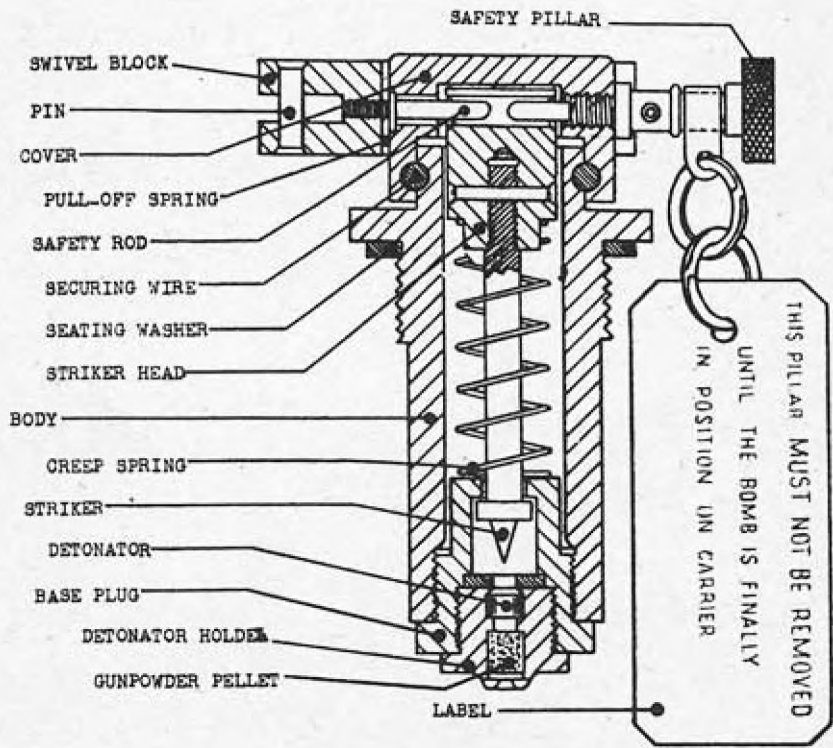
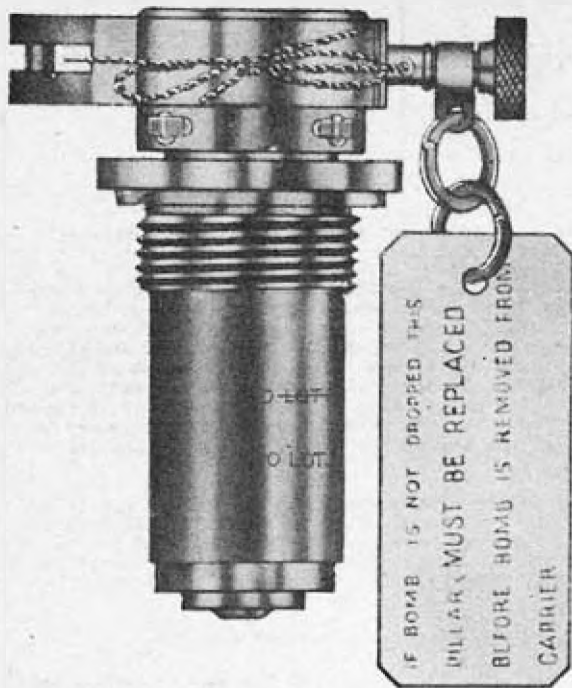
## OPERATION:

When the flare is loaded aboard the plane the safety pin is removed. The fuse is then armed. Upon release the ball cage is jerked out of the fuse and releases the spring-loaded striker by allowing the retaining balls to fall outward. The striker is forced into the primer which ignites the delay train in the delay capsule. The magazine is fired upon the expiration of the delay.

## REMARKS:

- (1) The No. 42 Mk IV has a cap on the delay pellet.
- (2) The delay is variable depending upon the delay capsule used.

# BRITISH TAIL FUZE NO. 844



BOMBS USED IN . . . . Smoke Float No. 2 Mk I.  
 FUNCTIONING . . . . Impact, instantaneous.  
 ARMED CONDITION . . . . Safety Pillar removed; Swivel  
 block, safety rod, and pull-  
 off spring removed.  
 FUZES USED WITH . . . . None  
 MAX. BODY DIAMETER. . . . 1.5"  
 OVERALL LENGTH . . . . 3.0"  
 COLOR . . . . .

BRITISH TAIL FUZE**NO. 844**

Mk I

(Obsolescent)

**DESCRIPTION:** The fuze consists of a cylindrical flanged body which is externally threaded to permit the fuze to be screwed into the tail end of a smoke float. A seating washer beneath the flange ensures a water-tight joint between the fuze and the smoke float.

A cover fits over the body and is held in position by a U-shaped securing wire passed through two holes in the cover and an annular groove in the body. The wire does not prevent rotation of the cover, which can be turned for the purpose of adjustment. A base plug screwed into the body supports a detonator holder which is screwed into the base plug. The detonator holder houses a detonator and a gunpowder pellet.

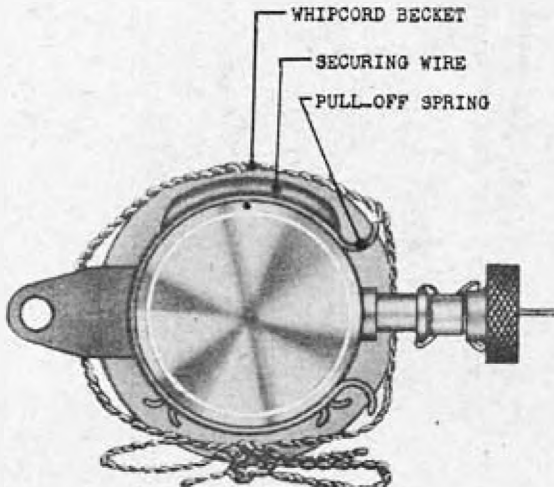
One end of the striker is screwed into a striker head, and a creep spring, which engages the striker head and the base plug, holds the striker clear of the detonator. A hole extending through the striker head is aligned with two holes in the cover. A safety pillar screwed into one of the holes in the cover projects into one end of the hole in the striker head, while a safety rod passes through the other hole in the cover and extends into the opposite end of the hole in the striker head. The safety rod is retained in position by a pull-off spring which is locked between a fork-ended swivel block and a shoulder on the safety rod. A pin passing through the forked end of the swivel block provides an anchorage for a fuze-setting control link.

A whipcord becket, extending round the fuze, passes through the forked end of the swivel block and a hole in the safety pillar.

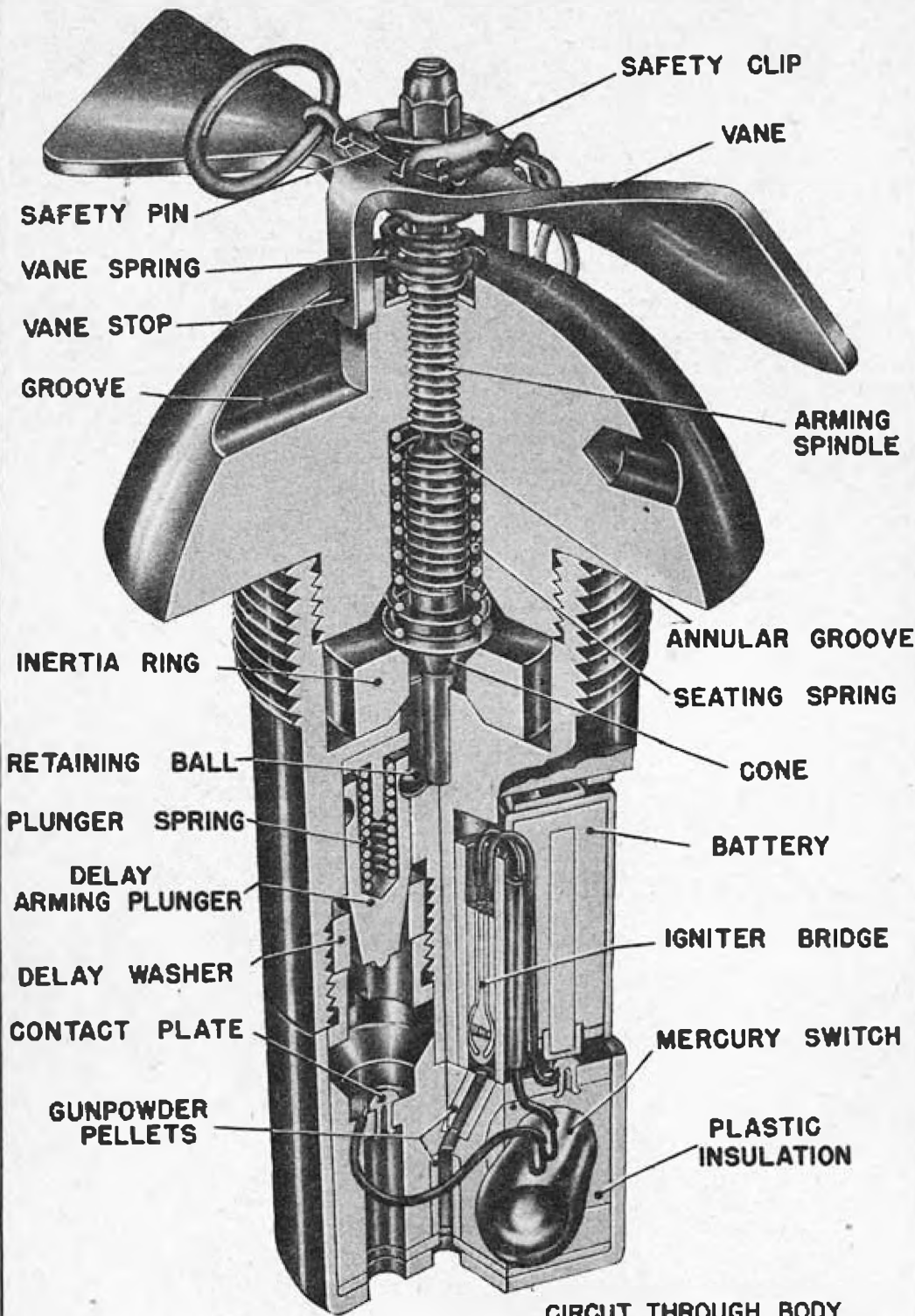
**FUNCTIONING:** The fuze is screwed into the tail end of a smoke float and the fuzed smoke float is loaded on to an airplane bomb carrier, the swivel block being connected to the fuze unit by a fuze-setting control link. Just before the airplane takes off, the fuze is made live by the removal of the safety pillar.

When the smoke float is released from the carrier, the swivel rod, safety block, and pull-off spring remain attached to the carrier by the fuze-setting control link, so that while the smoke float is falling, the striker is held away from the detonator only by the creep spring.

On ground or water impact the striker moves down, overcoming the creep spring, to pierce the detonator. The detonator fires the gunpowder pellet, and the flash from the gunpowder pellet fires the igniter of the smoke float.



# BRITISH NOSE FUZE NO. 845



CIRCUIT THROUGH BODY FROM POSITIVE BATTERY POLE TO SAFETY PLUNGER.

BRITISH NOSE FUZE

BOMBS USED IN . . . . 250 lb. Mk III & IV G.P.  
 500 lb. Mk III & IV G.P.  
 1000 lb. Mk I G.P.  
 1900 lb. Mk I G.P.  
 Will fit bombs which take any  
 standard nose pistol.

FUNCTIONING . . . . Fires upon disturbance.

ARMED CONDITION . . . . When the vanes are up or are  
 broken off.

FUZES USED WITH . . . . No. 37 Mk I - IV

ARMING TIME . . . . 20 seconds after impact.

VANE SPAN . . . . 4.5 in.

MAX. BODY DIAMETER. . . . 2.25 in.

OVERALL LENGTH . . . . 3.5 in.

COLOR . . . . Unpainted steel

**NO.845**

Mks I - IV

(Obsolète)

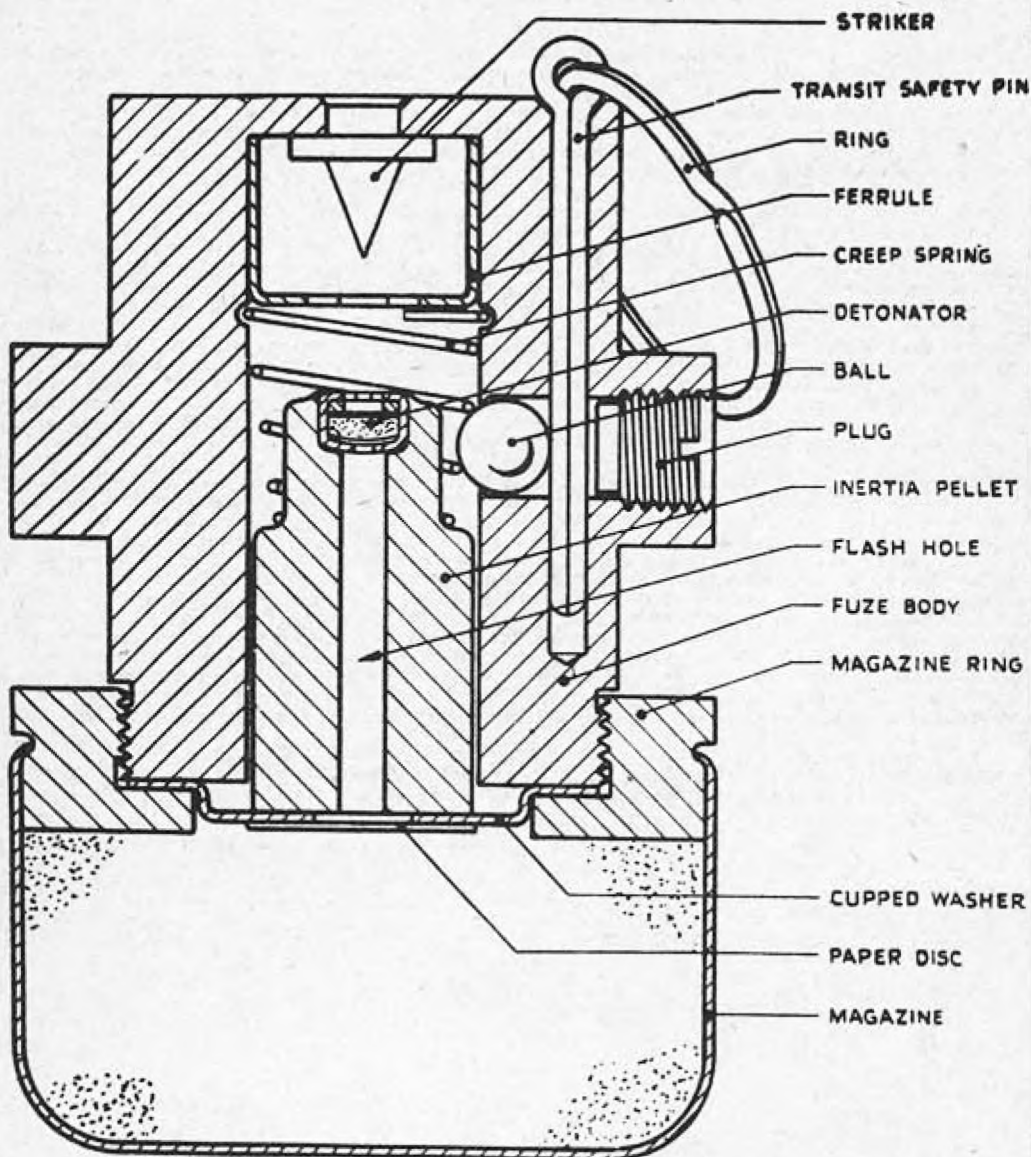
**DESCRIPTION:** The fuze consists of a body, arming vanes, and an electric circuit comprising a dry cell, an igniter bridge, a sensitive mercury switch, and a delay arming switch. The upper part of the fuze body is ogival to complete the streamlining of the bomb. A safety clip inserted between the vanes and the top of the arming spindle depresses the vanes against the force of the vane spring and prevents the vanes from rotating by engaging two vane stops with two grooves in the top of the fuze ogive.

Attached to the vanes is an arming spindle which is threaded down through the top of the fuze. Half-way down the arming spindle is located an annular groove which interrupts the threading of the spindle. The lower end of the spindle is enlarged to prevent its falling completely away from the fuze when rotated by the vanes. Located beneath the spindle is a cone resting in an inertia ring. A pin extends from the point of the cone and engages the retaining ball with the spring loaded delay arming plunger. Below the delay arming plunger is a plastic delay washer with a contact plate located beneath it. The electric circuit leads from the positive pole of the battery through the fuze body to the delay arming plunger, where the circuit is broken until the plunger makes contact with the contact plate. From the contact plate, the circuit leads to the mercury switch, from the mercury switch through the igniter bridge to the negative pole of the battery (1.5 volt dry cell). Leading from the igniter bridge to the exploder in the bomb is a series of gunpowder pellets.

**OPERATION:** When the bomb is loaded aboard the plane, the safety pin is removed from the arms of the safety clip. On release from the plane, the safety clip is removed, the vane spring forces the vane stops up out of their grooves, and the vanes are allowed to rotate, threading the arming spindle upward until the enlarged end engages the internal shoulder of the fuze body. The momentum of the rotating vanes is sufficient to snap the arming spindle at the weakened groove; the upper portion of the spindle and the vanes then fall away from the fuze. The cone is now held downwards only by the seating spring. On impact, the cone and attached pin are forced upward against the spring and the retaining ball moves out of engagement with the delay arming plunger which is forced by its spring against the delay washer. After 20 seconds, the delay washer is pierced and the plunger makes contact with the contact plate, completing the circuit except for the mercury switch. Any subsequent movement will cause the mercury to flow, complete the circuit, and fire the fuze.

**REMARKS:** (1) The Mk LI is like the Mk I except that it has a spring link type safety clip, and the nose of the fuze is shorter.

# BRITISH NOSE FUZE NO. 846



BOMBS USED IN . . . . 30 lb. I.S. Mks II, IIM, III, IIM  
 FUNCTIONING . . . . Impact; instantaneous  
 ARMED CONDITION . . . . When safety pin is removed  
 FUZES USED WITH . . . . None  
 ARMING TIME . . . . Armed when bomb is placed in Small Bomb Container.  
 MAX. BODY DIAMETER. . . 1.75"  
 OVERALL LENGTH . . . . 2.75"  
 COLOR . . . . . Brass

BRITISH NOSE FUZE

**NO.846**

Mk. I

**NO.879**

Mk. I

(Service)

**DESCRIPTION:**

The fuze consists of a machined fuze body, bored centrally to house (a) an inertia pellet containing the detonator and flash channel; (b) a safety ferrule; (c) a creep spring; and (d) a striker which is riveted into the fuze body. One end of the creep spring rests against a shoulder on the inertia pellet, and the other end is located in a circumferential groove in the bore of the fuze body. The flash channel in the inertia pellet leads directly from the detonator to the magazine.

A magazine ring is threaded to and cemented on external threads on the base of the fuze body, and crimped to the ring is a magazine containing a gunpowder charge. The magazine is closed by a cupped washer, the hole in which is aligned with the flash channel in the inertia pellet and is covered by a paper disc.

A hole in the fuze body at right angles to the central bore houses a retaining ball and is closed at the outer end with a screwed plug. The inner end of the hole is of reduced diameter to permit the ball to protrude into, but not fall into, the central bore. A second hole, parallel to the bore, intersects the transverse hole and houses a transit safety pin which retains the ball in a position such that it projects into the bore and prevents the inertia pellet from accidental contact with the striker. The safety pin has a ring passing through its head to facilitate its withdrawal from the fuze.

The fuze has no external threads for fixing into the bomb, but rather is merely placed in the fuze pocket and held in by the threaded nose plug. Two recesses are bored in the boss of the fuze to engage two projections on the base of the nose plug. This locking arrangement insures that the safety pin hole in the nose plug is properly positioned over the safety pin and safety pin hole in the boss of the fuze.

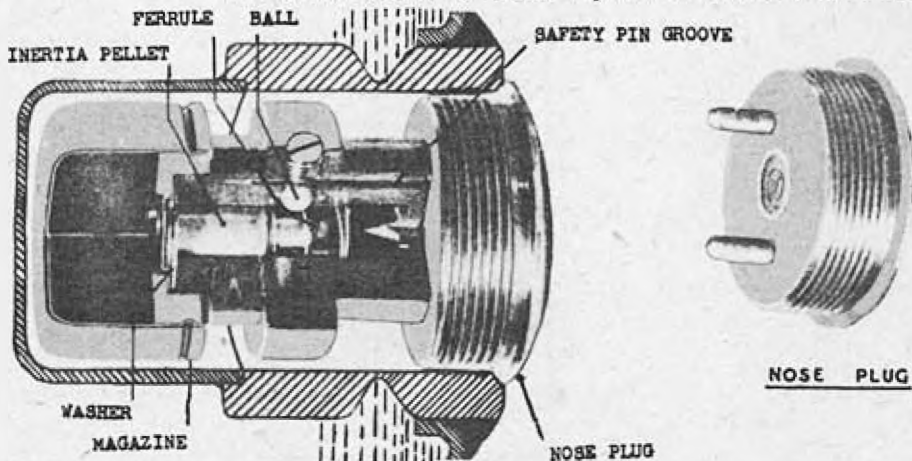
**OPERATION:**

The transit safety pin in the fuze is removed and replaced by a longer safety pin when the fuze is assembled in the bomb. This longer safety pin is removed manually, before the bomb is loaded aboard the airplane, when the bomb is placed in Small Bomb Container. The fuze is then armed. On impact with the target, the inertia pellet overcomes the resistance of the creep spring, bends the tabs on the safety ferrule, and impinges against the striker, firing the detonator. The flash from the detonator passes through the flash hole in the inertia pellet and fires the gunpowder magazine, functioning the bomb.

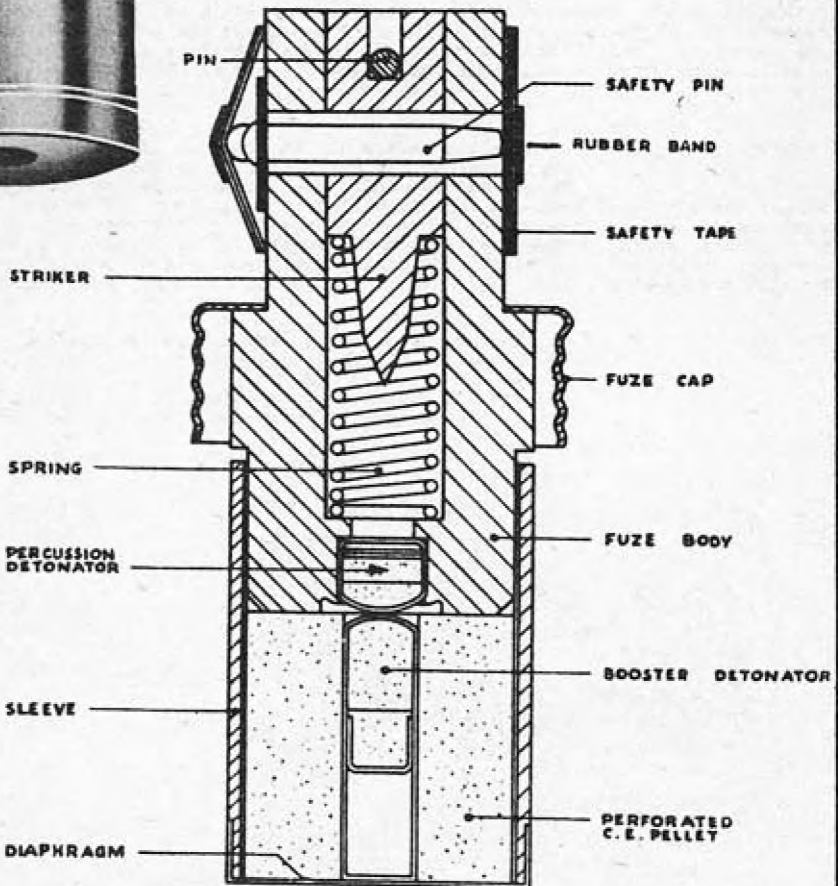
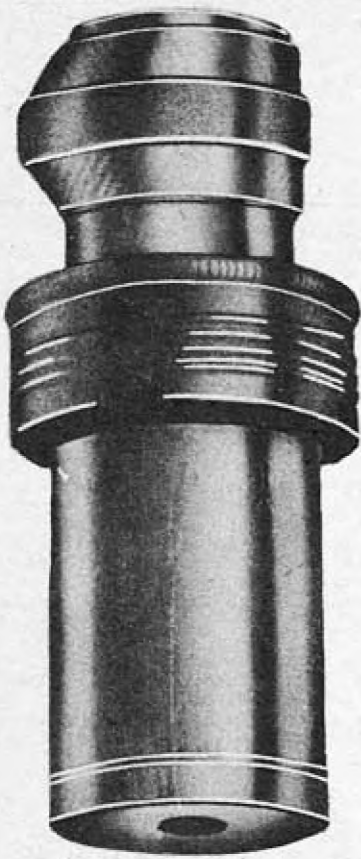
**REMARKS:**

(1) Normally these fuzes are shipped in place in the bombs, thus requiring the shipping safety pin.

(2) The No. 879 Mk I is identical to the No. 846 Mk I except that it has 5 grams of aluminum powder in the burster wall.

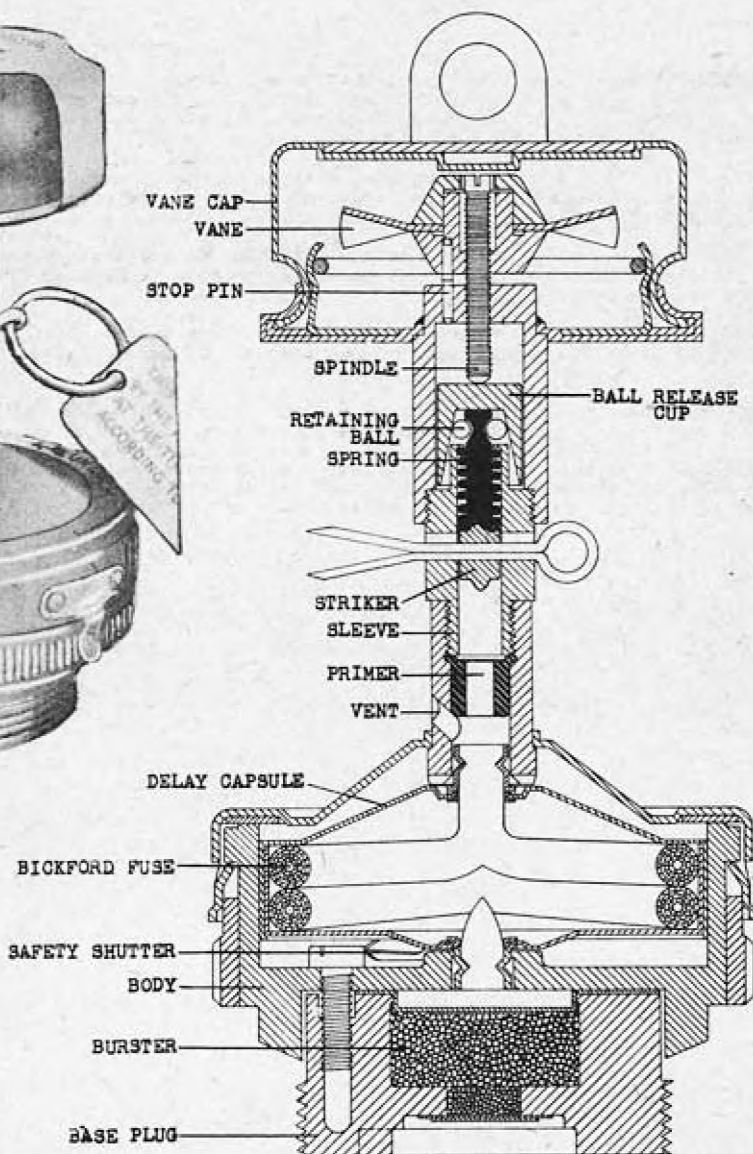
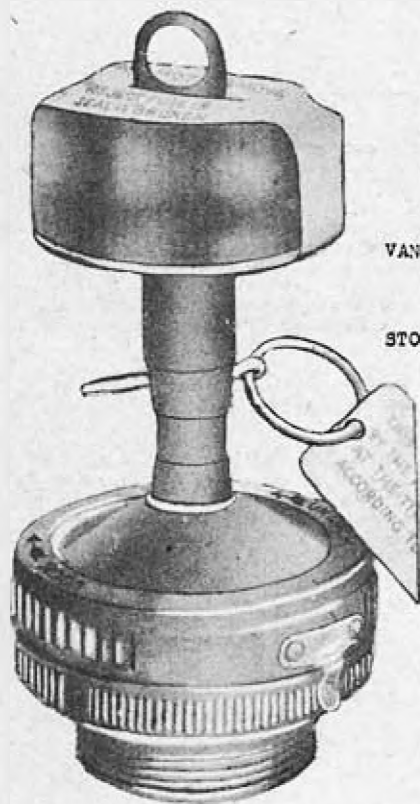


# BRITISH TAIL FUZE NO. 847





# BRITISH NOSE FUZE NO. 848



BOMBS USED IN . . . . 4.5" Flare  
 5.5" Flare  
 7.0" Hooded Flare  
 4.5" Photoflash Bomb  
 No. 1 Cluster Mk I

FUNCTIONING . . . . Aerial burst

ARMED CONDITION . . . . When the vane cap and safety pin is removed (still requiring 10 vane revolutions to function).

ARMING TIME . . . . 10 vane revolutions

MAX. BODY DIAMETER. . . 3.0"

OVERALL LENGTH . . . . 5.25"

COLOR . . . . . Aluminum vanes and vane assembly, black vane cap, brass throat and upper fuze body, and aluminum lower body and base piece.

BRITISH NOSE FUZE**NO. 848**

Mk V.

(For earlier Marks see  
REMARKS)

(Service)

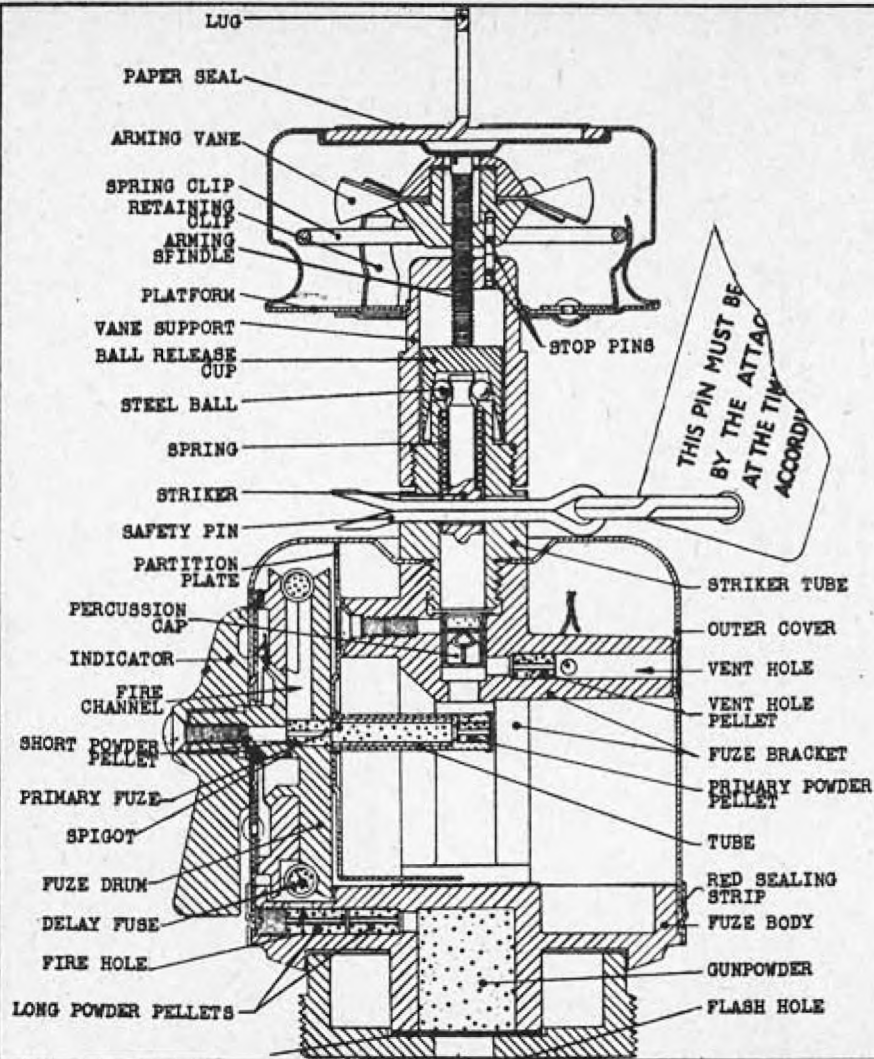
DESCRIPTION: The fuze consists of a vane assembly, throat and upper fuze body, and lower fuze body and base piece. There are 10 small vanes of sheet steel which are attached to the vane hub to which is also attached the arming spindle. Around the vanes is a ring soldered to three clips to prevent damaging the vanes and to hold the vane cap on. The spindle threads down into the throat and holds down a brass retaining cap. The retaining cap holds two retaining balls in grooves in the upper part of the striker which is spring-loaded down. Through the throat and the striker passes a safety pin. In the lower part of the throat is the primer, which flashes down to a delay train housed in the lower fuze body. To the lower fuze body is screwed the base piece housing the magazine.

OPERATION: When the flare is put in the plane the safety pin is removed. Upon release the vane cap is pulled off and the vanes are free to rotate, threading the spindle out of the throat. When the spindle has moved out, the retaining cap falls forward under pressure from the retaining balls, releasing the two retaining balls and allowing the striker to hit the primer. The primer fires the delay train, which burns out and flashes down to the magazine firing the fuze.

REMARKS: (1) The delays, housed in capsules, vary from 4.0 to 32.5 seconds, depending on the capsule used.

(2) The Mk IV differs from the Mk V in that instead of the arming spindle holding down the ball retaining cap, it has an arming cone which moves down inside a ball cage and holds the retaining ball out, preventing the ball cage and spring loaded striker from moving down.

BRITISH NOSE FUZE NO. 849



BOMBS USED IN . . . . 4.5" Flare  
 No. 1 Cluster Mk I  
 FUNCTIONING . . . . Aerial burst  
 ARMED CONDITION . . . . When vane cap and safety pin  
 are removed.  
 MAX. BODY DIAMETER. . . 3.0"  
 OVERALL LENGTH . . . . 6.0"

BRITISH NOSE FUZE**NO. 849**

Mk II &amp; III

(Service)

**DESCRIPTION:**

The vane and vane assembly consist of a vane cap which is held on three retaining clips, the vanes, and the arming spindle. To the retaining clips is soldered a steel ring to prevent damaging the vanes which are of sheet steel and are staked to the arming spindle. The spindle threads into the arming vane support and down onto the ball retaining cap which holds four retaining balls in the groove in the top of the spring-loaded striker. A safety pin passes through the arming vane support and the striker. Below the striker is a percussion cap which flashes straight down to the primary powder pellet. At right angles to the flash channel below the cap is a vent hole and vent hole pellet. This vent hole leads to the outside, but is sealed by the outer cover in the unfired condition. At the outer end of the primary pellet chamber is a short powder pellet which flashes through a flash channel in the fuse drum to the length of Bickford type time fuse contained in a lead foil sheath surrounding the fuse drum. From the timing fuse to the long powder pellets leading to the magazine is a short fire hole. In the lower fuse body is housed the magazine. On the side of the fuse on the outside is a graduated scale from 0 - 95 seconds with an indicator which moves around it, thus setting the fuse. Joining the outer cover and fuse body is a red sealing disc.

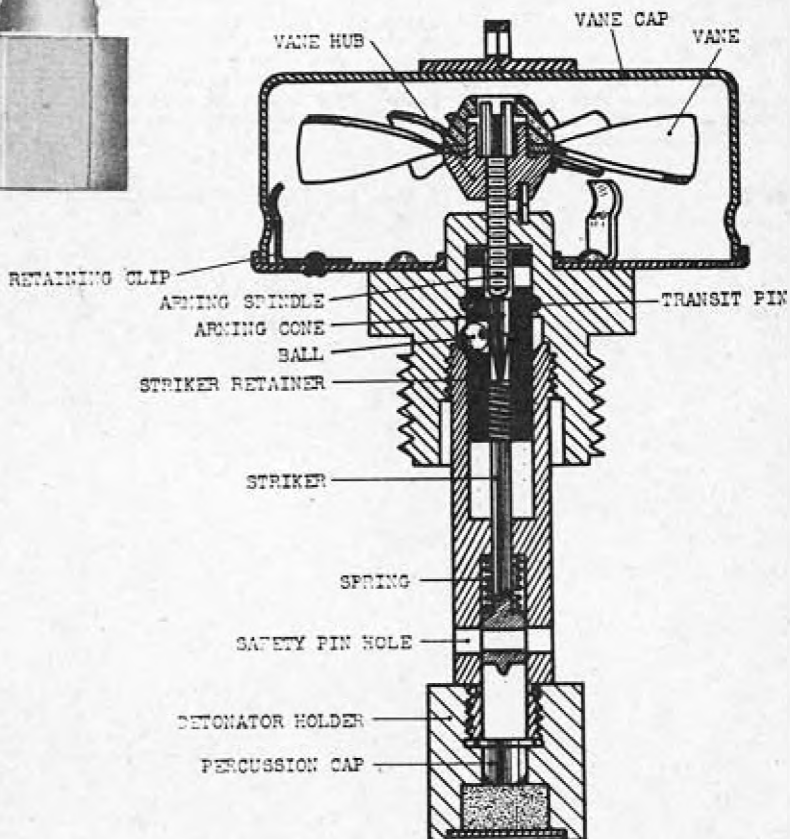
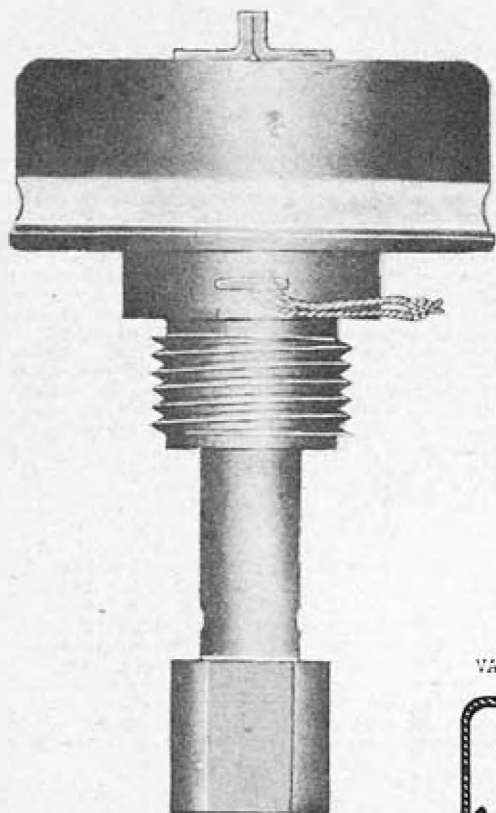
**OPERATION:**

When the flare is put in the plane the indicator on the side is set at the desired delay, and when it is released the safety pin and vane cap are removed. As the flare falls the vanes rotate the arming spindle out and allow the ball retaining cap to be moved away by the pressure of the balls holding up the spring loaded striker. The striker is then freed and hits the percussion cap which flashes down and fires both the vent hole pellet and the primary powder pellet. The products of combustion break the seal of the vent hole in the outer body. The flash passes to the short powder pellet through the flash channel to the delay fuse. This burns in a clockwise direction and flashes through the fire hole into the lower fuse body and along the long powder pellets and fires the magazine.

**REMARKS:**

(1) Mk III time setting disc is calibrated from 0 - 70 seconds; includes a safe setting.

# BRITISH NOSE FUZE NO. 855



BOMBS USED IN . . . . 400 lb. S.C. Mk I/A  
 "Flying Cow"  
 FUNCTIONING . . . . Aerial burst  
 ARMED CONDITION . . . . When the safety pin is removed and the safety cap is off  
 FUZZES USED WITH . . . . None  
 MAX. BODY DIAMETER. . . . 2.75"  
 OVERALL LENGTH . . . . 4.5"  
 COLOR . . . . . Brass upper body, steel lower body, black vane cap.

BRITISH NOSE FUZE**NO. 855**

Mk I

(Service)

**DESCRIPTION:** The fuze has a black vane cap on which is stamped the number and Mark of the fuze. This is held on by three retaining clips riveted to the shoulder of the upper fuze body. The steel steel vanes are attached to the vane hub connecting to the top of the arming spindle. The arming spindle holds down a black plastic arming cone which rests in a striker retainer and holds out three retaining balls. The striker retainer is screwed to the upper end of a spring-loaded striker. A safety pin hole passes through the body and also the striker. The striker retainer is grooved in order to accommodate a transit pin. To the bottom of the body is screwed a detonator holder which carries the percussion cap. This fits into the float.

**OPERATION:** The transit pin is removed when the bomb is put in the plane. On release the safety cap is pulled and the vanes are then freed to rotate, threading the arming spindle up off the arming cone. The vanes and arming spindle rotate out and fall away. When the arming spindle has threaded up, the 3 retaining balls are cammed in by a shoulder on the fuze body and move the arming cone up. This allows the striker retainer to move down with the blunt spring-loaded striker and hit the percussion cap setting off the fuze.

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BOMBS USED IN . . . . (a) 4 lb. Smoke  
 (b) 100 lb. Smoke  
 FUNCTIONING . . . . All-ways action  
 ARMED CONDITION . . . Plastic cap and safety pin  
 removed.  
 FUZZES USED WITH . . . None  
 MAX. BODY DIAMETER. . 1.8"  
 OVERALL LENGTH . . . 2.0"  
 COLOR . . . . . Black plastic cap and fuse  
 body; tin magazine tube in  
 No. 854 fuse.

## BRITISH TAIL FUZE

NO.859

Mk. I

NO.854

Mk. I

(Service)

## DESCRIPTION:

This fuse, which is of the "all-ways" type, has a bakelite body, waisted to form two chamfered flanges, and is threaded at its lower end to permit it to be screwed into the fuse adapter. The fuse body houses a hollow cylinder, at the lower end of which is a detonator, located over a flash hole in the body of the fuse. The firing pin is positioned in the cylinder, and is split at its lower end to form a double striker. The striker is held away from the detonator by a light creep spring, which also is housed in the hollow cylinder.

The upper end of the striker terminates in an enlarged head having a seating for a lead ball, which is held in position by the concave under-surface of a bakelite closure disc screwed into the top of the fuse body. Just below the striker head, the stem of the striker is drilled to receive a safety pin, which extends through the fuse body and has an enlarged head housed in the waist of the fuse body. A short length of webbing tape, which is wound around the waist of the fuse body, is secured to the head of the safety pin. A lead sleeve, curved to fit into the waist of the fuse body, is secured over the free end of the webbing tape.

A bakelite safety cap is fitted over the fuse body and has a fabric drogue attached to it by adhesive tape.

## OPERATION:

When the bomb is released from the Small Bomb Container, the safety cap of the fuse is drawn off by the action of air resistance on the fabric drogue. The lead sleeve on the webbing tape attached to the safety pin causes the free end of the tape to clear the waisted portion of the fuse body and to be caught in the air stream, thus withdrawing the safety pin. The fuse is now armed, with the lead ball and the striker held away from the detonator by the creep spring only.

On impact with the target, the momentum of the lead ball and the striker, overcoming the resistance of the creep spring, causes the striker point to pierce and fire the detonator. The flash from the detonator passes through the flash hole in the fuse body, initiating the action of the bomb.

If the bomb falls on its side, the ball, striker, and cylinder move sideways as an assembly, the ball riding up the curved surface of the closure disc, the cylinder riding up the curved surface of the body. The striker thus operates and fires the detonator.

None impact would cause the hollow cylinder to move down against the creep spring and impinge the detonator on the striker.

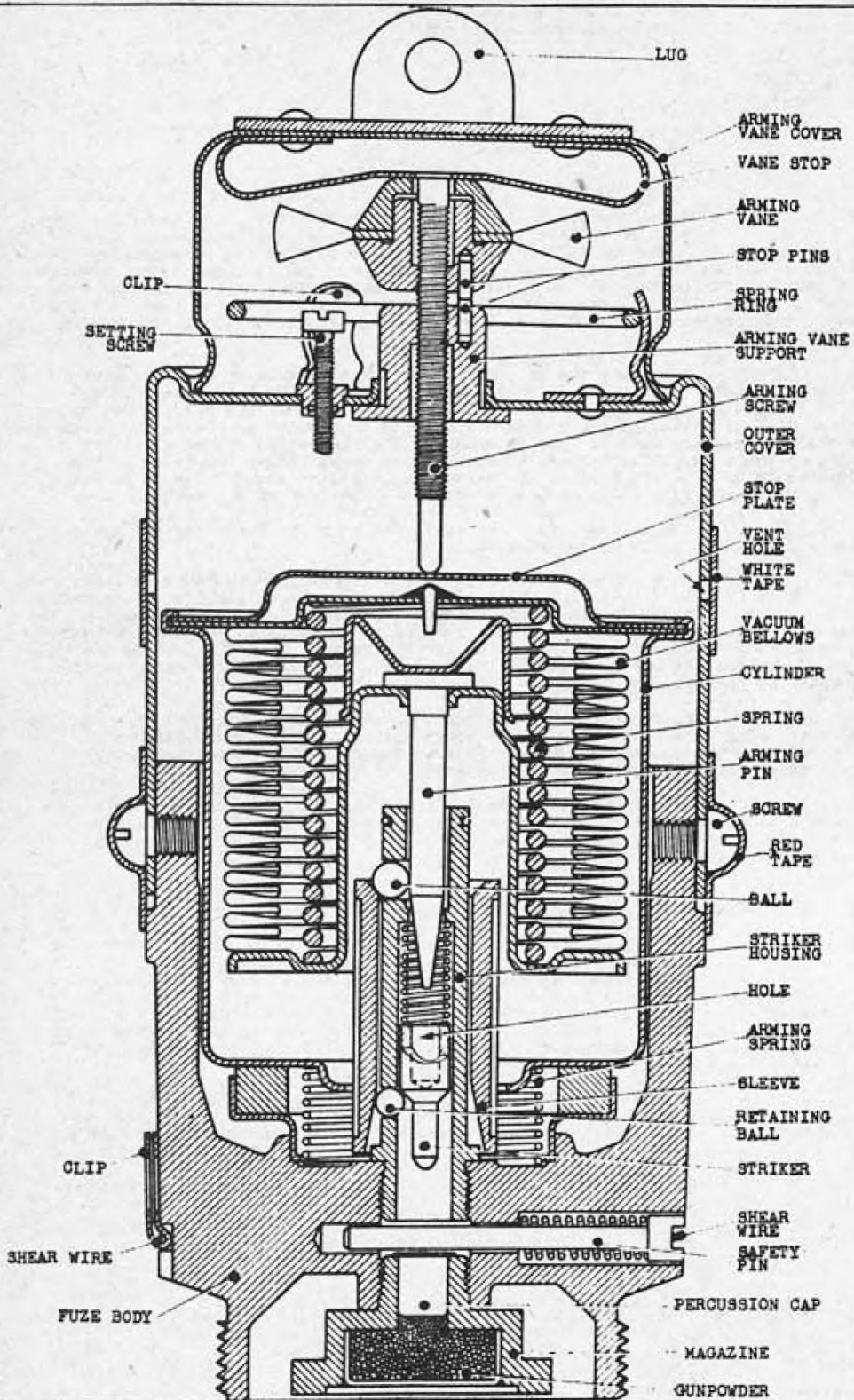
## REMARKS:

The No. 854 Mk I is identical to the No. 859 Mk I, except that the method of arming differs slightly. In the No. 854 Mk I, both the safety cap and safety pin are spring-loaded. The safety cap holds the safety pin in place and is itself retained by an arming fork which engages the cap with the fuse body. The arming fork is withdrawn as the bomb is released from the Small Bomb Container, allowing the safety cap and safety pin to be ejected by their springs. The fuse is now armed. On impact with the target, its action is identical with that of the No. 859 Mk I fuse.

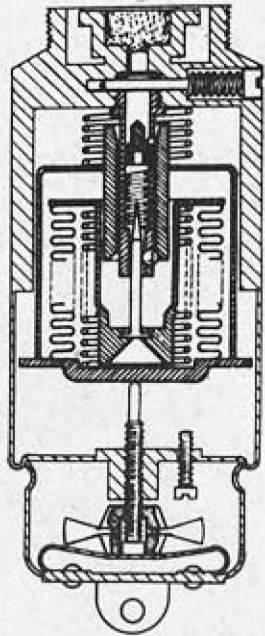
The No. 854 Mk I fuse has a long tubular burster screwed and cemented to its lower portion. This burster tube contains a powder pellet and about 8 oz. of gunpowder. It is approximately 3 $\frac{1}{2}$ " long and the tubular portion is 0.9" in diameter.

See page 94, "Smoke, 4 lb." for illustration of fuse in bomb.

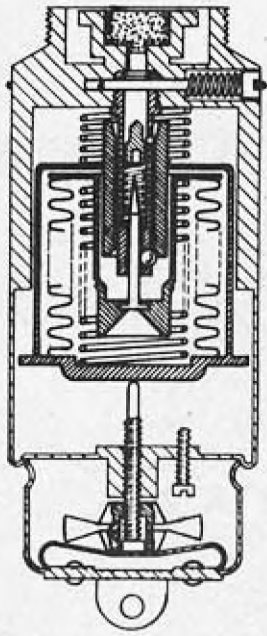
# BRITISH NOSE FUZE NO. 860



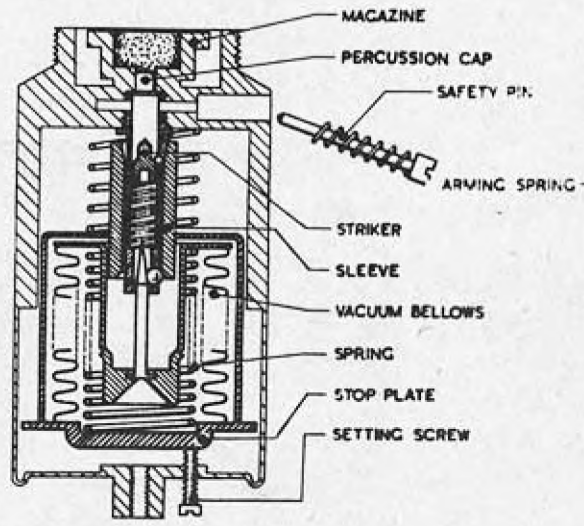
# BRITISH NOSE FUZE NO.860



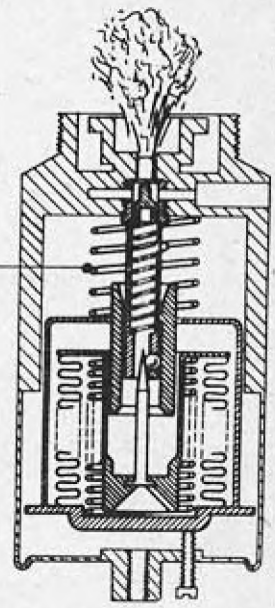
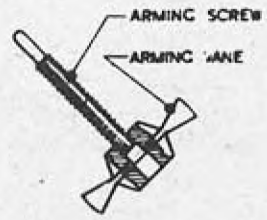
**A**  
AT GROUND LEVEL  
SAFETY PIN IN FUZE



**B**  
AT ALTITUDE  
ON CARRIER



**C**  
ARMED - JUST  
AFTER RELEASE



**D**  
AT INSTANT  
OF FIRING

# BRITISH NOSE FUZE NO.860



BOMBS USED IN . . . . (a) T.I.250 lb; may also be used in flares and clusters.  
 (b) No. 4 Mk I Cluster.  
 (c) 500 lb. No. 8 Mk I Cluster

FUNCTIONING . . . . Aerial burst; barometric.

ARMED CONDITION . . . Vane cover, vanes, and safety pin removed.

FUZZED USED WITH . . . None

MAX. BODY DIAMETER. . . 2.75"

OVERALL LENGTH . . . 6.5"

COLOR . . . . . Black vane cap; aluminum upper body; zinc lower body.

## BRITISH NOSE FUZE

**NO. 860** - Mk. I & II

**NO. 867** - Mk. I (TAID)

**NO. 885** - Mk. I (TAID)

**NO. 896** - Mk. I

(Service)

**DESCRIPTION:** The fuse consists of a body into which is screwed a striker housing and a magazine containing gunpowder and housing a percussion cap. Inside the striker housing is a spring-loaded striker retained in the cocked position by three retaining balls located in holes in the striker housing. These balls engage a sloping shoulder on the striker and the tapered internal surface of a sleeve surrounding the striker housing. The sleeve is held against axial movement, while the striker is in the cocked position, by three larger balls which are located in three further holes in the striker housing, these larger balls engaging the parallel portion of a cone-ended arming pin secured to a boss in the end of a vacuum bellows. The non-pointed end of the striker has a hole into which the pointed end of the arming pin can enter.

One end of the vacuum bellows, together with a stop plate, forms the closed end of a cylinder which passes over the striker housing and abuts against a washer located in a cup. An arming spring is compressed between the cylinder and the fuse body. Inside the vacuum bellows is a spring which controls the expansion or contraction of the bellows by atmospheric pressure.

The cylinder, when the fuze is unarmed, is held down towards the magazine by an arming screw which is screwed through an arming vane support carried by a thin outer cover attached to the fuze body by screws.

The arming screw supports an arming vane so mounted on the arming screw that it is permitted approximately half an inch of free travel before it locks against the head of the arming screw. Two stop pins, one projecting from the arming vane support and the other from the hub of the arming vane, prevent the arming vane from binding against the arming vane support.

The arming vane is protected against damage, premature rotation, and freezing by an arming vane cover which is bedded against the outer cover of the fuze. The arming vane cover is fitted over three clips riveted to the outer cover. A vane stop, riveted to the inside of the arming vane cover, prevents premature rotation of the arming vane due to vibration. A lug is provided on the arming vane cover for attachment to the fuze setting control link of a bomb carrier.

The outer cover has four vent holes to permit air to escape from inside the cover, thereby relieving excess pressure which builds up inside the fuze while the fused weapon is falling, after the arming screw has fallen away. The vent holes are covered by white adhesive tape on which in black letters is the following instruction: "TO BE REMOVED AFTER FLARE IS FIXED ON CARRIER".

A safety pin is housed in the fuze body and is located between the striker and the percussion cap so that, should the striker be prematurely released, the safety pin will prevent its firing the cap. The safety pin is held in place by a shear wire located in a groove round the fuze body and in a slot in the head of the pin. A spring, housed in the body, is compressed beneath the head of the safety pin. A clip is mounted on the shear wire and can slide along the wire.

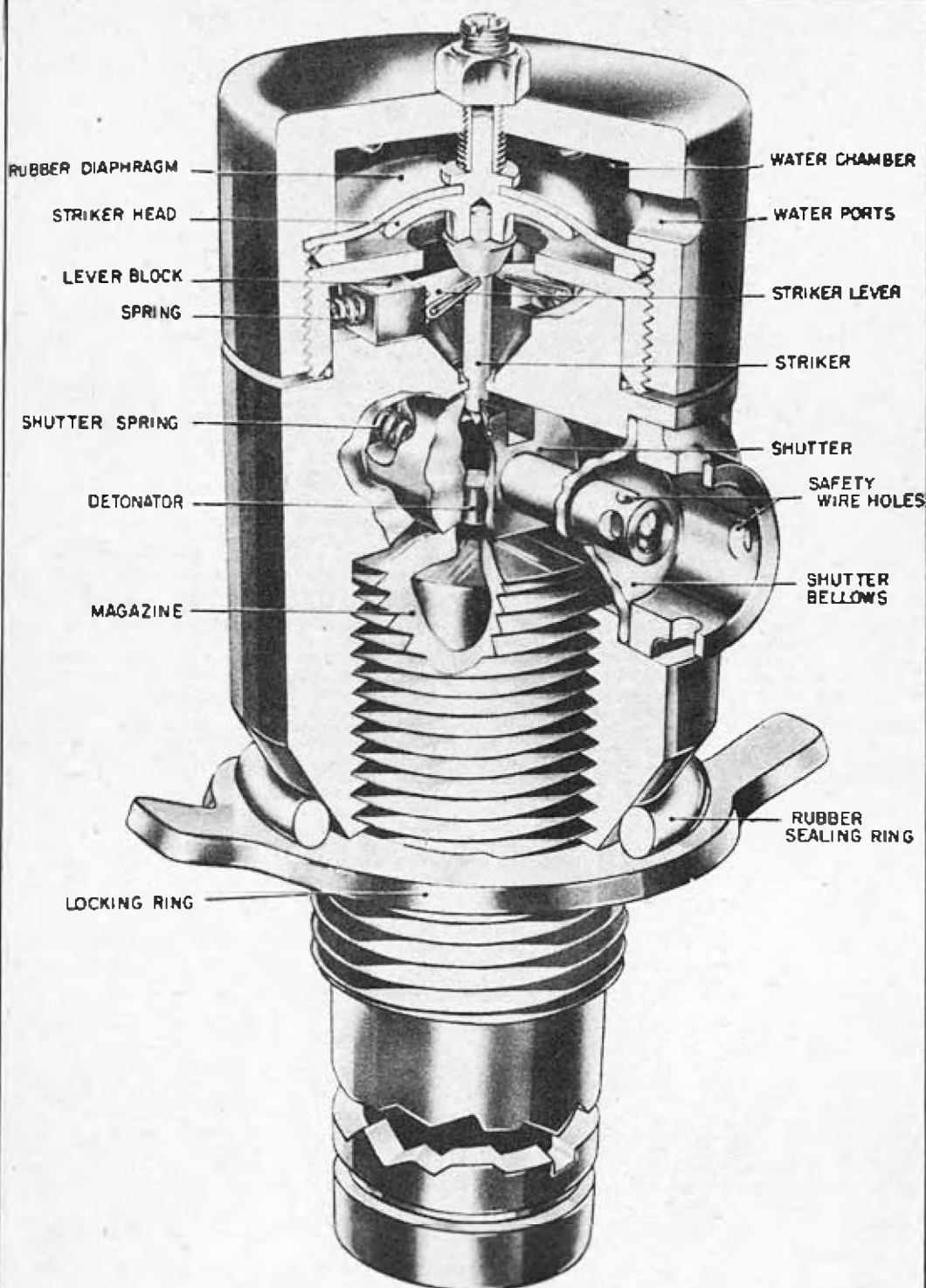
**OPERATION:** When the fused weapon is dropped from the plane, the arming vane cover is pulled clear leaving the arming vane exposed, and the shear wire is broken, allowing the spring to eject the safety pin. The arming vane then rotates freely on the arming screw until it becomes locked on the head of the arming screw, after which the screw rotates with the vanes until they both fall away from the fuze. The cylinder, together with the vacuum bellows, will then have been moved by the arming spring so that the stop plate rests against the inner end of the setting screw. This movement of the cylinder withdraws the arming pin so that the balls engaged by the pin rest against the cone-shaped end of the pin.

As the weapon continues to fall, atmospheric pressure increases, and the vacuum bellows contracts, thus compressing the spring in the bellows and withdrawing the arming pin. When the weapon reaches a region of the predetermined barometric pressure, the arming pin will have moved to a position such that the balls are pressed inside the striker housing by the sleeve. This permits the sleeve to be squeezed, by the action of the striker spring, away from the magazine end of the fuze until the balls engaging the striker are freed and fall away. The striker is released and is forced by its spring against the percussion cap which fires the gunpowder in the magazine.

**REMARKS:**

1. The No. 867 Mk I is a TAIL fuze. Instead of an arming vane, it incorporates a 'T' bar which engages an arming fork on a standard type British Tail Unit.
2. The No. 860 Mk I differs from the Mk II in that the zinc colored section of the fuze is of greater diameter than the rest of the body.
3. The No. 885 Mk I is the same as the No. 867 Mk I except that it incorporates a 2-second delay.
4. The No. 896 fuze is the same as the No. 860 Mk II except that a delay element has been introduced between the cap and the magazine. The fuze is designated either A2.A2.014, the figure in each case indicating length of delay in seconds.

## BRITISH TAIL FUZE NO. 862



BOMBS USED IN . . . . A.S. 600 lb. Mk I  
 FUNCTIONING . . . . Hydrostatic; fires at 30 ft  
 depth.  
 ARMED CONDITION . . . Arming wire withdrawn.  
 FUZES USED WITH . . . None  
 MAX. BODY DIAMETER. . 2.0"  
 OVERALL LENGTH . . . 5.5"  
 COLOR . . . . . Brass

**NO.862**

Mks I and II

(Service)

**DESCRIPTION:** The fuze consists of an upper portion housing a water chamber with six water entry ports located in its side walls. This upper portion is sealed from the lower fuze body by a rubber diaphragm which bears downward against the top of the striker. The striker is held in the raised position by two striker levers. One end of each lever engages a groove in the striker. The other end is pivoted in a spring-loaded lever block, which rides in a horizontal keyway. A detonator chamber housing a detonator shutter is located below and at right angles to the striker. Cut in the upper side of the detonator shutter is a groove in which rides the end of the striker. In the unarmed condition the detonator shutter is held out of line with the striker by a safety wire. A shutter bellows is located on the outboard end of the shutter; and on the other end a shutter spring. This spring resists the force of water pressure exerted on the shutter bellows and accomplishes the delay arming feature of the fuze. The lower part of the fuze body and the upper part of the magazine are threaded for insertion into the bomb. A rubber sealing ring and a locking ring are screwed on these threads.

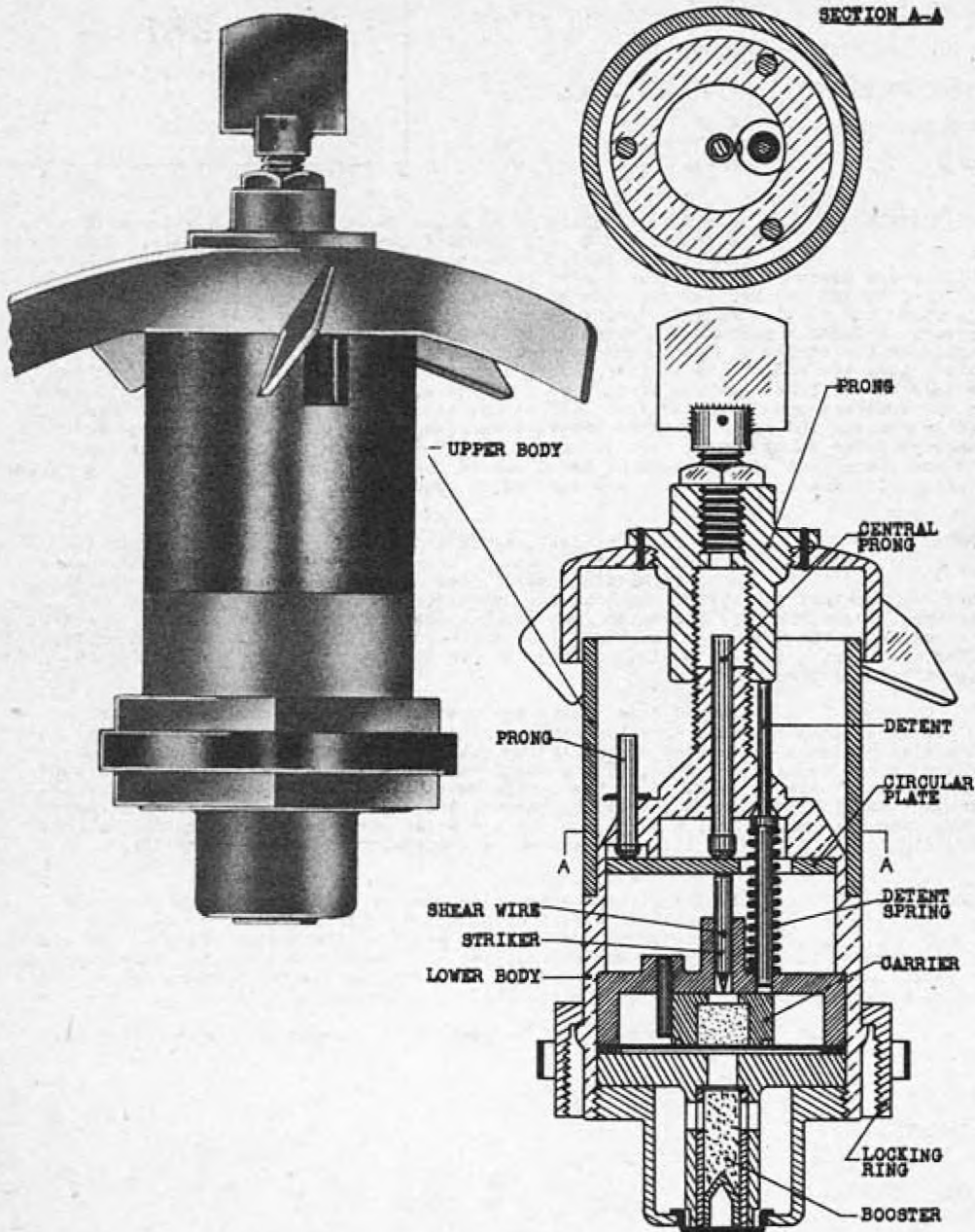
**OPERATION:** This fuze is designed so that it will not function, nor arm, except on water travel. Impact with a hard surface will cause a spring-loaded detent located above the detonator shutter to move down against its spring and lock the detonator shutter out of line with the striker. The striker is prevented from passing dead center on hard surface impact by a shoulder on the detonator shutter. Upon the termination of the force of inertia after such impact the spring-loaded lever blocks and levers return the striker to its raised position.

As the fuze enters the water, water flows in the entry ports in the water chamber and exerts hydrostatic pressure on the rubber diaphragm. At the same time pressure is exerted on the shutter bellows. Pressure on the rubber diaphragm forces the striker down, moving the levers downward and the lever blocks outward against their springs. When the levers have passed dead center the springs behind the lever blocks force the blocks inward, and the levers then snap the striker down. The fuze will fire, however, only after water pressure on the shutter bellows has aligned the detonator with the striker by compressing the shutter spring.

**REMARKS:** 1. The anti-countermining chamber is designed to prevent the hydrostatic fuze from functioning from blast pressure from the explosion of another bomb nearby. A mushroom valve in the top of the chamber is closed by the sudden increase in hydrostatic pressure caused by such an explosion. When this sudden increase passes, however, the valve opens again, and normal water pressure is allowed to exert its force against the fuze.

2. The fuze is set to explode at a depth of 30 feet of water. This setting cannot be altered.

# BRITISH NOSE FUZE NO. 866



BOMBS USED IN . . . . . A.S. 36 lb. Mk I & II  
 FUNCTIONING . . . . . Impact; instantaneous  
 ARMED CONDITION . . . . . When vanes are off  
 ARMING TIME . . . . . 7 revolutions of the vanes  
 FUZZES USED WITH . . . . . None  
 MAX. BODY DIAMETER. . . . . 2.26"  
 VANE SPAN . . . . . 3.75"  
 OVERALL LENGTH . . . . . 5.25"  
 COLOR . . . . . Brass vanes, black plastic  
 upper body, and brass lower  
 body and locking ring.

BRITISH NOAR FUZE

NO.866

Mk I

(Obsolescent)

## DESCRIPTION:

The vanes and vane cap are cast together, there being 6 vanes. The vanes are staked to a threaded collar which fits down into the fuse body and threads onto a striker extension collar. A

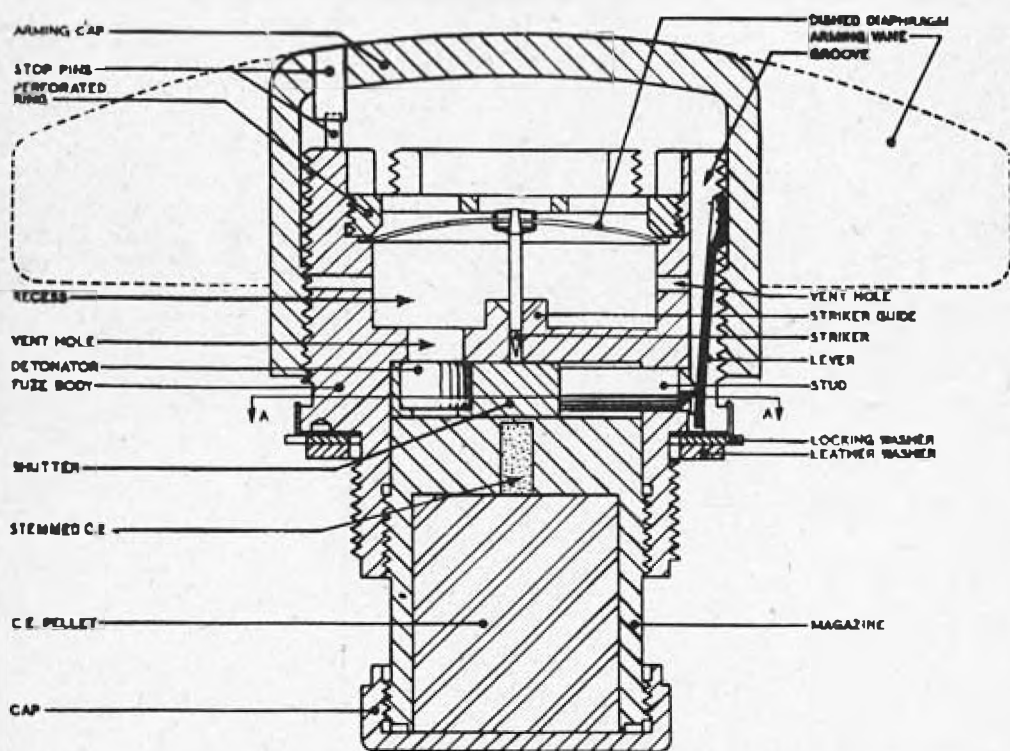
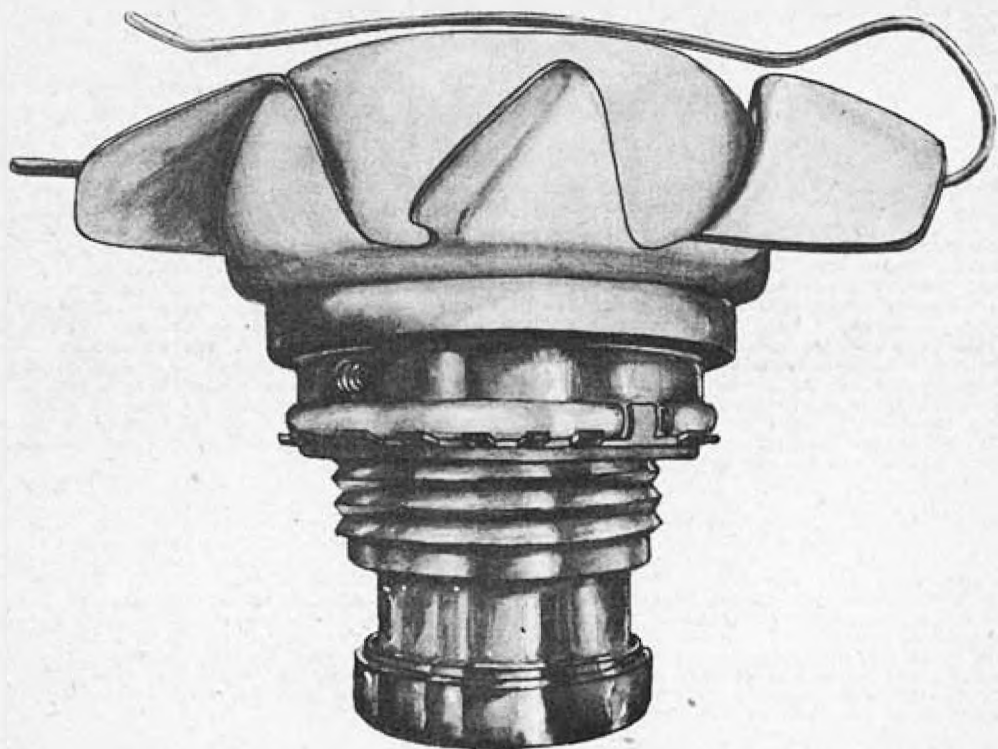
closing screw with a vertically flattened head closes the upper end of the collar. A plastic upper body is incorporated to prevent premature firing due to collision of the bombs with each other in the air. Inside this plastic upper body, projecting through the brass collar, are three plastic firing pin extensions through which pass a copper shear wire. A fourth projects up through the center of the striker extension collar. A detent, spring-loaded up, comes up beside the striker extension collar, and while in the unarmed position is held down by the threaded collar of the vane cap. It holds the spring loaded detonator shutter out of line. Below the striker extension collar is a circular plate resting on top of the striker, which is held in place by a shear wire. The detonator is carried in a shutter which is out of line with the striker in the unarmed condition. Extending down into the magazine is the booster cup which has a cone in the bottom, giving it a shape charge effect.

## OPERATION:

When the bomb is released from the plane, the safety wire is pulled and the vanes are then freed to rotate. After seven revolutions they fall away, allowing the spring-loaded detent

to move up out of the way of the detonator shutter which then lines up under the striker. On water impact, the light plastic upper body shears away, exposing the four plastic firing pin extensions. On impact with a hard surface, one or more of these extensions shear their shear pins and bear down against the circular plate, which transmits the pressure to the striker. The striker shear wire is broken, allowing the striker to be forced into the detonator. The flash from the detonator sets off the booster and magazine, the blast from which is directed into the exploder tube by the cone in the base of the booster.

# BRITISH NOSE FUZE NO. 873



BOMBS USED IN . . . . P 20 lb.  
 G.P. 40 lb.  
 FUNCTIONING . . . . Diaphragm operated  
 ARMED CONDITION . . . . When the vanes and vane cap  
 are off.  
 ARMING TIME . . . . 12 revolutions of the vanes  
 FUSES USED WITH . . . . None  
 VANE SPAN . . . . 3.75"  
 MAX. BODY DIAMETER. . . 1.75"  
 OVERALL LENGTH . . . . 3.0"  
 COLOR . . . . . Unpainted steel vanes and  
 vane cap, brass body.

BRITISH NOSE FUZE

NO. 873

Mk I

(Service)

DESCRIPTION:

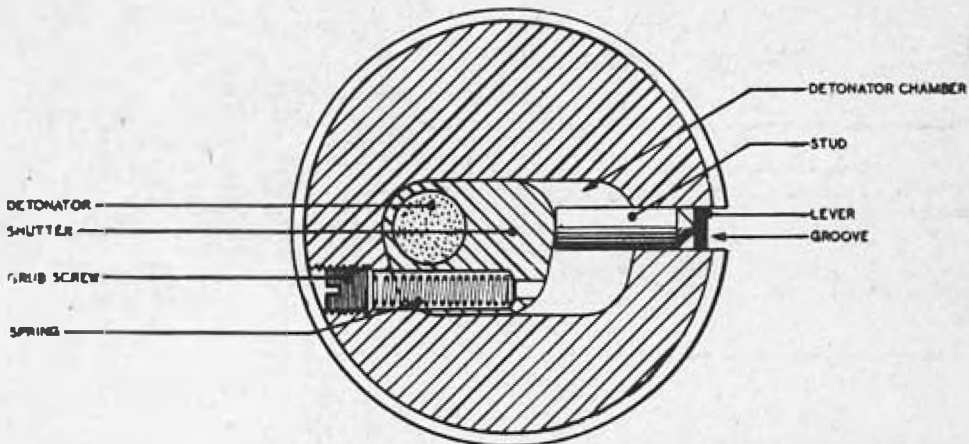
The vanes and vane cap are of unpainted steel with the 5 vanes cut out of one piece of sheet steel and soldered onto the cap. In the top of the cap is a small stop pin which hits a stop pin on the fuse body and prevents the cap from being screwed down too tightly. The vane cap threads all the way down the fuse body, which is made of brass. In the upper part of the fuze body is a sheet metal diaphragm with a needle striker soldered to its center. This rests on a shoulder in the fuze body and is covered by a sheet steel retaining disc in which 7 holes are drilled to allow air passage. The retaining disc in this fuze is staked in. In the lower fuze body is a detonator shutter moving in a chamber at right angles to the striker. In the unarmed position the shutter is out of line, with the detonator lined up under a safety flash hole. On one end of the shutter is the shutter spring and on the other a detent which holds the shutter out of line. The detent rests in a hole that leads to the outside and is held in the shutter chamber by a steel clip which rests in a longitudinal groove along the outside of the threaded fuze body. This clip is pivoted on its lower end and there is continual pressure exerted on it by the detent which, in turn is being forced out by the shutter and shutter spring. Below the detonator is a flash channel leading to the magazine. Around the lower fuze body is a leather securing ring and a locking ring.

OPERATION:

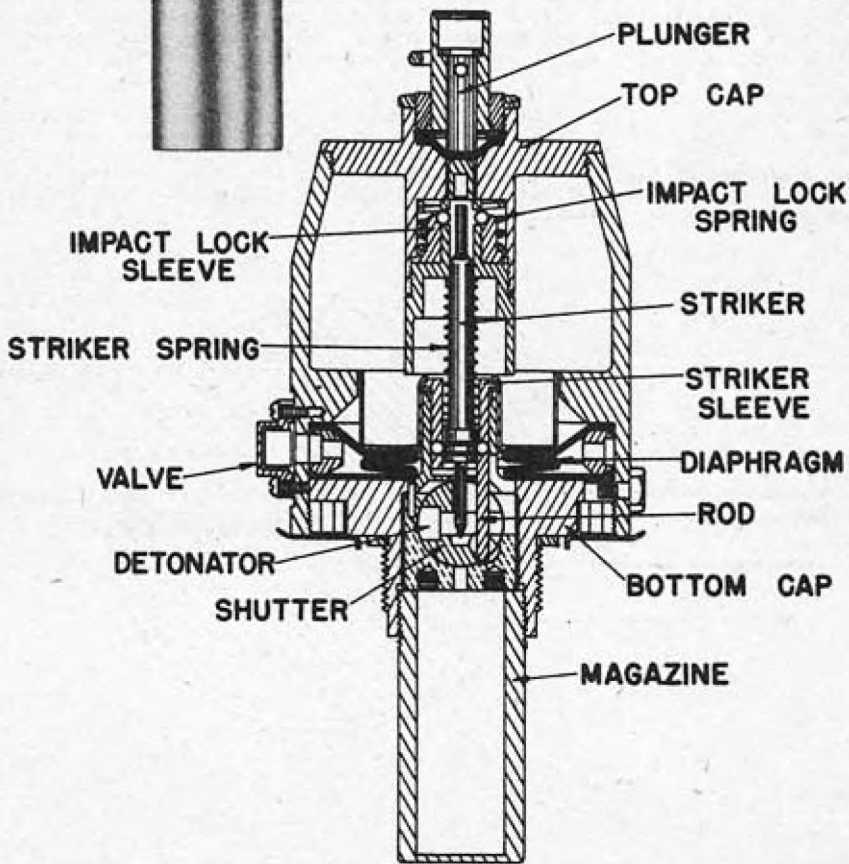
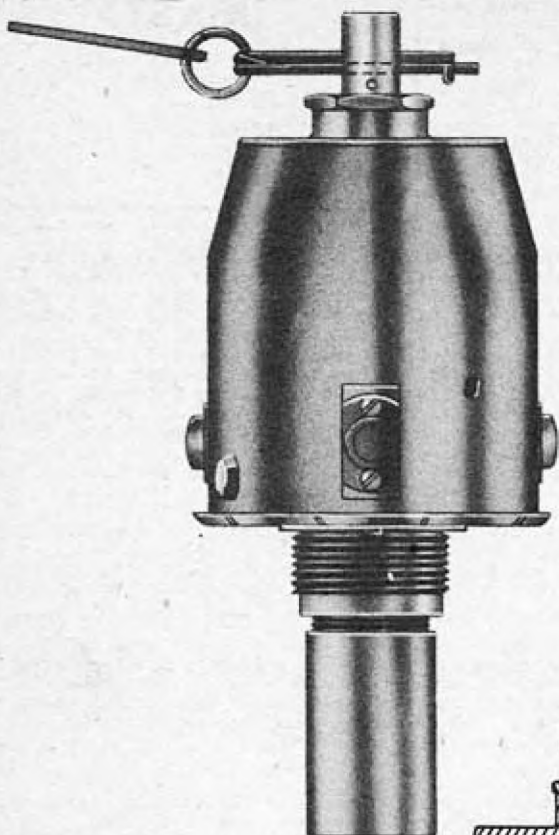
When the bomb is dropped from the plane the safety wire is pulled out and the vanes and vane cap are free to rotate. After about 11 rotations of the vanes, the vane cap releases the steel clip in the fuze body, allowing the clip to be pivoted down by the detent under pressure of the shutter and shutter spring. The detent is thus forced out of the fuze, and the shutter is allowed to align itself with the striker.

REMARKS:

This fuze is designed to give aerial burst functioning on all but the first bomb of a stick or cluster. The first bomb explodes on impact, and blast pressure from its explosion snaps the diaphragm of the fuze in the bomb next above it. Blast pressure from the explosion of the second bomb fires the third, etc., giving a "stepped" explosion effect to the whole stick or cluster.



# BRITISH TAIL FUZE NO. 895



BOMBS USED IN . . . . (a) A.S. 100 lb. Mk VI  
(b) A.S. 100 lb. Mk IV  
A.S. 600 lb. Mk I  
A.S. 25 lb. Type A Mk I

FUNCTIONING . . . . Hydrostatic

ARMED CONDITION . . . When the safety wire is removed; requires hydrostatic pressure to function.

FUZES USED WITH . . . None

MAX. BODY LENGTH . . .

OVERALL LENGTH . . .

COLOR . . . . .

DESCRIPTION: Around the sides of the fuse body are water entry ports, protected by small spring loaded valves which serve as anti-countermining devices. The water ports lead into a rubber bellows which rests on a shoulder of the fuse body and under the spring housing. Inside, and resting on the upper lip of the spring housing, is a moving sleeve with two holes drilled in it to accommodate two retaining balls, which rest in a groove of the spring-loaded striker and hold it back. Around the moving sleeve is a stationary sleeve having a cut-away top into which the retaining balls can move. On the upper end of the striker is a lock sleeve which is held down by a spring and which holds retaining balls in a fixed housing. This device functions when the bomb lands on its tail, preventing the action of the fuse. Through the top of the fuse is a drilled hole into which is fitted a safety plunger through which the safety and transit wires are fitted. Below this is a rubber disc which seals the fuse body. In the unarmed position the striker fits down into the detonator shutter and prevents it from moving into line. The detonator shutter is of the rotary type and is attached by a rod to the moving sleeve. Below the detonator is the magazine which is screwed into the lower part of the fuse.

OPERATION: When the bomb is put in the plane the transit wire is removed and a safety wire inserted. On release, this wire is pulled, and the fuse is armed. Upon entering the water, water begins to fill the bellows entering through the entry ports. As the bellows fills the spring housing is moved up carrying the moving sleeve with it. This moves the striker up out of the detonator shutter and compresses the striker spring. It also moves the shutter into line because it is attached to it by means of a small rod. When the bellows have expanded sufficiently to move the moving sleeve to the cut-away portion of the stationary sleeve, the striker came the retaining balls out and the striker hits the detonator and fires the fuse.

- REMARKS:
1. This fuse is designed to function at a mean depth of 18 feet within the range of 14 to 22 feet.
  2. The fuse will not fire on a normal hard surface impact as such an impact causes no movement of the operative mechanism. Should the bomb impact tail first, firing is prevented by the lock sleeve, lightly spring-loaded.
  3. Countermining, i.e. firing due to sudden increase in hydrostatic pressure resulting from the explosion of another bomb, is prevented by small spring loaded valves fitted over the water entry ports.
  4. The No. 875 fuse is similar to the No. 895, except that more positive detonator shutter action has been provided in the latter. The depth settings of the No. 875 are set by the manufacturer and are designed for different uses, as follows:

| <u>Designation</u> | <u>Color</u> | <u>Depth Setting</u> | <u>Use</u>              |
|--------------------|--------------|----------------------|-------------------------|
| No. 875A           | Red          | 18'                  | 100 lb. A.S. Mk IV      |
| No. 875B           | Blue         | 22'                  | 25 lb. A.S. Type A Mk I |
| No. 875C           | Green        | 30'                  | 600 lb. A.S. Mk I       |

REPLUSH TAIL FUZE

**NO.895**

**NO.875**

(Service)

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OBSOLETE NOSE AND TAIL PISTOLS

| Designation         | Bombs used In                         | Armed Condition                 | Functioning | Vane Span | Max. Body Diameter | Overall Length | Remarks  |
|---------------------|---------------------------------------|---------------------------------|-------------|-----------|--------------------|----------------|--|
| <u>TAIL PISTOLS</u> |                                       |                                 |             |           |                    |                |  |
| No. 5B              | R.L. 112, 250<br>520,500 lbs.         | Vanes off; red<br>ring visible  | Impact      | 4.6"      | 1.1"               | 4.0"           | A safety wire is removed when the bomb is loaded aboard the plane, and the vanes are freed on release. The vanes and vane cap rotate off. On impact the striker overcomes the creep spring and hits the detonator.                                 |
| No. 12              | SN 1400 lb.                           | Vanes off                       | Impact      | 7.5"      | 2.0"               | 20.5"          |  |
| <u>NOSE PISTOLS</u> |                                       |                                 |             |           |                    |                |  |
| No. 8               | R.L. 112 lb.<br>RAF 500 & 550<br>lbs. | Vanes off                       | Impact      | 6.0"      | 2.0"               | 4.9"           | A safety wire is withdrawn when the bomb is loaded aboard the plane, and the vanes are freed when the bomb is released. The vanes and vane cap rotate off, and on impact a shear wire is sheared, and the striker is allowed to hit the detonator. |
| No. 9               | R.L. 520 &<br>550 lb.                 | Vanes off                       | Impact      | 6.0"      | 2.0"               | 6.1"           |  |
| No. 13              | SN 1400 lb.                           | Vanes off                       | Impact      |           | 2.6"               | 14.7"          |  |
| No. 14              | HE Bombs                              | Vanes down; red<br>ring visible | Impact      | 4.6"      | 1.9"               | 3.8"           | The vanes are freed on release from the plane and screw the striker down. On impact, a pressure plate is driven down shearing a shear wire, and forcing the striker into the detonator.  |
| No. 15              | HE Bombs                              | Vanes down; red<br>ring visible | Impact      | 4.6"      | 1.9"               | 4.3"           |  |

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# APPENDIX I

BRITISH

DETONATORS

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## DETONATORS

The main explosive in aircraft bombs is relatively insensitive and to effect detonation a train of more sensitive explosives is normally used. The explosive train in British bombs may be either of two types:

- (a) The fuze-exploder-main charge type.
- (b) The pistol-detonator-exploder-main charge type.

The distinction between fuzes and pistols has been made in the introductions to both fuzes and pistols, but, to repeat briefly, fuzes have the initiating explosive charge incorporated in them; whereas pistols contain no explosive whatsoever, merely acting as a mechanical device to activate the initiating explosive in a detonator inserted separately in the bomb.

Bombs employing a pistol-detonator combination are generally shipped with the pistol in place without the detonator, which is inserted prior to loading on the plane after first removing the pistol. In small bombs (500 lbs. or under), the detonator generally fits into the exploder, whereas in larger bombs it is housed in a detonator holder which threads into the exploder container and is threaded itself to receive the pistol.

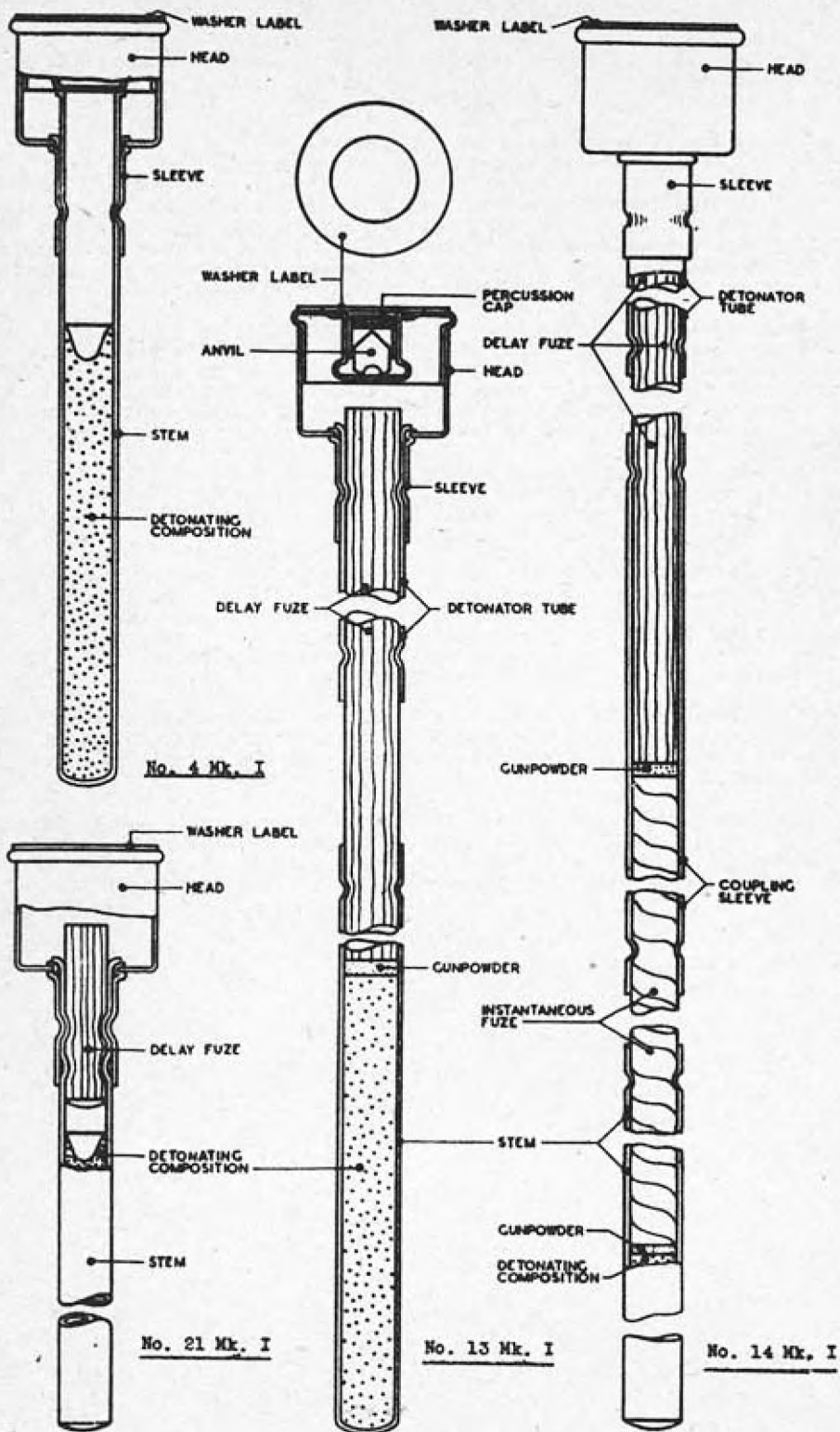
Detonators are of two types, the anvil type employed with pistols having a blunt striker, and the sensitive type employed with pistols having a needle striker. Furthermore, they may be instantaneous in functioning, or may have a delay of from .025 sec. to 11 sec.

The most sensitive explosive in the pistol-detonator firing train is usually contained in a cap and is fired by impact or friction; the flash from the cap composition firing a less sensitive composition known as detonating composition, which in turn initiates a still less sensitive explosive called the exploder which initiates the main charge. Sensitive type detonators, however, have no percussion cap or anvil.

Detonators are filled with very sensitive high explosives which will explode if they are subjected to sudden shock or even a light blow, or are subjected to heat. It is therefore essential that all detonators be handled with great care.

The composition usually used in British detonators is A.S.A. mixture, composed of lead azide and lead styphnate, Fulminate of mercury is also used. Formerly, C.E. (tetryl) and T.N.T. were used in the exploder, but the use of T.N.T. is being discontinued and C.E. alone is being used.

# ANVIL TYPE DETONATORS



# ANVIL TYPE DETONATORS

There are two classes of anvil type detonators, those which employ a No. 28 cartridge base, complete with percussion cap and anvil for their initiation, and those in which a percussion cap is housed over an anvil in a recessed plug, which screws into the head of the detonator. These two classes are called the "Cartridge base" and "Anvil plug" classes respectively.

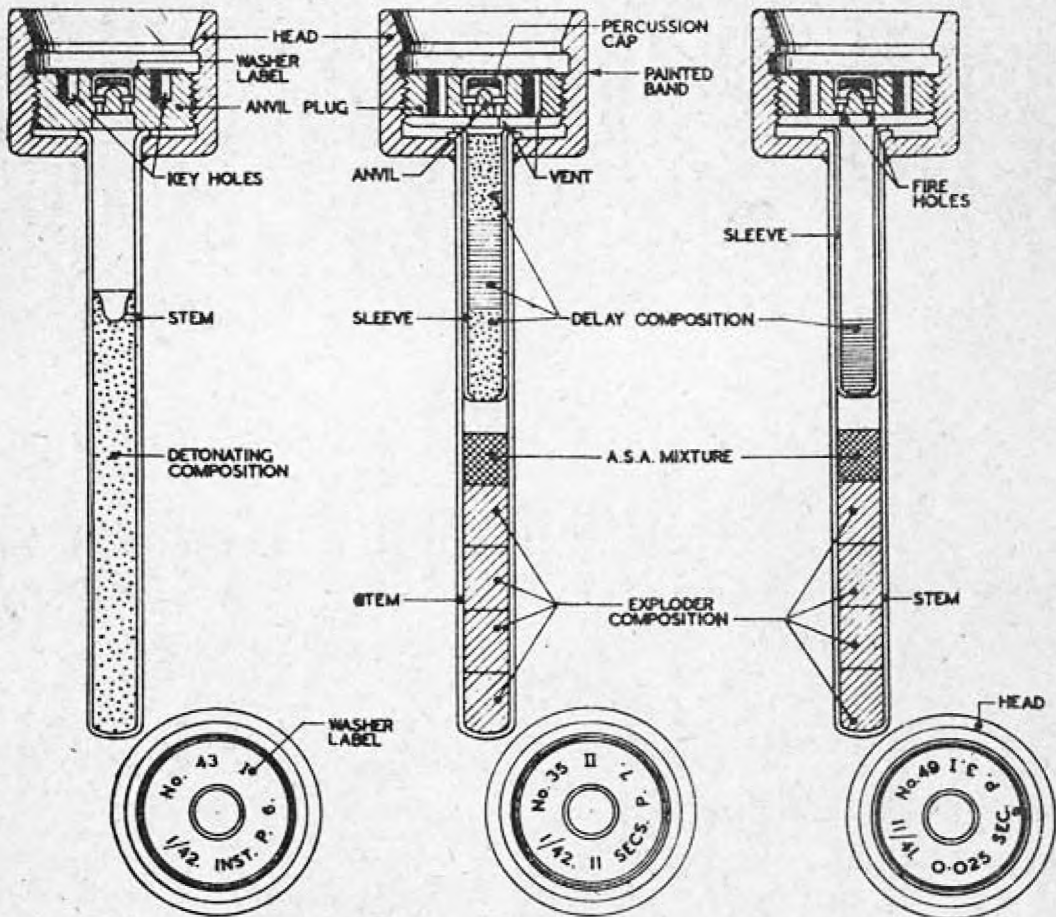
The cartridge base class was used in bombs which are now obsolete, whereas the anvil plug class is currently used in service bombs which employ the anvil type detonator.

Anvil type detonators of the cartridge base class are identifiable by a code of colors, associated with their delays. The code color is painted on the detonator head, and a corresponding colored washer label affixed to the head. The code of colors is as follows:

| Delay                            | Color  |
|----------------------------------|--------|
| Less than 1 second               | White  |
| 1 sec. and less than 2.5 sec.    | Yellow |
| 2.5 sec. and less than 11.5 sec. | Green  |
| 11.5 sec. to 15 sec.             | Blue   |

The anvil plug class of anvil type detonators is identifiable by a code of colors applied as a band, 3/8" wide, painted around the detonator head, and a correspondingly colored washer label, affixed to the plug, bearing the following particulars: type and mark number, date of filling, month and year, filling contractor's initials or recognized trade mark, lot number, and delay. The color code indicating delay is as follows:

| Delay         | Color  |
|---------------|--------|
| Instantaneous | White  |
| 0.025 seconds | Black  |
| 0.12 seconds  | Brown  |
| 1.0 seconds   | Yellow |
| 11 seconds    | Blue   |



## ANVIL TYPE DETONATORS

RESTRICTED

## Cartridge Base Class (Obsolete)

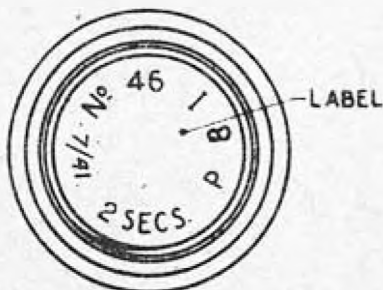
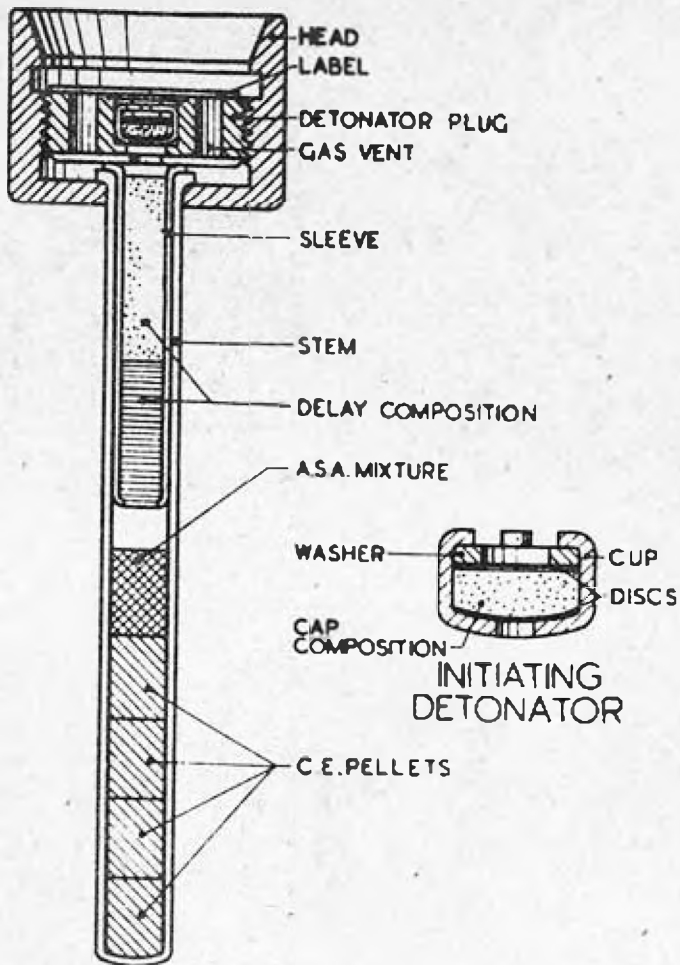
| <u>Detonator</u> | <u>Color on Head</u> | <u>Delay</u> | <u>Length</u> | <u>Filling</u>   | <u>Bombs Used in</u>  |
|------------------|----------------------|--------------|---------------|--|---|
| No. 4 Mk I       | White                | None         | 3.3"          | Cap composition, detonating composition                                | R.L. 112 lb., Mk VII and VIIC<br>G.P. 120 lb., Mks I and II<br>G.P. 250 lb., Mks I,II,& III<br>G.P. 500 lb., Mks I,II,& III<br>R.L. 112 lb. Mk VIF and VIIC |
| No. 13 Mk I      | Blue                 | 12 sec       | 7.1"          | Cap & detonating composition, delay and instantaneous fuze, gunpowder. |   |
| No. 14 Mk I      | Blue                 | 15 sec       | 13.6"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 120 lb., Mks I & II<br>G.P. 250 lb., Mks I,II,& III  |
| No. 18 Mk I      | White                | None         | 37.6"         | Cap & detonating composition, instantaneous fuze, gunpowder            | G.P. 500 lb., Mks I,II,& III  |
| No. 19 Mk I      | Green                | 2.5 sec      | 37.6"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 500 lb., Mks I,II,& III  |
| No. 20 Mk I      | Blue                 | 15 sec       | 37.6"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 500 lb., Mks I,II,& III  |
| No. 21 Mk I      | Yellow               | 1 sec        | 3.3"          | Cap & detonating composition, delay fuze and gunpowder                 | R.L. 112 lb., Mks VII & VIIC  |
| No. 22 Mk I      | White                | None         | 13.5"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 120 lb., Mks I & II<br>G.P. 250 lb., Mks I,II,& III  |
| No. 23 Mk I      | Green                | 2.5 sec      | 13.6"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 120 lb., Mks I & II<br>G.P. 250 lb., Mks I,II,& III  |
| No. 24 Mk I      | Blue                 | 12 sec       | 13.6"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 120 lb., Mks I & II<br>G.P. 250 lb., Mks I,II,& III  |
| No. 25 Mk I      | Yellow               | 1 sec        | 13.6"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 120 lb., Mks I & II<br>G.P. 250 lb., Mks I,II,& III  |
| No. 26 Mk I      | Blue                 | 12 sec       | 37.6"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 500 lb., Mks I,II,& III  |
| No. 27 Mk I      | Yellow               | 1 sec        | 37.6"         | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 500 lb., Mks I,II,& III  |
| No. 30 Mk I      | Blue                 | 15 sec       | 26"           | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 250 lb., Mks I,II,& III  |
| No. 31 Mk I      | Yellow               | 1 sec        | 26"           | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 250 lb., Mks I,II,& III  |
| No. 32 Mk I      | Blue                 | 12 sec       | 26"           | Cap & detonating composition, delay and instantaneous fuze, gunpowder  | G.P. 250 lb., Mks I,II,& III  |
| No. 33 Mk I      | White                | None         | 26"           | Cap & detonating composition, instantaneous fuze, gunpowder            | G.P. 250 lb., Mks I,II,& III  |

ANVIL TYPE DETONATORS

Anvil Plug Class (Service)

| <u>Detonators</u> | <u>Color on Head</u> | <u>Delay</u> | <u>Length</u> | <u>Filling</u>  | <u>Bombs Used In</u>  |
|-------------------|----------------------|--------------|---------------|---|---|
| No. 35 Mk I       | Blue                 | 11 sec       | 3.5"          | Cap, delay, and exploder composition, A.S.A. mixture, and gunpowder | S.A.P. 250, 500 lb. Mk V<br>G.P. 250, 500 lb. Mk IV; 1000 lb. Mk I-IV; 1900 lb. Mk I-II; 5000 lb. Mk I-II<br>M.C. 250 lb. Mk I-II; 500 lb. Mk I-XII; 1000 lb. Mk I-II; 4000 lb. Mk I-II<br>H.C. 2000 lb. Mk II-III; 4000 lb. Mk I-IV; 8000 lb. Mk I-II; 12,000 lb. Mk I-II  |
| No. 36 Mk I       | White                | None         | 3.5"          | Cap and exploder composition, A.S.A. mixture, and gunpowder         | G.P. 40 lb. Mk I-III; 250, 500 lb. Mk IV; 1000 lb. Mk I-IV; 1900, 4000 lb. Mk I-II.<br>M.C. 250 lb. Mk I-II; 500 lb. Mk I-XII; 1000, 4000 lb. Mk I-II<br>H.C. 2000 lb. Mk II-III; 4000 lb. Mk I-IV; 8000 lb. Mk I-II; 12,000 lb. Mk II  |
| No. 37 Mk I       | Black                | 0.025 sec    | 3.5"          | Cap and exploder composition, A.S.A. mixture and gunpowder          | G.P. 40 lb. Mk I  |
| No. 43 Mk I       | White                | None         | 3.5"          | Cap and detonating composition                                      | F 20 lb. Mk I-III(Parachute); 20 lb. Mk I-III (Stabilized).<br>G.P. 40 lb. Mk I-III(Parachute); 40 lb. Mk I-III (Stabilized); 250, 500 lb. Mk IV; 1000 lb. Mk I-IV; 1900, 4000 lb. Mk I-II<br>M.C. 250 lb. Mk I-II; 500 lb. Mk I-XII; 1000, 4000 lb. Mk I-II<br>H.C. 2000 lb. Mk II-III; 4000 lb. Mk I-IV; 8000 lb. Mk I-II; 12,000 lb. Mk II |
| No. 44 Mk I       | Yellow               | 1 sec        | 3.5"          | Cap, delay, and exploder composition, A.S.A. Mixture, and gunpowder | S.A.P. 250, 500 lb. Mk V<br>A.S. 100, 250, 500 lb. Mk IV<br>G.P. 250, 500 lb. Mk IV; 1000 lb. Mk I-IV; 1900, 4000 lb. Mk I-II<br>M.C. 250 lb. Mk I-II; 500 lb. Mk I-XII; 1000, 4000 lb. Mk I-II<br>H.C. 2000 lb. Mk II-III; 4000 lb. Mk I-IV; 8000 lb. Mk I-II; 12,000 lb. Mk II  |
| No. 47 Mk I       | Brown                | .12 sec      | 3.5"          | Cap, delay, and exploder composition, A.S.A. Mixture and gunpowder  | S.A.P. 250, 500 lb. Mk V  |
| No. 49 Mk I       | Black                | .025 sec     | 3.5"          | Cap, delay, and exploder composition, and A.S.A. mixture            | G.P. 40 lb. Mk I-III; 250, 500 lb. Mk IV; 1000 lb. Mk I-IV; 1900, 4000 lb. Mk I-II<br>M.C. 250 lb. Mk I-II; 500 lb. Mk I-XII; 1000, 4000 lb. Mk I-II<br>H.C. 2000 lb. Mk II-III; 4000 lb. Mk I-IV; 8000 lb. Mk I-II; 12,000 lb. Mk II   |

# SENSITIVE TYPE DETONATOR



## SENSITIVE DETONATORS

The sensitive type detonators are employed with pistols having needle strikers in bombs in which sensitive type initiation of the explosive train is desired.

Sensitive type detonators differ from the anvil type in that no percussion cap and anvil are provided, and they are made to a standard length of approximately 3.5 inches. Hence, they are interchangeable in service bombs, and are selected according to the delay incorporated in them.

They may be identified by the stem, which is painted green for a length of 1 inch from the closed end, and by a green label secured to the detonator plug with shellac and varnished over.

The lower portion of the stem contains a quantity of detonating composition, usually A.S.A. mixture and C.E. In delay detonators, the upper portion of the stem accommodates a sleeve which contains a quantity of delay composition, the sleeve being retained in position by the detonator plug. The initiating detonator consists of a small metal cup having a flash hole through its base, this hole being covered by a thin disc, above which is a small charge of cap composition covered by a metal disc, a paper disc secured with shellac, and a metal washer, which are held in position by lugs turned inwards from the rim of the cup on to the washer.

On impact of the fuzed bomb with the target, the pistol striker pierces the initiating detonator and fires the cap composition, which in instantaneous detonators fires the detonating composition in the stem, or, in delay detonators, ignites the delay composition in the sleeve, which in turn fires the detonating composition in the stem.

| <u>Detonators</u> | <u>Color on Head</u> | <u>Delay</u>         |
|-------------------|----------------------|----------------------|
| No. 39 Mk I       | Yellow               | 1 sec. (Obsolescent) |
| No. 39 Mk II      | Yellow               | 1 sec.               |
| No. 46 Mk I       | Green                | 2 sec.               |
| No. 48 Mk I       | Red                  | 0.04 sec.            |
| No. 50 Mk I       | Brown                | 0.14 sec.            |
| No. 51 Mk I       | Black                | 0.026 sec.           |
| No. 52 Mk I       | White                | None                 |
| No. 53 Mk I       | Aluminum             | 0.5 sec.             |
| No. 54 Mk I       | Grey                 | 3 sec.               |
| No. 55 Mk I       | Blue                 | 11 sec.              |

## SPECIAL DETONATORS

### 20 lb. AIRCRAFT BOMB Mk II & III (Obsolete)

This detonator is in a class by itself being a form of detonator and exploder combined. The explosive in it consists of a percussion cap, 45 grains of 80/20 fulminate composition, and C.E. It has no delay, and is approx. 2.2" in length.

### AIRCRAFT BOMB, 45 GRAIN, No. 1 Mk I

Certain bombs are fitted with a central tube for containing exploders and two or more detonators, in order to provide complete and simultaneous detonation of the whole of the main filling. This detonator is inserted in an exploder of bombs of this type, and is fired by another detonator since it does not contain its own initiator. It has no delay, is 3.1 inches in length, and has a filling of 45 grains of 80/20 fulminate composition. It is used in bombs R.L., 112 lb., Mks VII and VIII; G.P. 250 lb., Mks I, II, and III; and G.P. 500 lb., Mk V.

CHANGES TO BRITISH BOMBS & FUZES

Corrections: 78.

Cuttings to be cut out and pasted on the page of the book where possible.

Top right hand corner, add:

Changed to use only C.E. pellets, and special retarder tail incorporated.

Top right hand corner, add:

Changed to use only C.E. pellets, and special retarder tail incorporated.

Top right hand corner, add:

Mk. II, except that the closing lid of the bomb body and the igniter pallet are slightly altered.

Section D., delete "No. 1 Mk. I", and add:

add:

add:

Mk. I in that a rear seal and tear-off cord are substituted for the tail rupture assembly of the Mk. I. The long perforated tube of the Mk. I is considerably shortened in the Mk. II.  
er, add:

Top left corner, beneath TOTAL WEIGHT, add:

may contain explosive incendiaries mixed with ordinary incendiaries; or an entire cluster of explosive incendiaries may be carried to make up a mixed load in a given aircraft.

add:

of this bomb is designed to give better under-water ballistics rather than Munroe effect.

, delete present sentence, and add:

aluminum vane cap; brass or aluminum upper body; brass lower body.

ing reintroduced into SERVICE use, to be employed in the nose of the G.P. 250 lb. bombs, Mk. I, II, & III, which also have been recalled to service status.

, add:

ing reintroduced into SERVICE use, to be employed in the tail of the G.P. 250 lb. bombs, Mk. I, II, & III, which also have been recalled to service status.

, add:

, delete present sentence, and add:

ss body, steel striker and pressure plate. (No. 42 has green painted vane cap.)

, add:

29 Mk. I have holes cut in the safety cap, making it identical to pistol No. 34.

, add:

37 pistol have eliminated the anti-withdrawal device, substituting instead a striker guide. The V-shaped groove is painted white, making it indistinguishable from No. 53 and 53A. Unpainted groove and anti-withdrawal device.

, delete present sentence, and add:

r bronze lacquered; aluminum vane cap and vanes.

, add:

n of page, for "circuit" substitute:

nt hand corner, add:

add:

a shear wire to prevent arming at low speeds. Like No. 867 Mk. I. with 1 second delay.

sitive detonators:

|        |            |
|--------|------------|
| Red    | 0.05 sec.  |
| Yellow | 25-30 sec. |

their proper positions.

s 5-6

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23-24  
95-95d  
103-105b  
107-108  
113-113b  
117-118  
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RECOGNITION OF BRITISH BOMBS

In order to facilitate recognition and provide a ready means of identification of British bombs, the following tables have been devised:

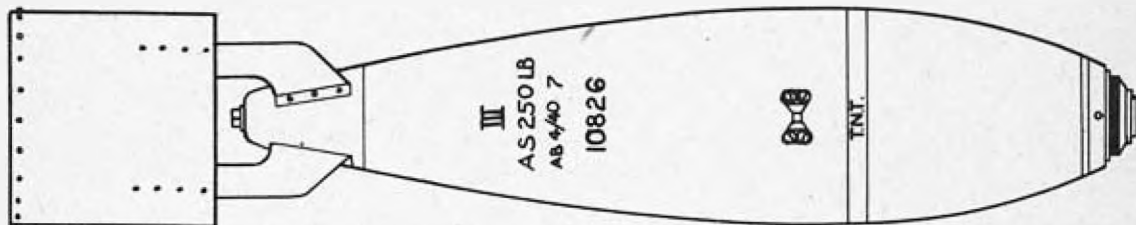
1. Color, markings, and stencilling
2. Tail numbers
3. Silhouettes

1. Color, Markings, and Stencilling of British Bombs

| <u>Bomb Type</u>                    | <u>Color &amp; Markings</u>   |
|-------------------------------------|---|
| *H.E. Bombs                         | Dark green overall.   |
| Loaded G.P.                         | Single red band near nose   |
| Loaded S.A.P.                       | Single red band near nose with single white band just forward of it.  |
| Loaded A.P.                         | Single red band near nose between two white bands   |
| All Bombs                           | Light green band, near maximum diameter, upon which filling type is stencilled.   |
| Incendiary Bombs                    | Dull brownish-red overall   |
| Practice Bombs                      | White overall   |
| Inert-loaded Bombs                  | Black overall   |
| Parachute Flares & Photoflash Bombs | Black overall with red bands  |
| Bombs fuzeed with a time fuze       | Tail fins and arming vanes will be painted red.   |
| L.C. (Chemical) Bombs               | Grey overall with colored bands to indicate type of chemical filler: black, tear gas; green, lung irritant; yellow, vesicant. |

\*H.E. bombs were originally painted yellow by the British. The change to dark green was made at about the same time that the United States changed to olive drab. Occasionally, where bomb stores in the field were issued before the change was made, yellow painted bombs may still be found. In some instances, only the exposed parts of bombs in stowage were sprayed dark green, resulting in a 'two-tone' combination of green on top and yellow below.

Complete information, including weight, type, mark number, filling, date filled, filling station, and lot number will be found stencilled on the outside of all British Bombs. Although the location of the various stencillings differs with different bombs, the following sketch will indicate the information to be found and its approximate location on the outside of the bomb body.



2. Tail Numbers of British Bombs

On bombs up to 1000 lb. types tail units are attached by means of a spring clip assembly. Tail units are attached by means of bolts to bombs of 1000 lb. and over. In either case the tail is likely to be torn away from the bomb on impact and found lying on or near the surface of the ground. Since each individual bomb is provided with its own specific tail unit, the tail unit number, which will be found stencilled on one of the tail fins, serves as a ready means of identifying the bomb to be dealt with. The following table lists the numbers of the tail units now in use and the bombs with which each is used.

| <u>Markings on Tail Units</u> | <u>Bomb with Which Used</u>  |
|-------------------------------|--|
| No. 1 Mk I                    | S.A.P. 250 lb. Mk II & III<br>S.A.P. 500 lb. Mk II & III<br>A.P. 2000 lb. Mk I<br>G.P. 250 lb. Mk III<br>G.P. 500 lb. Mk III<br>I.B. 250 lb. Mk I & II |
| No. 1 Mk II                   | T.I. 250 lb. Mk I  |
| No. 2 Mk I                    | G.P. 250 lb. Mk IV<br>G.P. 500 lb. Mk IV<br>M.C. 250 lb. Mk I<br>M.C. 500 lb. Mk IV  |
| No. 2 Mk II                   | G.P. 250 lb. Mk IV & V<br>M.C. 250 lb. Mk V  |
| No. 4 Mk I                    | S.A.P. 500 lb. Mk IIC & IIIC   |
| No. 7 Mk II                   | A.S. 100 lb. Mk IV   |
| No. 8 Mk I                    | A.S. 250 lb. Mk IV   |
| No. 9 Mk I                    | A.S. 500 lb. Mk IV   |
| No. 10 Mk I                   | S.A.P. 250 lb. Mk V<br>A.P. 2000 lb. Mk II & III   |
| No. 11 Mk I                   | S.A.P. 500 lb. Mk V  |
| No. 13 Mk I                   | G.P. 1000 lb. Mk I - IV  |
| No. 14 Mk I                   | G.P. 1900 lb. Mk I   |
| No. 15 Mk I                   | A.P. 2000 lb. Mk II & III  |
| No. 23 Mk I                   | "B" 250 lb. Mk III   |
| No. 24 Mk I                   | H.C. 4000 lb. Mk II & IV   |
| No. 25 Mk I                   | M.C. 500 lb. Mk I - IV   |
| No. 26 Mk I                   | G.P. 500 lb. Mk IV & V<br>M.C. 500 lb. Mk IV   |
| No. 26 Mk II                  | G.P. 500 lb. Mk IV & V   |
| No. 27 Mk I                   | S.A.P. 500 lb. Mk V  |
| No. 28 Mk I                   | M.C. 500 lb. Mk I - III  |
| No. 29 Mk I                   | G.P. 1000 lb. Mk I - IV  |
| No. 31 Mk I                   | L.C. 500 lb. Mk II<br>Smoke 500 lb. Mk I<br>I.B. 500 lb. Mk I  |
| No. 32 Mk I                   | H.C. 2000 lb. Mk I   |
| No. 33 Mk I                   | H.C. 8000 lb. Mk I & II  |
| No. 34 Mk I                   | G.P. 4000 lb. Mk I & II  |
| No. 35 Mk I                   | Seamarker 250 lb. No. 19 Mk I<br>T.I. 250 lb. Mk I   |
| No. 36 Mk I                   | A.S. 600 lb. Mk I  |
| No. 37 Mk I                   | M.C. 1000 lb. Mk I   |
| No. 38 Mk I                   | M.C. 4000 lb. Mk I   |
| No. 39 Mk I                   | H.C. 2000 lb. Mk II & III  |
| No. 40 Mk I                   | I.B. 30 lb. Mk III & IV  |
| No. 41 Mk I                   | Smoke 120 lb. Mk I   |
| No. 42 Mk I                   | Cluster Projectile No. 14 Mk I   |
| No. 43 Mk I                   | Cluster Projectile No. 15 Mk I   |
| No. 44 Mk I & II              | Cluster Projectile No. 4 Mk I  |
| No. 45 Mk I                   | Cluster Projectile No. 6 Mk I  |
| No. 46 Mk II                  | Cluster Projectile No. 7 Mk I  |
| No. 47 Mk I                   | A.P. 2000 lb. Mk IV  |
| No. 48 Mk II & III            | Cluster Projectile No. 16 Mk II  |
| No. 52 Mk I                   | H.C. 8000 lb. Mk I & II<br>H.C. 12,000 lb. Mk II   |
| No. 54 Mk I                   | G.P. 500 lb. American (M 64)   |
| No. 55 Mk I                   | G.P. 1000 lb. American (M 65)  |
| No. 56 Mk I                   | A.S. 100 lb. Mk VI   |
| No. 57 Mk I                   | T.I. 1000 lb. Mk I   |
| No. 63 Mk I & II              | Cluster Projectile No. 17 Mk II  |
| No. 65 Mk I                   | Cluster Projectile No. 23 Mk I   |
| No. 66 Mk I                   | Cluster Projectile No. 24 Mk I   |
| No. 69 Mk I                   | Cluster Projectile No. 1 Mk I  |
| No. 70 Mk I                   | Cluster Projectile No. 2 Mk I  |
| No. 75 Mk I & II              | T.I. 250 lb. Mk I  |
| No. 78 Mk I                   | D.P. 12,000 lb. Mk I   |
| No. 79 Mk I                   | I.B. 400 lb. Mk I  |
| No. 81 Mk I                   | Smoke 500 lb. Mk II  |
| No. 82 Mk I                   | D.P. 22,000 lb. Mk I   |

# FRAGMENTATION BOMBS

RESTRICTED

## USE

At the present time there is only one size of fragmentation bomb in use by the British: the 20 lb. F. bomb. This is a thick-walled bomb, similar in construction to the G.P. 40 lb. bomb, which itself is actually employed as a fragmentation bomb. The weapon is used principally against personnel.

## FUZING

The F. 20 lb. bomb is always fuzed in the nose only.

## CHARACTERISTICS

These bombs are usually filled with TNT. They are dark green overall with a red and a light green band around the nose end. The 20 lb. F. may be fitted with a standard tail unit for stabilization, or it may be fitted with either a standard parachute attachment or a special small parachute for use with the 500 lb. Cluster Projectile No. 17, Mk II. The parachute attachments are designed to reduce the terminal velocity and so prevent the bomb's burying itself in the ground before exploding.

# 8LB. FRAG. BOMB

SAFETY WIRE

TRAY & PARACHUTE No12 Mki/AIR

GLAZEDBOARD WASHER

COMPOSITION PAD

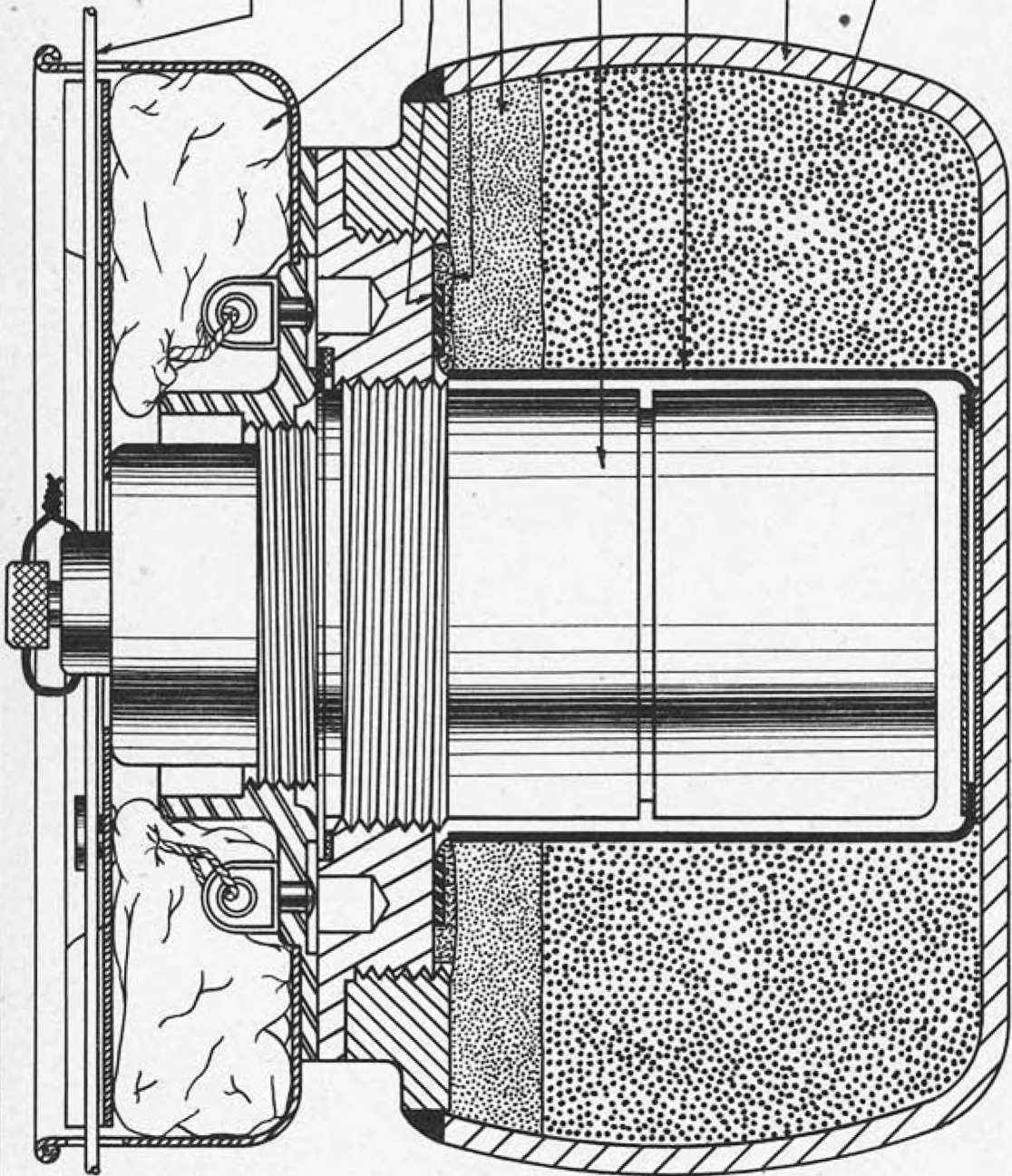
LAYER OF TNT

LONG DELAY BOMB FUZE  
No. 980

PAPER TUBE

BOMB CASING

BURSTING CHARGE



BRITISH BOMB

**8 LB. FRAG.**

FUZING . . . . . Fuze No. 880 or 881  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{4}$ " red band around top and  $\frac{1}{4}$ " light green band around center of bomb.  
 PARACHUTE NO. . . . . Tray No. 12, Mk I, with parachute.  
 OVERALL LENGTH . . . . . 4.2"  
 BODY LENGTH . . . . . 3.02"  
 MAX. BODY DIAMETER . . . . . 5"  
 WALL THICKNESS . . . . . 0.125"  
 TOTAL WEIGHT . . . . . 8 lb. approx.  
 CHARGE/WEIGHT RATIO . . . . . 22 % approx.

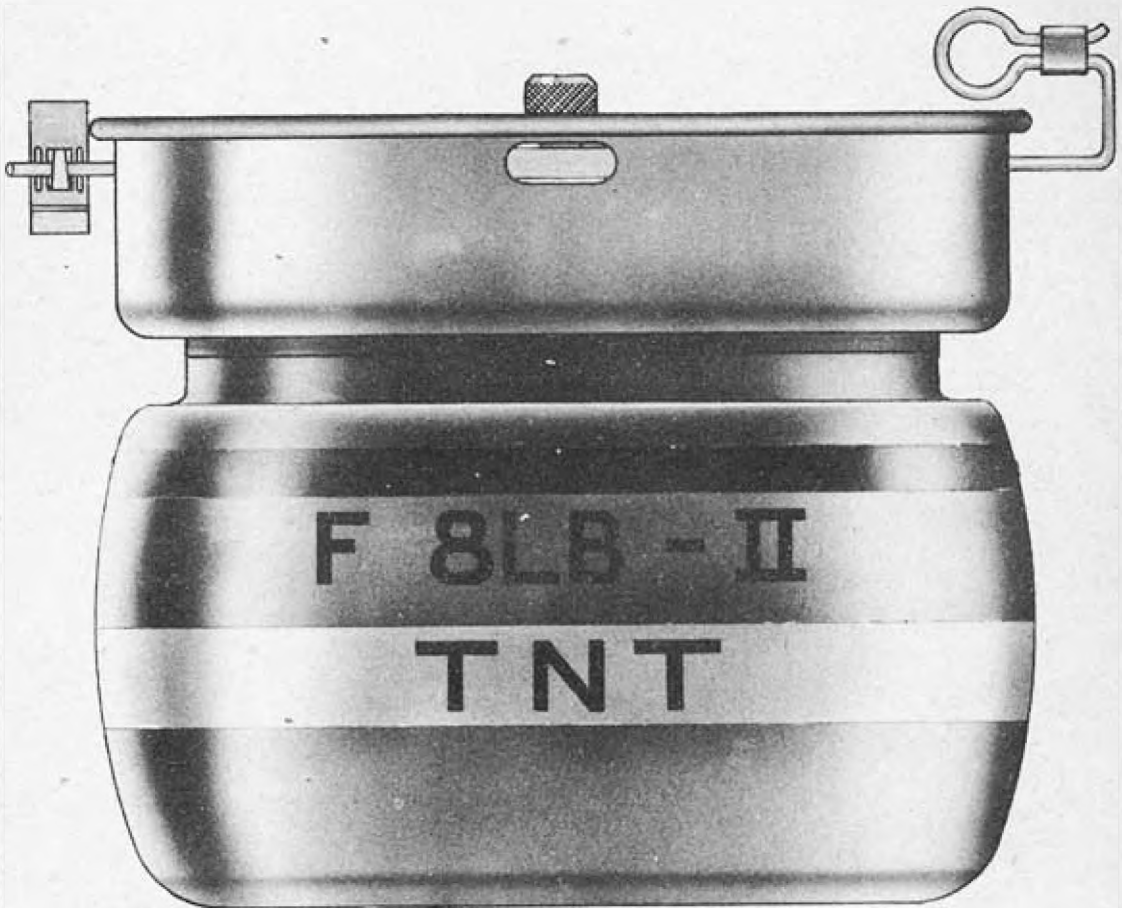
Mk II  
 (Service)

**BODY CONSTRUCTION:** The bomb body consists of a pot-shaped cast steel cylinder, open at the top. A steel neck ring is welded to the open end of the body, having internal threads to receive the adapter to which the parachute tray is secured. Extending through the adapter is the fuze, which is enclosed by a 2" dia. paper tube extending through the bomb body.

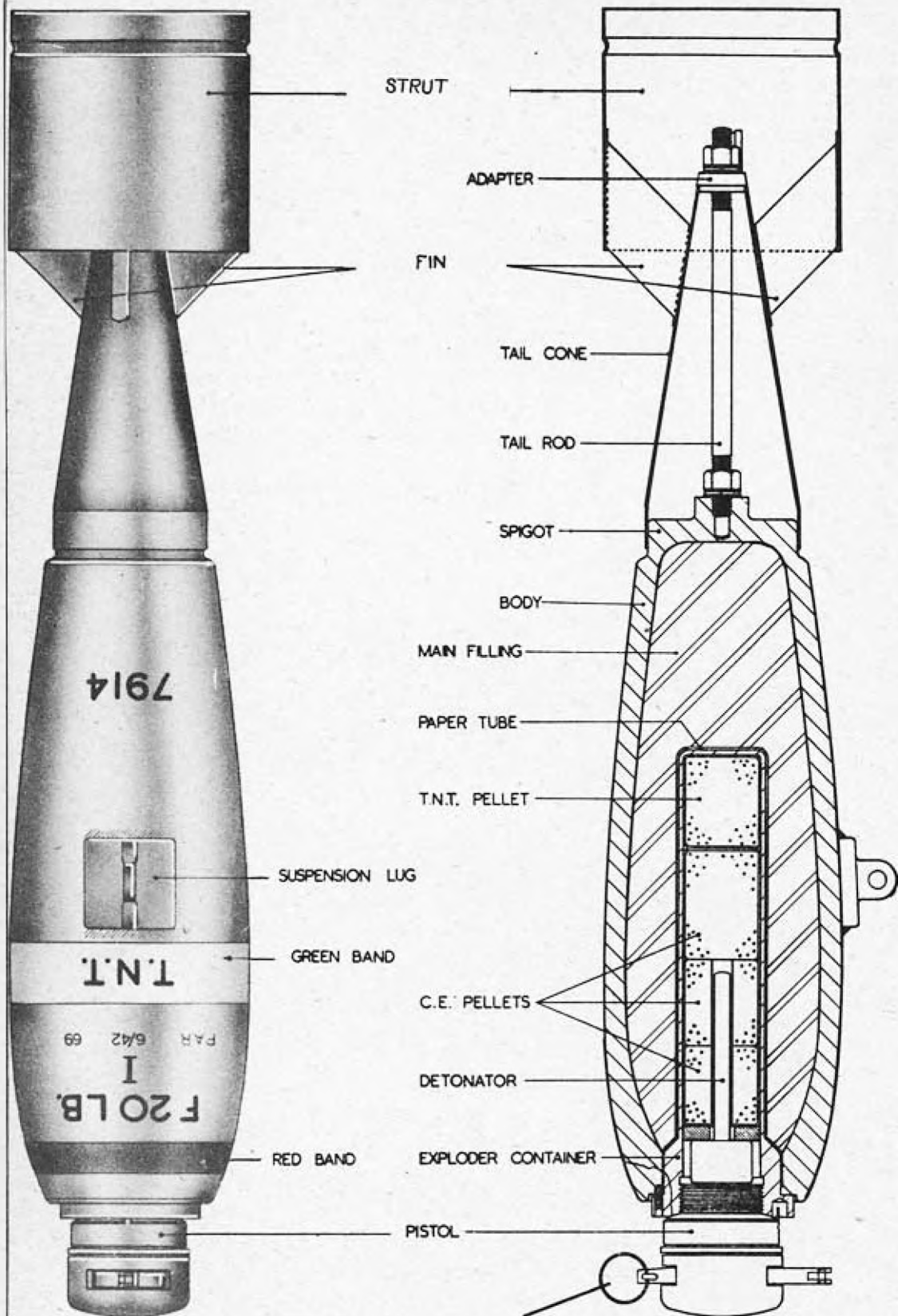
**PARACHUTE:** The parachute is 12" in diameter and is encased in a cylindrical steel tray of a diameter slightly less than the maximum diameter of the bomb body. A safety pin extends through the parachute container, secured by a spring clip.

**EXPLOSIVE COMPONENTS:** Main Filling: 1-3/4 lb. approx. of T.N.T. or R.D.X./T.N.T. 60/40, or 1-1/2 lb. approx. of Amatol 50/50 or 60/40 or Pentolite/D 1. (When filled with anything but T.N.T., a  $\frac{1}{4}$ " topping of T.N.T. is added.)

**REMARKS:** Mk I had smaller filling hole than II; never filled or put into service.



# 20 LB. FRAG. BOMB (STABILIZED)



BRITISH BOMB**20 LB. FRAG.**

For No. 17 Mk II Cluster Only

(Service)

FUZING . . . . . No. 873 Nose Fuze  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{4}$ " red  
 band around nose; 1" light  
 green band around body  
 TAIL NO. . . . . No. 15 Mk I or No. 16 Mk I  
 parachute attachments.  
 OVERALL LENGTH . . . . . 14.5"  
 BODY LENGTH . . . . . 11.9"  
 MAX. BODY DIAMETER . . . . . 3.9"  
 WALL THICKNESS . . . . . .0.35"  
 TOTAL WEIGHT . . . . . 20 lb. (approx.)  
 CHARGE/WEIGHT RATIO . . . . . 15%

**BODY CONSTRUCTION:** Streamlined one piece cast steel, with nose end open to take exploder container; rear end reduced to form a spigot for taking parachute attachment. Spigot is tapped and threaded to receive securing stud of parachute attachment. Exploder container is cemented and locked in position. The No. 873 nose fuze is locked in position by a multi-tab washer.

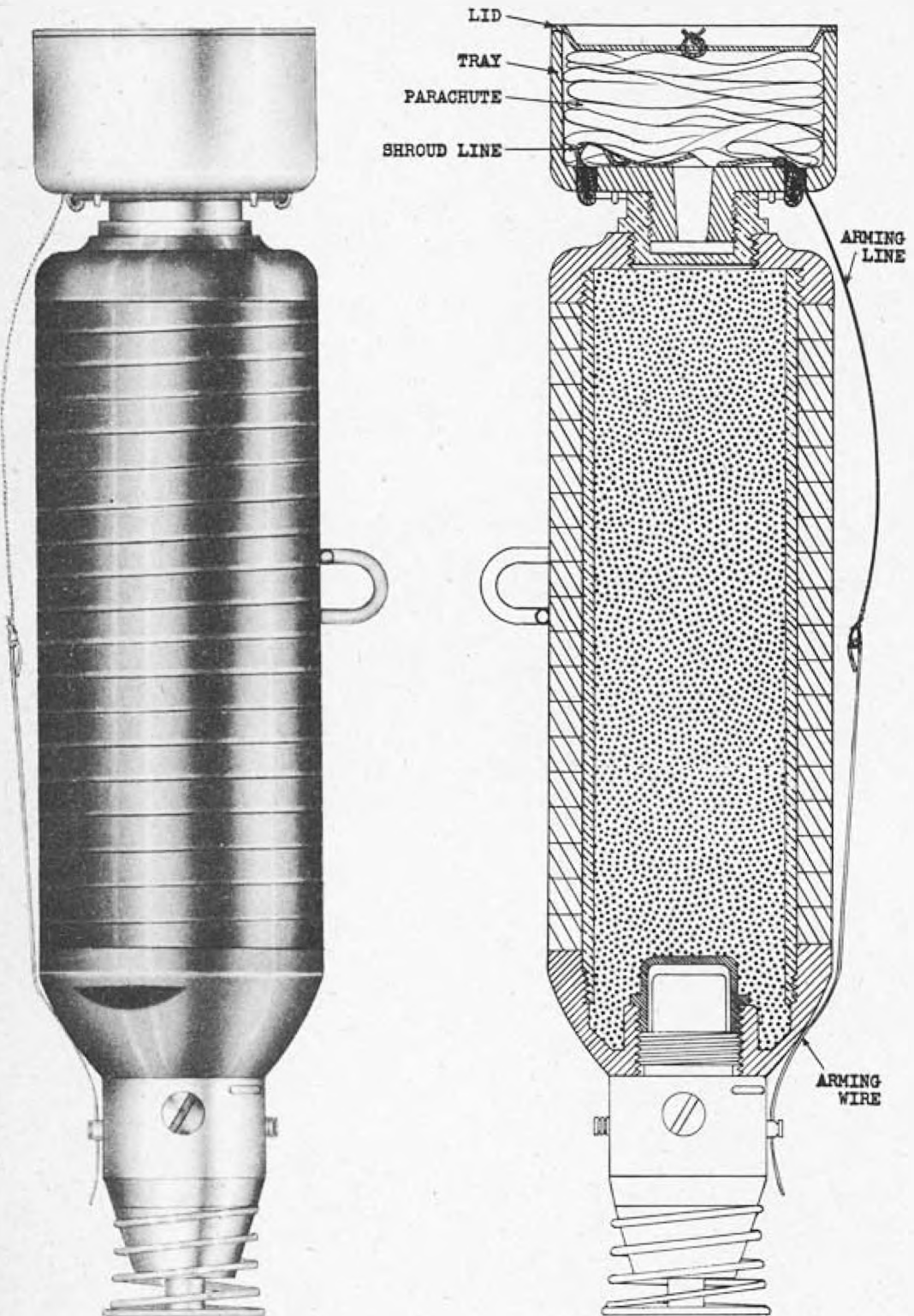
**TAIL CONSTRUCTION:** No tail is used with this bomb, which is especially designed to be used only in the No. 17 Mk II cluster. It has a short parachute attachment, secured to body spigot by a threaded stud. The parachute tray houses an 8" diameter fabric parachute with six pairs of rigging lines, each pair terminating in a whipped eye. These eyes pass through holes in the tray and are threaded on to a metal circlip which is secured on the underside of the tray. A lid over the parachute in the tray is held in position by the fuze of the bomb behind it. When the cluster opens, the circlip displaces the lid, which pulls the chute free of the tray.

**SUSPENSION:** Has no suspension lugs, being used only in the No. 17 Mk II cluster.

**EXPLOSIVE COMPONENTS:** Exploder: Two T.N.T. and two perforated C.E. pellets.  
 Filling: 3.1 lb. (approx.) of T.N.T.

**REMARKS:** The bomb is issued only in clustered form, and when clustered, the fuze has no safety pin fitted. Hence, care should be exercised in dealing with any individual bombs which might break loose from a cluster in handling.

# 20 LB. FRAG. BOMB (U.S. MODIFIED)



FUZING . . . . . AN-M 104 or AN-M 120 (See pages 129 & 145, "U.S. Bombs and Fuzes")

COLOR & MARKING . . . . . Body section: Olive Drab  
Nose & Tail: Yellow

TAIL NO. . . . . No. 14 Parachute Housing

OVERALL LENGTH . . . . . 16.2" (fuzed)

MAX. BODY DIAMETER . . . . . 3.64"

BODY LENGTH . . . . . 11.3"

WALL THICKNESS . . . . . 0.56"

TAIL LENGTH . . . . . 4.9"

TAIL WIDTH . . . . . 3.64"

TOTAL WEIGHT . . . . .

CHARGE/WEIGHT RATIO . . . . .

BRITISH BOMB**20 LB. FRAG.**

(U.S. 20 lb. Fragmentation Bomb, Modified)

(Service)

**BODY CONSTRUCTION:** This bomb consists of a U.S. 20 lb. Fragmentation Bomb, altered by attachment of a special British parachute housing. The bomb consists of cast steel nose and tail sections threaded to a seamless steel inner tube. Helicallly wrapped around this inner steel tube is a heavy drawn steel wire to provide effective fragmentation. The nose and tail sections are threaded internally, the former to receive the nose fuze, the latter to receive the parachute housing.

**TAIL CONSTRUCTION:** The British No. 14 parachute housing consists of a cast aluminum tray containing a 12" diameter parachute. The tray is closed by a loosely fitting metal lid, to which the parachute is attached by a short loop of cord. The shroud lines of the parachute are fitted through holes drilled around the bottom edge of the tray and are secured by a metal ring passed through the loops of the lines. Leading from the parachute is an arming line spliced to the arming wire from the fuze. Release of the parachute withdraws the arming wire from the fuze, allowing the fuze to arm after a few seconds delay.

**SUSPENSION:** Although the bomb is provided with a single U-shaped steel eye-bolt welded to the bomb body for individual suspension, these bombs will be carried by the R.A.F. in cluster projectiles No. 23 Mk. I and No. 24 Mk. I. In these clusters the nose of one bomb bears against the parachute lid of the one behind it, holding the lid in place until the cluster opens. The air slip then removes the housing lid, which acts as a pilot parachute and pulls out the 12" diameter parachute by which the bomb is suspended.

**REMARKS:** 1. Because of the extreme sensitivity of the AN-M 104 fuze, an extra spring, located outside the fuze body beneath the pressure plate, is added when this fuze is employed in these bombs by the R.A.F.

FUZZING . . . . . Nose Pistol No. 33 Mk I.  
 COLOR & MARKINGS . . . . . Dark green overall;  $\frac{1}{2}$ " red  
 band 1" from nose; 1" light  
 green band  $5\frac{1}{2}$ " from nose.  
 TAIL NO. . . . .  
 OVERALL LENGTH . . . . . 27.25"  
 BODY LENGTH . . . . . 15.90"  
 MAX. BODY DIAMETER . . . . . Mk I: 5.01"  
 II & III: 5.05"  
 WALL THICKNESS . . . . . 0.47"  
 TAIL LENGTH . . . . . 11.4"  
 TAIL WIDTH . . . . . 4.68"  
 TOTAL WEIGHT . . . . . 38.5 lb.  
 CHARGE/WEIGHT RATIO . . . . . 17%

## BRITISH BOMB

40 LB. G.P.

(PARACHUTE)

Mks I, II, III

(Service)

**BODY CONSTRUCTION:** Cast steel body, nose end fitted with an exploder container which is screwed and cemented in position and locked by a locking screw. Exploder container is threaded to take the pistol. Rear end of bomb body is closed; reduced in diameter to form a spigot with a central boss, which is drilled and tapped to receive an eyebolt to secure the parachute tail unit to the body.

**TAIL CONSTRUCTION:** Parachute tail unit consists of a cylindrical strut attached to the rear end of a tail tube by four fins. The parachute is packed in a fabric cylinder which is closed at its rear end and fits inside the tail tube. The rear end of the fabric cylinder is connected by pilot lanyards to a flanged cover which fits loosely in the cylindrical strut and is retained in position, closing the rear end of the tube, by a wire transit clip.

**SUSPENSION:**

Mk I: Normally carried 6 in 250 lb. Small Bomb Container, though limited number have single lug.

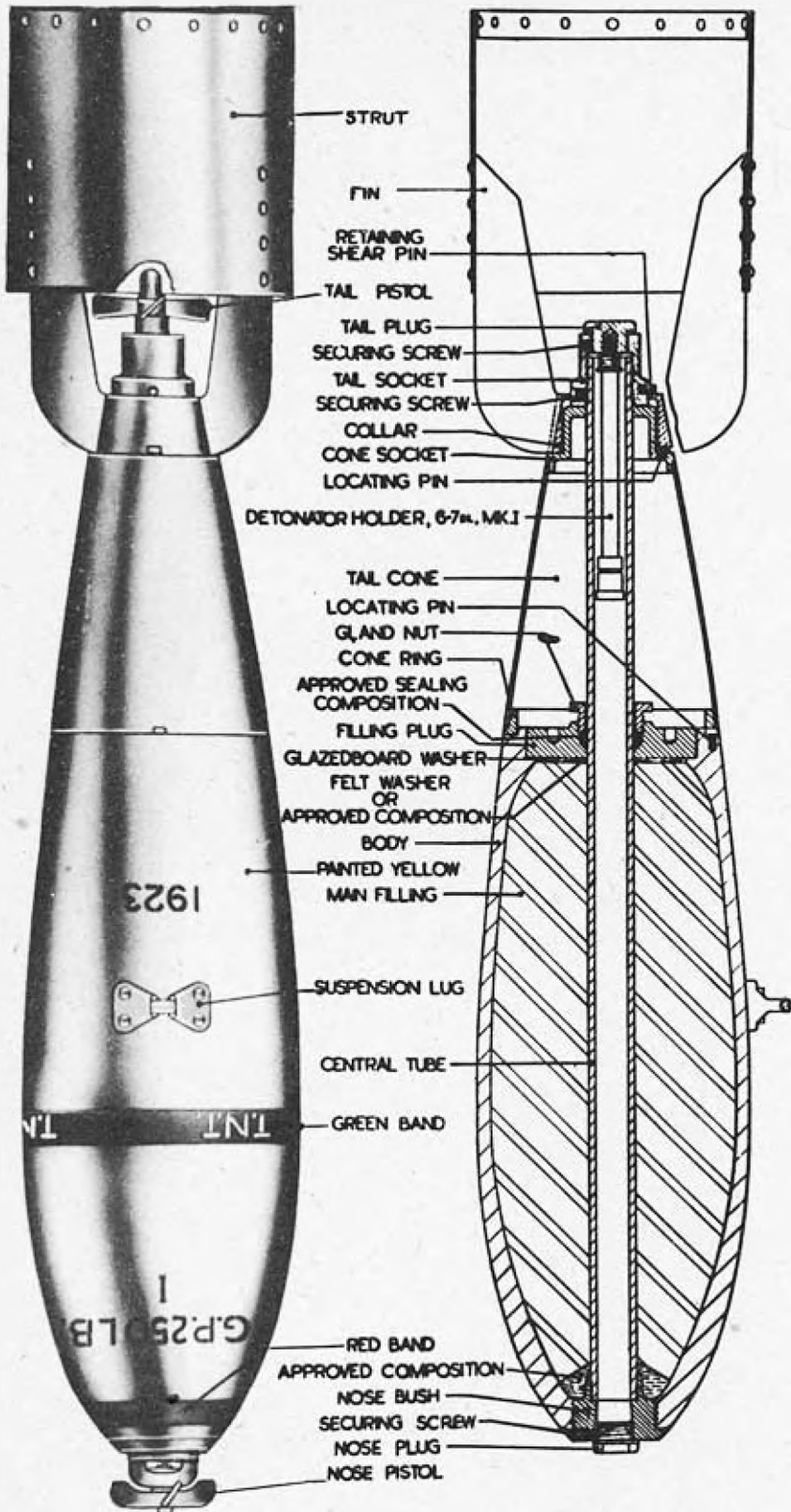
Mk II: Normally carried 6 in 250 lb. Small Bomb Container, may be suspended from a band around body.

Mk III: Single lug welded to body for use when carried on Light Series bomb carrier. Can be loaded 6 into 250 lb. Small Bomb Container.

**EXPLOSIVE COMPONENTS:** Detonator: (See Appendix I, page 309)  
 Exploder: T.N.T. and C.E. retained by a waxed felt washer.  
 Fillings: Mk I - 6.3 lb. Amatol (80/20)  
 Mk II - 6.5 lb. T.N.T.  
 Mk III - 6.5 lb. Amatol (60/40)

**REMARKS:** Usually used as fragmentation bomb, and is identical with the 20 lb. parachute fragmentation bomb except for size.

# 250 LB. G.P. BOMB



FUZZING . . . . . Nose Pistol No. 19  
 Tail Pistol No. 22  
 Tail Pistol No. 17

COLOR & MARKINGS . . . . . Yellow overall with  $\frac{3}{4}$ " red  
 band around nose, 1" light  
 green band around body;  
 longitudinal green bar on  
 body and tail indicates  
 exploding scheme.

TAIL NO. . . . . No. 1 Mk I (Mk III only)

OVERALL LENGTH . . . . . 54.2 in.

BODY LENGTH . . . . . 28 in.

MAX. BODY DIAMETER . . . . . 10.3 in.

WALL THICKNESS . . . . . 0.6 in.

TAIL WIDTH . . . . . 10.2 in.

TOTAL WEIGHT . . . . . 247 lbs. (TNT)

CHARGE/WEIGHT RATIO . . . . . 27%

BRITISH

250 LB. G.P.

Mks I, II, & III  
(Service)

BODY CONSTRUCTION Streamlined steel casting or forging threaded at the nose to  
 take a nose adapter which holds the central exploder tube;  
 at the other end of the casting is a threaded base plug  
 through which the exploder tube passes. Welded to the end of the casting is a stream-  
 lined section of thin metal, containing no explosive, but which is tapered to take the  
 tail ring. The exploder passes through this section also.

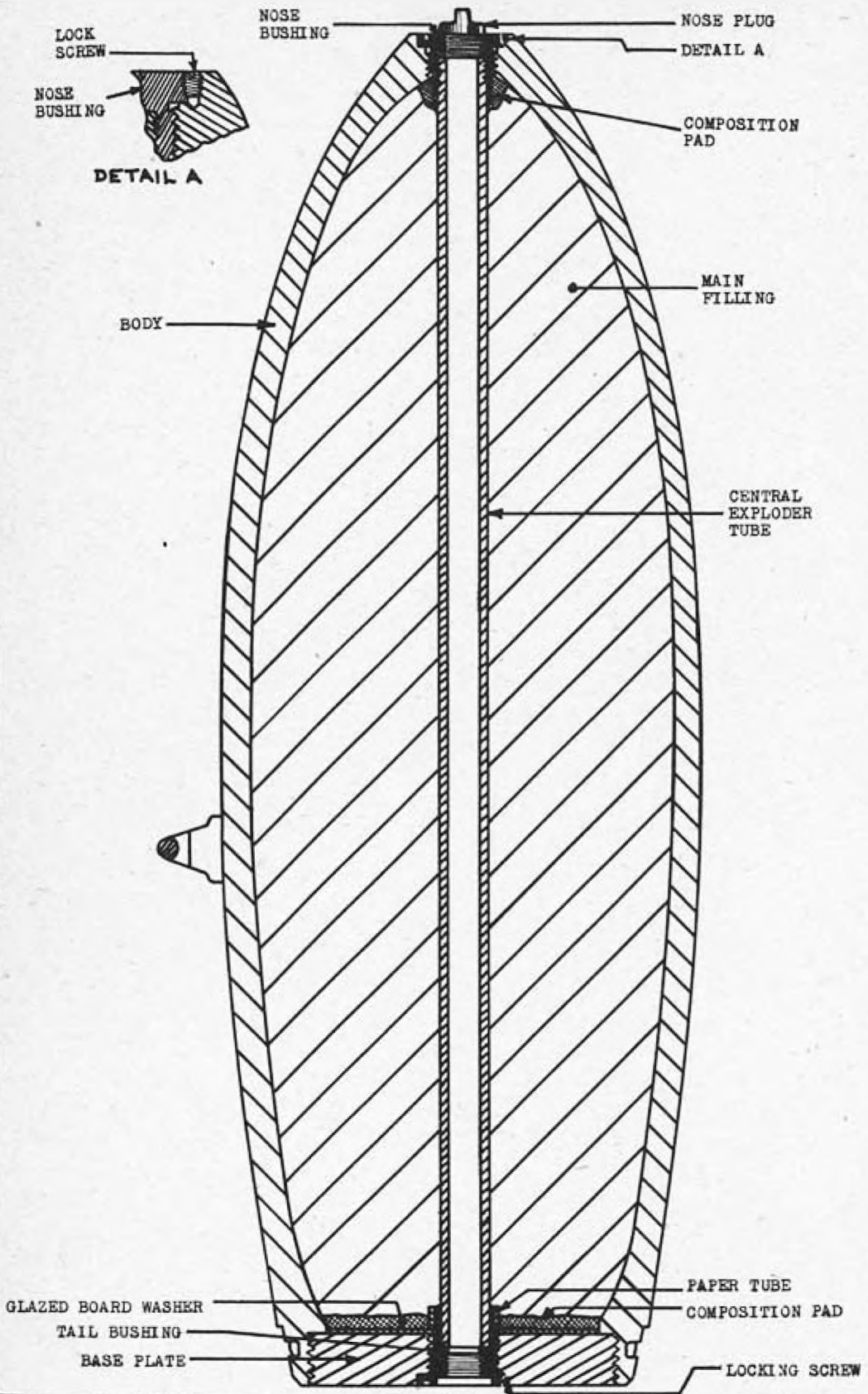
TAIL CONSTRUCTION Truncated cone which fits over rear section of body and is  
 held to it by a lock nut over the exploder tube. Four mild  
 steel fins are fastened to the cone and are reinforced by a  
 cylindrical strut.

SUSPENSION Single suspension lug secured to the body by four screws.

EXPLOSIVE COMPONENTS Detonators: Instantaneous  
 Exploders: T.N.T. and C.E. pellets  
 Filling: 68 lbs. T.N.T. or 63 lb. Amatol 80/20.

REMARKS 1. Tail fins are usually painted red when time pistol is used.  
 2. This bomb, previously declared "Obsolete", has recently been  
 returned to service use by the R.A.F.

# 250 & 500 LB. G.P. BOMBS



FUZZING . . . . . No fuzes.  
COLOR & MARKINGS . . . . . Dull red overall; stiffeners  
and distance pieces painted  
black; "HANDLE WITH CARE"  
stencilled between stiffen-  
ers.  
OVERALL LENGTH . . . . . 18.3"  
WIDTH . . . . . 10" x 9.75"  
WEIGHT EMPTY . . . . . 7 lbs.  
FILLING . . . . . Petrol  
WEIGHT FILLED . . . . . 45 lbs.

BRITISH BOMB

45 LB. I.B.

Mk I

(Service)

**DESCRIPTION:** The bomb consists of a square-section tin plate 5-gallon petrol can. On one face are two corrugated stiffeners, which serve to increase the strength of the can and also act as distance pieces between the can and the drop bar of the Small Bomb Container in which the bomb is carried. A charging hole, with screwed cap and washer, and another distance piece, are provided at the top of the can. At diagonally opposite corners on the top of the can are two metal loops for attachment, by a length of cord, of the fabric tail which acts as a flight stabilizer. Two handles for lifting the bomb are soldered to opposite faces of the can. Bombs of later issue may have a third handle, located on the face to which the stiffeners are soldered.

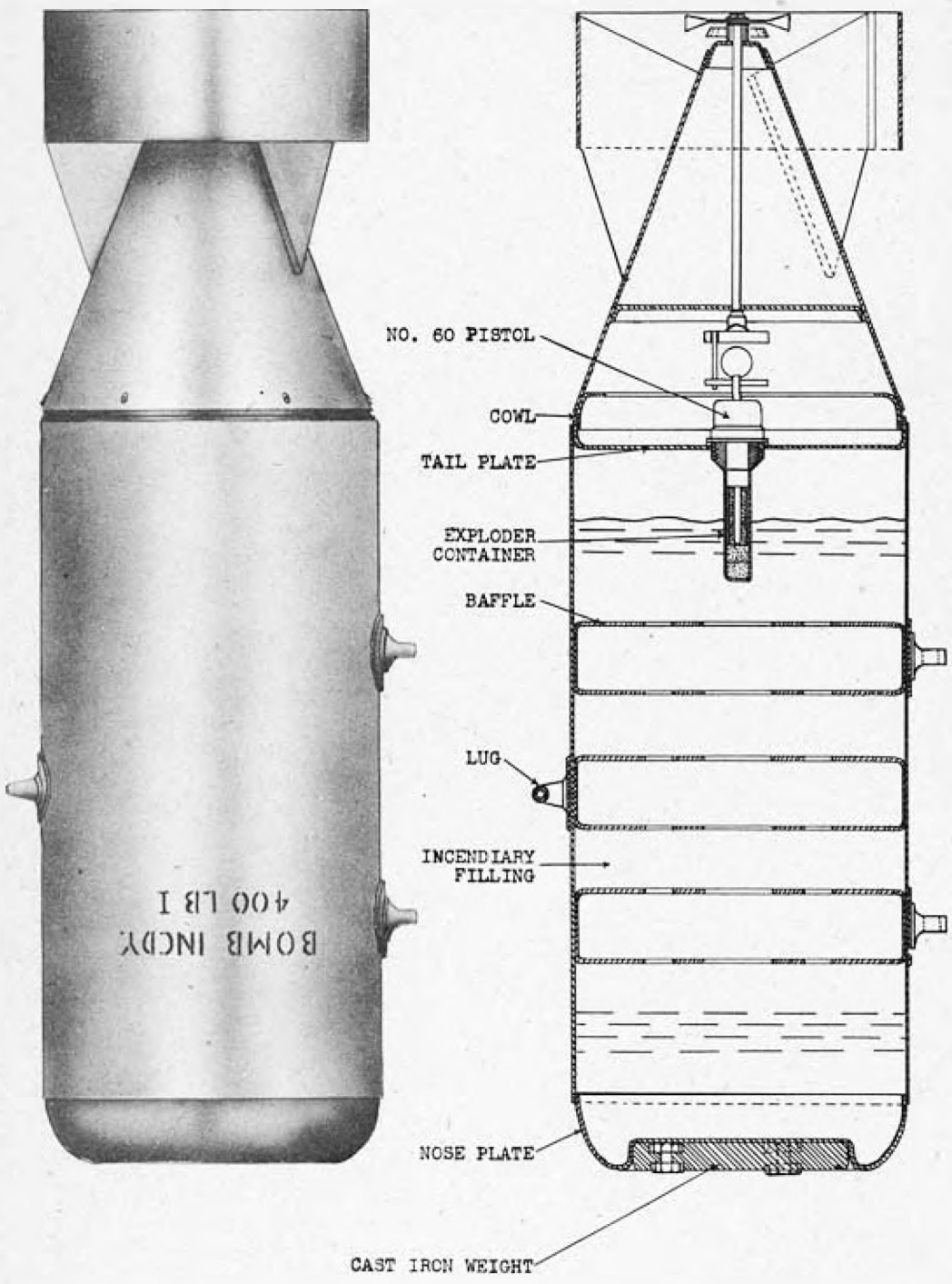
**SUSPENSION:** Three of the bombs are carried in the Small Bomb Container, 250 lb.

**FILLING:** The charging consists of 4½ gals. of aviation or M.T. petrol mixed with 1 quart of K O F Q R igniter.

**FUNCTIONING:** The bomb is fuseless, and functions by break-up. The igniter consists of droplets of a liquid which reacts with water to produce small sparks; the liquid is dispersed in a thick oil, the mixture floating on water. The sparks produced are not sufficient to ignite fuel oil or paraffin, but ignite petrol immediately. Thus, when the K O F Q R and petrol charging is released, on impact of the bomb with the surface of the water, the K O F Q R ignites the petrol, which ignites the layer of oil floating on the water.

**REMARKS:** (1) This bomb is intended for the ignition of patches of fuel oil or petrol present on the surface of the sea, rivers or other inland waterways, during attacks on oil-carrying vessels or oil storage installations.

# 400 LB. INCENDIARY BOMB



FUZZING . . . . . No. 60 Mk. I  
 COLOR & MARKINGS . . . . Dull red overall; black  
 letter stencilling.  
 TAIL NO. . . . . No. 79 Mk. I  
 OVERALL LENGTH . . . . . 60.8"  
 BODY LENGTH . . . . . 40.7"  
 MAX. BODY DIAMETER . . . . 17.6"  
 WALL THICKNESS . . . . .  
 TAIL LENGTH . . . . . 21.2"  
 TAIL WIDTH . . . . . 17.5"  
 TOTAL WEIGHT . . . . .  
 CHARGE/WEIGHT RATIO . . . .

BRITISH BOMB

400 LB. I.B.

Mk. I

(Service)

**BODY CONSTRUCTION:** The bomb body consists of a thin sheet steel cylinder with a tail plate welded at one end and a nose at the other. The nose is recessed to accommodate a cast iron weight which is secured in position with bolts. Three perforated baffles are welded internally to the bomb case to reduce surging of the filling while the bomb is suspended aboard the aircraft. An internally threaded adapter in the center of the tail plate serves as a charging hole and also for the fitting of the exploder container. A cowl welded to the tail plate has six equi-spaced springs riveted inside it. These springs form an attachment for the six fasteners which secure the tail unit to the bomb. These fasteners consist of a stud and a leaf spring. The studs have a screwdriver slot externally and a cam slot internally. The cam slot engages the spring attached to the cowl.

**TAIL CONSTRUCTION:** No. 79 Mk. I: This tail consists of a cylindrical strut attached to the tail cone by means of three tail fins. The arming fork has only one prong which engages the T-bar of the No. 60 pistol.

**SUSPENSION:** This bomb is equipped for suspension in either British or American aircraft, having on one side a single suspension lug, and dual lugs 180° removed.

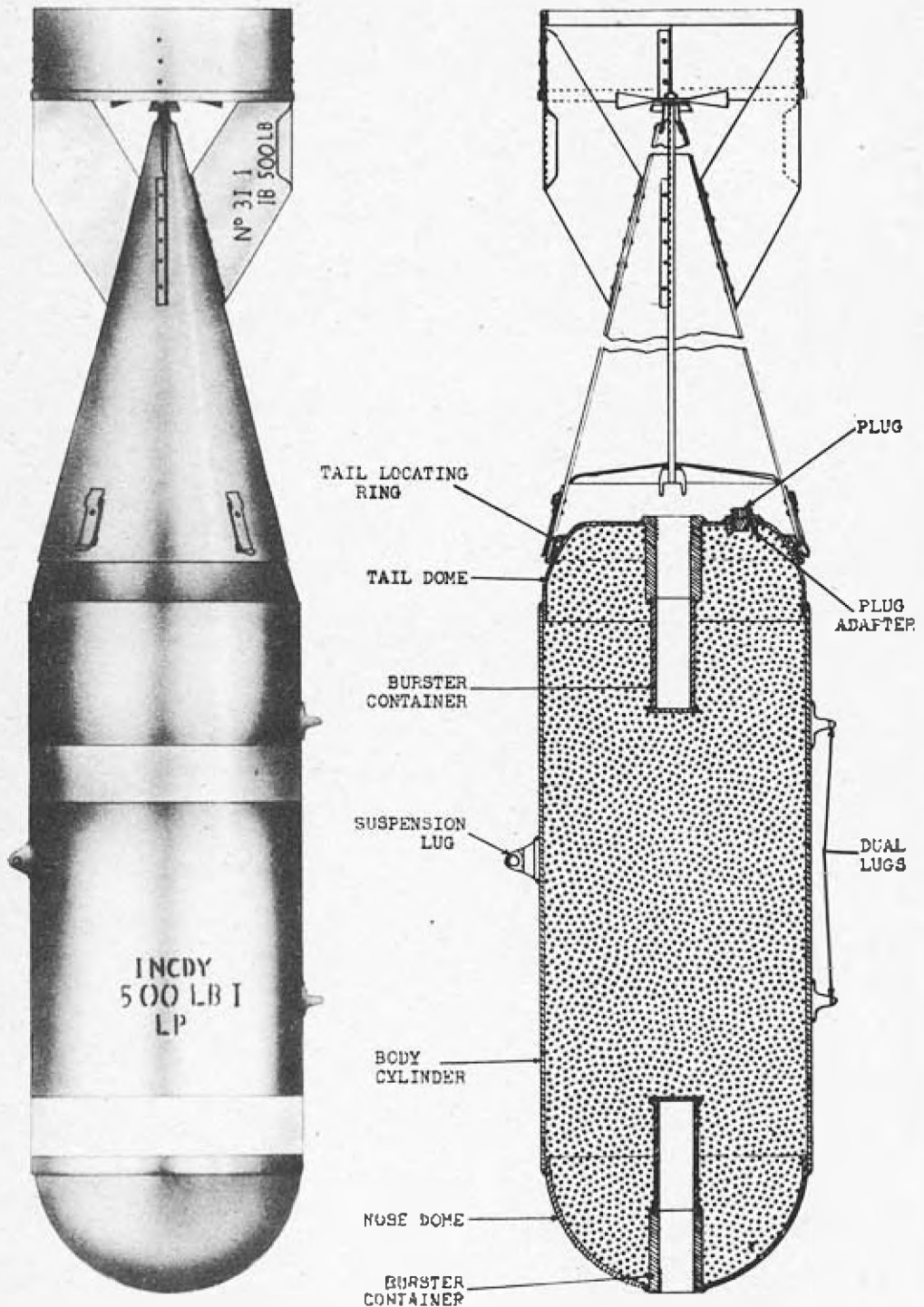
**FILLING:** Detonators: Sensitive type.  
 Exploders: C.E. - 3 ring and 2 solid pellets.  
 Filling: a. 6% aluminum laurate.  
 b. 2% cresols.  
 c. 5% Napalm.

**REMARKS:** 1. This bomb is filled with a highly volatile, inflammable gel which is readily ignited by naked lights or by contact with water. The filling may smell of gasoline and/or carbolic acid.

2. Safety Precautions: Rubber boots, gloves, and eyeshields are recommended for all personnel engaged in disposal operations on this bomb. If the filling comes into contact with the skin, all traces should be swabbed off with a rag soaked in gasoline or paraffin, and the affected area should then be washed with water and the patient treated for alkali burns.

3. Contaminated equipment should be cleaned with gasoline or paraffin and then washed with water.

# 500 LB. INCENDIARY BOMB



FUZING . . . . . No. 30 tail pistol  
 COLOR & MARKING . . . . Grey overall; 3" red band  
 7" from nose, 3" dull red  
 band 9" from tail.  
 TAIL NO. . . . . No. 31 Mk. I  
 OVERALL LENGTH . . . . . 66"  
 MAX. BODY DIAMETER . . . 13.1"  
 WALL THICKNESS . . . . . 3/16"  
 BODY LENGTH . . . . . 41.0"  
 TAIL LENGTH . . . . . 28.0"  
 TAIL WIDTH . . . . . 13.1"  
 FILLING . . . . . 16.0 gals. liquid phos-  
 phorous.

BRITISH BOMB

**500 LB. I.B.**

Mk. I

(Service)

**BODY CONSTRUCTION:** This bomb consists of a cylindrical metal container with a hemispherical nose and tail piece welded at either end. Burster containers are located at either end of the bomb, and in the tail, to one side of the burster tube, is a filling hole closed with a threaded plug. A tail locating ring is welded around the tail portion of the bomb body. A single suspension lug is provided for carrying in British planes, and two additional lugs are located 180° around from the first for American suspension.

Although provision is made in the bomb for alternate nose or tail fuizing, the nose pocket is always closed with a plug, and only the tail pocket is employed.

**TAIL CONSTRUCTION:** The No. 31 Mk. I tail consists of a sheet metal tail cone to which are riveted four vanes supported by a cylindrical metal strut. The tail is attached to the bomb by four spring clips which engage the tail locating ring on the after end of the bomb body. Inside the tail cone, supporting the lower end of the reach rod, is located a diaphragm with four large holes to allow air passage.

**EXPLOSIVE COMPONENTS:** Detonator: No. 55 Mk. I  
 Burster: No. 1 Mk. I - Gunpowder  
 Filling: Liquid phosphorous - 16 gallons

- REMARKS:**
1. This is a special purpose bomb designed primarily for low level bombing operations. Its use will be restricted to special missions.
  2. Safety Precautions: It is recommended that personnel engaged in recovery operations on this bomb be equipped with rubber boots and gloves, and that these be kept damp. All equipment and protective clothing which may have come into contact with the liquid phosphorous should be washed thoroughly immediately after use.
  3. The contents of this bomb will ignite immediately with a highly incendiary effect upon contact with the air. Following the bursting of this bomb, a dense smoke screen will be emitted for at least two hours.

BRITISH BOMB

**120 LB. SMOKE**

FUZING . . . . . Nose Fuze No. 864 Mk I  
 COLOR & MARKINGS . . . . . Dark green overall with 1/2" red band around nose; tail is light green.  
 TAIL NO. . . . . No. 41 Mk II  
 BURNING TIME . . . . . 20 minutes  
 OVERALL LENGTH . . . . . 31"  
 BODY LENGTH . . . . . 15.8"  
 MAX. BODY DIAMETER . . . . . 9.8"  
 WALL THICKNESS . . . . . 0.25"  
 TAIL LENGTH . . . . . 15.1"  
 TAIL WIDTH . . . . . 10"  
 TOTAL WEIGHT . . . . . 120 lbs.  
 CHARGE/WEIGHT RATIO. . . . .

Mks I & II  
 (Service)

**CONSTRUCTION:** The bomb consists of a cylindrical body, to which the tail unit is secured, housing a metal container filled with a smoke composition, and a gunpowder ejection charge contained in nine celluloid capsules. The bomb body is a steel tube welded to a flattened nose-piece. The nose-piece is centrally tapped to receive the fuze and, during transit and storage, is sealed by a nose transit plug and leather washer. To the exterior of the bomb body is welded a suspension lug.

A steel flash plate, abutting the nose-piece within the bomb body, has secured to it a steel collar. A small centrally-located hole is drilled through the flash plate and is sealed by a paper disc. The nine celluloid capsules, each filled with 1 oz. 1 drgm. of gunpowder, are retained in the collar by a cardboard sleeve and felt and cardboard washers. The sleeve has six equi-spaced holes near its inner end.

The metal container, filled with approximately 50 lbs. of smoke composition (H.C.E.), is housed in the bomb body against the flash plate and has, at this end, a 3 in. diameter hole sealed with a celluloid disc. Between this disc and the smoke composition there are four strawboard washers, each with a 1 1/2 in. diameter hole, the hole so formed being sealed by two squares of primed fabric. The container is retained in position against the flash plate by a closing plate fitted into the rear end of the bomb body and secured by four metal tabs turned over.

The tail unit is secured to the bomb body by eight drive screws and consists of a tail cone to which a cylindrical vane is secured by four vane supports

**FUNCTIONING:** On impact of the bomb with the target, the magazine of the fuze explodes after a delay of not less than 1/2 sec., during which period the bomb will have come to rest. The flash from the fuze magazine, passing through the hole in the flash plate and the celluloid disc, ignites the two primed cambric squares, which in turn ignite the smoke composition in the container.

Concurrently with the ignition of the smoke composition, the flash from the fuze magazine also passes through the holes in the cardboard sleeve to initiate the gunpowder ejection charge contained in the nine celluloid capsules. The resulting explosion of the gunpowder ejects the tail, the closing plate, the container of burning smoke composition, and the flash plate, clear of the crater formed by the bomb.

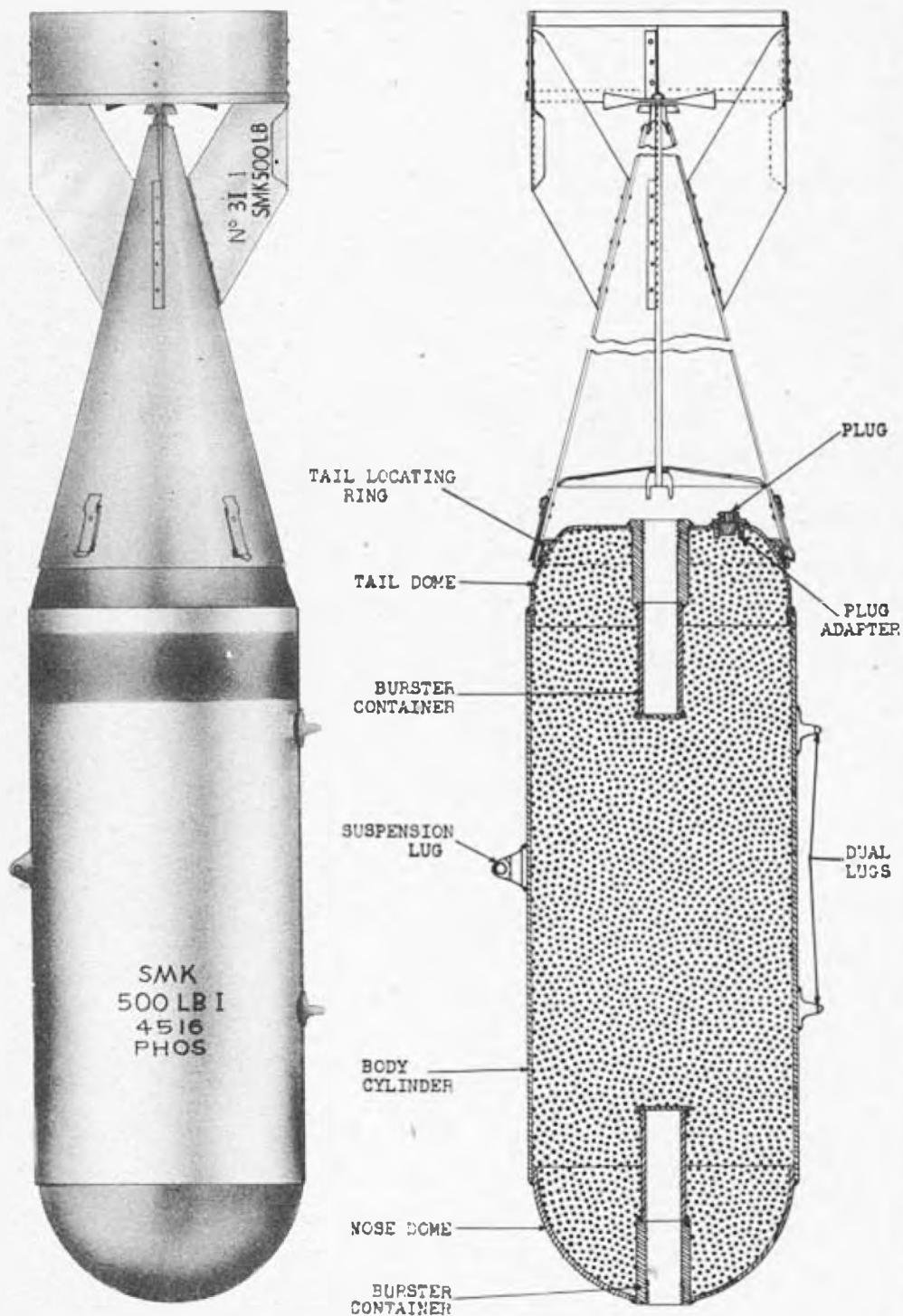
**SUSPENSION:** Two bombs may be carried in a 250 lb. Small Bomb Container, or the bombs may be suspended individually by a single lug. The Mk II bombs may be fitted with twin lugs for suspension in American aircraft.

**EXPLOSIVE COMPONENTS:** Magazine: Gunpowder  
 Ejector Charge: Gunpowder in nine celluloid capsules.  
 Main Filling: Smoke Composition (H.C.E.)

**REMARKS:** The smoke composition contained in these bombs is liable to spontaneous ignition should it become wet, particularly with sea water.

The Mk II bomb is similar to the Mk I in operation, the principal differences being a modified tail assembly and arrangement for twin suspension lugs for carrying in American aircraft.

# 500 LB. SMOKE BOMB



BRITISH BOMB

FUZING . . . . . Tail Pistol No. 30 Mk. IV  
 COLOR & MARKING . . . . . Dark green overall, with a  
 . . . . . red band around the lower  
 . . . . . part of the body  
 OVERALL LENGTH . . . . . 68.0"  
 MAX. BODY DIAMETER . . . . . 13.1"  
 BODY LENGTH . . . . . 41.0"  
 TAIL NO. . . . . No. 31 Mk. I  
 TAIL LENGTH . . . . . 28.0"  
 TAIL WIDTH . . . . . 13.1"  
 WALL THICKNESS . . . . . 3/16"  
 TOTAL WEIGHT . . . . . 400 lbs. (approx.)  
 CHARGE/WEIGHT RATIO . . . . . 60%

**500 LB. SMOKE**

Mk. I

(Service)

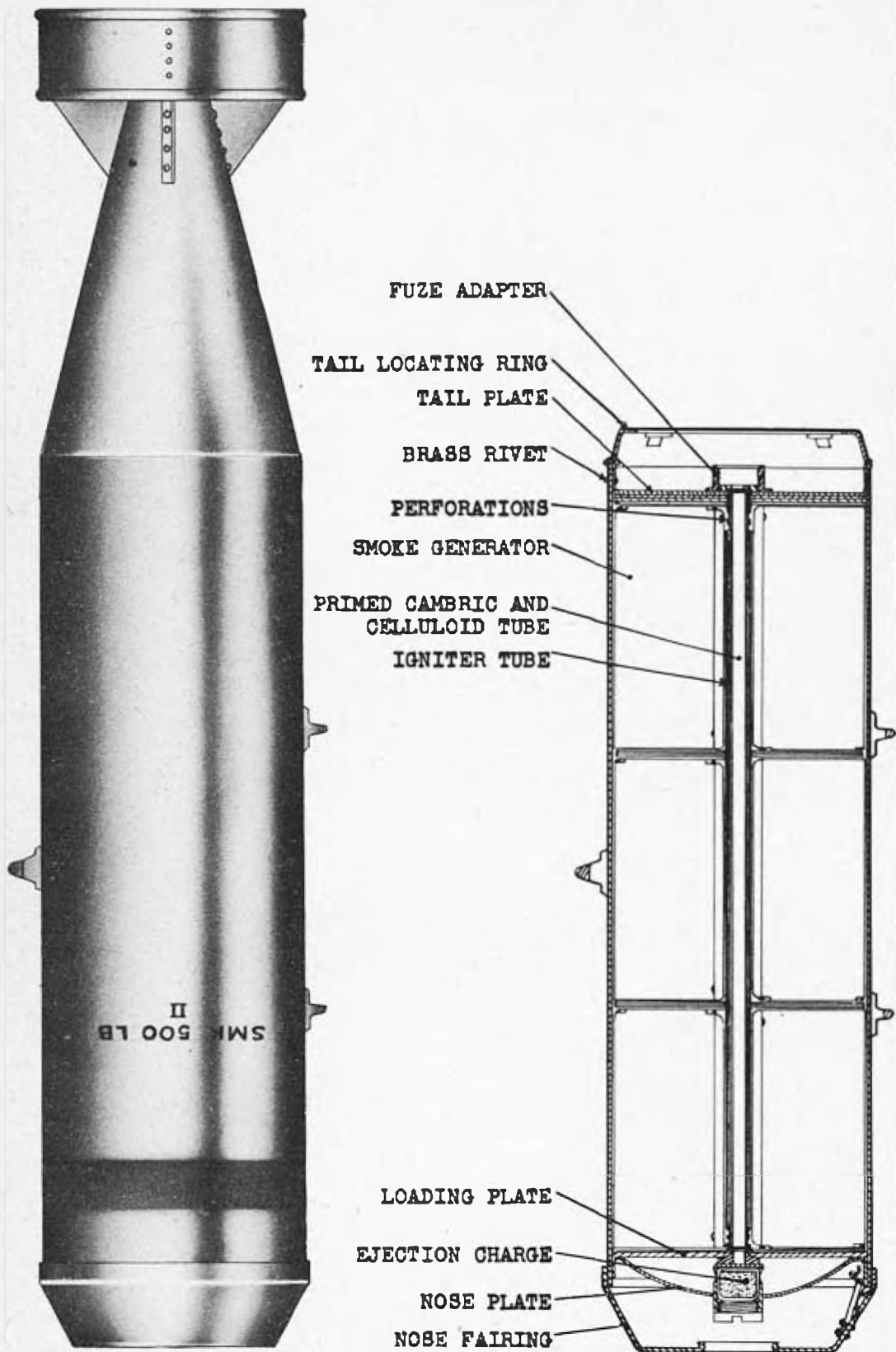
**BODY CONSTRUCTION:** This bomb consists of a cylindrical metal container with a hemispherical nose and tail piece welded at either end. Burster containers are located at each end of the bomb, and in the tail, to one side of the burster tube, is a filling hole closed with a threaded plug. A tail locating ring is welded around the after portion of the bomb body. A single suspension lug is provided for carrying in British planes, while two additional lugs are located 180° around from the first for American suspension.

Although provision is made in the bomb for alternate nose or tail fuzeing, the nose pocket is always closed with a plug, and only the tail pocket is employed.

**TAIL CONSTRUCTION:** The No. 31 Mk. I tail consists of a sheet metal tail cone to which are riveted four vanes supported by a cylindrical metal strut. The tail is attached to the bomb by four spring clips which engage the tail locating ring on the after end of the bomb body. Inside the tail cone, supporting the lower end of the reach rod, is located a diaphragm with four large holes to allow air passage.

**EXPLOSIVE COMPONENTS:** Detonator: No. 55 Mk. I  
 Burster: No. 1 Mk. I - Gunpowder  
 Filling: White phosphorous, 270 lbs.

# 500 LB. SMOKE BOMB



**FUZING** . . . . . Tail Fuze No. 885 or No. 886  
**COLOR & MARKINGS** . . . Green overall; red band near nose; black stenciling.  
**TAIL NO.** . . . . . No. 81 Mk. I  
**OVERALL LENGTH** . . . . 67"  
**BODY LENGTH** . . . . . 46"  
**MAX. BODY DIAMETER** . . . 13"  
**WALL THICKNESS** . . . . .  
**TAIL LENGTH** . . . . . 22"  
**TAIL WIDTH** . . . . . 13"  
**TOTAL WEIGHT** . . . . .  
**CHARGE/WEIGHT RATIO** . .

BRITISH BOMB

**500 LB. SMOKE**

Mk. II

(Service)

**BODY CONSTRUCTION:** The bomb consists of a cylindrical bomb body made of thin sheet steel, with a nose plate welded to one end of the body. Three catch brackets, spaced 120° apart are welded to the nose plate, and a nose fairing is secured to the catch brackets by spring clips. Immediately beneath the nose plate is located a loading plate.

An exploder pocket is welded to the nose plate and contains an ejection charge. A nose plug is screwed into the exploder pocket.

An igniter tube with four series of perforations extends down the center axis of the bomb and contains a celluloid tube holding a primed cambric tube. The igniter tube is held in place by the igniter tube holder, located in the center of the tail plate.

The remainder of the bomb body is filled with three banks of smoke generators, each bank consisting of eight wedge-shaped units fitted with drag plates.

A tail plate, to which is welded the fuze adapter, is secured to the inside of the after end of the bomb body by six brass rivets. A tail locating ring is fitted to the inside of the tail plate.

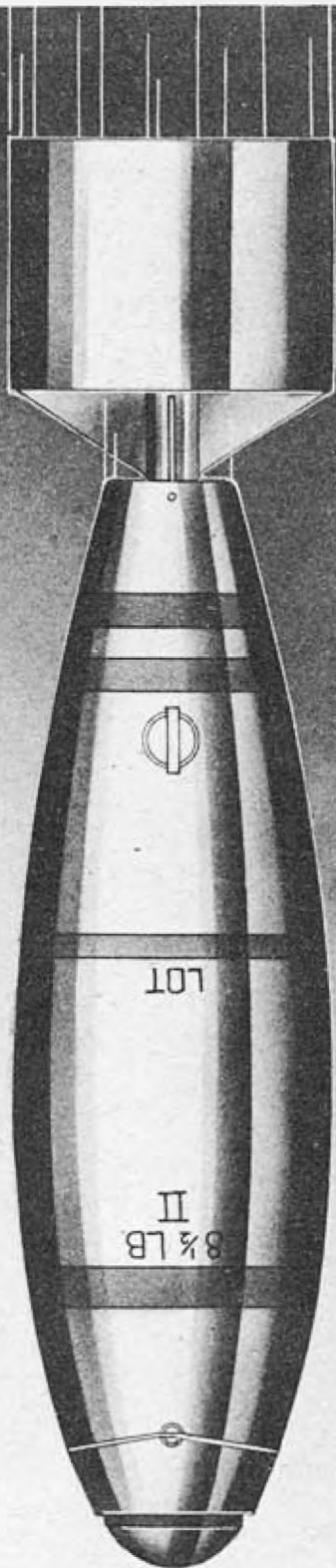
**TAIL CONSTRUCTION:** No. 81 Mk. I: This tail consists of a cylindrical strut held in place on the truncated tail cone by four sheet metal fins. The tail is held in place by the usual four spring clips which engage in four similar recesses in the tail ring on the bomb body. A locating pin in the tail ring engages a slot in the bottom edge of the tail cone to position the tail.

**SUSPENSION:** This bomb is equipped for suspension in either British or American aircraft, having on one side a single suspension lug and dual lugs 180° removed.

**FUNCTIONING:** When the bomb is released from the aircraft, the fuze is armed. At a predetermined height, the fuze functions, and the flash from the fuze magazine ignites the contents of the igniter tube. The perforations in the igniter tube allow the burning celluloid and primed cambric to initiate the smoke generators and eventually the ejection charge. The pressure of the gases generated by the ignition of the ejection charge bears against the loading plate and forces the whole inner assembly against the tail plate, which shears the six brass rivets which hold it to the bomb casing. The tail plate and attached tail unit are then thrown clear of the bomb, and the bomb contents are ejected through the tail.

**REMARKS:** 1. Should water, especially sea water, come into contact with the smoke composition used in this bomb, the smoke composition is liable to spontaneous combustion due to chemical action.

# PRACTICE BOMBS



RESTRICTED

## USE

Included in this section are only three practice bombs. These are the only ones specifically designed for that purpose, although there are currently in use several practice bombs which are merely service bombs inert loaded with sand, water, or a chalk/lime solution. The standard practice bombs generally emit smoke as a spotting charge to indicate bombing accuracy.

## CHARACTERISTICS

Standard practice bombs are painted white overall with two light green bands painted around the center of the tail. Inert loaded service bombs used as practice are painted black. Practice bombs containing an exploder have a red band painted around the body.

FUZZING . . . . . None  
 COLOR & MARKINGS . . . White overall with two 1" green bands.  
 OVERALL LENGTH . . . . 16"  
 MAX. BODY DIAMETER . . . 4"  
 WALL THICKNESS . . . .  
 TOTAL WEIGHT . . . . . 8 lbs. (approx).

BRITISH BOMB

**8 LB. PRACTICE**

Smoke  
 Break - up  
 Mk. I

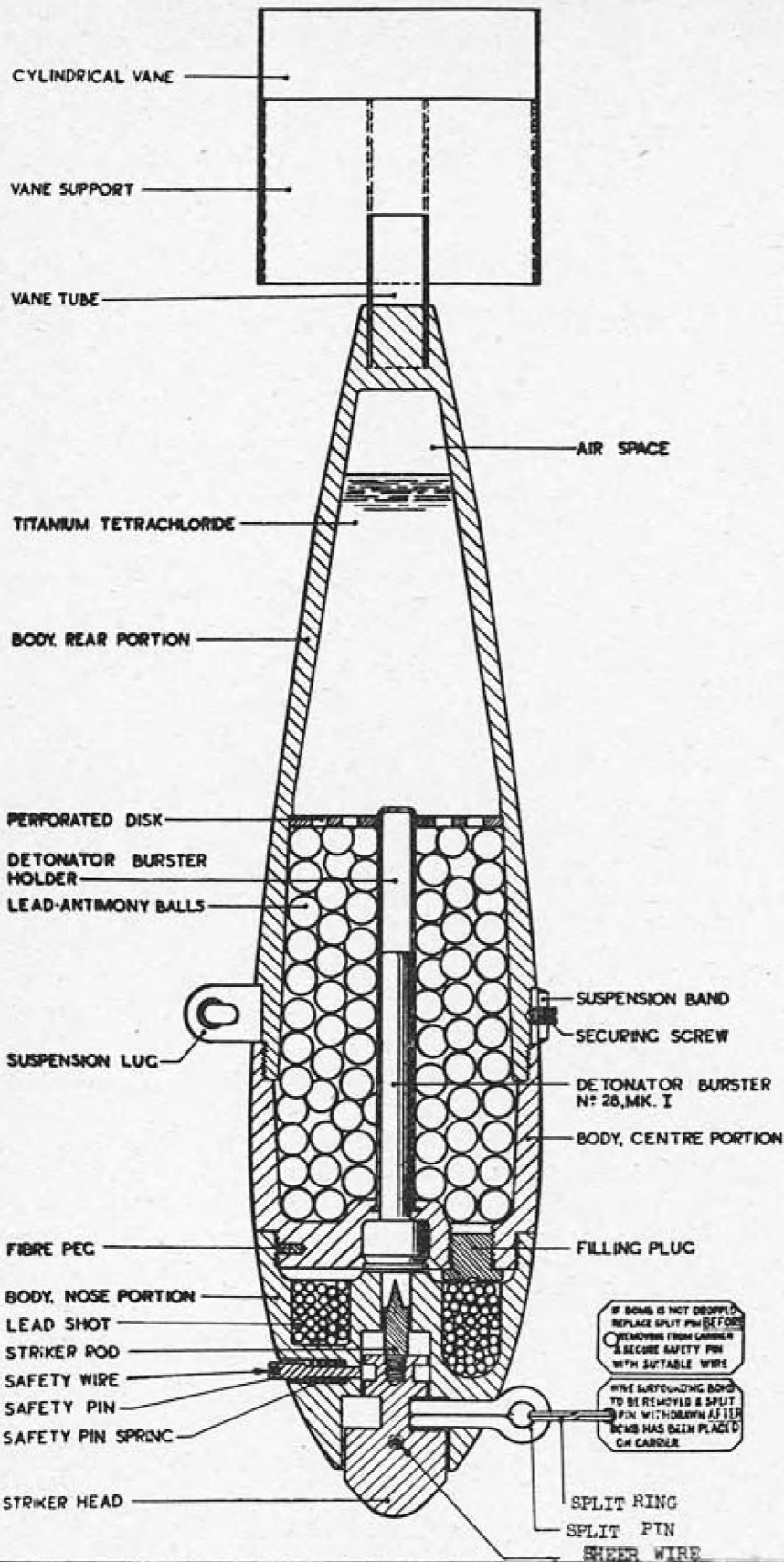
(Service)

**BODY CONSTRUCTION:** The body consists of an asbestos cement cylinder, in the nose of which is cemented a glass flask containing about 1/2 pint of titanium tetrachloride. The rear of the cylinder is hollow and acts as a tail unit. A light metal suspension band is secured to the exterior of the bomb body.

**FUNCTIONING:** On impact the bomb body and glass flask break up, releasing the titanium tetrachloride to form a smoke cloud. The bomb contains no explosive.

**REMARKS:** 1. The bomb is designed for low level training purposes against airfield targets, and is of such construction that it leaves no debris injurious to aircraft tires.

# 8.5 LB. PRACTICE BOMB



FUZZING . . . . . Simple striker assembly with  
detonator-burster No.28 Mk I.  
COLOR & MARKINGS . . . . White overall, with two 1/2" <sup>n</sup>  
green bands 1/2" apart around  
tail cone.  
OVERALL LENGTH . . . . . 18 in.  
MAX. BODY DIAMETER . . . . 3 in.  
TAIL WIDTH . . . . . 3 in.  
TOTAL WEIGHT . . . . . 11.5 lbs.

BRITISH BOMB**11.5 LB. PRACTICE**

Mk I - Smoke

Mk I - Flash

(Service)

**BODY CONSTRUCTION:** Bomb consists of a nose casting, fitted with a striker assembly and a tail cone which constitutes a container for the filling and is fitted with a central tube for a detonator burster. Nose casting made of iron, internally threaded at rear to receive spigot portion of a central plug which closes the forward end of the tail cone. Interior of nose filled with lead, having a clearance hole for the striker rod. Striker secured by a cotter pin (removed when loaded), a safety pin spring-loaded out, and a shear wire through the guide bush.

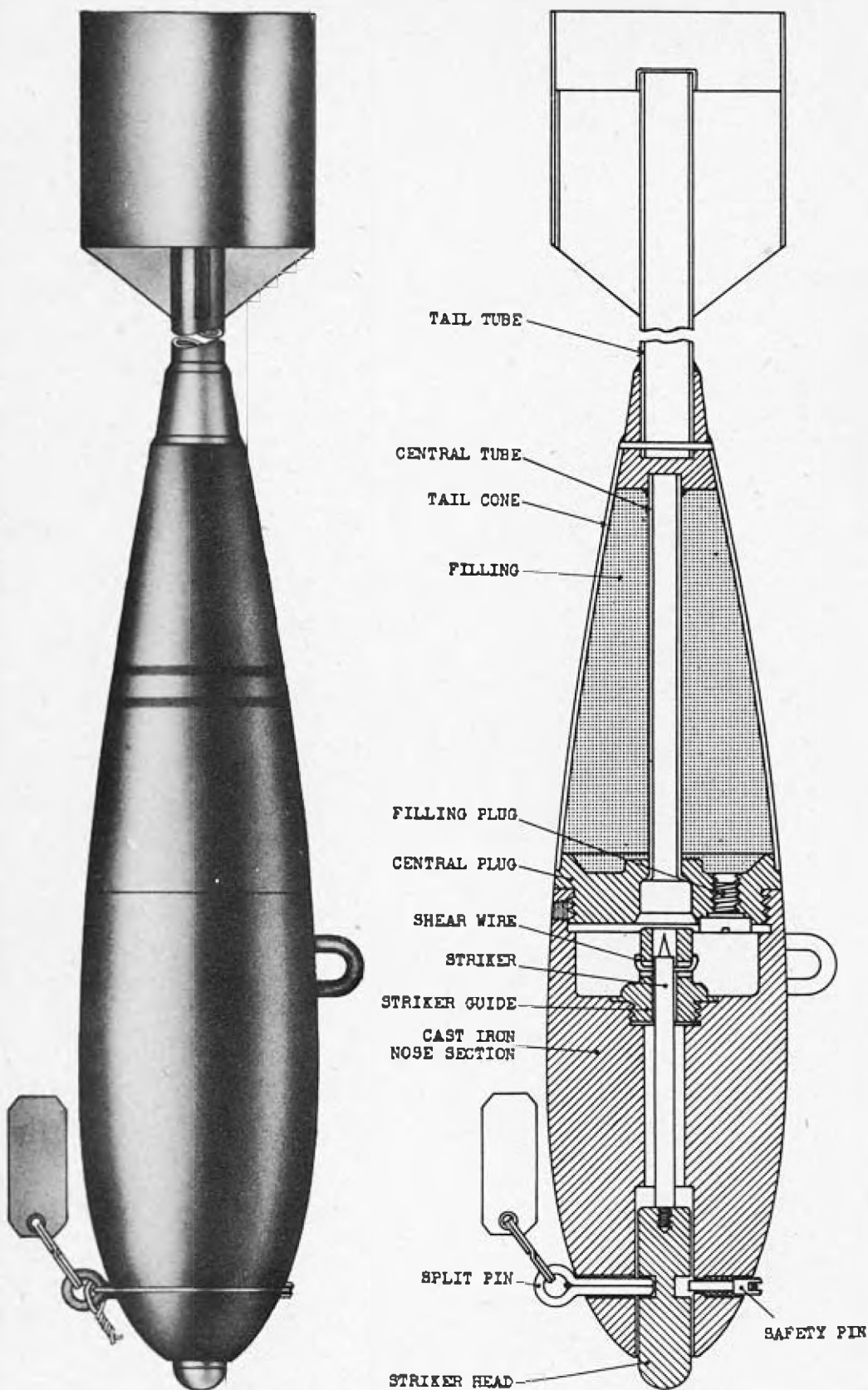
**TAIL CONSTRUCTION:** Sheet metal tail cone, constituting the container for the filling, is closed at the rear by a conical steel tail plug and at the forward end by a central plug which screws into the rear of the nose casting. A tapped hole is provided in the central plug for filling purposes. Secured to the tail plug is a tail tube having four fins which carry a cylindrical strut. Tail tube closed at rear by a cap.

**SUSPENSION:** Single eyebolt which threads into bomb case.

**EXPLOSIVE COMPONENTS:** Detonator-burster: 10 grains fulminate of mercury and 7 C.E. pellets.  
Smoke filling: 1 lb. Titanium tetrachloride, which produces white smoke when detonator-burster breaks open tail cone and exposes it to the atmosphere.  
Flash Filling: 1 lb. mixture of gunpowder and magnesium turnings, producing a brilliant white flash on impact.

**REMARKS:** (1) Smoke is used as filling for daytime use; flash mixture at night.  
(2) Mk II of these bombs was made in the U.S. of bakelite, but now scrapped.

# 25 LB. PRACTICE BOMB



FUZING . . . . . Simple impact striker with  
detonator burster No. 28  
Mk. I.

COLOR . . . . . White overall.

MARKINGS . . . . . Mk. I: two  $\frac{1}{2}$ " green bands on  
tail cone.  
Mk. III: two  $\frac{1}{2}$ " black bands  
on tail cone; one red  
band on nose.

OVERALL LENGTH . . . . . 22"

MAX. BODY DIAMETER . . . . . 4"

TOTAL WEIGHT . . . . . 25 lb. (approx.)

BRITISH BOMB**25 LB. PRACTICE**

Mk. I - Smoke

Mk. III - Flash

(Service)

**BODY CONSTRUCTION:** This bomb consists of a solid cast iron nose section bored centrally to house a striker head, to which are attached a long striker rod and striker. A striker guide bush is threaded into the after end of the central bore. A shear wire through the guide bush and the striker prevents the striker from contact with the detonator-burster in the unarmed position.

During transit and normal handling, the striker also is retained by a split pin and a spring-loaded safety pin. The split pin is removed when the bomb is loaded aboard the plane, and the safety pin is ejected when the bomb is released.

**TAIL CONSTRUCTION:** The tail consists of a long tail cone, closed at the wider end by a central plug. A central tube for the detonator-burster passes through the tail cone. Located in the central plug, slightly off-center, is a filling plug through which the smoke or flash filling is inserted. Like most British practice bombs the filling is contained in what is actually a part of the tail portion of the bomb. A tail tube is attached to the after end of the tail cone and supports a cylindrical shroud and four fins. The central plug is threaded externally and screws into the after end of the cast iron nose section of the bomb.

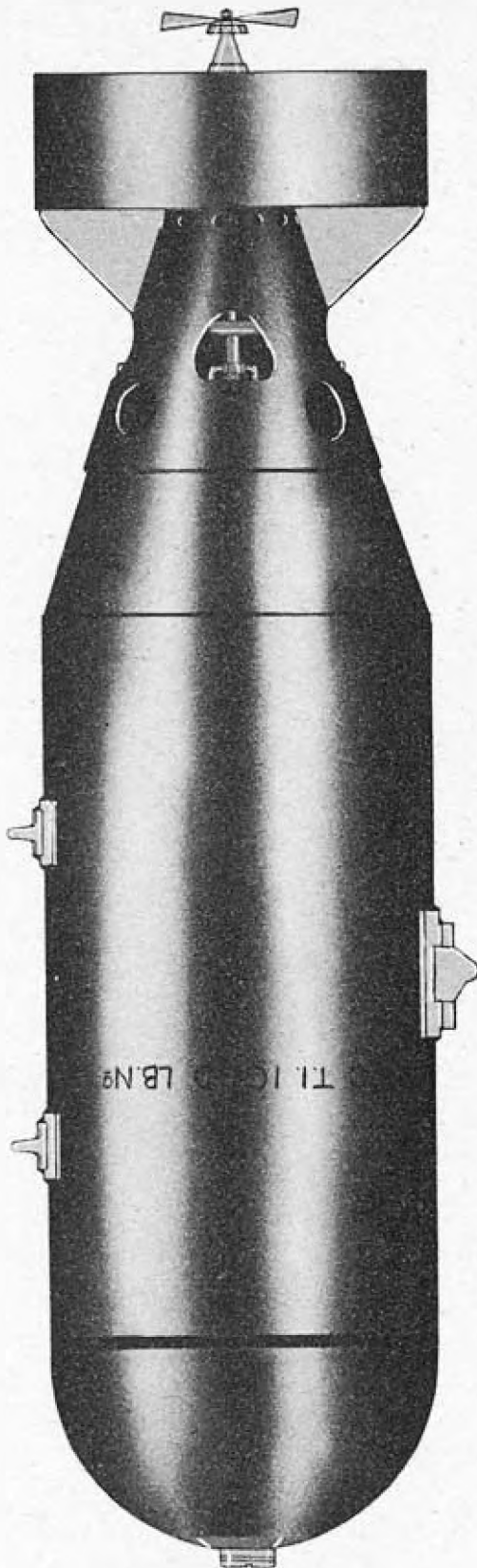
**SUSPENSION:** A single U-shaped suspension lug is provided.

**EXPLOSIVE COMPONENTS:** Detonator-burster No. 28 Mk. I: 10 grains fulminate of mercury and 7 C.E. pellets.  
Smoke Filling, Mk. I Bomb: Titanium tetrachloride.  
Flash Filling, Mk. III Bomb: Magnesium shavings and gunpowder, or calcium silicide and gunpowder.

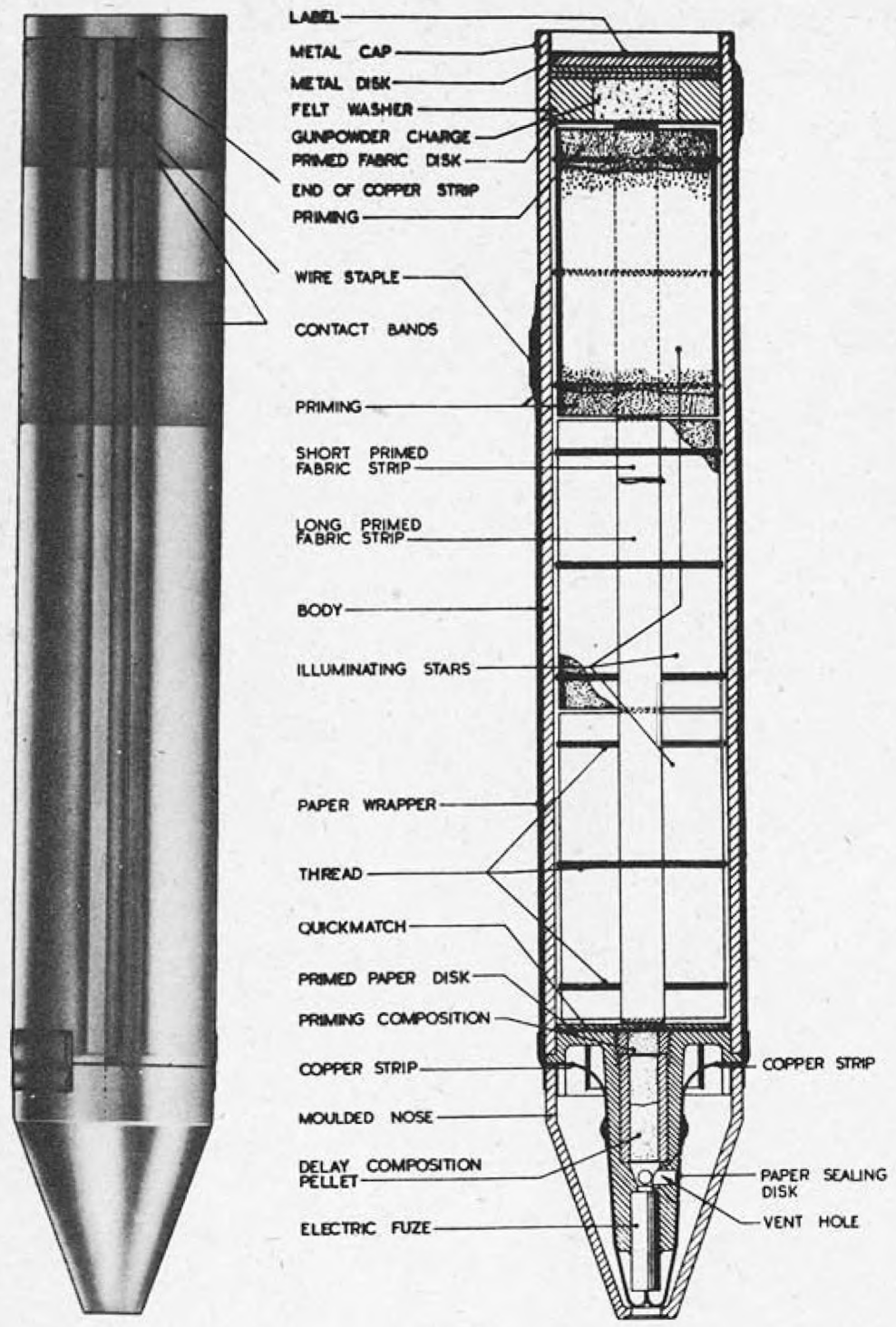
**REMARKS:**

1. The smoke filled bombs are used for daylight operations; the flash filled at night. Because of their solid cast iron noses, these bombs should not be used against lightly armored targets.
2. The Mk. I and Mk. III bombs are identical, except for the fillings.

# 1000 LB. T.I. BOMB

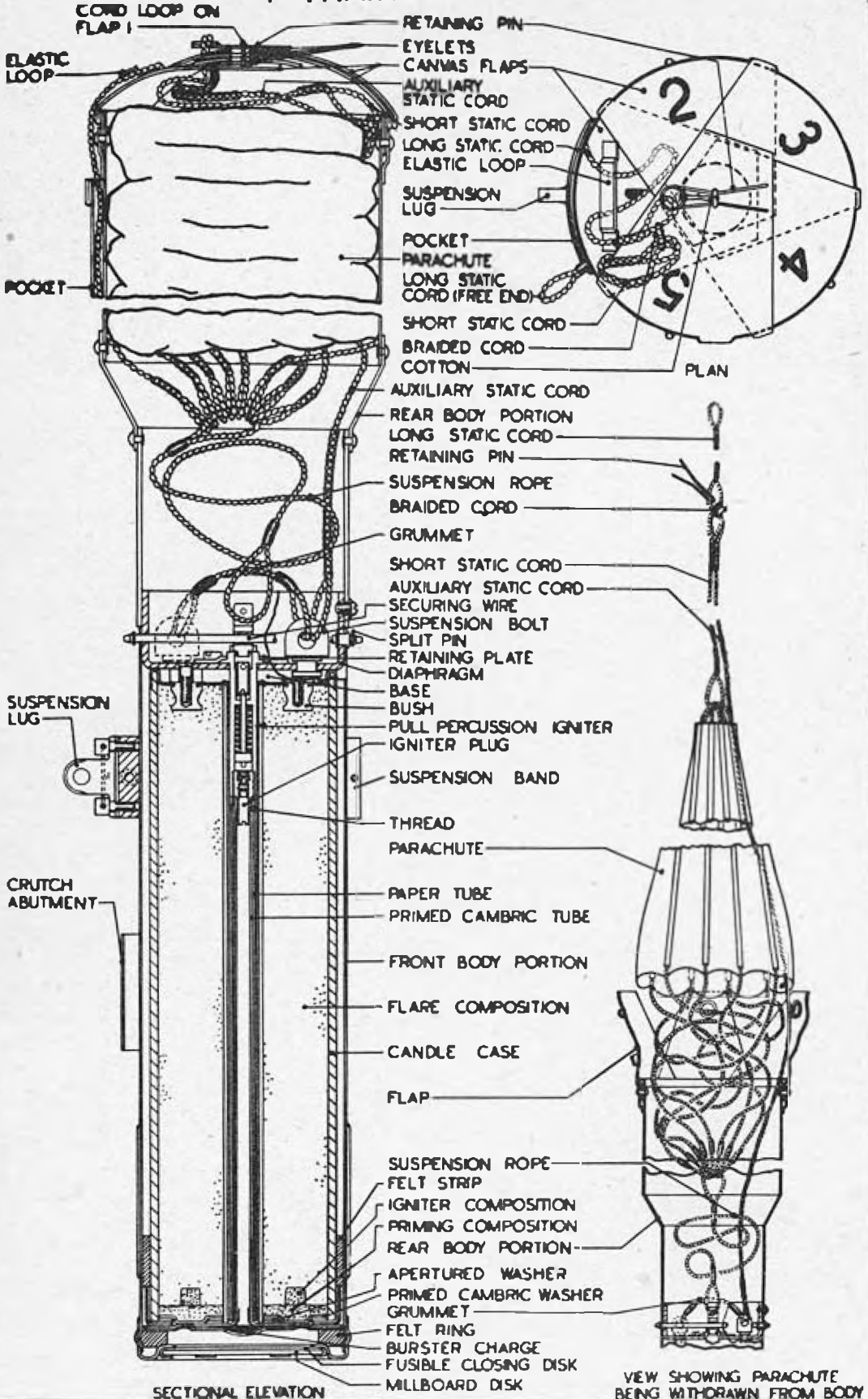


# AIRCRAFT ILLUMINATOR FLARE NO.1 MK.II





# 4" TRAINING FLARE



FUZING . . . . . Nose Fuzes Nos. 35, 42, 848, or 849 usually; may use No. 28B, II or III or No. 860 with special permission.

COLOR & MARKINGS . . . . Black overall with  $\frac{1}{2}$ " red band around nose end.

OVERALL LENGTH . . . . . 33"

MAX. BODY DIAMETER . . . . 4.5"

PARACHUTE DIAMETER . . . . 11 ft.

TOTAL WEIGHT . . . . . 23 lbs.

BURNING TIME . . . . . 3 - 4 minutes

CANDLE POWER . . . . . 750,000

## BRITISH BOMB

## 4.5" RECONNAISSANCE

Mk IV  
(For Mk I, II, III, VII & Target Flare, Mk I - see "Similar Flares" below)

(Service)

**DESCRIPTION:** The flare has a tubular body containing the candle unit and the parachute, which is made of cotton. The tail end of the body is closed by a closing dome, and has four tail fins. The body is closed at the nose end by a diaphragm having a bush into which is screwed a nose plug or the fuze. Flare composition is contained in a candle case together with some priming composition and a primed cambric disc at the nose end, a quantity of clay held between millboard discs, and a felt washer at the tail end. A lid is riveted to the tail end of the candle case. A shackle attached to the lid connects the candle unit with the suspension rope of the parachute.

**SUSPENSION:** A suspension band having two removable suspension lugs, one for attaching the flare to a Universal bomb carrier, and the other for attaching it to a Light Series bomb carrier, is secured to the flare body. Seven flares may be carried in Cluster, No. 1 Mk I; four in SBC 250 lb.

**FUNCTIONING:** When the fuze flare is released from the plane, the fuze is set in operation and the flare drops freely until the flash from the magazine charge of the fuze passes through the flash hole in the diaphragm and ignites the powder puff. The gases formed by the burning of the gunpowder in the puff force the candle unit towards the closing dome and the wooden slats push off the dome, thus permitting the candle unit and the parachute to be ejected from the flare body, which, together with the expended fuze, falls away. The flash from the puff ignites the primed cambric disc and the priming composition at the nose of the candle, and the priming composition ignites the flare composition. The candle, which is now suspended on its parachute, continues to burn from the nose end until the flare composition is expended.

**SIMILAR FLARES:** 4.5" Mk I - Similar to the Mk IV flare, but has larger tail fins, a Mk II silk parachute, a brass disc over the flash hole in the diaphragm, and its candle case is not strengthened in the region through which the lid rivets pass.

4.5" Mk II - Similar to the Mk IV flare, but has larger tail fins, a Mk IV silk parachute, a brass disc over the flash hole in the diaphragm, and its candle case is not strengthened in the region through which the lid rivets pass.

4.5" Mk III - Similar to the Mk IV flare, but it has larger tail fins, a brass disc over the flash hole in the diaphragm, and its candle case is not strengthened in the region through which the lid rivets pass.

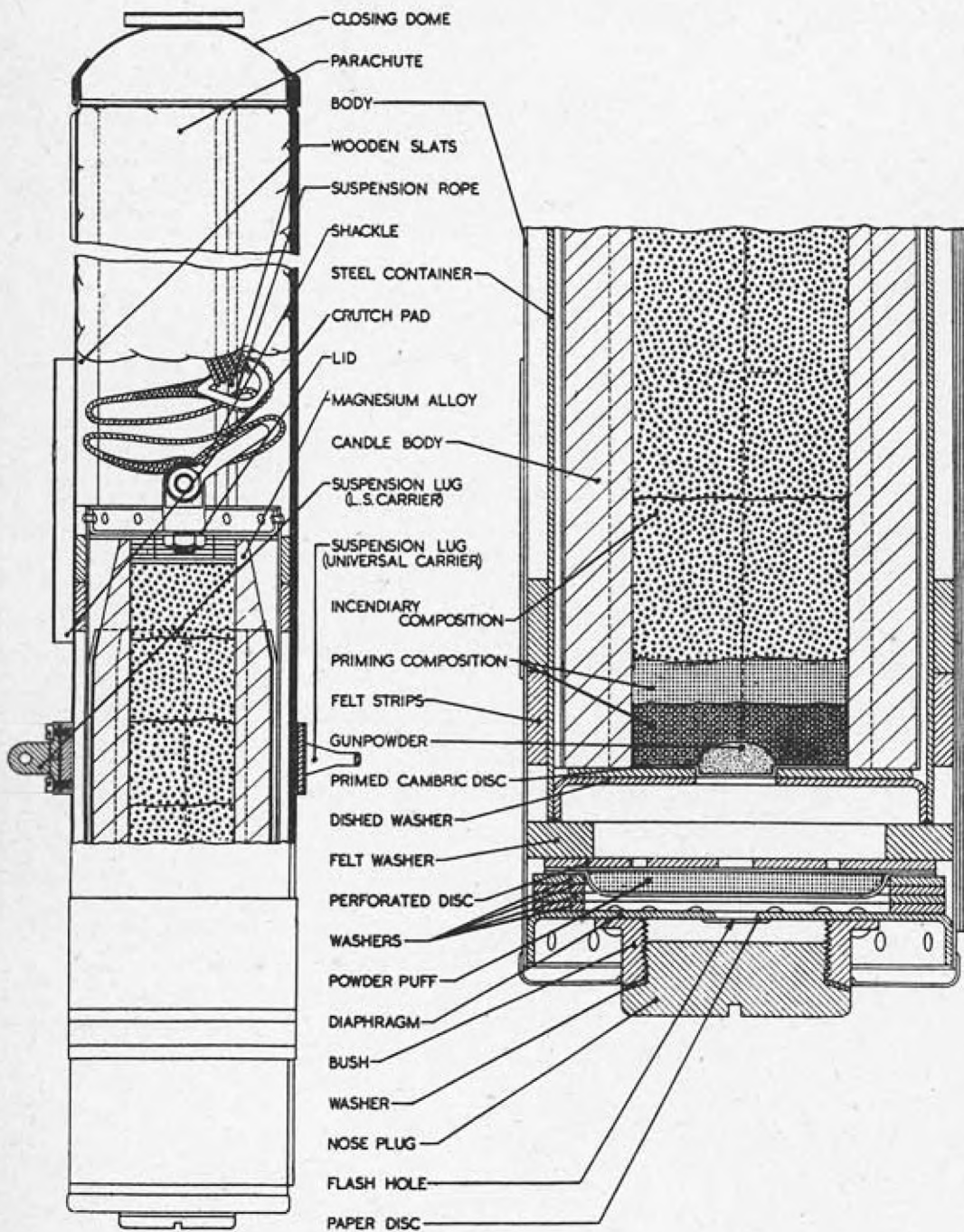
4.5" Mk VII - Similar to the Mk IV flare, only it has a modified parachute known as the Mk VP parachute.

Target Flares, Mk I - Details are the same as the 4.5" reconnaissance flare, Mk IV, except for the stencilled markings. Also, when falling, the target flares give either a red or green steady color with seven stars of the other color thrown out at intervals.

**REMARKS:** (1) The No. 42 and No. 848 fuzes incorporate an interchangeable delay capsule intended to give a delay such as to fire a 4.5" Mk III or IV flare at a height of 3,000 ft. above sea level. Delays range from 4 to 32.5 seconds.

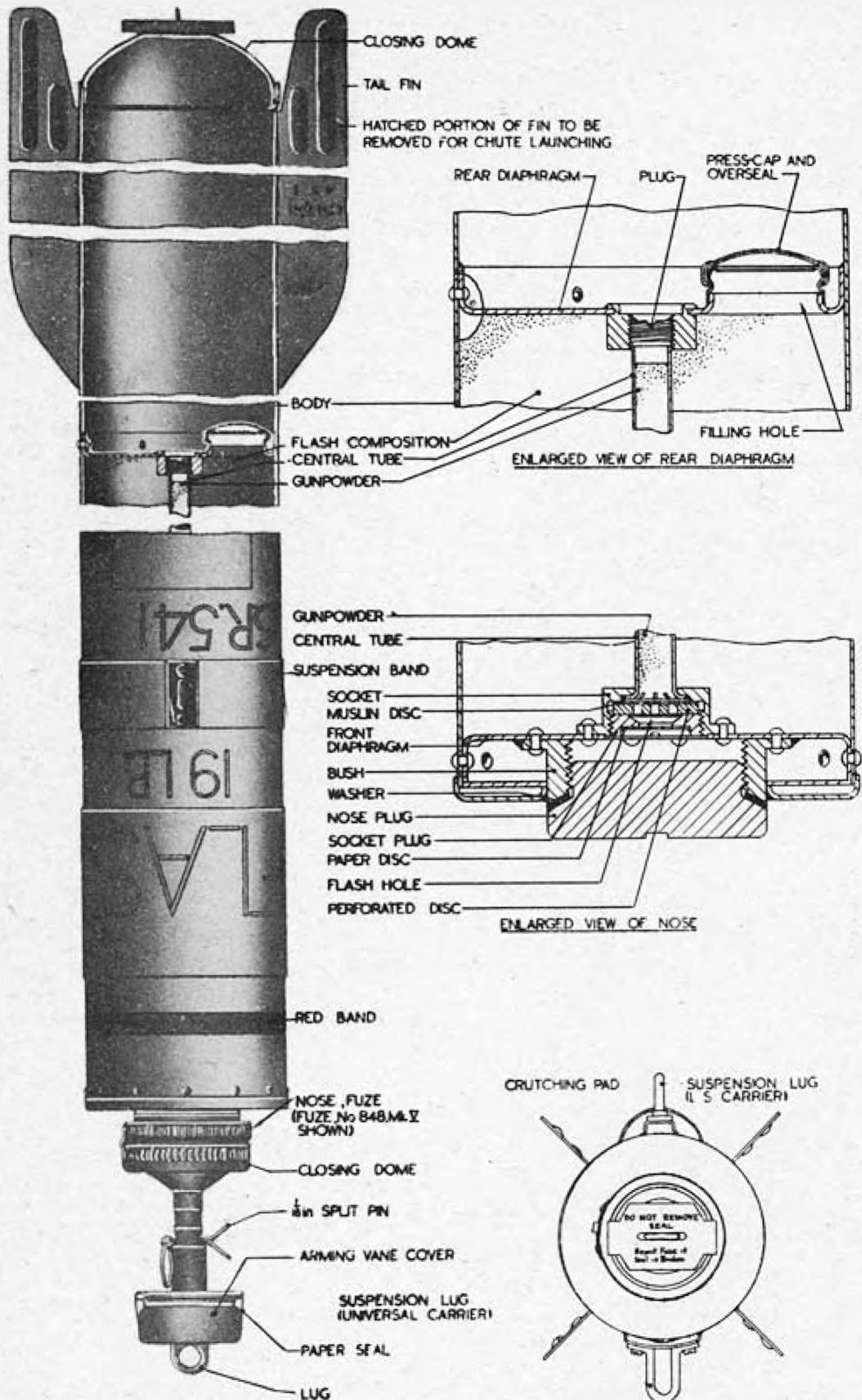
(2) For external view, see page 116.

## 4.5" SKYMARKER FLARE

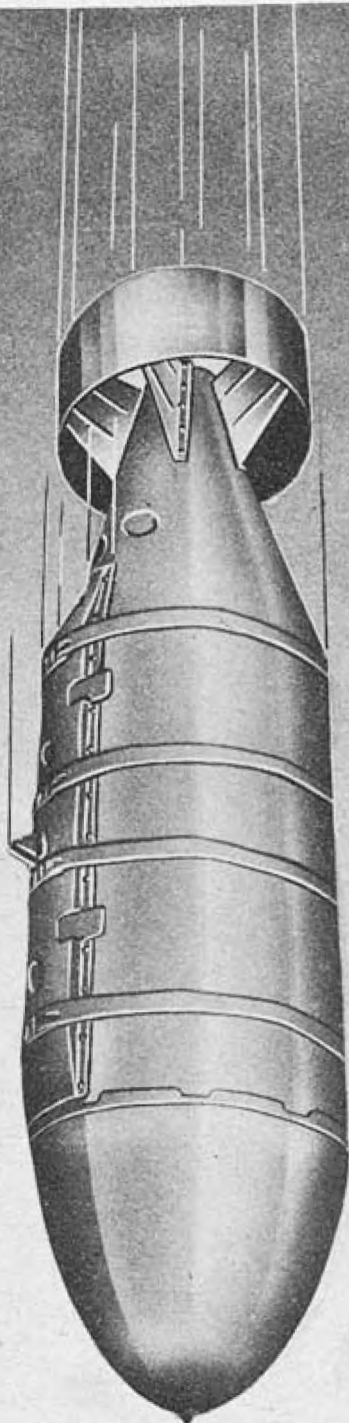




# 4.5" PHOTOFLASH BOMB



# CLUSTER PROJECTILES



~~CONFIDENTIAL~~

## USE

A cluster projectile is an assemblage of small bombs or containers held together primarily by resilient straps and beams. It is constructed so as to be an aimable projectile and is usually fitted with a tail unit for stabilization.

At present there are cluster projectiles for flares, incendiary bombs, smoke bombs, and the small fragmentation bombs. The cluster projectiles are rapidly replacing the Small Bomb Containers as the preferred method for carrying small bombs and flares. Advantages of the Cluster Projectile include ease of loading and installation in the aircraft, increased number of bombs or flares contained in the same space, and increased accuracy.

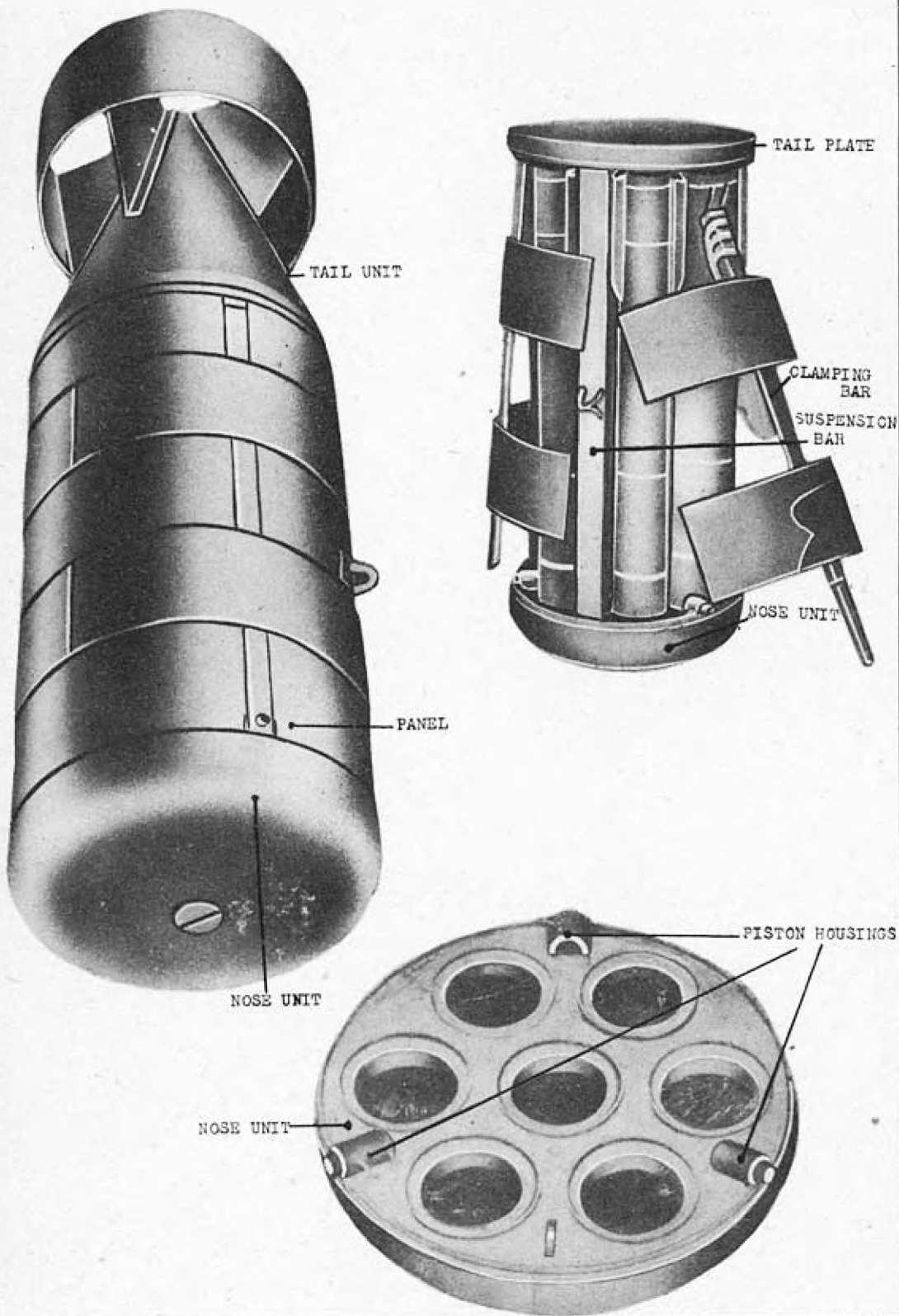
## FUZING

Fuzes are incorporated in the projectiles to disintegrate the cluster itself and permit the individual bombs to disperse and fall freely. Flare clusters are fuzed either at the nose or tail and have explosive channels and pellets so designed as to break up the cluster without injuring any of the contained bombs. Frag., smoke, and incendiary bomb clusters are fuzed in the tail only and are disintegrated by a mechanical lever arrangement.

## CHARACTERISTICS

Usually the bombs or flares are shipped already packed in the cluster projectile so assembly of the complete round is not necessary in the field. The fuze of the cluster is generally installed just prior to loading the projectile on the aircraft.

# CLUSTER PROJECTILE NO. 1 MK. I



FUZZING . . . . . Nose Fuze No. 42, 848, 849,  
or 860, Mk II.  
CONTENTS . . . . . Seven 4.5" reconnaissance  
flares.  
OVERALL LENGTH . . . . . 62.75"  
DIAMETER . . . . . 18"  
TOTAL WEIGHT . . . . . 260 lbs.  
COLOR . . . . . Dark green overall.

BRITISH BOMB

## CLUSTER PROJ.

No. 1, Mk. I

(Service)

## DESCRIPTION:

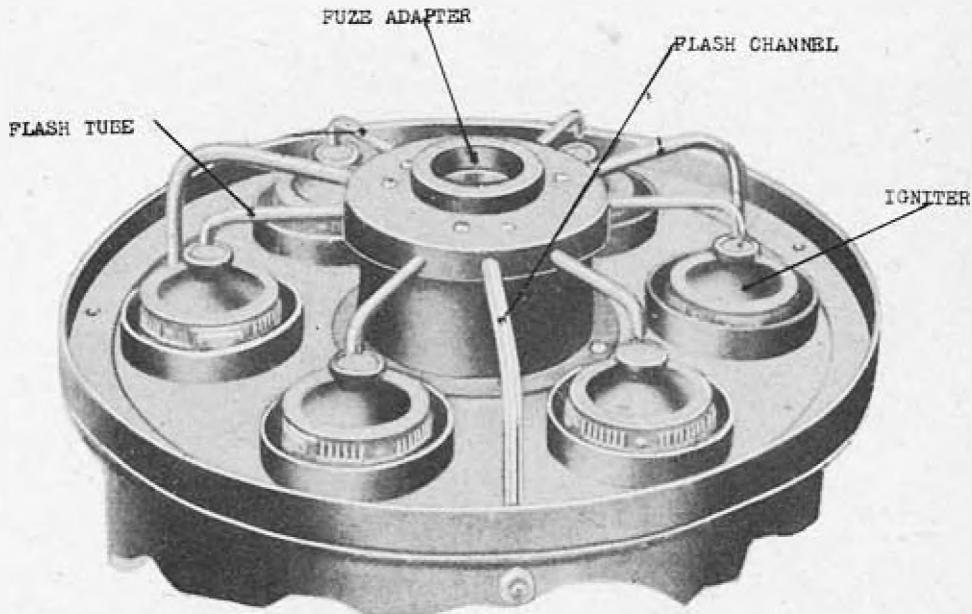
Cylindrical metal container consisting of a nose unit recessed to receive the noses of seven 4.5" reconnaissance flares and a fuze adapter from which radiate six flash tubes to the igniters and three flash channels leading to the explosive pellets in the piston housings. The nose unit is secured to the panel locating plate and the tail plate by the T-section suspension bar and the clamping bars. The clamping bars consist of a bar to which are welded two panels. The clamping bars locate the panels and are secured through the panel locating plate to the tail plate and to the nose unit by spring washers and nuts. The nuts securing the clamping bars to the piston housings are further secured by split pins. The tail tie rod is screwed into the tail plate and the tail unit fastened to it by a spring washer and nut. Tail consists of a sheet metal cone with cylindrical strut attached by four fins on the rear of the tail cone. The flares from which the suspension lugs and domed caps have been removed are located by the recesses in the nose unit and panel locating plate. The flares are fuzed with special igniters consisting of the body and dome portion of the No. 42 fuze without the percussion cap and striker mechanism, and sealed with primed cambric.

## SUSPENSION:

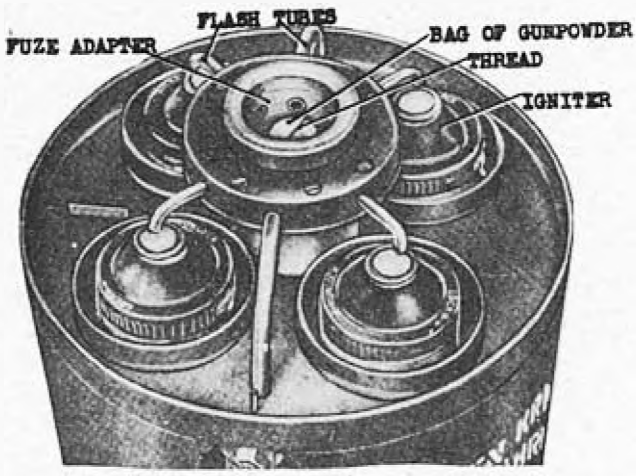
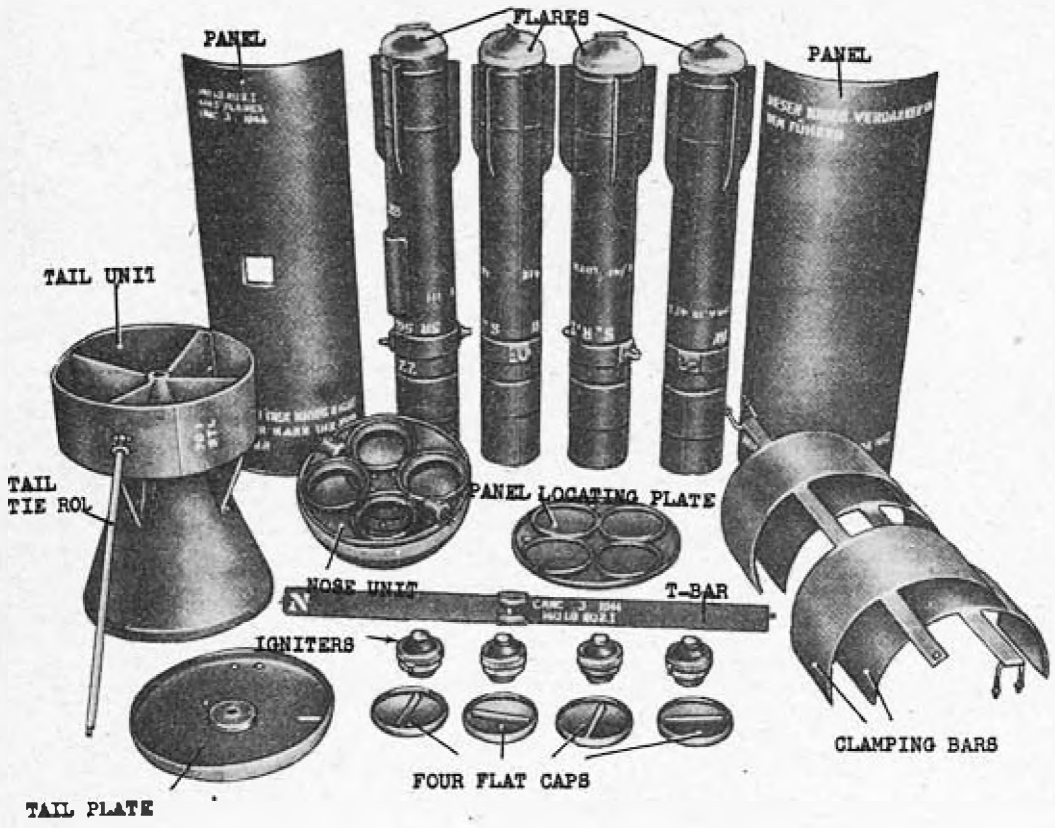
Single lug secured to a T-section suspension bar running from the nose to the base.

## FUNCTIONING:

On release from the aircraft the cluster falls normally until the fuze functions. When the fuze functions the flash from the magazine passes through the flash tubes to ignite the igniters in the nose of each flare and through the flash channels to explode the gunpowder pellets in the piston housings. The explosion of the pellets forces the pistons out of their housings, causing the clamping bars to swing outwards, thereby releasing the nose unit, panels and initiated flares. The flares then function in the normal manner.



# CLUSTER PROJECTILE NO.2 MK.1



FUZING . . . . . Nose Fuze No. 848, 849,  
 or 860 Mk. II.  
 COLOR . . . . . Dark green overall.  
 CONTENTS . . . . . Four 4.5" flares.  
 TAIL NO. . . . . No. 70 Mk. I  
 OVERALL LENGTH . . . . . 53.25"  
 MAX. BODY DIAMETER . . . . . 12.35"  
 TOTAL WEIGHT . . . . . 140 lbs. (approx.)

BRITISH BOMB

# CLUSTER PROJ.

No. 2 Mk. I

(Service)

**DESCRIPTION:** This cluster is designed to hold four 4.5" flares. The components of the cluster consist of a nose unit, four flat caps (which replace the dome-shaped tail closing caps of the flares), a T-bar, a panel locating plate, a tail plate, two clamping bars, two panels, and a tail unit.

When the cluster projectile is assembled, the four flares are located between the nose unit and the panel locating plate, and the assembly is held together by the clamping bars. The tail plate is also retained in position by the clamping bars, and the tail unit is secured to the tail plate by a nut and washers fitted to one end of a tie-rod whose other end is screwed into the tail plate. The panels enclose the flares, and the T-bar, which positions the panel locating plate and the tail plate relatively to the nose unit, carries a suspension lug by which the cluster projectile is attached to a bomb carrier.

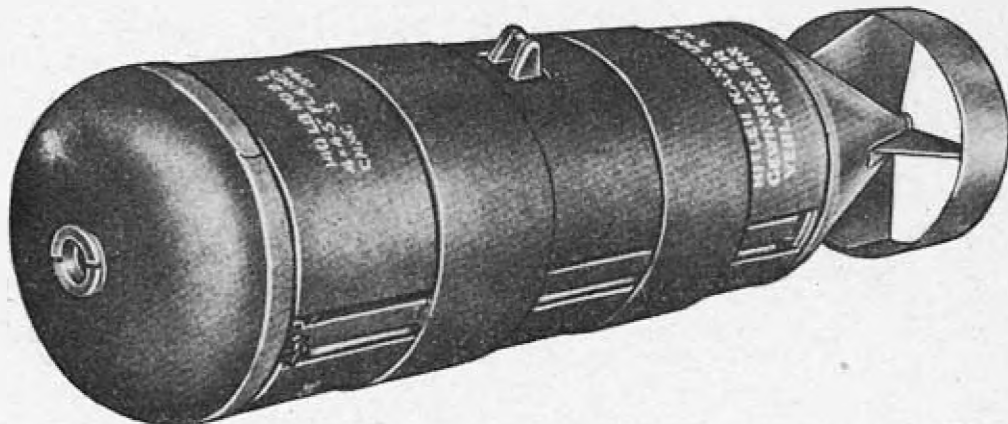
**TAIL CONSTRUCTION:** Tail No. 70 Mk. I consists of a shortened tail cone, the base of which fits over the rim of the tail plate, and a tail drum secured to the tail cone by four fins. The tail unit is attached to the tail plate of the cluster by a tie-rod passing down the center axis of the tail cone.

**SUSPENSION:** This cluster is designed for suspension in British aircraft only. A single suspension lug is fitted to the T-bar of the cluster.

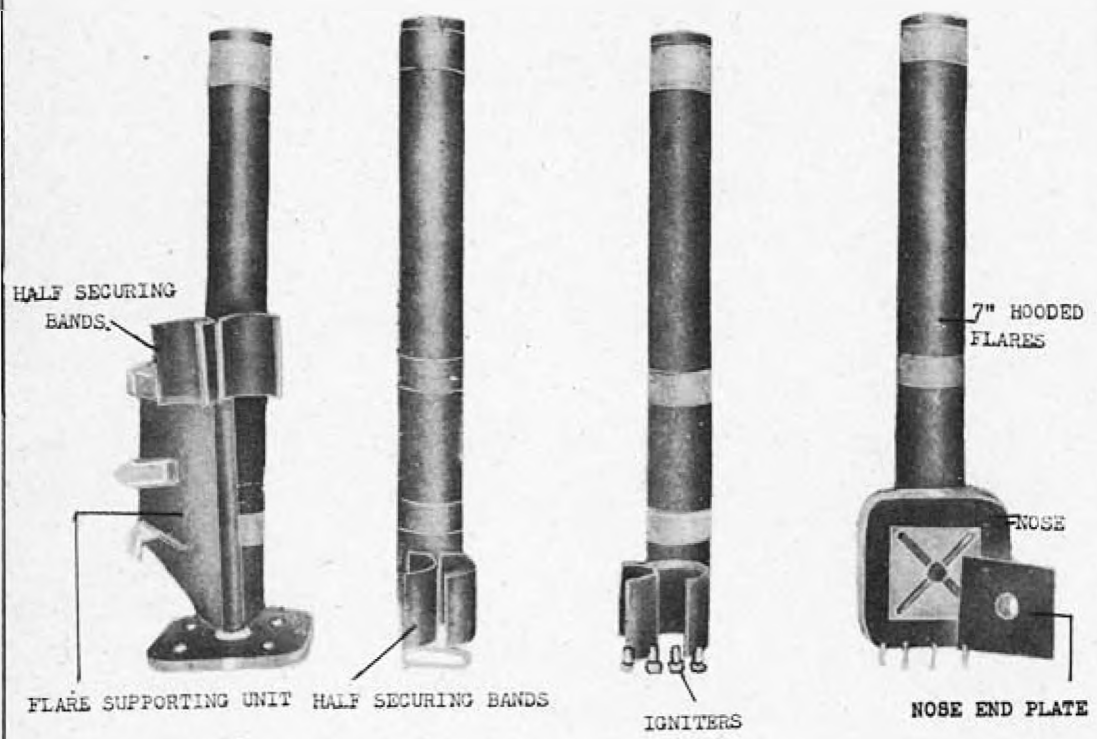
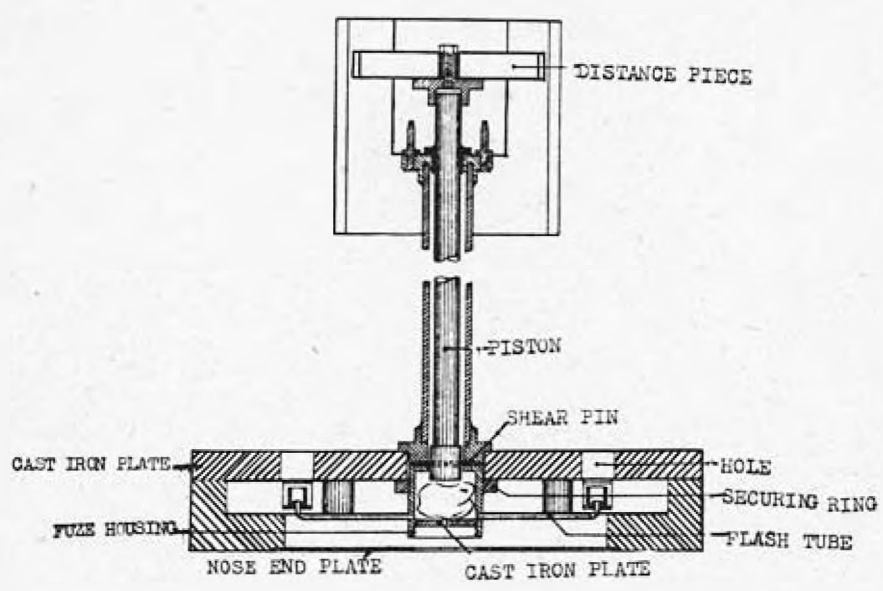
**FUNCTIONING:** When the fuzed cluster projectile is released "live" from the aircraft, the fuze is set in operation. When the gunpowder in the fuze magazine explodes, the flash ignites the gunpowder contained in the small bag in the fuze adapter of the nose unit. The boosted flash passes through the six flash tubes, initiates the igniters fitted to the four flares, and fires the gunpowder in the piston housings.

The gases formed by the ignition of the gunpowder in the piston housings force the pistons out of the housings, shearing the brass shear pins, and so causing the clamping bars to swing outward on the U-bolts. This outward movement of the clamping bars releases the nose unit, the panels, and the initiated flares. The parts of the disintegrated cluster fall separately, and the flares, initiated by their igniters, function in the normal manner.

**REMARKS:** 1. In addition to normal stencilling in English, propaganda messages in German are stencilled in white paint on the sides of the panels.



# CLUSTER PROJECTILE NO.3 MK.1



**FUZZING** . . . . . Tail Fuze No. 867 Mk. I or No. 885 Mk. I  
**COLOR** . . . . . Dull red overall; one of tensioning straps painted bright red.  
**CONTENTS** . . . . . Fourteen 30 lb. "J" Incendiaries.  
**TAIL NO.** . . . . . No. 44 Mk. I or II.  
**OVERALL LENGTH** . . . . . 69" (Mk. I tail)  
 76" (Mk. II tail)  
**TAIL LENGTH** . . . . . Mk. I: 25.75"  
 Mk. II: 31.75"  
**MAX. BODY DIAMETER** . . . . . 15"  
**TOTAL WEIGHT** . . . . . 477 lbs.

BRITISH BOMB**CLUSTER PROJ.**

No. 4, Mk. I

(Service)

**DESCRIPTION:** This cluster is hexagonal in shape, and contains fourteen 30 lb. type "J" incendiaries, in two faggots of 7 bombs each, the bombs being placed nose to nose and arranged in superimposed rows of 2, 3, and 2 in each faggot. The bombs are retained in position by the front and rear end plates, the top and bottom beams, the side fairings, tensioning straps and the retaining bar. The front and rear end plates secure the spring-loaded covers of the bomb parachute containers. Lateral pins on the retaining bar engage with and hold in position the tabs of the tensioning straps. A shear wire near the end plate acts as a safety device for the retaining bar. To the rear end of the retaining bar is secured the pivoted lever, the lower end of which engages with the piston in the fuze adapter.

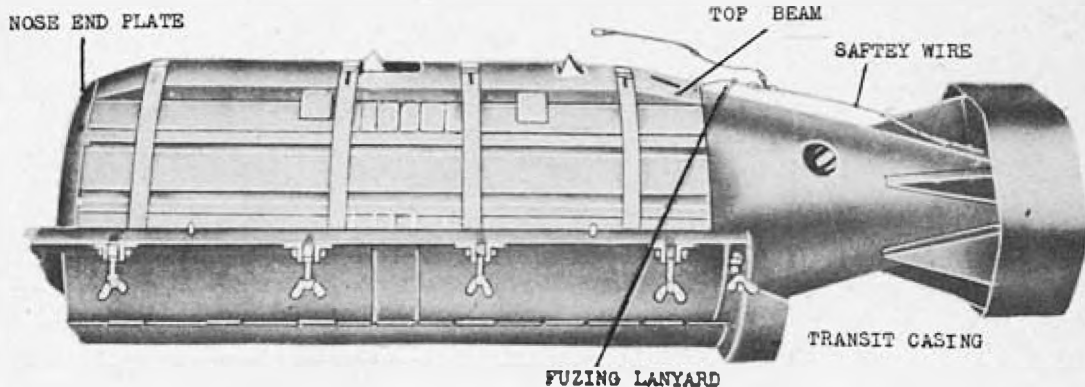
The fuze adapter is fixed to the channel plate which, in turn, is fastened to the rear end plate. A nut welded to the center of the rear end plate receives the tail tie rod to which the tail unit is secured by a tension nut. A nose fairing is secured to the front end plate and fairings are fitted to the top beam, the fairing adjoining the rear end plate being slotted to receive the fuzing lanyard of the fuze and the safety wire of the tail unit.

**TAIL UNIT:** The tail unit No. 44, Mk I, measuring 25.75" long and 15" in diameter, is located by the two dowel pins and is provided with two inspection windows to ensure correct alignment of the arming forks.

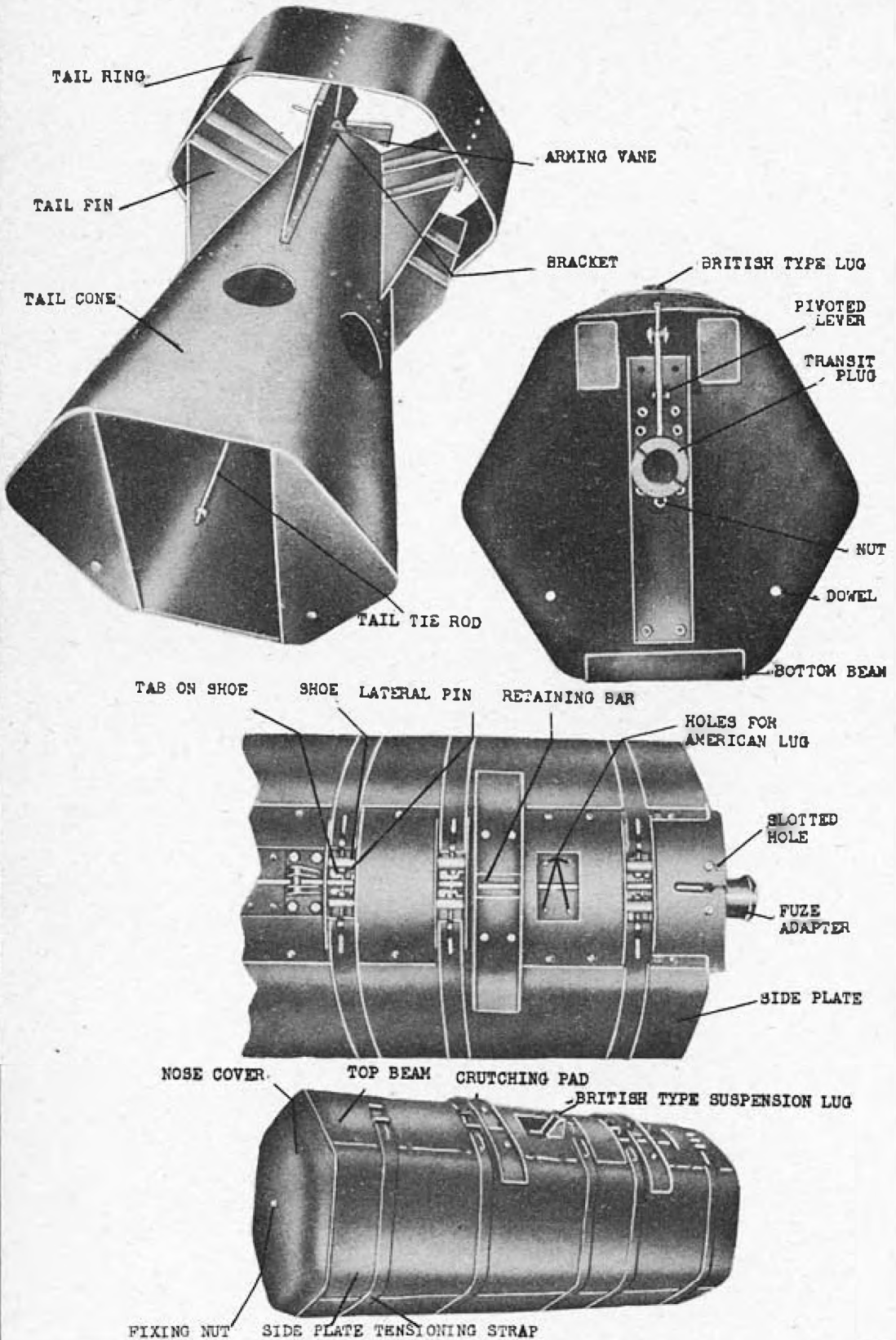
**SUSPENSION:** A suspension lug is fitted to the top beam and tapped holes are also provided for the fitting of American lugs where necessary.

**FUNCTIONING:** On release from the aircraft, the fuze setting control link withdraws the safety wire from the tail unit and at the same time, breaks the shear wire of the fuze by means of the fuzing lanyard. The cluster falls normally until the fuze functions. The explosion in the magazine forces the piston forward in its housing to cause a rocking movement of the pivoted lever. The sudden movement of the pivoted lever exerts a pull on the retaining bar to break its shear wire and disengages the lateral pins from the tabs of the tensioning straps. The straps, thus released, fly outwards, to release the 14 bombs which, on impact, function normally.

**REMARKS:** This cluster projectile is designed to replace the Small Bomb Container as a means of carrying 30 lb. type "J" Incendiaries.



# CLUSTER PROJECTILE NO.6 MK I



FUZING . . . . . Tail Fuze No. 885 Mk. I  
 COLOR . . . . . Dark green overall  
 CONTENTS . . . . . Ninety 4 lb. smoke bombs  
 OVERALL LENGTH . . . . . 72"  
 WIDTH ACROSS PLATS . . . . . 16"  
 TOTAL WEIGHT . . . . . 428 lbs.  
 TAIL LENGTH . . . . . 27"  
 TAIL WIDTH ACROSS PLATS . . . . . 16"  
 TAIL NO. . . . . No. 45 Mk. I.

BRITISH BOMB

# CLUSTER PROJ.

No. 6, Mk. I, II

(Service)

**DESCRIPTION:** The cluster is hexagonal in cross section and comprises ninety 4 lb. smoke bombs, arranged in five faggots of eighteen. The bombs are arranged nose to tail longitudinally, and in alternate rows the bomb fuzes point in opposite directions. The bombs are held in place by a front end plate and a rear end plate, a top beam and a bottom beam, four side plates, tensioning straps, and a retaining bar. Lateral pins on the retaining bar engage tabs forming part of shoes attached to the ends of the tensioning straps. A shear wire passes through the retaining bar and a bridge on the top beam. The four side plates, together with the two beams, completely surround the bomb cluster. A channel secured to the rear end plate supports a fuze adapter, the outer end of which is closed by a transit plug and leather washer. Inside the adapter is a piston through which is a pin to engage the lower end of a pivoted lever. The fuze adapter and piston are slotted to receive the lever, which is connected at its upper end to the retaining bar.

The rear end plate has two dowels for locating the tail in position, and a nut welded to the center of the plate receives one end of a tail tie rod when the tail unit is fitted to the cluster. The front end plate has two dowels for locating a nose cover in position, and a securing bolt is screwed into the center of the end plate to receive a fixing nut when the nose cover is fitted to the cluster.

**TAIL UNIT:** The tail unit consists of a tail cone with an approximately hexagonal base, and a tail ring secured to the cone by fins. At the base of the tail cone are two holes to fit over the dowels on the rear end plate of the cluster. A tie rod passes through the center of the tail, and one end of this rod is threaded to screw into the central nut on the rear end plate. The other end of the rod is fitted with a tensioning nut for securing the tail to the cluster. The tail unit also has an arming spindle mounted in bearings and having a fork at its inner end and an arming vane at its outer end. The safety wire, when fitted, passes through holes in a bracket, a projection on the support for the arming spindle bearings, and a blade of the arming vane. Two inspection windows in the tail cone are provided to enable the armorer to watch the fork of the arming spindle when fitting the tail unit.

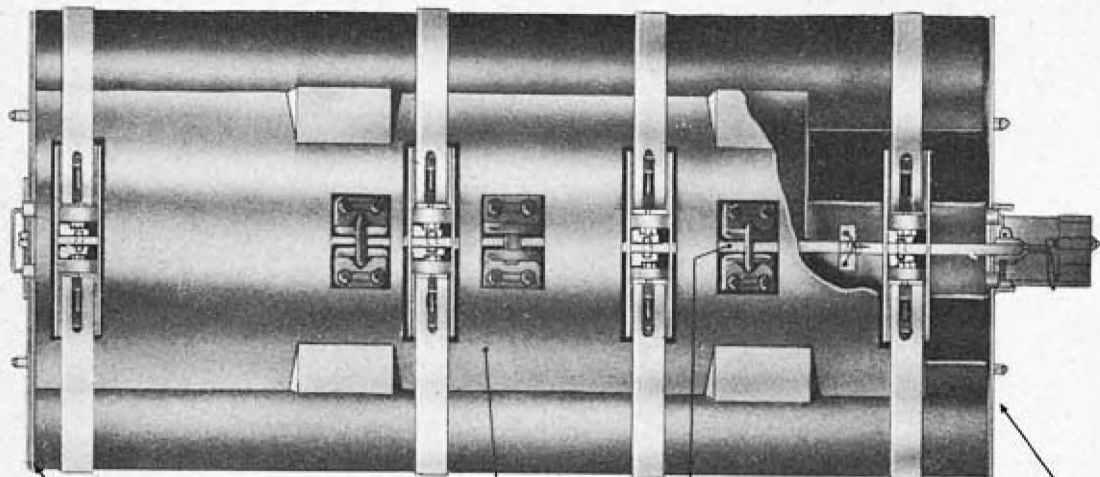
**SUSPENSION:** A British type suspension lug is fitted to the top beam of the cluster and tapped holes are provided for fitting American type lugs.

**FUNCTIONING:** When a cluster projectile fuzed with a No. 867 fuze is released, the safety wire is withdrawn from the tail unit arming vane and the shear wire of the fuze is broken to release the fuze safety pin. After a period of delay during which the cluster projectile falls freely, the fuze magazine is fired. The products of combustion of the magazine charge force the piston in the fuze adapter against the lower end of the pivoted lever, which is thus rocked about its pivot and exerts a pull on the retaining bar of the cluster. The pull breaks the shear wire passing through the retaining bar, and moves the bar so that its pins disengage the tabs on the shoes attached to the tensioning straps. The straps then fly outwards and the cluster disintegrates, its component parts falling away separately. The individual bombs function on impact.

**REMARKS:**

- (1) If the smoke composition used in the 4 lb. smoke bombs gets wet, and especially if wetted by sea water, it is liable to spontaneous combustion through chemical action.
- (2) The Mk I cluster contains 90 Mk III 4 lb. Smoke bombs. The Mk II cluster is identical to the Mk I, except that it contains 90 Mk II\*\* or Mk IV 4 lb. Smoke bombs.

# CLUSTER PROJECTILE NO.7 MK.I

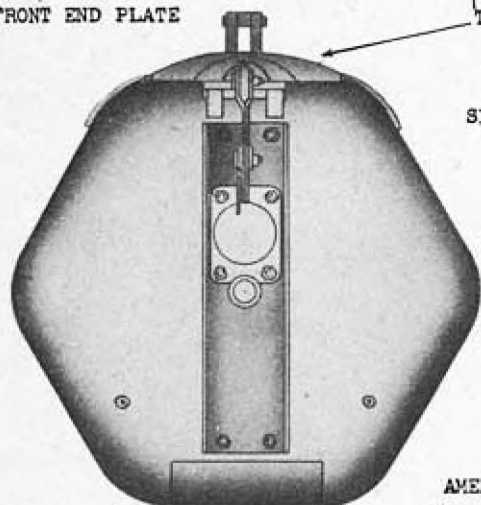


FRONT END PLATE

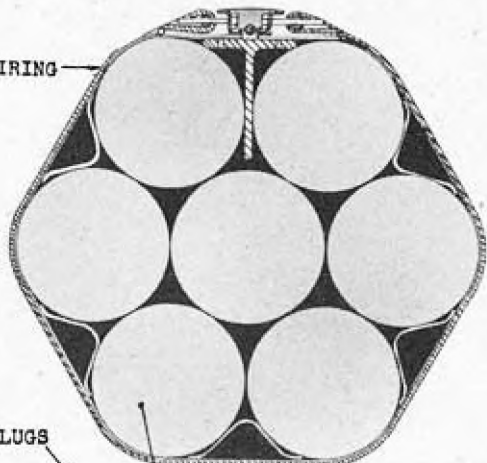
TOP BEAM

RELEASE ROD

REAR END PLATE



SIDE FAIRING



AMERICAN LUGS

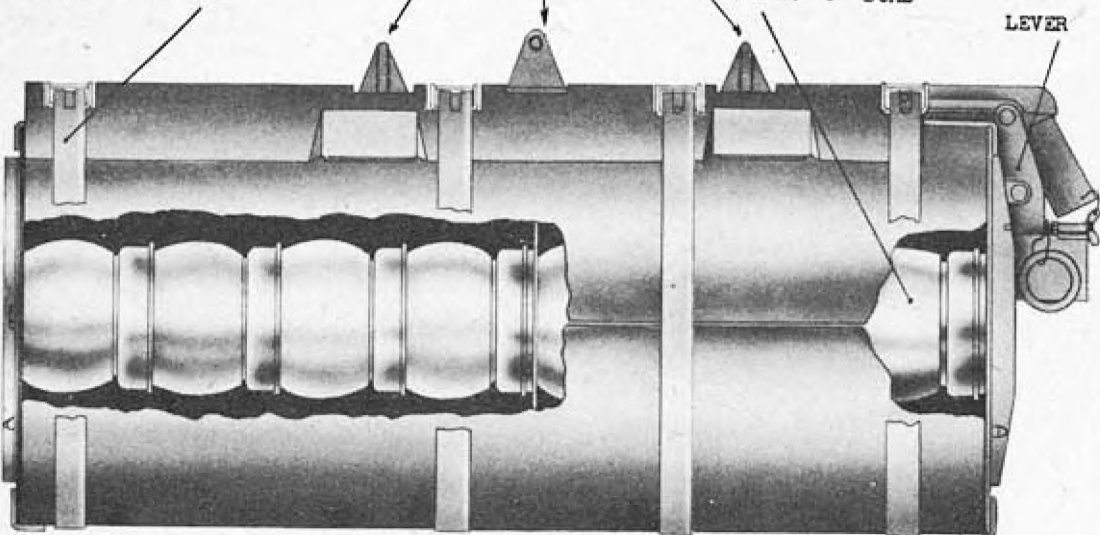
BRITISH LUG

BOTTOM BEAM

TENSIONING STRAP

8 LB. "F" BOMB

LEVER



FUZING . . . . . Tail Fuze No. 886 Mk. I  
 COLOR . . . . . Dark green overall; one  
 tensioning strap painted  
 red.  
 CONTENTS . . . . . 56 8 lb. F. Mk. II bombs  
 TAIL NO. . . . . No. 46 Mk. II  
 OVERALL LENGTH . . . . . 67"  
 MAX. BODY DIAMETER . . . . . 15"  
 TAIL LENGTH . . . . . 27.75"  
 TAIL WIDTH . . . . . 19"  
 TOTAL WEIGHT . . . . . 560 lbs.

BRITISH BOMB

**CLUSTER PROJ.**

500 lb. No. 7 Mk. I

(Service)

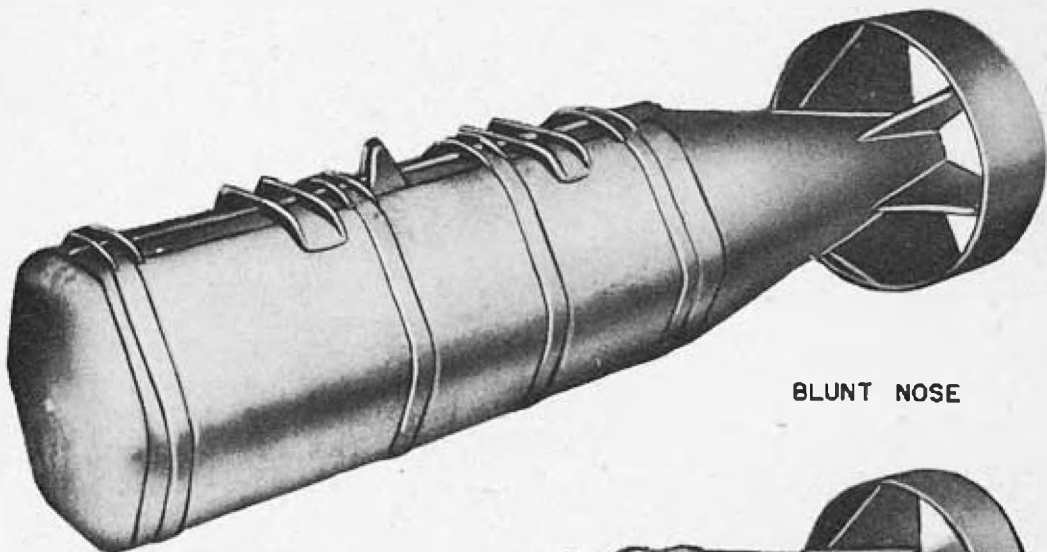
**DESCRIPTION:**

This cluster consists of eight faggots of seven 8 lb. F bombs each. The faggots are retained by top and bottom beams, front and rear end plates, side fairings, and four tensioning straps. The tensioning straps are held by lateral pegs on the release rod, which is located in the top beam. The release rod is connected to a lever and piston mechanism, the cylinder of which also serves as the adapter for the barometric fuze and is located on the rear end plate. Before the fuze is fitted, the adapter is closed by the inverted cup portion of the safety device for the release mechanism.

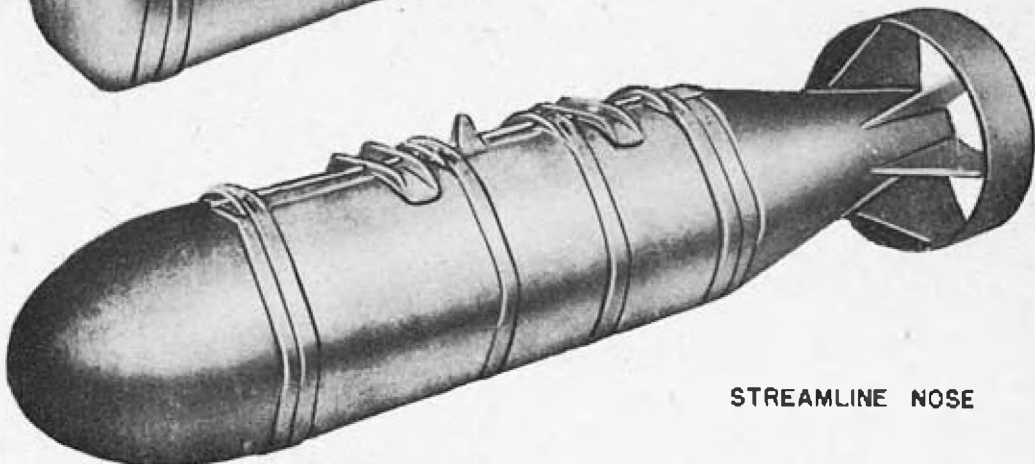
To convert the cluster into an aimable cluster, a bluff nose fairing and drum type tail are fitted to the front and rear end plates, respectively. A special streamline nose fairing is provided for use when the cluster is to be stowed externally on the plane.

**OPERATION:**

On release from the aircraft, the cluster falls until the fuze functions. The explosion of the magazine forces the piston forward in its housing and causes a rocking motion of the pivoted lever. The sudden movement of the lever exerts a pull on the retaining bar and breaks the shear wire, disengaging the lateral pins from the tabs of the tensioning straps. The straps are thus released and fly outwards, releasing the bombs.

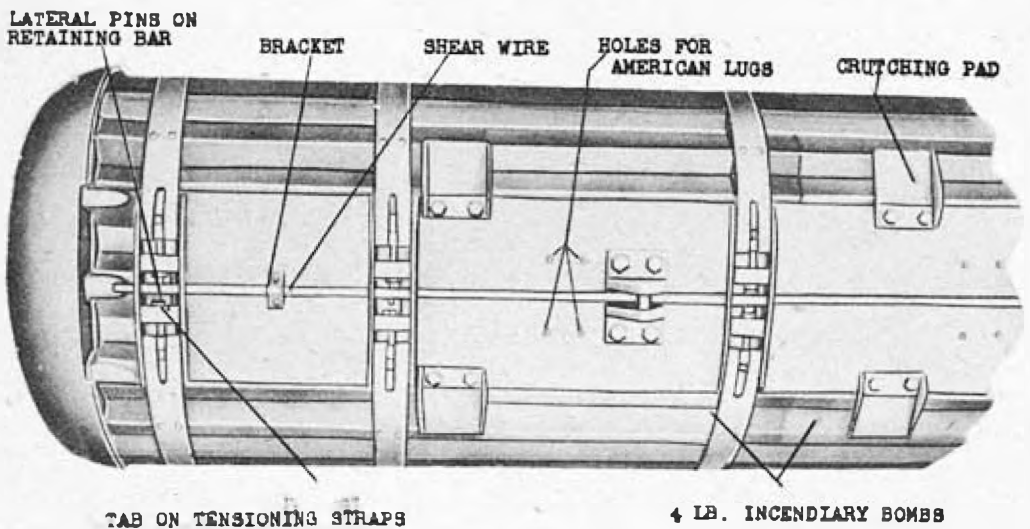
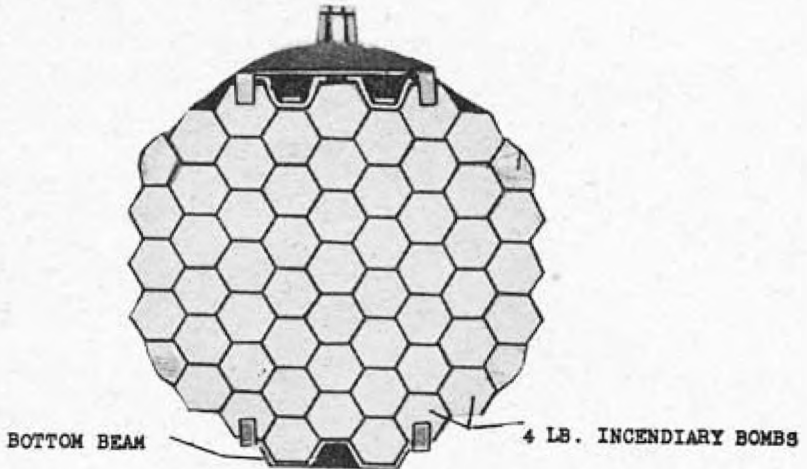
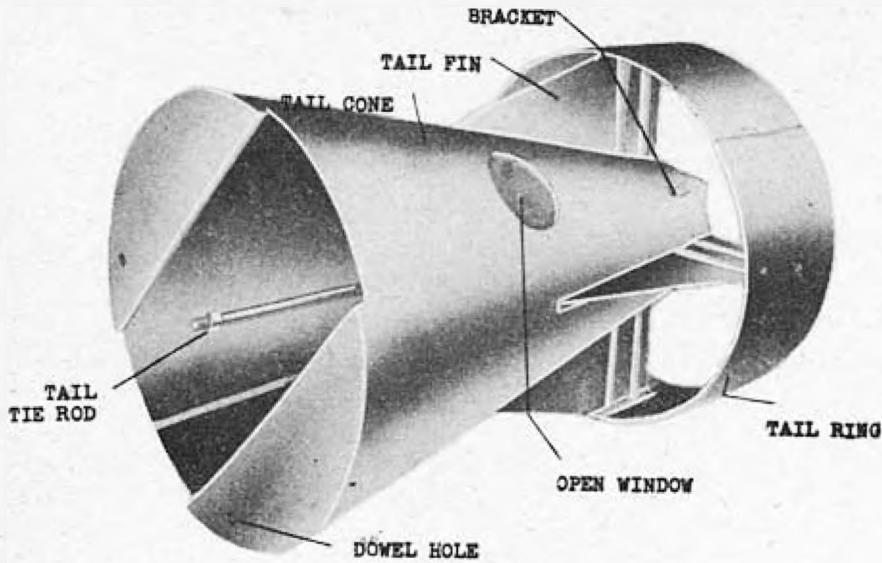


BLUNT NOSE



STREAMLINE NOSE

# CLUSTER PROJECTILE NO.14 MK.1



FUZZING . . . . . Nose Fuze No. 42, Mk IV  
 COLOR . . . . . Dull red overall; one tensioning strap painted bright red.  
 CONTENTS . . . . . 158 4 lb. incendiary bombs  
 TAIL NO. . . . . No. 43, Mk I  
 OVERALL LENGTH . . . . . 67"<sup>H</sup>  
 DIAMETER . . . . . 17.3"<sup>H</sup>  
 TAIL LENGTH . . . . . 21"<sup>H</sup>  
 TAIL DIAMETER . . . . . 17.3"<sup>H</sup>  
 TOTAL WEIGHT . . . . . 668 lbs.

# CLUSTER PROJ.

No. 15, Mk. I

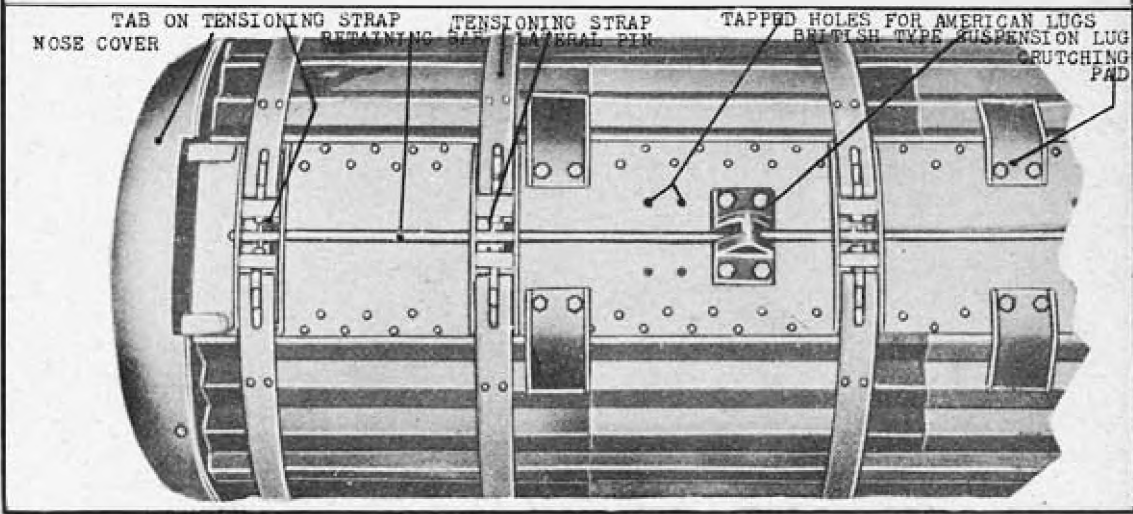
(Service)

**DESCRIPTION:** This cluster comprises two faggots of 79 bombs each, the bombs in each arranged nose to tail and with their safety plungers inwards so that they are all depressed. The bombs are held in place by a front end plate and a rear end plate, a top beam and a bottom beam, four wooden slats, tensioning straps and a retaining bar having lateral pins which engage tabs in the tensioning straps. A shear wire passes through a bridge and the retaining bar at a position near the end plate. A channel secured to the rear end plate supports a fuze adapter, the outer end of which is closed by a transit plug fitted with a leather washer. Inside the adapter is a piston through which is a pin arranged to engage the lower end of a pivoted lever. The fuze adapter and the piston are slotted to receive the lever. The upper end of the lever is forked and is connected to the retaining bar. The rear end plate has two dowels for locating the tail in position and a nut welded to the center of the rear end plate to receive one end of a tail tie rod when the tail unit is fitted to the cluster. A nose cover is fitted to the front end plate to decrease the drag of the cluster.

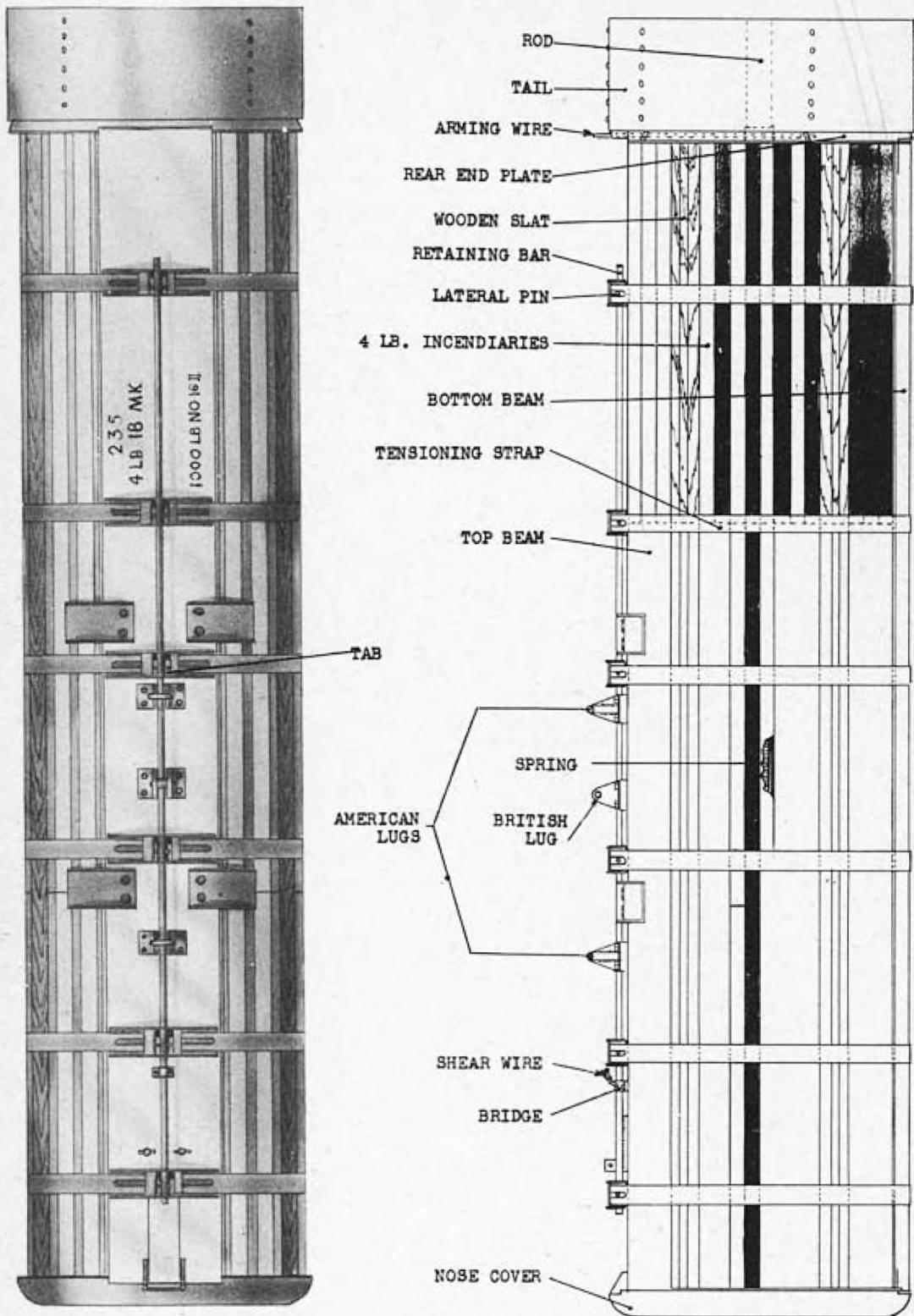
**TAIL UNIT:** The tail is a shortened drum type tail having a tail cone to which a tail ring is secured by fins. At the base of the tail cone are two holes to fit over the dowels on the rear end plate of the cluster. The tail unit is fitted with a bearing for an arming spindle so that if it should ever be required to fuze the cluster with an air armed fuze, a suitable arming spindle with an arming vane could be readily fitted. Two windows, one of which is open, are provided in the tail cone. The open window is provided so that when the cluster is prepared for use; the fuze link connected to the pull-percussion mechanism of the No. 42 Mk IV fuze can be passed through it and be connected to the fuzeing unit of the bomb carrier.

**SUSPENSION:** A British type suspension lug is fitted to the top beam and tapped holes in the beam are provided for fitting American type lugs.

**FUNCTIONING:** When a fuze cluster projectile is released, the fuze is functioned and after a delay, during which the cluster projectile falls freely, the fuze magazine charge is fired and the products of combustion of the magazine charge force the piston in the fuze adapter against the lower end of the pivoted lever which is thus rocked about its pivot and exerts a pull on the retaining bar of the cluster. This causes the retaining bar to break its shear wire and to be moved so that the pins on the bar disengage the tabs on the tensioning straps. The straps then fly outwards and the cluster disintegrates, the component parts falling away separately. The individual 4 lb. bombs function on impact.



# CLUSTER PROJECTILE NO.16 MK. II



FUZZING . . . . . Fuze No. 42 Mk. IV  
 COLOR . . . . . Dull red overall; one tensioning strap painted bright red.  
 CONTENTS . . . . . 235 4 lb. incendiary bombs  
 TAIL NO. . . . . No. 48 Mk. II & III  
 OVERALL LENGTH . . . . . 73.5" (approx.)  
 MAX. BODY DIAMETER . . . . . 18" (approx.)  
 TAIL LENGTH . . . . .  
 TAIL DIAMETER . . . . .  
 TOTAL WEIGHT . . . . . 935 lbs.

BRITISH BOMB**CLUSTER PROJ.**

1000 lb.

No. 16 Mk. II

(Service)

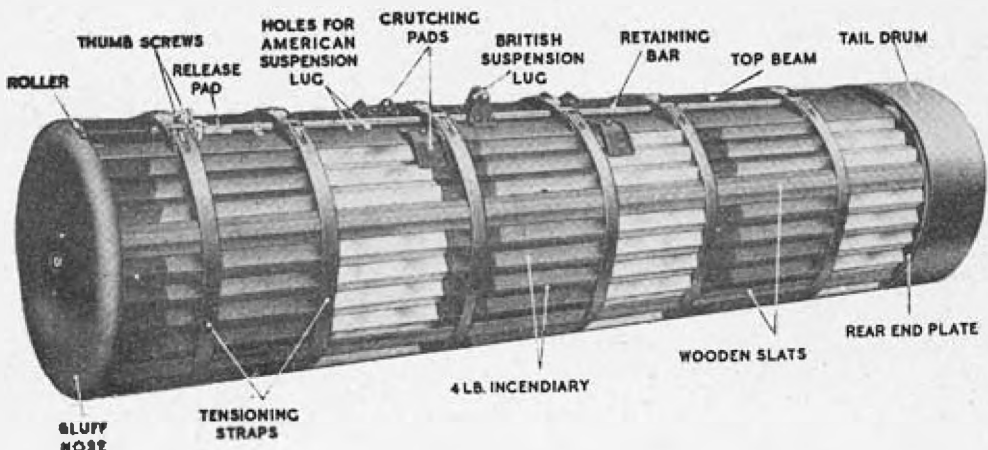
**DESCRIPTION:** This cluster consists of three faggots of 4 lb. incendiary bombs, the bombs in each arranged nose to tail with their safety plungers inward so that they are all depressed. The bombs are held in place by a front end plate, a rear end plate, a top and a bottom beam, four wooden slats, tensioning straps, and a retaining bar. The retaining bar has a series of lateral pins which engage tabs on the tensioning straps. A shear wire passes through a bridge and the retaining bar at a position near the front end plate. A channel secured to rear end plate supports a fuze adapter, the outer end of which is closed by a transit plug fitted with a leather washer. Inside the adapter is a piston, through which a pin is passed arranged to engage the lower end of a pivoted lever. The fuze adapter and the piston are slotted to receive the lever. The upper end of the lever is forked and is connected to the retaining bar. A nose cover is fitted to the front end plate to decrease the drag of the cluster. The tail unit is attached to a spring-loaded rod extending through the center of the cluster. The tail is held compressed against the spring by an arming wire arrangement.

**SUSPENSION:** A British type suspension lug is fitted to the top beam, and tapped holes in the beam are provided for fitting American type lugs.

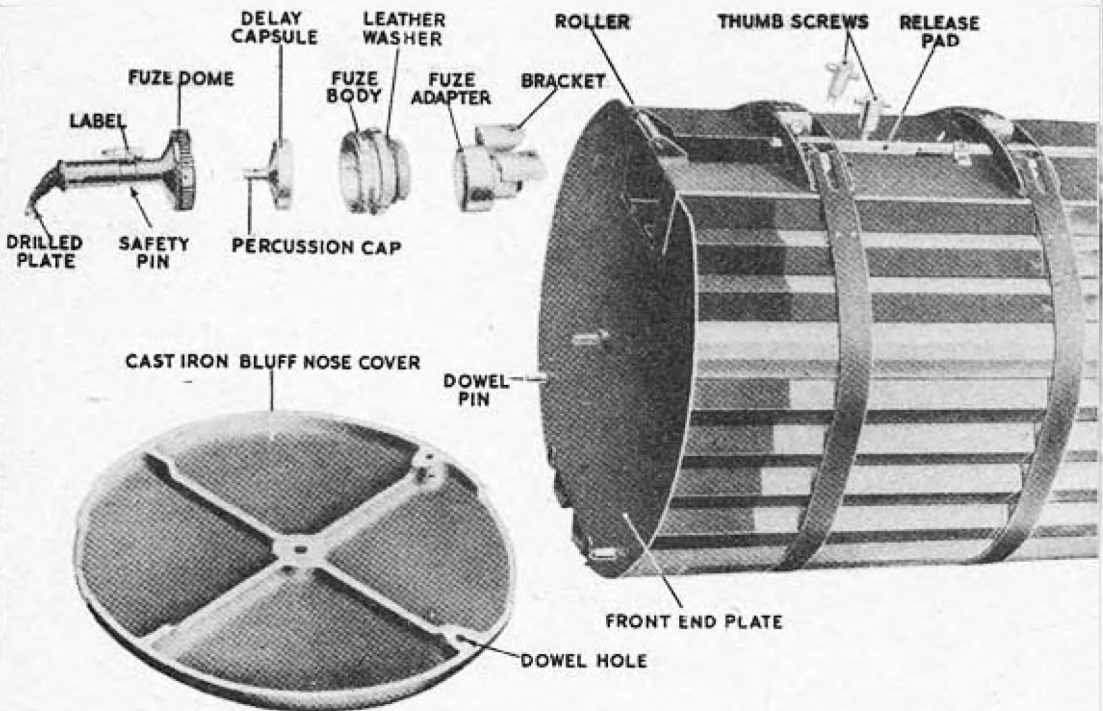
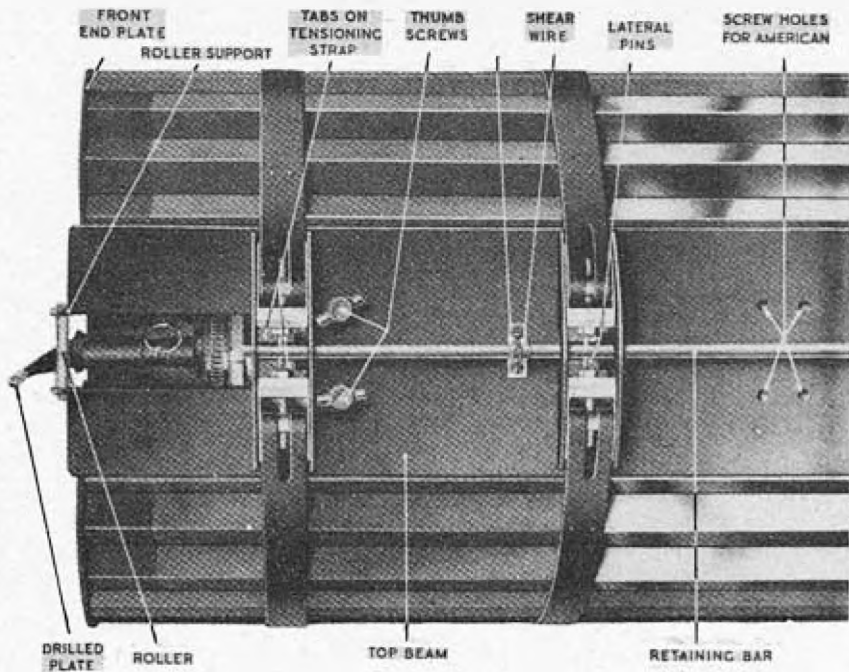
**FUNCTIONING:** When a fuzed cluster projectile is released from the plane, the arming wire is withdrawn, starting the delay of the fuze and releasing the tail unit, which then springs out on its rod to its fully extended position. When the fuze functions, the fuze magazine charge is fired and the pressure of the gases force the piston in the fuze adapter against the lower end of the pivoted lever. The lever is thus rocked about on its pivot and exerts a pull on the retaining bar of the cluster. This causes the retaining bar to break its shear wire and to be moved so that the pins on the bar disengage themselves from the tabs of the tensioning straps. The straps then fly outward, and the cluster disintegrates, scattering the bombs, which fall away separately. The individual 4 lb. bombs function on impact.

**TAIL STRUCTURE:** The No. 48 Mk. II & III tail is of the telescopic type and is supplied fitted to the cluster in the closed position. It consists of five fairing forming a shortened cone carried by the rear end plate of the cluster, and a drum mounted on drum supports carried by an inner tube which slides in an intermediate tube. The intermediate tube extends through the whole length of the outer tube, which is secured to the end plate of the cluster. The intermediate tube replaces the central bomb of the middle and tail end faggot of the cluster.

A spring is housed in the inner tube, with one end bearing



# CLUSTER PROJECTILE NO.16 MK.II



BRITISH BOMB

## CLUSTER PROJ.

1000 lb.

No. 16 Mk II

(Service)

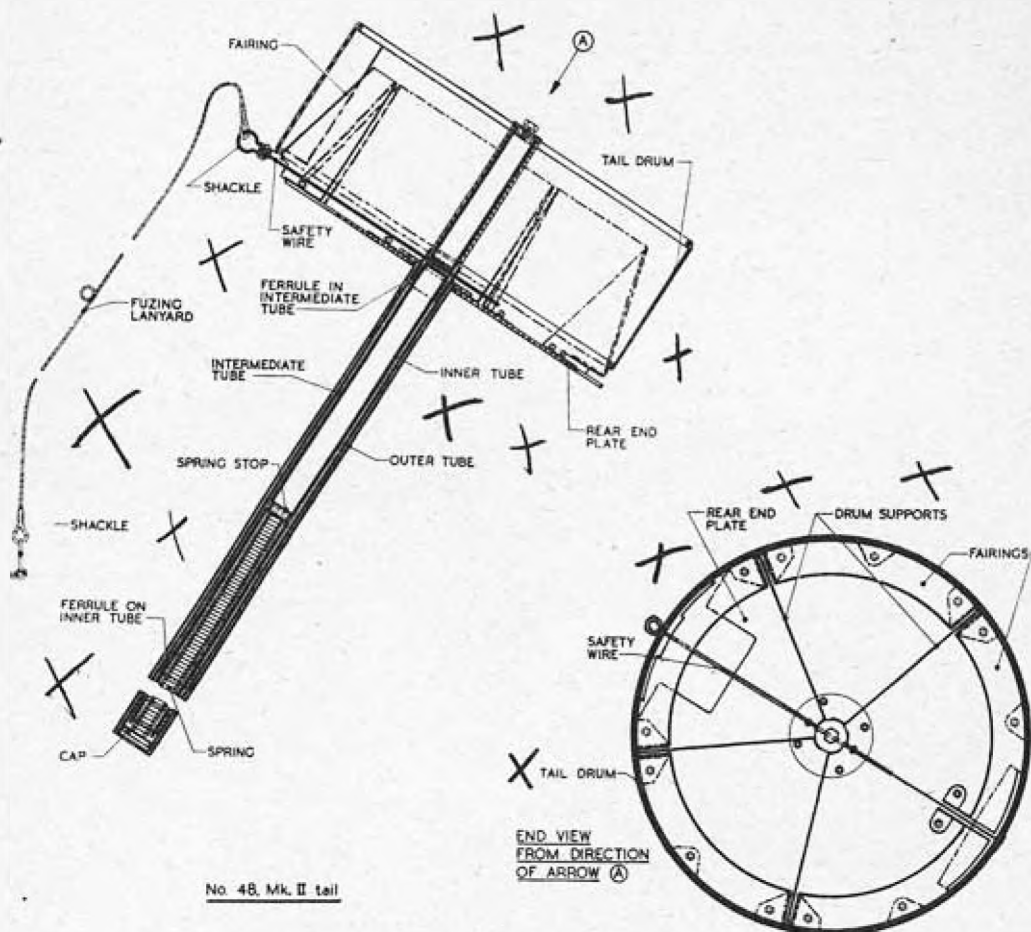
TAIL STRUCTURE:  
(CONT'D.)

against a stop in the tube and the other end bearing against a cap which closes the inner end of the intermediate tube. The spring, which is under compression, tends to slide the inner tube out of the intermediate tube to extend the tail, the movement being limited by a ferrule on the inner tube which engages a ferrule in the intermediate tube when the tail is fully extended.

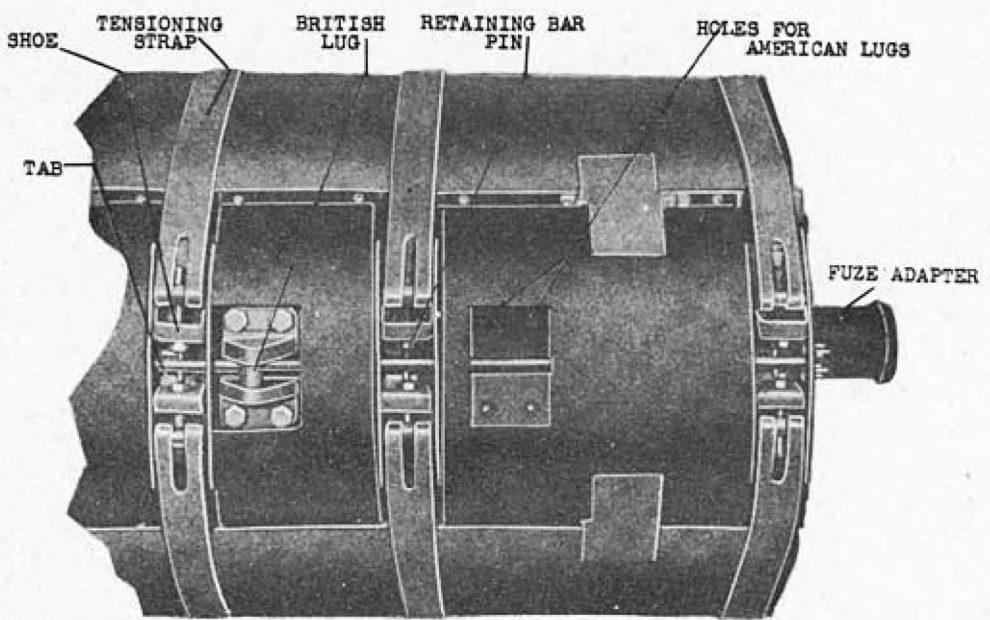
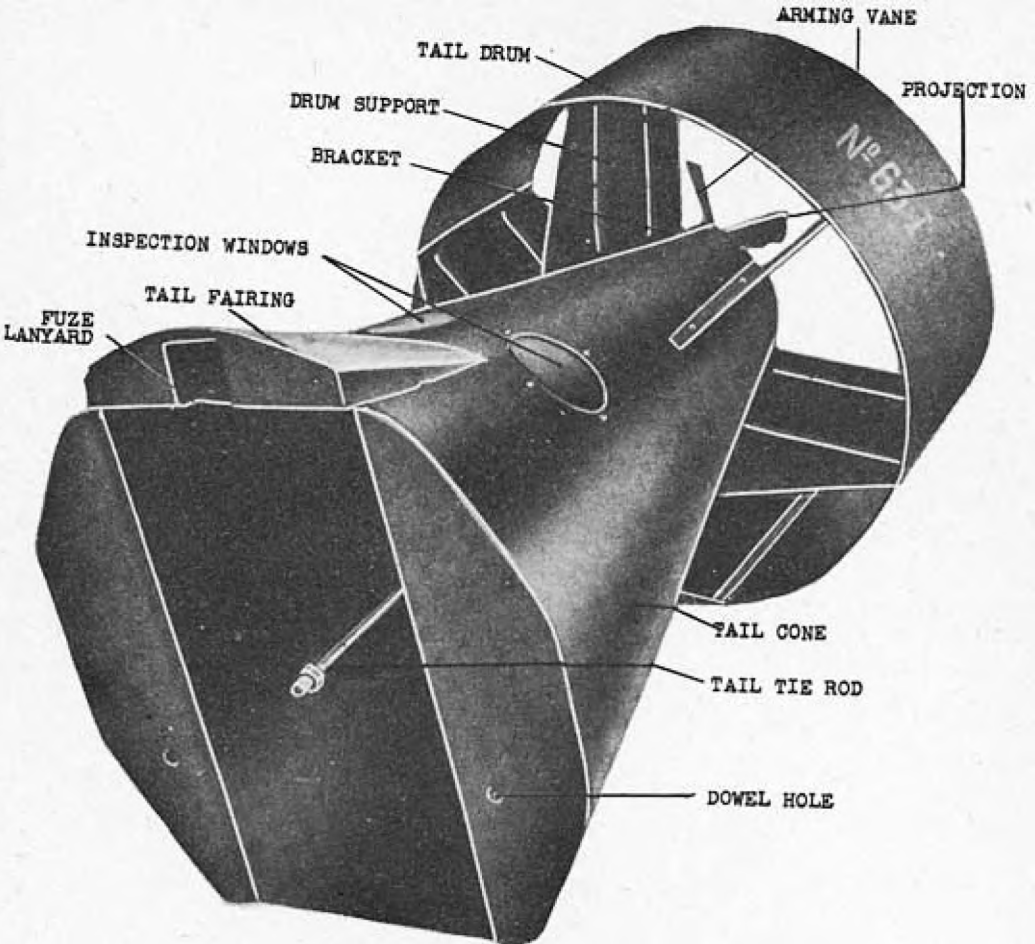
The inner and intermediate tubes have holes provided in them which register when the tail is closed, and a safety wire is threaded through the holes to retain the tail in its closed position against the action of the spring. A 4 ft. fuzing lanyard is attached to the eye of the safety wire by a shackle, and a similar shackle is provided at the free end of the lanyard.

## REMARKS:

1. The faggot at the nose end of the cluster contains 79 bombs; the central and tail end faggot contain 78 bombs each, the central bomb of each of these faggots being removed to allow insertion of the outer tube, which accommodates the stem of the tail and is secured to the rear end plate of the cluster.



# CLUSTER PROJECTILE NO. 17 MK. II



FUZING . . . . . Tail Fuze No. 885, Mk I  
 COLOR . . . . . Dark green overall  
 CONTENTS . . . . . 26 20 lb. Frag bombs  
 (specially designed for use  
 in this cluster)  
 TAIL NO. . . . . No. 63, Mk I & II  
 OVERALL LENGTH . . . . . 63" (with bluff nose)  
 WIDTH ACROSS FLATS . . . . . 15" (octagonal in shape)  
 TAIL LENGTH . . . . . 27"  
 TAIL DIAMETER . . . . . 17.5"  
 TOTAL WEIGHT . . . . . 582 lbs.

# CLUSTER PROJ.

No. 17, Mk. II  
 (Service)

### DESCRIPTION:

The cluster comprises twenty-six 20 lb. Frag bombs arranged in two faggots of thirteen. The bombs are held in place by a front end plate and a rear end plate, a top beam and a bottom beam, side plates which overlap each other, and tensioning straps and a retaining bar which hold the components together. The bombs are completely enclosed. Lateral pins on the retaining bar engage tabs forming part of shoes attached to the ends of the tensioning straps. A shear wire passes through the retaining bar and a bridge on the top beam. A channel secured to the rear end plate supports a fuze adapter, the outer end of which is closed by a transit plug and leather washer. Inside the adapter is a piston through which is a pin to engage the lower end of a pivoted lever. The fuze adapter and piston are slotted to receive the lower end of the lever. The lever can be seen passing into the fuze adapter. Links connect the upper end of the lever to a downwardly projecting plate welded to the retaining bar. The rear end plate has two dowels for locating the tail in position, and a nut welded to the center of the plate, to receive one end of a tail tie rod when the tail unit is fitted to the cluster. The front end plate has two dowels for locating either a bluff nose fairing or a streamlined nose fairing in position, and a nut welded to the center of the plate to receive the securing stud of the bluff nose fairing, or the tie rod of the streamline fairing. The bluff nose fairing is fitted to the cluster if it is to be carried internally in an aircraft. The streamlined nose fairing consists of a hollow metal dome, the base of which is partly covered by an end plate welded to the dome, and is to be fitted to the cluster when carried externally on an aircraft.

### TAIL UNIT:

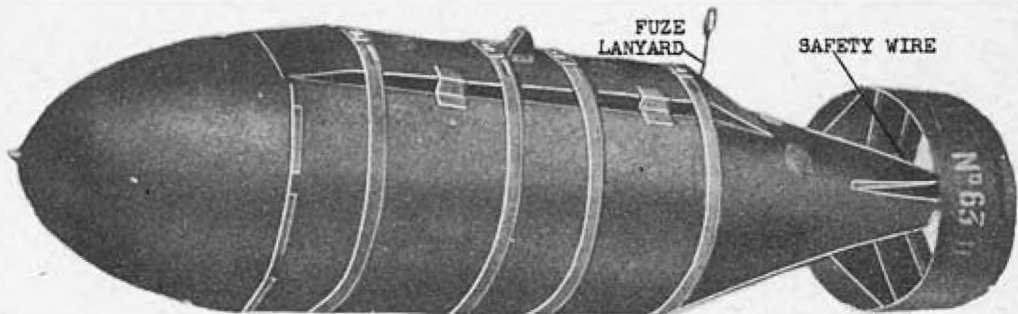
The No. 63, Mk I tail unit consists of a tail cone, having an approximately octagonal base and a tail drum secured to the cone by six drum supports. The tail unit has an arming spindle mounted in bearings and having a fork at its inner end and an arming vane at its outer end. Two inspection windows in the tail cone are provided to enable the armorer to watch the fork of the arming spindle when fitting the tail unit to a cluster fused with a No. 855 tail fuze. The No. 63, Mk I tail is only used when the cluster is carried internally in an aircraft. The No. 63, Mk II tail is similar to the Mk I except that it is generally strengthened and has seven tail drum supports as compared with the six of the No. 63, Mk I tail, and is to be used when the cluster is carried externally on the aircraft.

### SUSPENSION:

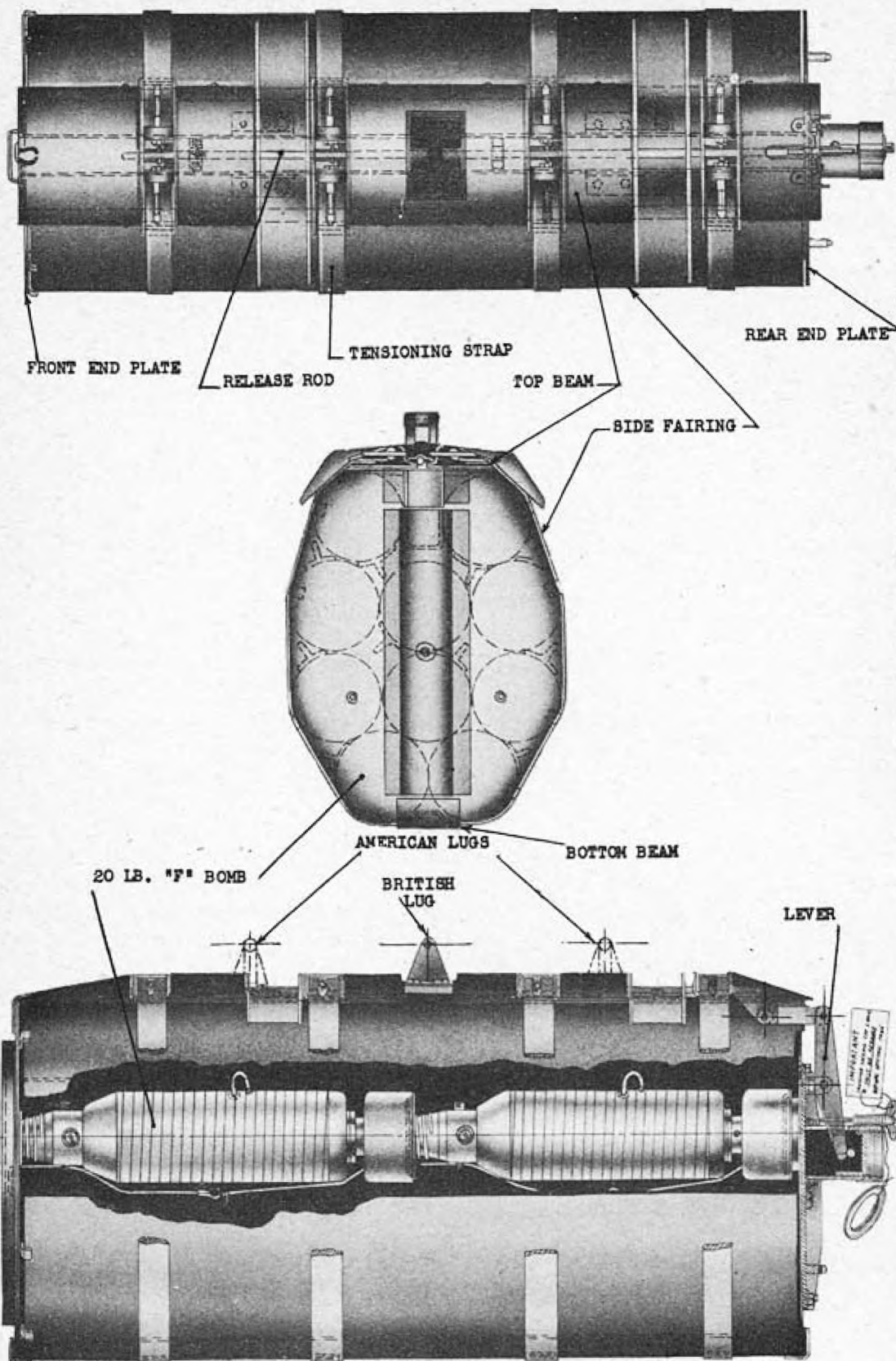
A British type suspension lug is fitted to the top beam and tapped holes in the top beam are provided for fitting American type lugs.

### FUNCTIONING:

When the fused cluster projectile is released, the fuze is functioned and, after a period of delay during which the cluster falls freely, the fuze magazine is fired. The products of combustion of the magazine charge force the piston in the fuze adapter against the lower end of the pivoted lever which is thus rocked about its pivot and exerts a pull on the retaining bar of the cluster. The pull breaks the shear wire passing through the retaining bar and moves the bar so that its pins disengage the tabs on the tensioning straps. The straps then fly outwards and the cluster disintegrates, its component parts falling away separately. The individual bombs descend, supported by their parachute, and function in the normal manner.



# CLUSTER PROJECTILE NO. 24 MK. I



|                    |           |  |
|--------------------|-----------|--|
| FUZING             | . . . . . | Tail Fuze No. 885 Mk. I  |
| COLOR              | . . . . . | Dark green overall; one tensioning strap painted red.                                    |
| CONTENTS           | . . . . . | No. 23: 14 (U.S. 20 lb. Frag. Bombs)<br>No. 24: 20<br>No. 23                      No. 24 |
| TAIL NO.           | . . . . . | 85 Mk. I                      86 Mk. I   |
| OVERALL LENGTH     | . . . . . | 62.25"                      62.25"   |
| MAXIMUM BODY DIAM. | . . . . . | 11.1"                      14.5"   |
| TAIL LENGTH        | . . . . . | 27.5"                      30.5"   |
| TAIL WIDTH         | . . . . . | 12.6"                      18.0"   |
| TOTAL WEIGHT       | . . . . . | 335 lbs.                      487 lbs.   |

**CLUSTER PROJ.**

350 lb. No. 23 Mk. I

500 lb. No. 24 Mk. I

(Service)

**DESCRIPTION:**

These clusters are identical in construction and function in a similar manner. The No. 23 Mk. I cluster, however, is approximately hexagonal in cross-section, while the No. 24 Mk. I is

roughly octagonal.

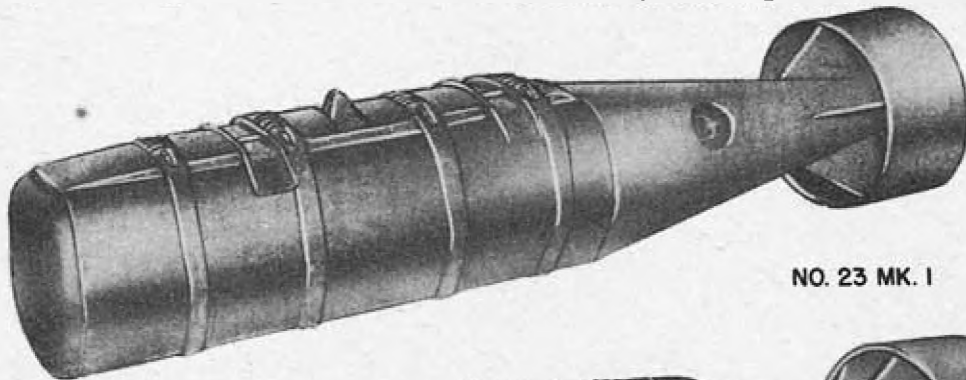
The bombs forming the cluster are retained in two faggots of 7 or 10 bombs each by means of top and bottom beams, front and rear end plates, side fairings, and four tensioning straps. The tensioning straps are held in position by lateral pegs on the release rod, which is carried on the top beam. The release rod is connected to a lever and piston mechanism, the cylinder of which also forms an adapter for the barometric fuze and is located on the rear end plate. Before the fuze is fitted the adapter is closed by a washered plug.

The cluster is converted into an aimable cluster by the addition of a blunt nose fairing and a drum type tail. A special streamline nose fairing is designed only for the No. 24 Mk. I cluster, when it is to be stowed externally on the aircraft.

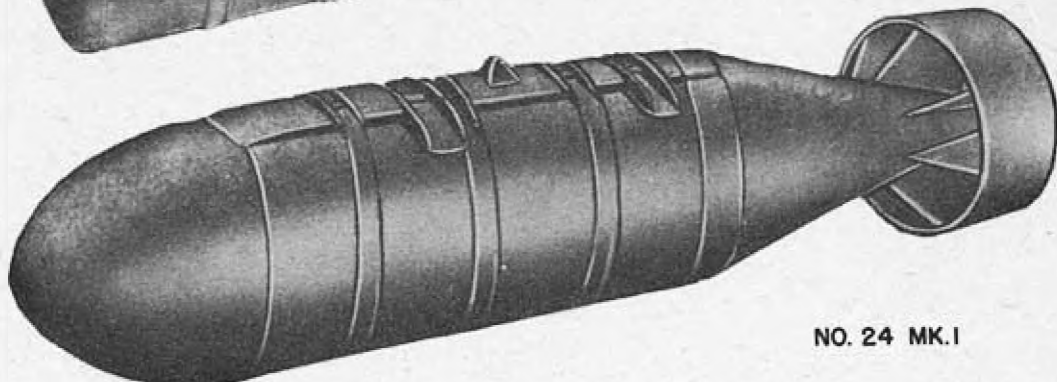
A British type suspension lug is fitted to the top beam, and two crutching pads bolted to the beam are used when a British type bomb carrier is fitted to the cluster. Two sets of four tapped holes are provided in the top beam for the attachment of American type suspension lugs. Two of the four holes at the nose end of the beam normally house the bolts securing one of the crutching pads to the beam. If American type lugs are fitted, the British type lug and crutching pads must first be removed.

**OPERATION:**

On release from the aircraft, the cluster falls until the fuze functions. The explosion in the magazine forces the piston forward in its housing and causes a rocking movement of the pivoted lever. The sudden movement of the lever exerts a pull on the retaining bar and breaks the shear wire, disengaging the lateral pins from the tabs of the tensioning straps. The straps are thus released and fly outwards, releasing the bombs.



NO. 23 MK. I



NO. 24 MK. I

BRITISH

FUZZING . . . . . Nose Pistol No. 42.  
 COLOR & MARKINGS . . . . . Dark green overall; 1/2" red band and 1" light green band around forward part of body.  
 OVERALL LENGTH . . . . . 36 in. (without extension rod).  
 MAX. BODY DIAMETER . . . . . 10.6 in.  
 TOTAL WEIGHT . . . . . 60 lbs. (approx.)

# 60 LB. TRAINING

(Service)

## CONSTRUCTION

Body and tail are in one piece, manufactured of rolled and pressed paper. The rolled paper charge container, containing pentolite, rests on a felt washer seated on a diaphragm in the body. The head of the charge container is closed by a rolled paper head, pinned, shellacked, and taped in position. The head is recessed to house the pistol adapter. A 6" extension rod is fitted to the No. 42 nose pistol, by means of a spring washer after the arming vane cap has been removed.

## SUSPENSION

Single suspension lug approximately 10" from nose of bomb, secured by two bolts.

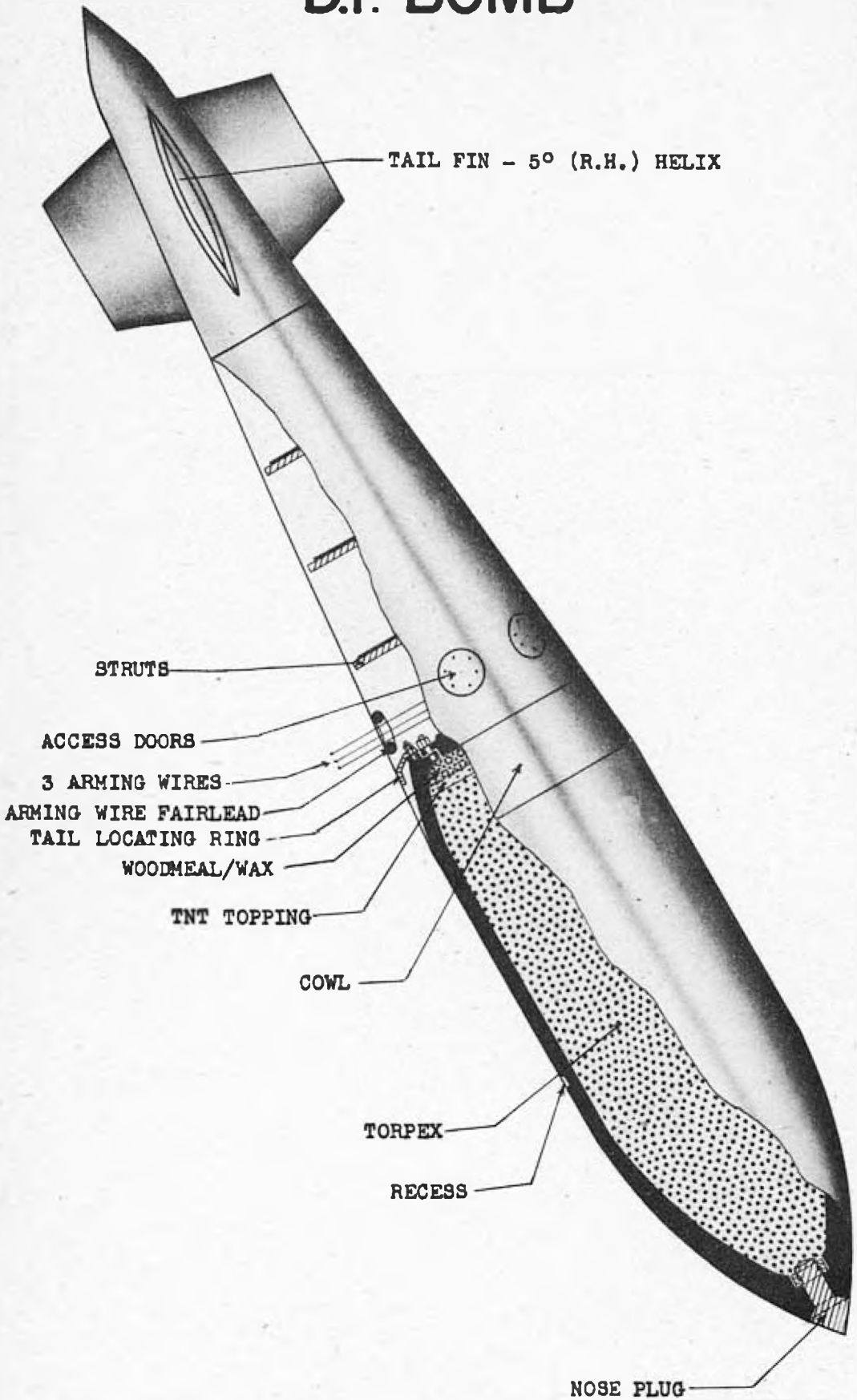
## EXPLOSIVE COMPONENTS

Detonator: No. 52, non-delay, A.S.A. and C.E. pellets.  
 Exploder: 3 C.E. pellets  
 Filling: Pentolite

## REMARKS

This bomb is designed to be used in training operations of ground personnel, simulating realistic bombing attacks.

# 12,000 LB. & 22,000 LB. D.P. BOMB



FUZING . . . . . Tail Pistol No. 58 Mk. I  
 COLOR & MARKINGS . . . Green overall; red band near  
 nose.  
 TAIL NO. . . . . No. 78 Mk. I  
 OVERALL LENGTH . . . . 21 ft.  
 MAX. BODY DIAMETER . . . 3 ft. 2 in.  
 BODY LENGTH . . . . . 10 ft. 4 in.  
 WALL THICKNESS . . . . . near tail: 1.25 in.  
 near nose: 4.1 in.  
 TAIL LENGTH . . . . . 10 ft. 8 in.  
 TAIL WIDTH . . . . . 3 ft. 6 in. (across fins).  
 TOTAL WEIGHT . . . . . 11,885 lbs.  
 CHARGE/WEIGHT RATIO . . 45% (approx.)

BRITISH BOMB

12,000 LB. D.P.

Mk. I  
 "Tallboy"  
 (Service)

**BODY CONSTRUCTION:** The bomb body is manufactured of cast steel, with a solid nose plug and with three exploders fitted 120° apart in the tail. The bomb bodies are issued with exploders inserted, and the exploder tubes are sealed with shipping plugs.

The tail is attached to the after end of the bomb body by 12 studs. A cylindrical metal cowling, placed between the bomb body and the tail cone, enhances the streamlining of the bomb.

The bomb body contains an explosive filling of Torpex with a 1 in. layer of T.N.T. topping added to the after end. Four inches of woodmeal/wax composition is then added, and the filling sealed with a 1/2 in. plyboard washer. The three exploders pass through holes in this washer and are held in place by a heavy base plate, which is secured by bolts to the bomb body.

**TAIL CONSTRUCTION:** The special tail unit, No. 78 Mk. I, is constructed of light alloy and consists of a cone to which are attached four fins of streamline cross-section. The fins are set at an angle of 5° to the axis of the tail cone, giving a slight right-hand spin to the bomb as it falls. The tail fits over twelve 7/16" studs fitted into the bomb body and is securely fastened to the studs by Simmonds nuts. Three hand-holes in the tail cone give ready access to the three tail pistols.

**SUSPENSION:** The bomb is suspended in the plane by twin suspension links. Each link is coupled beneath the bomb by a special Vickers release clip, capable of either electrical or manual operation. In addition to the suspension links, the bomb is positioned in the plane by a standard crutching system.

**EXPLOSIVE COMPONENTS:**

|             |  |
|-------------|--|
| Detonators: | Sensitive type - delays up to 60 mins., as required operationally.   |
| Exploders:  | Primary - 2 ring and 2 solid C.E. pellets; 4 solid R.D.X./Beeswax pellets.<br>Secondary - 2 ring and 2 solid large R.D.X./Beeswax pellets (placed in a special exploder tube into which the standard exploder container fits.) |
| Filling:    | Torpex --approx. 5200 lbs., surmounted by a 1 in. topping of T.N.T.  |

**REMARKS:**

1. This bomb is designed for special operational uses, and its employment will be restricted to certain specified bomb commands. The initials "D.P." signify its deep penetration characteristics, although the bomb is not designed for armor or concrete piercing. Rather it is intended to produce heavy shock waves as a result of the explosion of its heavy main charge deep within the earth.

2. The bomb is carried on specially adapted Lancaster aircraft.

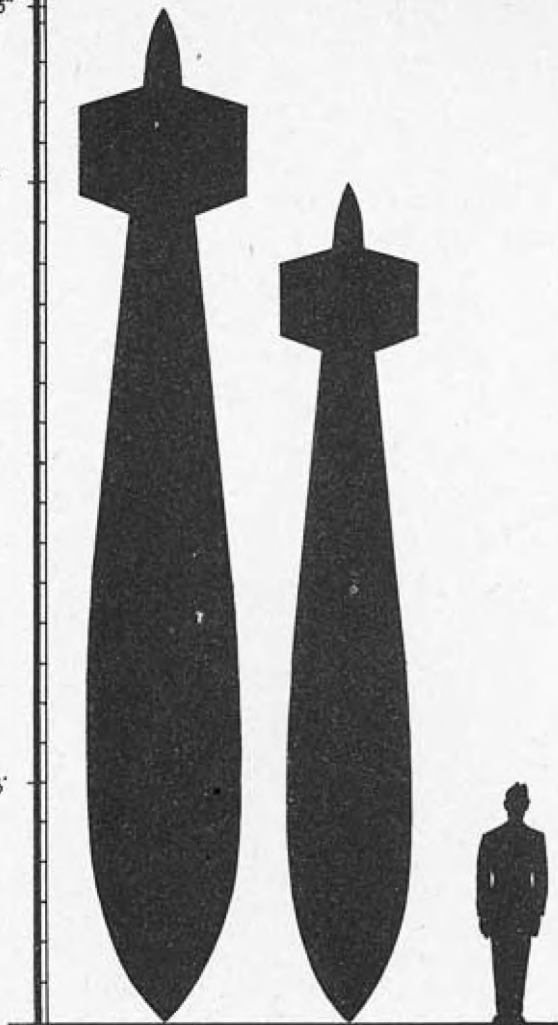
3. The striking velocity of the bomb, when released at an altitude of 18,000 ft. and an air speed of 200 m.p.h., is stated at 1097 ft./sec., at which speed it has developed a rotational velocity of 300 r.p.m.

4. The filling and exploder system of this bomb is identical to that of the 22,000 lb. D.P. Bomb "Grand Slam", illustrated on page 185 d. The two bombs are identical in all respects, the 22,000 lb. D.P. being merely an enlarged version of the 12,000 lb. D.P. Bomb.

25' 5"

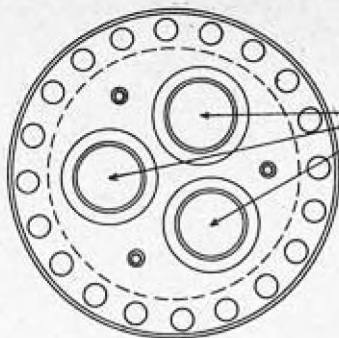
21'

6'

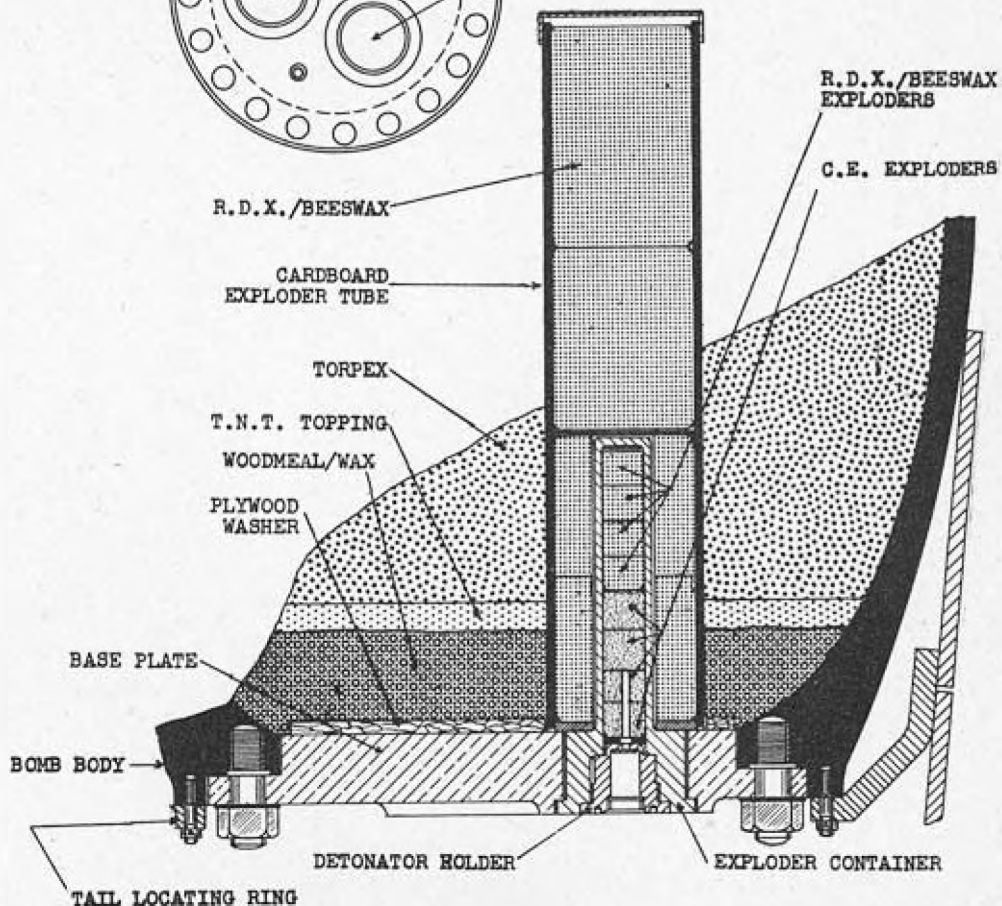


GRAND SLAM

TALL BOY



3 FUZE POCKETS



12,000 LB. & 22,000 LB. D.P. BOMB

**FUZZING** . . . . . Tail Pistol No. 58 Mk I  
**COLOR & MARKINGS** . . . . Green overall; red band  
near nose.  
**TAIL NO.** . . . . . No. 82 Mk I  
**OVERALL LENGTH** . . . . . 28 ft. 5 in.  
**MAX. BODY DIAMETER** . . . . 3 ft. 10 in.  
**BODY LENGTH** . . . . . 12 ft. 6 in.  
**WALL THICKNESS** . . . . . near tail: 1.75 in.  
near nose: 7.75 in.  
**TAIL LENGTH** . . . . . 13 ft. 4 in.  
**TAIL WIDTH** . . . . . 4 ft. 4 in. (across fins).  
**TOTAL WEIGHT** . . . . . 22,400 lbs.  
**CHARGE/WEIGHT RATIO** . . . 42% (approx.)

BRITISH BOMB

**22,000 LB. D.P.**

Mk. I

"Grand Slam"

(Service)

**BODY CONSTRUCTION:** The bomb body is manufactured of cast steel, with a solid nose plug and with three exploders fitted 120° apart in the tail. The bomb bodies are issued with exploders inserted, and the exploder tubes are sealed with shipping plugs.

The tail is attached to the after end of the bomb body by 12 studs. A cylindrical metal cowling, placed between the bomb body and the tail cone, enhances the streamlining of the bomb.

The bomb contains an explosive filling of Torpex with a 1 in. layer of T.N.T. topping added to the after end. Four inches of woodmeal/wax composition is then added, and the filling sealed with a 1/2 in. plyboard washer. The three exploders pass through holes in this washer and are held in place by a heavy base plate, which is secured by bolts to the bomb body.

**TAIL CONSTRUCTION:** The special tail unit, No. 82 Mk I, is constructed of light alloy and consists of a cone to which are attached four fins of streamline cross-section. The fins are set at an angle of 5° to the axis of the tail cone, giving a right-hand spin to the bomb as it falls. The tail fits over twelve 7/16" studs fitted into the bomb body and is securely fastened to the studs by Simmonds nuts. Three hand-holes in the tail cone give ready access to the three tail pistols.

**SUSPENSION:** The bomb is suspended in the plane by twin suspension links. Each link is coupled beneath the bomb by a special Vickers release clip, capable of either electrical or manual operation. In addition to the suspension links, the bomb is positioned in the plane by a standard crutching system.

**EXPLOSIVE COMPONENTS:** Detonators: Sensitive Type - delays up to 60 mins., as required operationally.  
Exploders: Primary - 2 ring and 2 solid C.E. pellets; 4 solid R.D.X./Beeswax pellets.  
Secondary - 2 ring and 2 solid large R.D.X./Beeswax pellets (placed in a special exploder tube into which the standard exploder container fits).  
Filling: Torpex - approx. 9200 lbs., surmounted by a 1 in. topping of T.N.T.

**REMARKS:** 1. This bomb is designed for special operational uses, and its employment will be restricted to certain specified bomb commands. The initials "D.P." signify its deep penetration characteristics, although the bomb is not designed for armor or concrete piercing. Rather it is intended to produce heavy shock waves as a result of the explosion of its main charge deep within the earth.

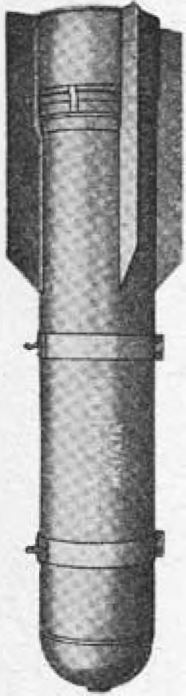
2. The bomb is carried on specially adapted Lancaster aircraft.

3. The striking velocity of the bomb, when released at an altitude of 16,000 ft. and an air speed of 200 m.p.h., is stated at 1097 ft./sec., at which speed it has developed a rotational velocity of 60 r.p.m.

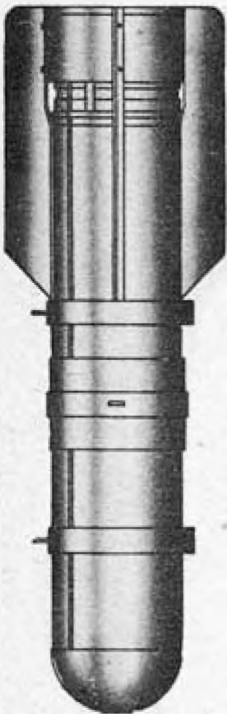
4. The general arrangement of this bomb is identical to that of the 12,000 D.P. Bomb "Tallboy", illustrated on page 186 b. The two bombs are identical in all respects, the 22,000 lb. D.P. being merely an enlarged version of the 12,000 lb. D.P. bomb.

5. Grand Slam bombs made in the U.S. differ somewhat in body construction from those made in Britain. The body is built up of 5 sections welded together. The solid nose and the base sections are of forged steel, while the three center sections are made of rolled plate, longitudinally welded, taper-bored internally, and then set in a die to form the external contours.

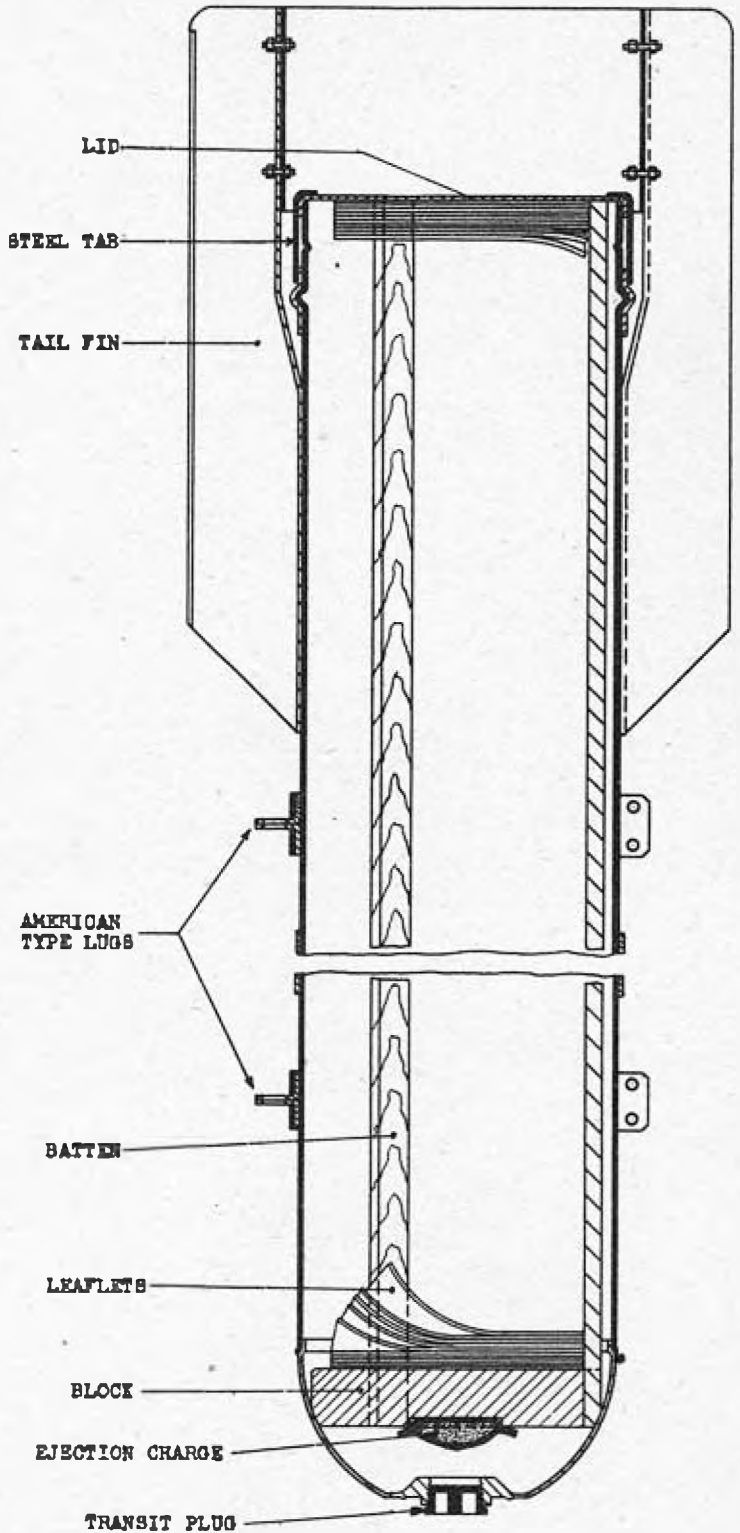
# "NICKLE"(LEAFLET) BOMB



MK I



MK II



OVERALL LENGTH . . . . . 47 in.  
 MAX. BODY DIAMETER . . . . . 8 in.  
 FUZING . . . . . No. 880 Mk II Nose Fuze  
 WEIGHT . . . . . 64 lbs.  
 FILLING . . . . . Propaganda Leaflets  
 COLOR . . . . . Grey overall, white  
 stencilling.

## BRITISH BOMB

# "NICKLE" (LEAFLET)

No. 2 Mks I &amp; II

(Service)

**GENERAL:** This bomb is an adaptation of a U.S. Army M28 Flare. The purpose of the bomb is to scatter large quantities of propaganda leaflets over enemy occupied territory.

**DESCRIPTION:** The bomb consists of a light sheet steel body, closed at the front end by a plastic transit plug, and at the after end by a light sheet steel lid. When the bomb is filled and ready for use this lid is held in place by four soft steel tabs, which are welded at one end to the bomb body and have their free ends bent over the lid. Four tail fins are secured to the after end of the bomb casing.

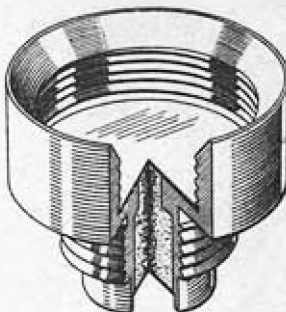
Inside the body is a wooden frame consisting of a block, which fits snugly in the nose of the bomb but does not completely fill it, and three equi-spaced battens, each of which is secured at one end to the block. These battens extend the full length of the bomb body between the block and the lid. The leaflets are contained in the wooden frame between the battens.

The outer end of the block is recessed to locate an ejection charge containing 400 grains of G.12 gunpowder held in a muslin bag.

Since the bomb is an American weapon, it must be somewhat modified for British use. A special brass adapter is threaded into the nose fuze pocket. The adapter is internally threaded to receive the larger No. 880 Mk II fuze. In the base of the adapter is located a charge of G.12 gunpowder, sealed at either end by a waterproof disc.

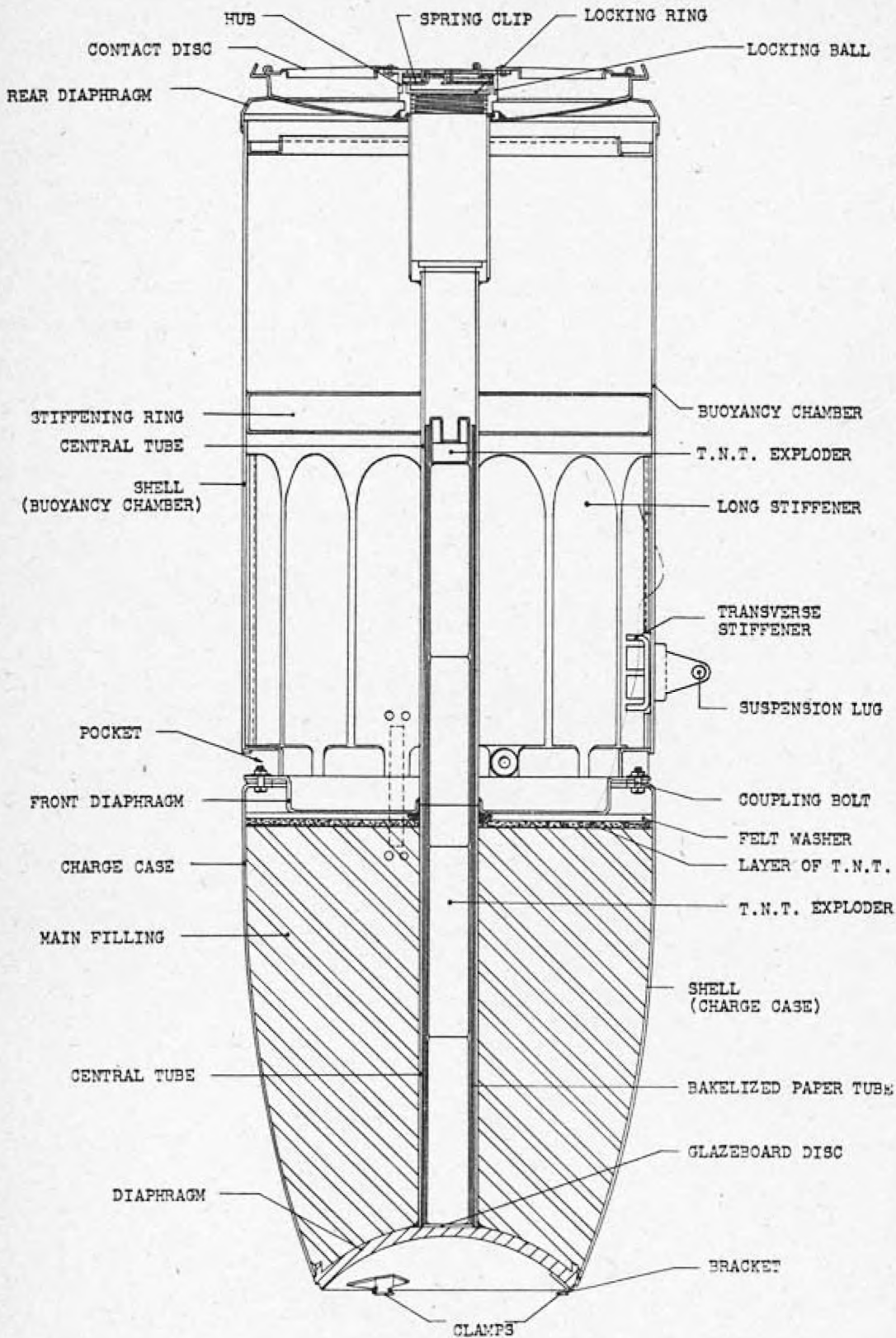
**SUSPENSION:** The Mk I bomb is designed only for aircraft having American type bomb stowage. It is fitted with two American type lugs attached to suspension bands around the bomb body. The Mk II bomb is designed for suspension only in a Universal type bomb carrier. The bomb is fitted with both British and American type suspension lugs, but the American lugs have been moved out of position for American suspension. Instead, they have been positioned to fit beneath the standard crutching forks of the Universal type carrier and act as strengthening bands for the light gauge steel body.

**FUNCTIONING:** When the fuzed bomb is released from the plane, it falls freely until the fuze functions, and the gunpowder in the adapter is initiated. The flash from the gunpowder ignites the ejection charge, and the pressure from the explosion of the ejection charge forces the wooden frame containing the leaflets out of the after end of the bomb body. The lid is thrown clear and the contents ejected from the tail. After ejection, the wooden frame falls end over end, and the leaflets fall out of the frame and scatter over the target.



FUZE ADAPTER

## 250 LB. BUOYANCY BOMB



BRITISH

# 120 LB. G.P

Mks I & II

(Obsolete)

FUZZING . . . . . No. 19 Nose Pistol  
 No. 21 Tail Pistol

COLOR & MARKINGS . . . Yellow overall, with 1/2" red band around nose and 1" light green band around body  
 Longitudinal green bar on body and tail indicates exploder scheme.

TAIL NO. . . . .

OVERALL LENGTH . . . . . 42.4 in.  
 BODY LENGTH . . . . . 21.5 in.  
 MAX. BODY DIAMETER . . . . . 8.1 in.  
 WALL THICKNESS . . . . . 0.5 in.  
 TAIL LENGTH . . . . . 15.7 in.  
 TAIL WIDTH . . . . . 8 in.  
 TOTAL WEIGHT . . . . . 120 lbs. (Amatol 80/20)  
 CHARGE/WEIGHT RATIO. . . 25%

**BODY CONSTRUCTION** Streamlined steel casting or forging, threaded at the nose to take the nose adapter which holds the central exploder tube; at the other end of the casting is a threaded base plug through which the exploder tube passes. Welded to the end of the casting is a streamlined section of thin metal, containing no explosive, but which is tapered to take the tail ring. The exploder passes through this section also.

**TAIL CONSTRUCTION** Truncated cone fits over the rear section of body and is held to it by a lock nut over the exploder tube; three mild steel fins are fastened to the cone, and are reinforced by a cylindrical strut.

**SUSPENSION** Single suspension lug secured to body by four screws.

**EXPLOSIVE COMPONENTS** Detonators: Instantaneous  
 Exploders: T.N.T. and C.E. pellets  
 Filling: 32.5 lbs. T.N.T., or 30 lbs. Amatol 80/20

Tail fuzes normally have arming vanes as an integral part of the fuze mechanism. Tail pistols, on the other hand, generally are armed by an arming fork, which engages a similar fork on the reach rod attached to the arming vanes incorporated as an integral part of the standard British tail unit.

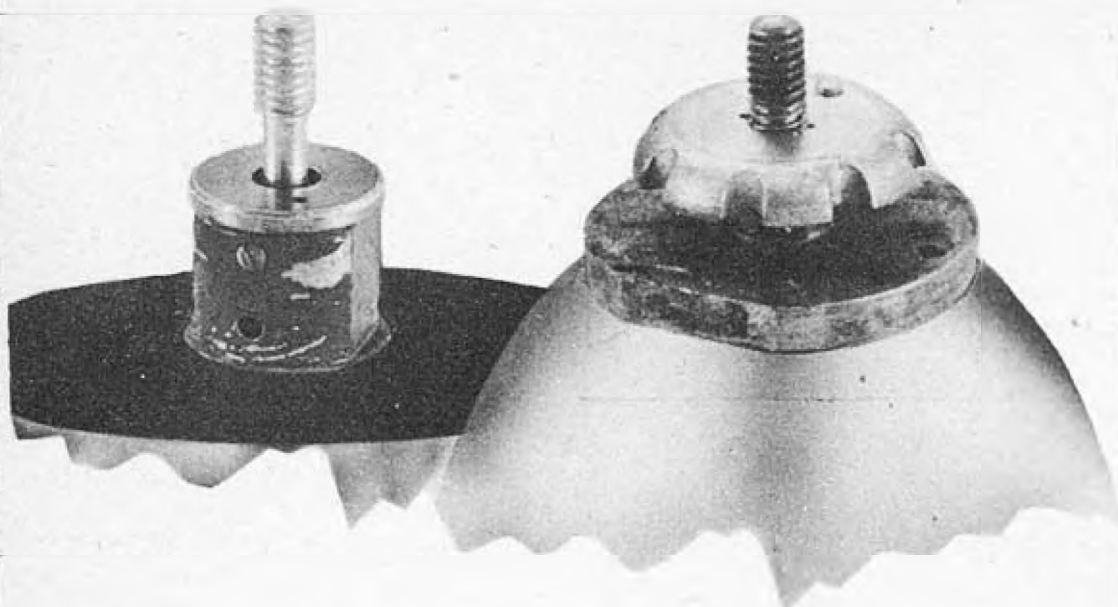
A novel type of device is employed by the British to secure their pistols in bombs. This device consists of a spring clip or "tab locking device" fitting around the base of the pistol. The clip has a series of dents which fit into cavities located around the pistol body. A small tab, about 1/4" long, projects below the clip, and when the pistol is screwed into the bomb, the tab engages one of the small holes drilled in the top of the exploder container. This prevents the clip from moving around with the pistol and provides a ratchet effect. This device prevents the pistol from working loose while in the plane and yet leaves the pistol only hand tight in the bomb, so that it may be easily removed.

Most British bombs are equipped for both nose and tail fuzing, and occasionally dual fuzing is used. However, it is the more common practice for British armorers to fuze either nose or tail, using only one fuze. Generally, if a delay is desired, the bomb is fuzed in the tail, while nose pistols or fuzes will be used for instantaneous action.

Included in this publication are all British pistols and fuzes currently in service use. In addition, obsolescent pistols and fuzes, which are no longer in manufacture but stocks of which are still available for use, are also presented. Certain pistols and fuzes have been declared obsolete by the British, but because of their former importance or as a matter of interest have been included in the book. More important obsolete items, such as the No. 845 fuze, are presented in the main body of this section. Other obsolete items are included in chart form at the end of this section.

British fuzes and pistols are designated by a number and a mark, the number corresponding to the U.S. "Mark" designation, the Mark (always expressed in Roman numerals) equivalent to the U.S. "mod". Since some British pistols carry the same number and mark designations as a British fuze, the name "Pistol" or "Fuze" must always follow the number and mark designation, as: No. 38 Mk.I Pistol, No. 38 Mk.I Fuze, etc.

Although the fuze or pistol designation is almost invariably stamped on the external surface of the fuze or pistol, in many cases this designation is not visible when the fuze or pistol is inserted in the bomb. Since some British fuzes and pistols contain anti-withdrawal devices and others are inherently dangerous to remove, it becomes necessary to recognize fuzes and pistols from their external appearance alone. To assist recognition the following section has been included in this publication. In all cases, the fuzes and pistols are shown in the armed position, and only so much of the fuze or pistol which remains visible when inserted in the bomb is pictured. Reference numbers indicate the pages in this publication where diagram sketches and complete descriptions of the item in question may be found.



TAIL PISTOL NO. 17  
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NOSE PISTOL NO. 19  
NOSE PISTOL NO. 20  
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TAIL PISTOL NO. 23  
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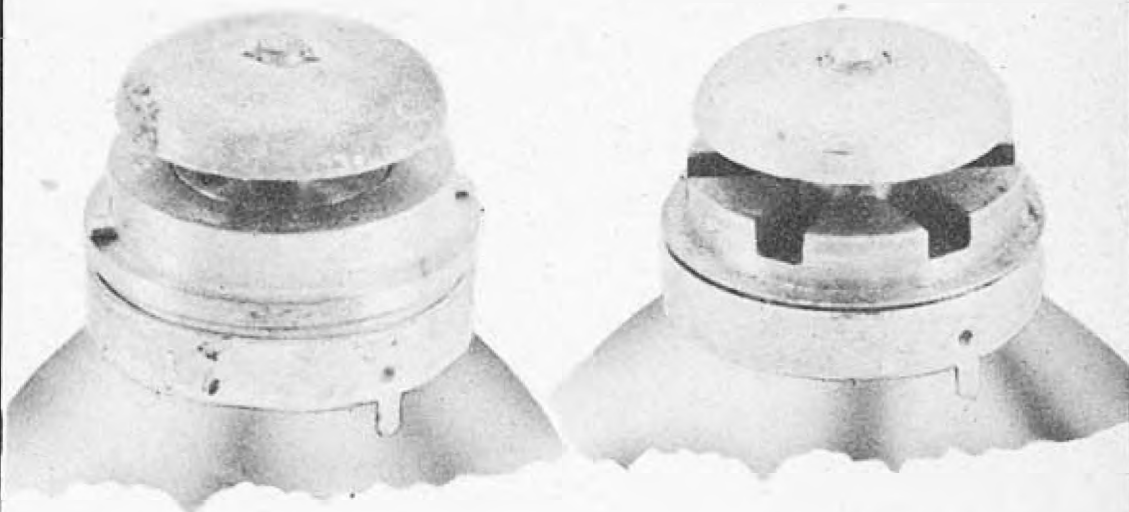


TAIL PISTOL NO. 37  
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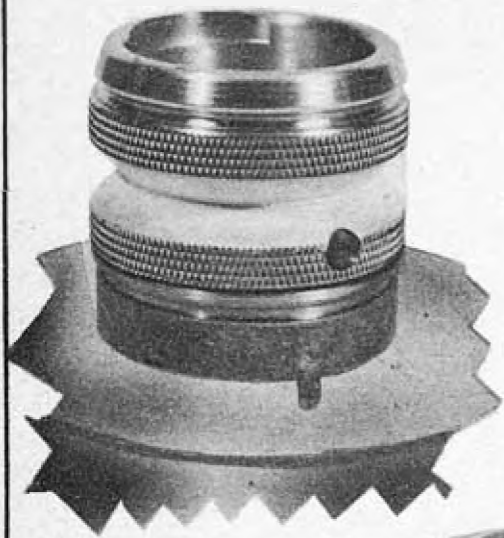
TAIL PISTOL NO. 28  
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TAIL PISTOL NO. 30  
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NOSE PISTOL NO. 33  
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NOSE PISTOL NO. 34  
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TAIL PISTOL NO. 53

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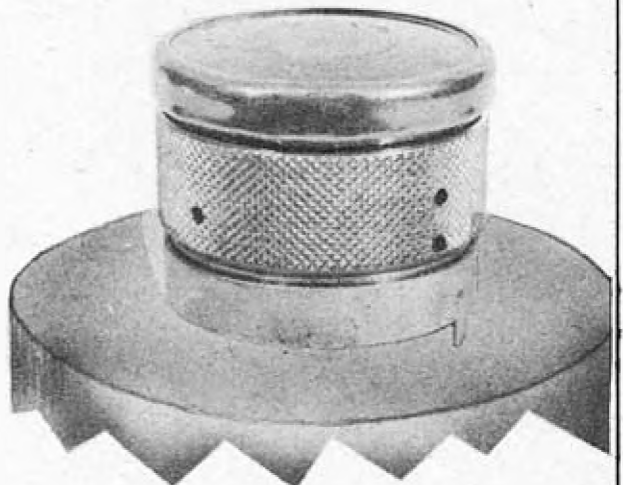
TAIL PISTOL NO. 54  
TAIL PISTOL NO. 60

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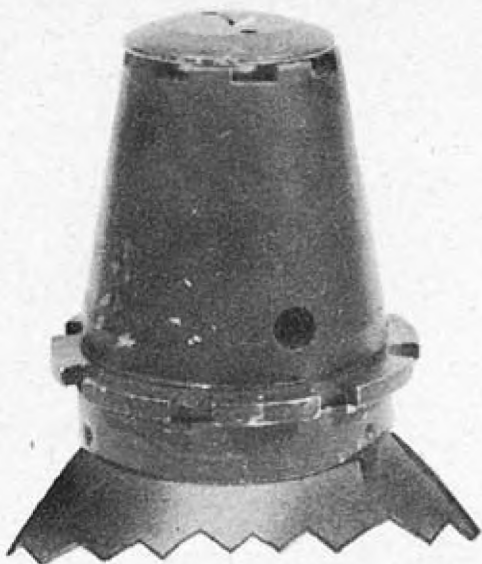
TAIL PISTOL NO. 58

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NOSE OR TAIL PISTOL NO. 35

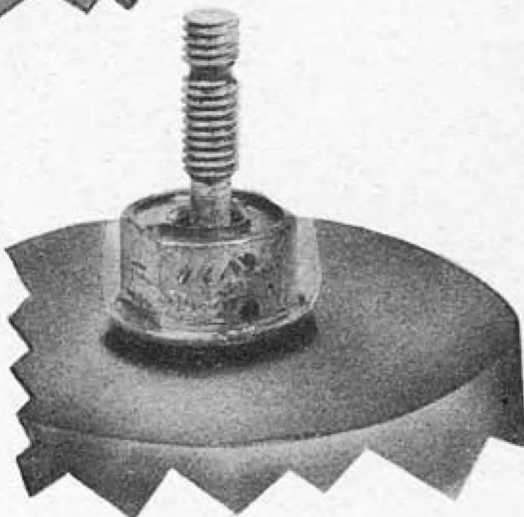
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TAIL PISTOL NO. 21

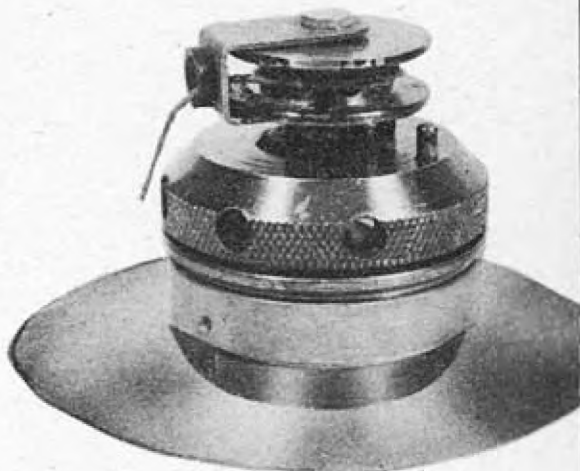
TAIL PISTOL NO. 22

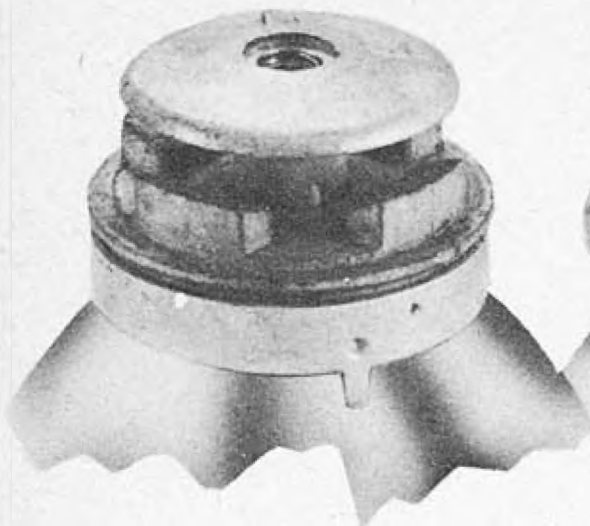
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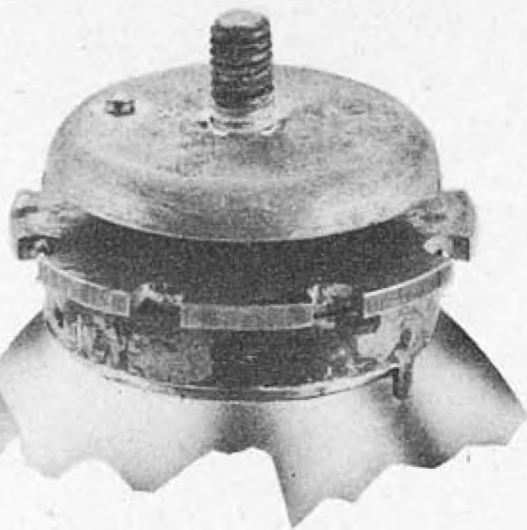
SIDE POCKET PISTOL NO. 47

Page 249

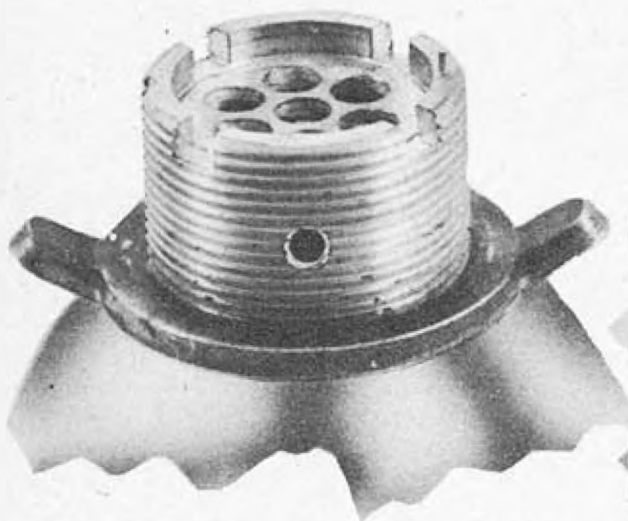




NOSE PISTOL NO. 38  
Page 243

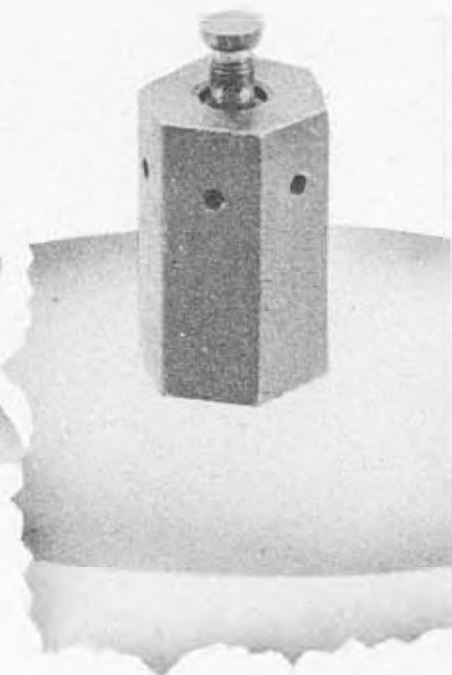


NOSE PISTOL NO. 42  
NOSE PISTOL NO. 27  
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NOSE PISTOL NO. 44  
NOSE PISTOL NO. 56  
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NOSE PISTOL NO. 52  
NOSE PISTOL NO. 45  
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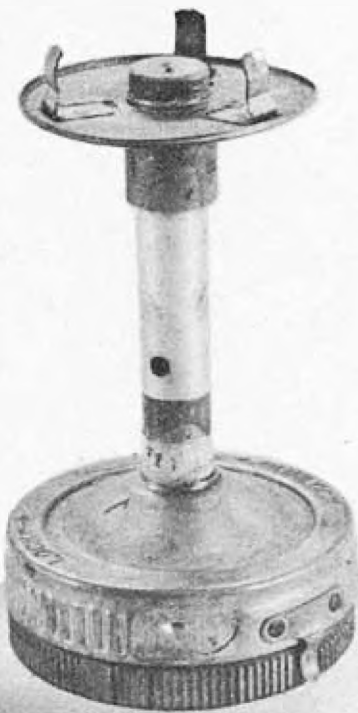
TAIL PISTOL NO. 48  
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NOSE FUZE NO. 864  
NOSE FUZE NO. 38 N.D.  
NOSE FUZE NO. 38  
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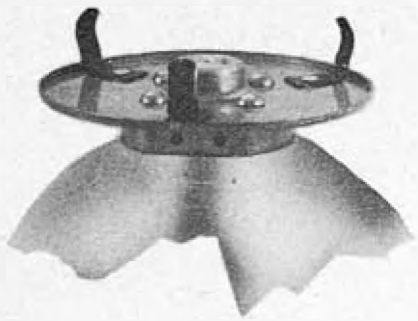
NOSE FUZE NO. 845  
Page 279



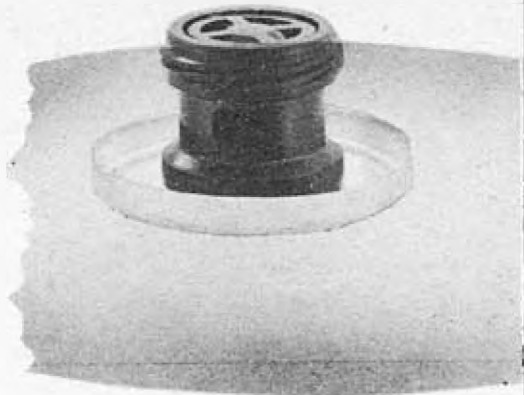
NOSE FUZE NO. 848  
Page 285



NOSE OR TAIL FUZE NO. 42  
Page 275



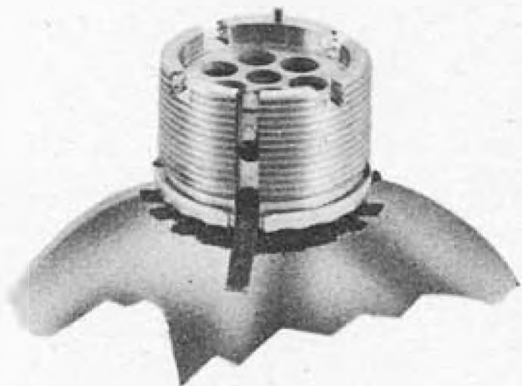
NOSE FUZE NO. 855  
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TAIL FUZE NO. 859  
TAIL FUZE NO. 854  
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NOSE FUZE NO. 896  
NOSE FUZE NO. 880  
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NOSE FUZE NO. 873  
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TAIL FUZE NO. 37  
TAIL FUZE NO. 30  
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NOSE FUZE NO. 28B  
Page 265



NOSE FUZE NO. 32  
Page 271



NOSE FUZE NO. 866  
Page 299



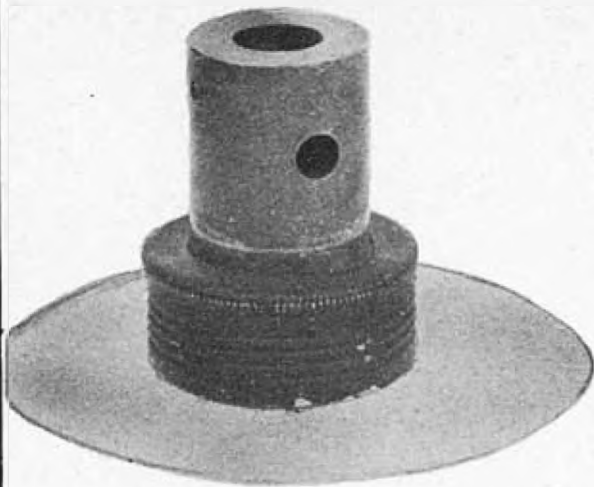
NOSE FUZE NO. 36  
NOSE FUZE NO. 36 N.D.  
Page 271 f



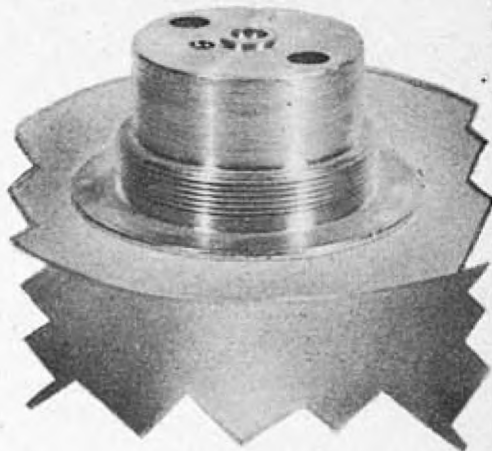
TAIL FUZE NO. 867  
TAIL FUZE NO. 885  
TAIL FUZE NO. 886  
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NOSE FUZE NO. 35  
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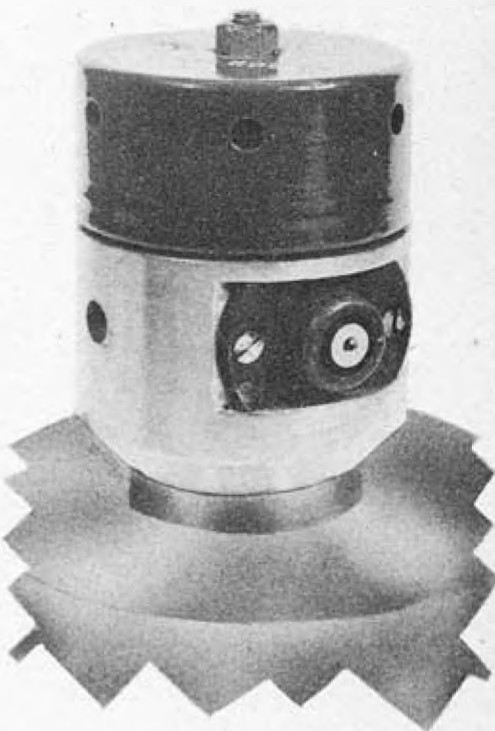
TAIL FUZE NO. 847  
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TAIL FUZE NO. 880  
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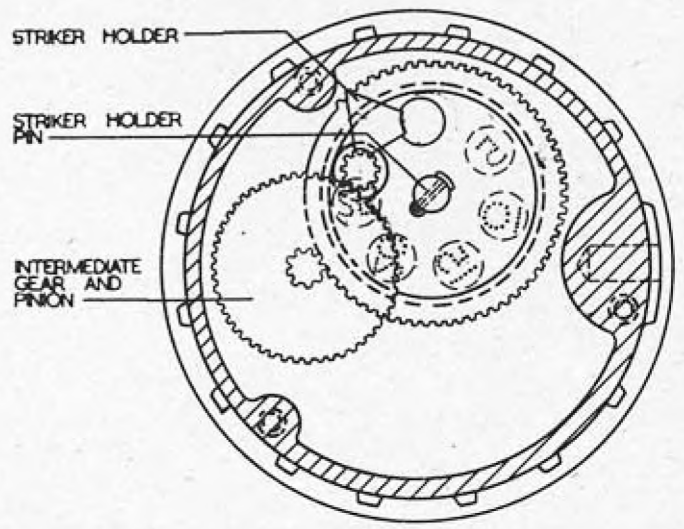
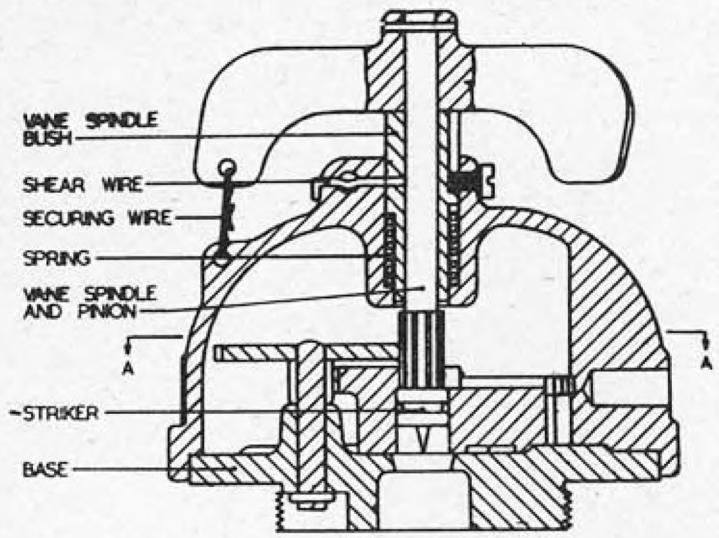
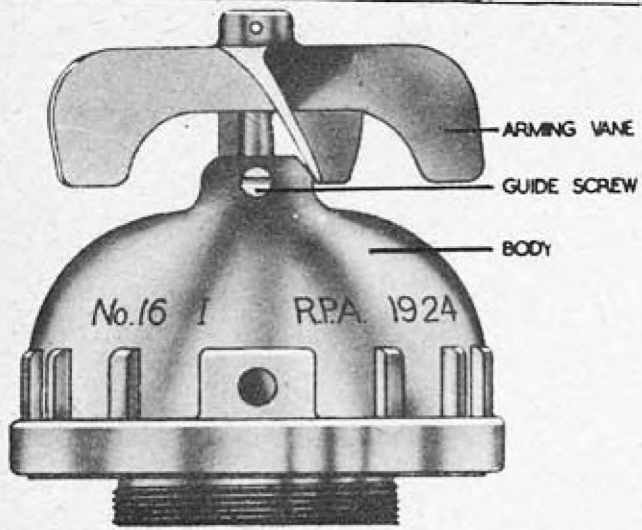


NOSE FUZE NO. 849  
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TAIL FUZE NO. 862  
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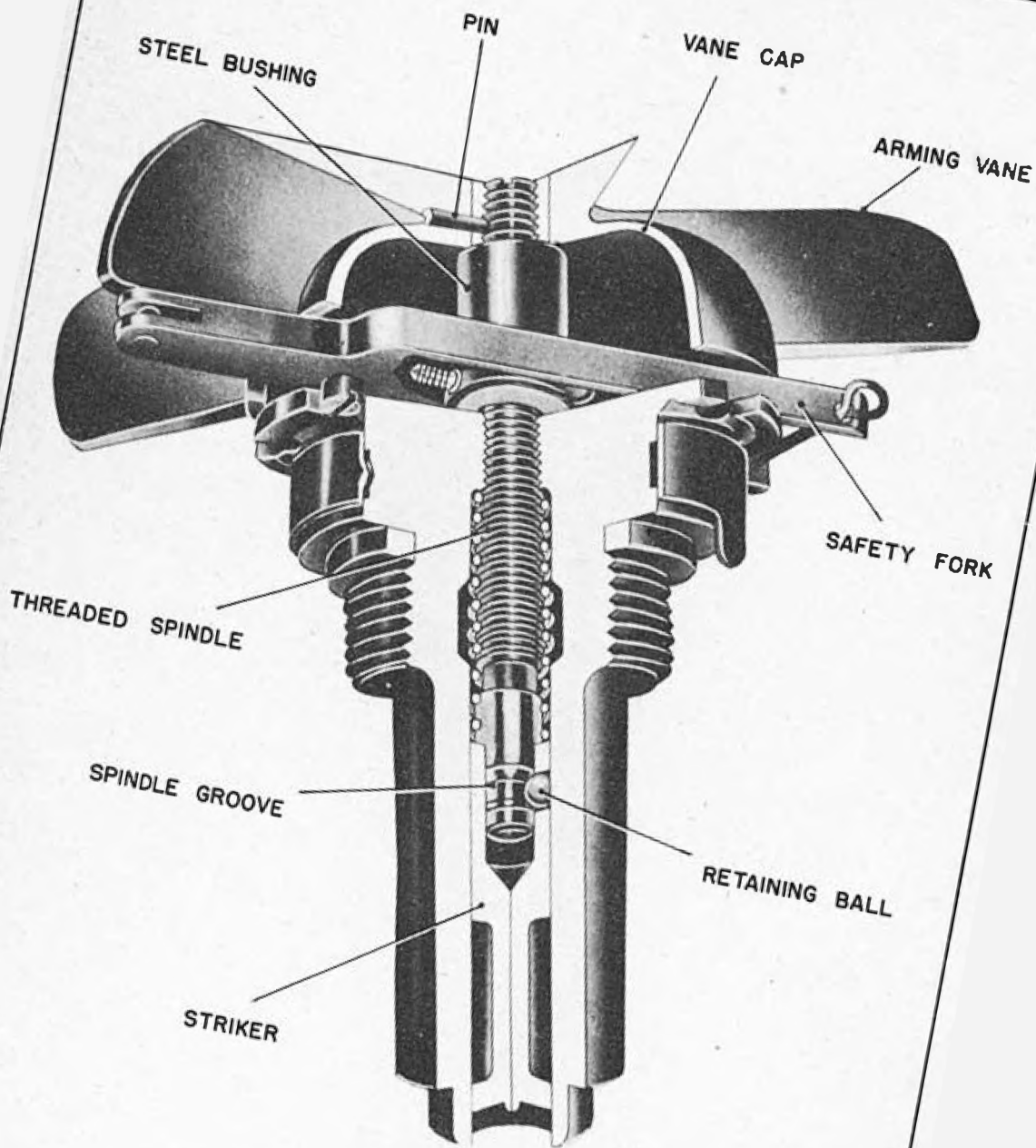
# BRITISH NOSE PISTOL NO. 16





RESTRICTED

# BRITISH NOSE PISTOL NO. 36



BOMBS USED IN . . . . Will fit any bomb for which a No. 27 pistol is designed

FUNCTIONING . . . . Aerial burst

ARMED CONDITION . . . . Safety fork removed

FUZES USED WITH . . . . No. 28 or No. 30 tail pistol

ARMING TIME . . . . Instantaneous

VANE SPAN . . . . 4.0"

MAX. BODY DIAMETER . . . . 1.9"

OVERALL LENGTH . . . . 4.2"

COLOR . . . .

REVOLUTIONS TO FIRE . . . . 16 (approx.)

BRITISH NOSE PISTOL**NO. 36**

Mks. I &amp; II

(Service)

## DESCRIPTION:

This pistol is externally similar to the No. 27 pistol, but is altered internally to permit air functioning. The top of the pistol body is internally threaded to receive a threaded spindle. Over the top of this spindle are screwed the vanes and vane cap, the latter being firmly secured to the spindle by a pin. Fitting loosely around the spindle, immediately above the fuze body, is located a steel bushing. Around the lower part of the spindle is cut an annular groove, which is engaged by two small retaining balls located in holes in the striker. The spindle in the unarmed condition is thus firmly locked in engagement with the striker, the balls being prevented from moving out of engagement by the inner wall of the pistol body. About two-thirds of the way up, the central hole in the pistol body is enlarged sufficiently to allow the retaining balls to move outward and disengage the striker from the threaded spindle.

Opposite sides of the vane cap are cut away to receive the brass safety fork, to which a steel clip spring is attached. The latter fits around the bushing and holds the safety fork in place. Eight slots are cut in the outer perimeter of the top of the pistol body, and the locking stud of the safety fork fits into one of these slots. A safety pin with instruction tablet attached passes through the arms of the safety fork. Around the pistol body below the slotted flange is a locking spring.

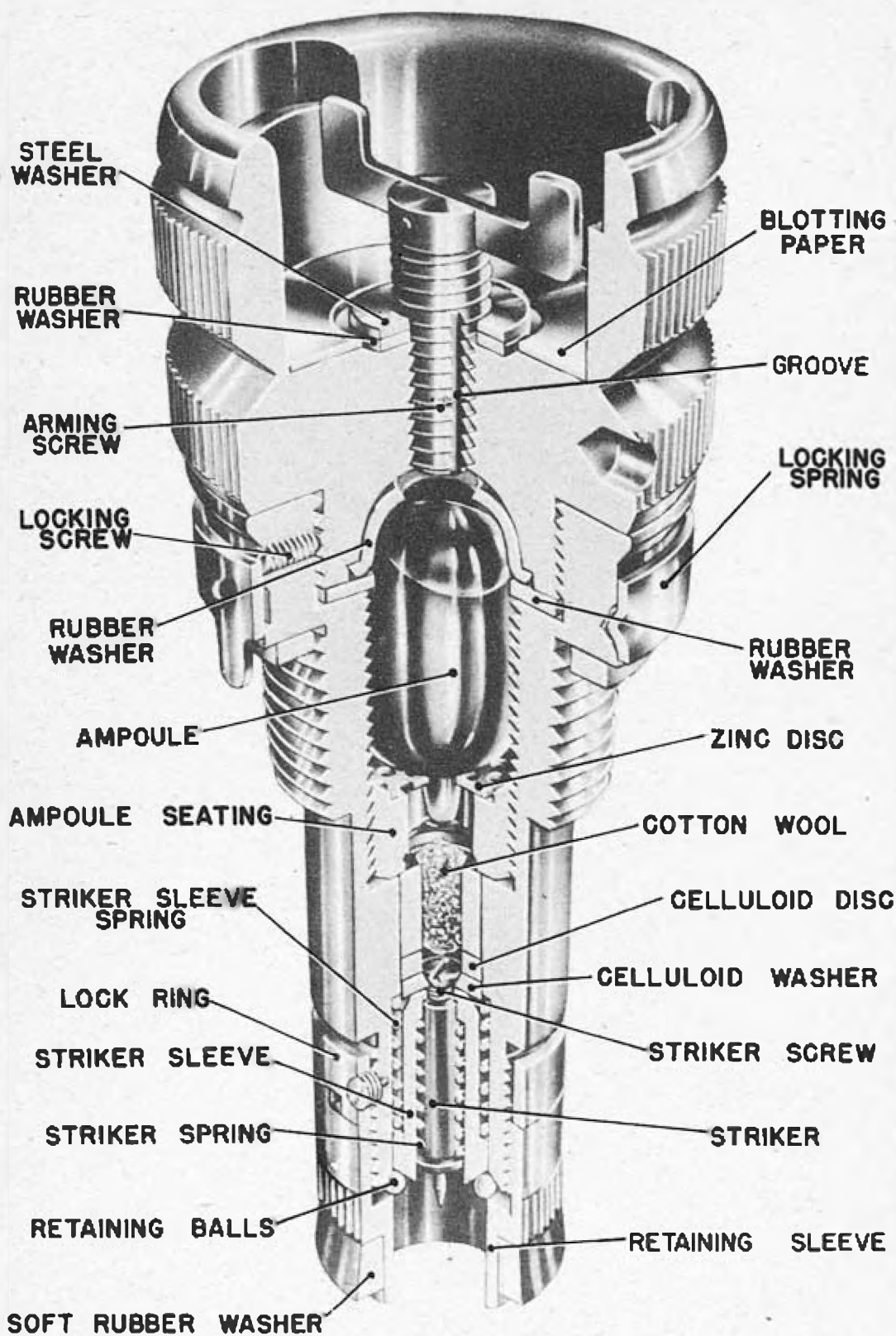
## OPERATION:

The safety pin is removed before the bomb is loaded aboard the aircraft, and the safety fork is pulled free when the bomb is released. The vane cap is now free to rotate, and as it does withdraws the threaded spindle and engaged striker, putting the striker spring under compression. This continues until the retaining balls reach the enlarged recess in the pistol body. The balls then move into the recess and disengage the striker from the spindle. The spindle continues to rise until it has moved all the way out of the striker. The balls are allowed to move back into the striker, and the striker is free to be forced by its spring into the detonator.

## REMARKS:

1. This pistol, while classed as in "service" use, is not widely employed.
2. The pistol incorporates a blunt striker, and therefore is used only with anvil type detonators.
3. No. 36 Mk. I: This pistol is an earlier model of the No. 36 Mk. II and is a conversion of stocks of No. 27 pistols. The Mk. I differs from the Mk. II (illustrated) only in that the former incorporates a threaded bush to form the enlarged recess in the pistol body, while the body of the latter is machined from a single piece of brass.

# BRITISH TAIL PISTOL NO. 37



BOMBS USED IN . . . . . G.P. 250 lb. Mk. IV  
 G.P. 500 lb. Mk. IV  
 G.P. 1000 lb. Mks. I & II  
 G.P. 1900 lb., G.P. 4000 lb.  
 All M.C. & H.C. bombs

FUNCTIONING . . . . . Impact; instantaneous; diaphragm operated.

ARMED CONDITION . . . . . Vane cap removed.

FUZES USED WITH . . . . . Tail Pistols Nos. 28 & 30.

VANE SPAN . . . . . No. 44: 4"  
 No. 55: 7.5"

MAX. BODY DIAMETER . . . . . 1.75"

OVERALL LENGTH . . . . . 3.8"

COLOR . . . . . Brass

## BRITISH NOSE PISTOL

**NO. 44**

Mks. I, II, III

**NO. 55**

Mk. I

(Service)

**DESCRIPTION:** The pistol consists of a vane cap, body, and body extension, all of which are made of brass. The vane cap is cast and has five vanes (No. 55, four vanes). There are two small holes on opposite sides of the cap for the safety pin. In the top of the vane cap there is a steel stop pin and a similar one on the pistol body to prevent the cap from being screwed down too tightly. A steel retaining disc is threaded in the upper pistol body above the diaphragm. In this disc are drilled seven holes to allow air passage. Under the retaining disc is a 1-1/4" sheet brass diaphragm to which is soldered a 3-1/8" steel needle striker which passes down into the body extension. There are two air pressure holes in the pistol body to equalize air pressure under the diaphragm, preventing detonation while the bomb is falling. Around the pistol body is a brass locking ring.

**OPERATION:** The safety pin is removed manually when the bomb is loaded aboard the plane, and the vanes are freed to rotate upon release. The vane cap falls away after about 13 revolutions, leaving the steel disc and diaphragm exposed. Detonation occurs on impact or by the blast wave of the preceding bomb. It has been reported that the diaphragm has also been reversed by the cushion of air built up beneath the bomb as it nears the ground.

**REMARKS:** (1) If, on examination, it is determined that the diaphragm has been reversed, it must be assumed that the pistol is in a fired condition, with the striker imbedded in the detonator.

(2) These pistols are designed to replace the No. 27 pistol.

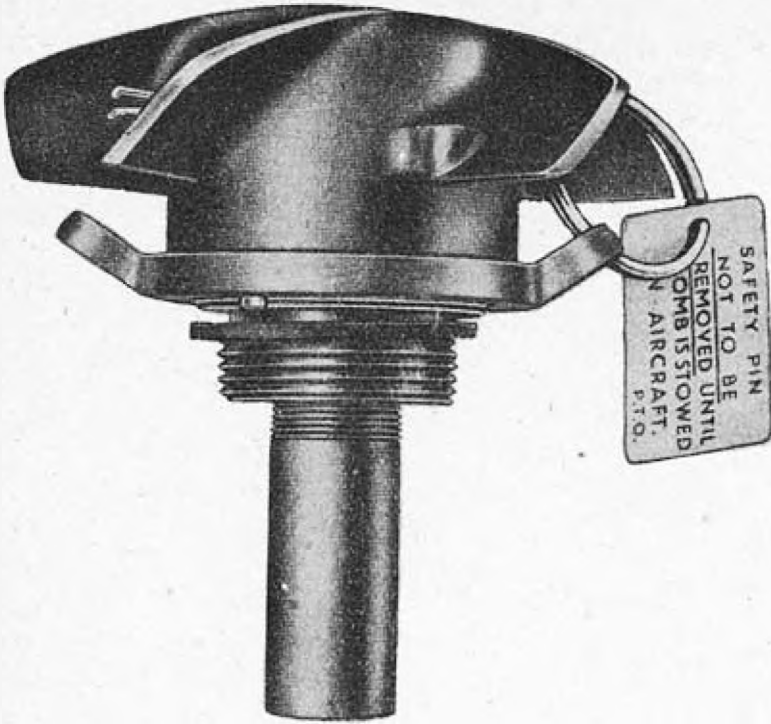
(3) No. 44 Mk. II: (Illustrated): similar to the Mk. I, except that the two air vents in the side of the pistol are replaced by three air vents in the base of the pistol body.

(4) No. 44 Mk. III: differs from the Mk. II pistol as follows:

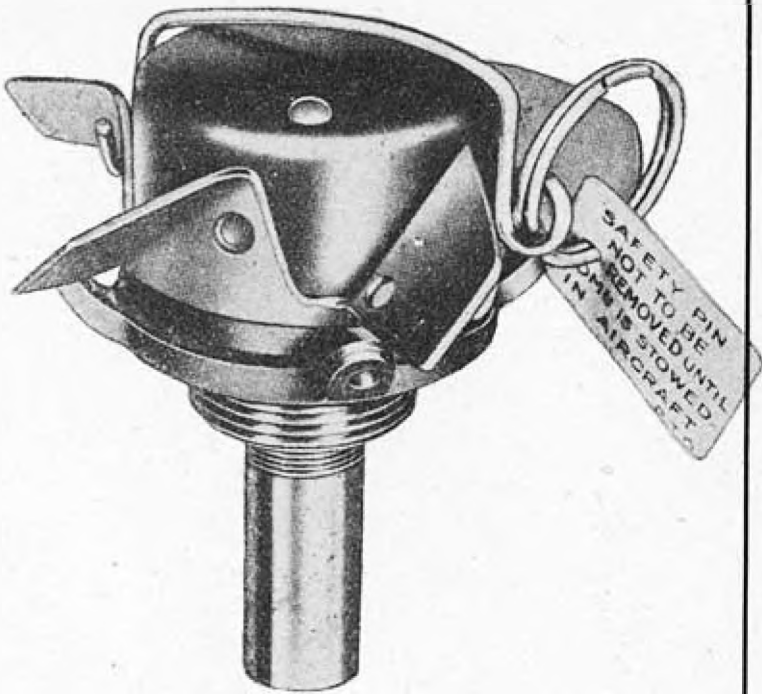
(a) the vane cap is retained by a new type safety clip, the hook end of which locates in a hole in one of the arming vanes, while the plain end passes through the single hole in the vane cap and engages a safety pin groove in the pistol body; (b) the two safety pin holes in the vane cap and the four notches in the top edge of the body are omitted; (c) the air pressure relief groove is diametrically opposite the safety pin groove and extends from the top of the body to a point level with the top of the safety pin groove.

(5) No. 55 Mk. I: identical with the No. 44 Mk. III, except that four anemometer type vanes are used. The pistol is used in the two off-center nose fuze pockets of H.C. bombs having three nose fuze pockets.

# BRITISH NOSE PISTOL NO. 44



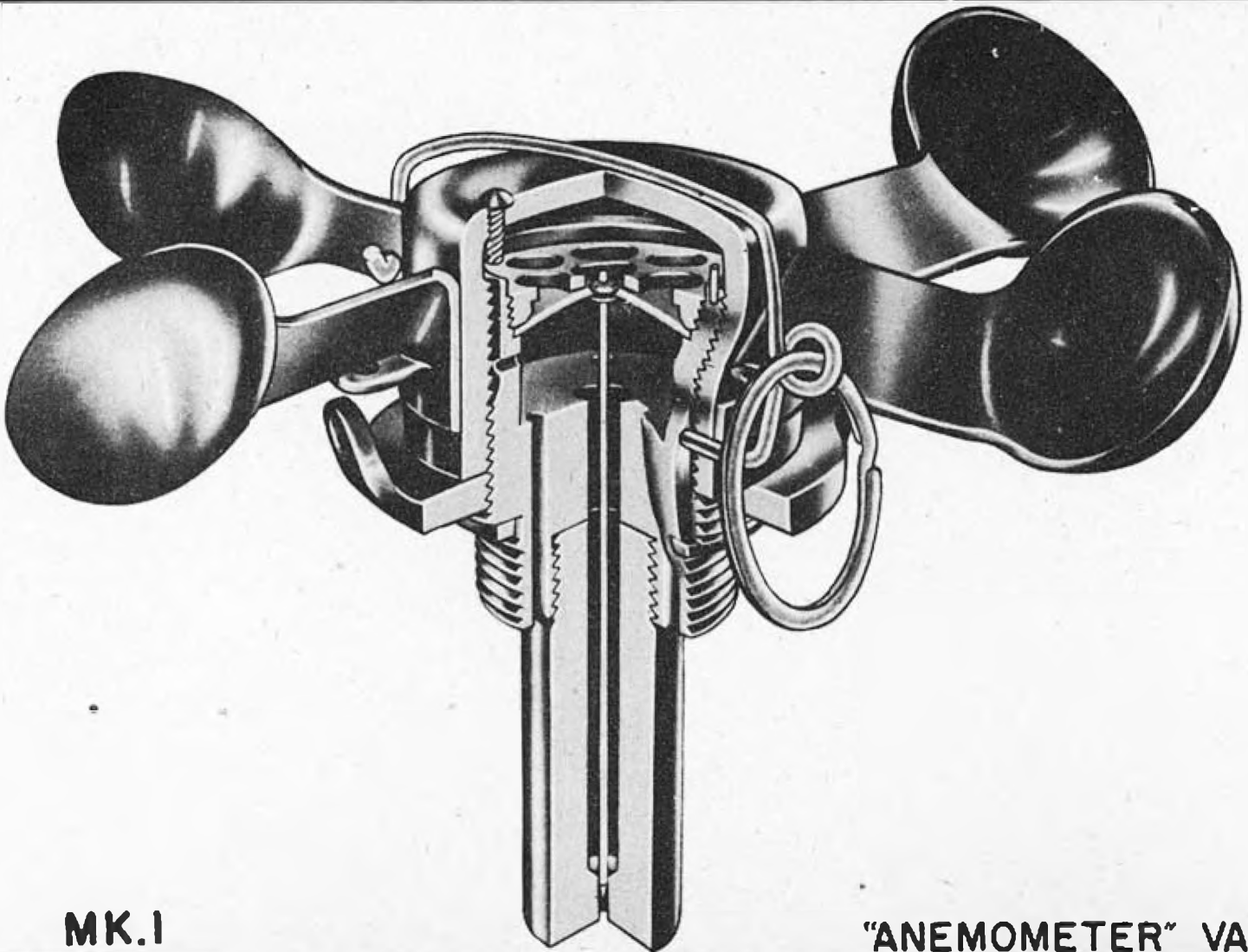
**MK.I**



**MK.III**

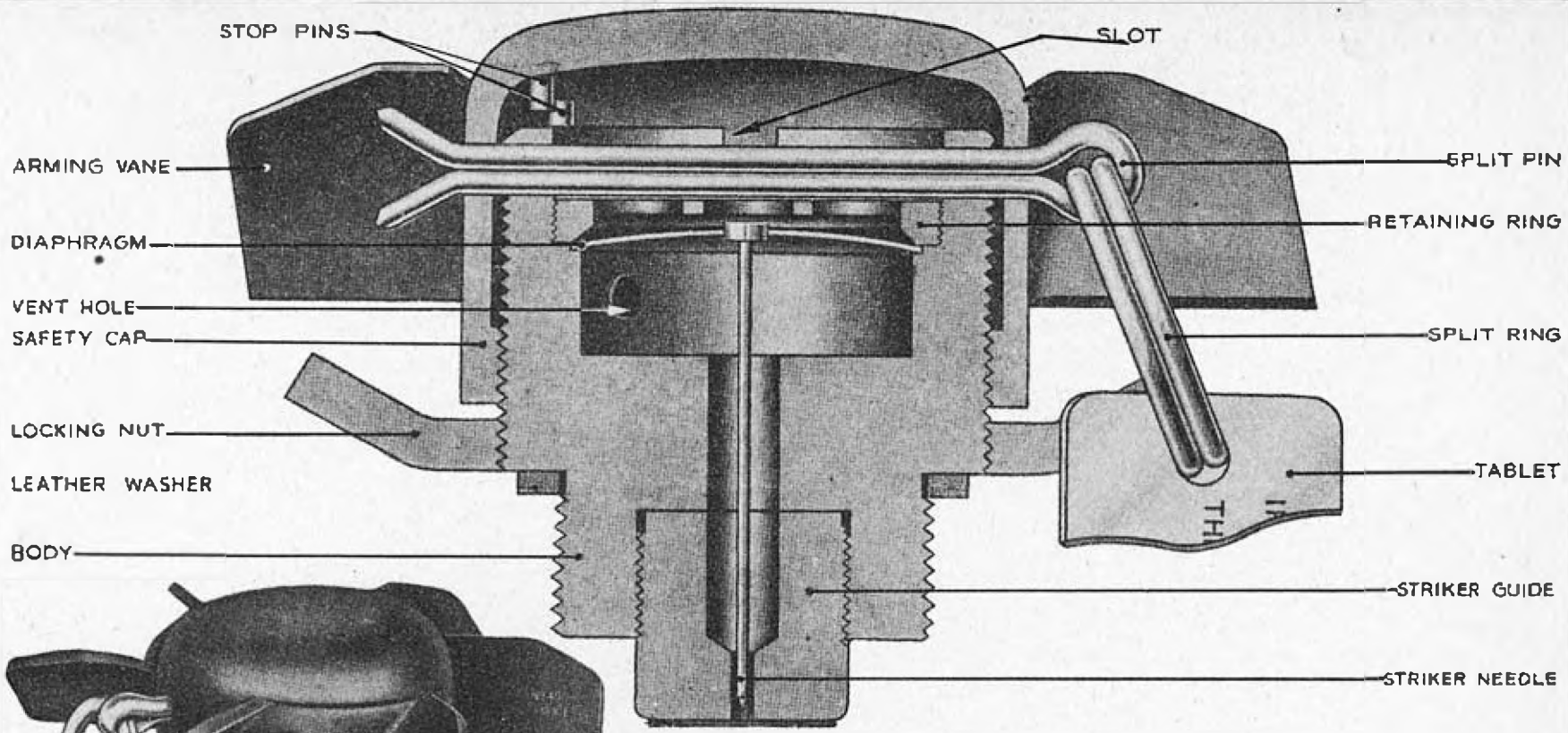
RESTRICTED

BRITISH NOSE PISTOL NO. 55



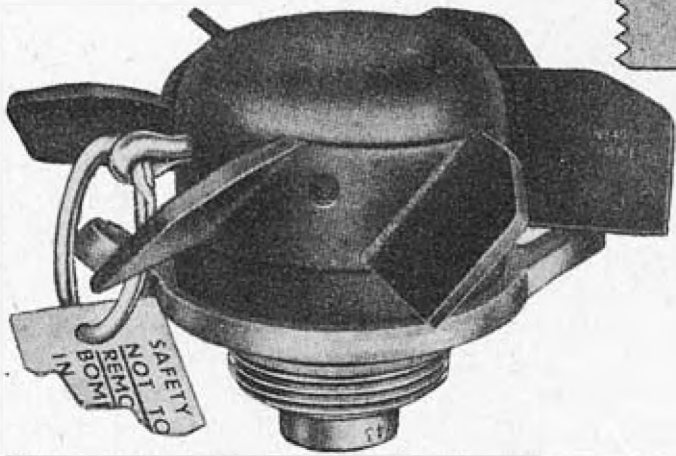
MK.1

"ANEMOMETER" VANES



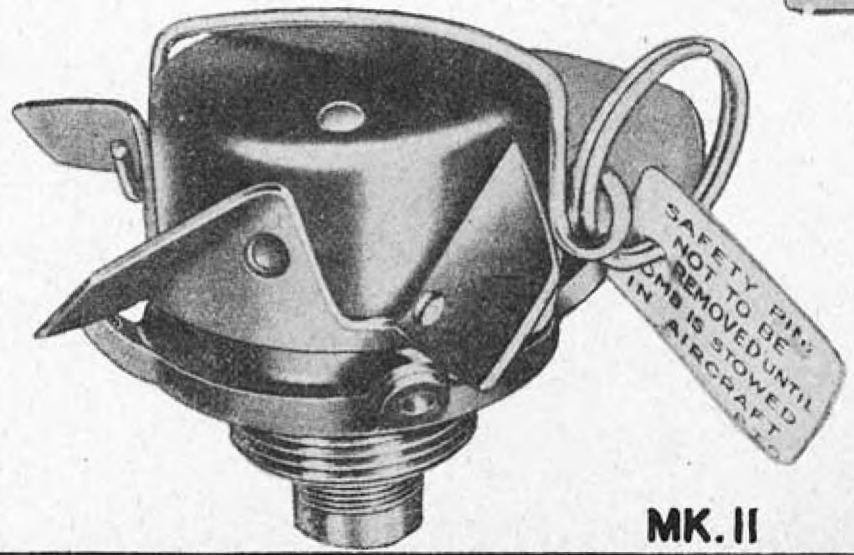
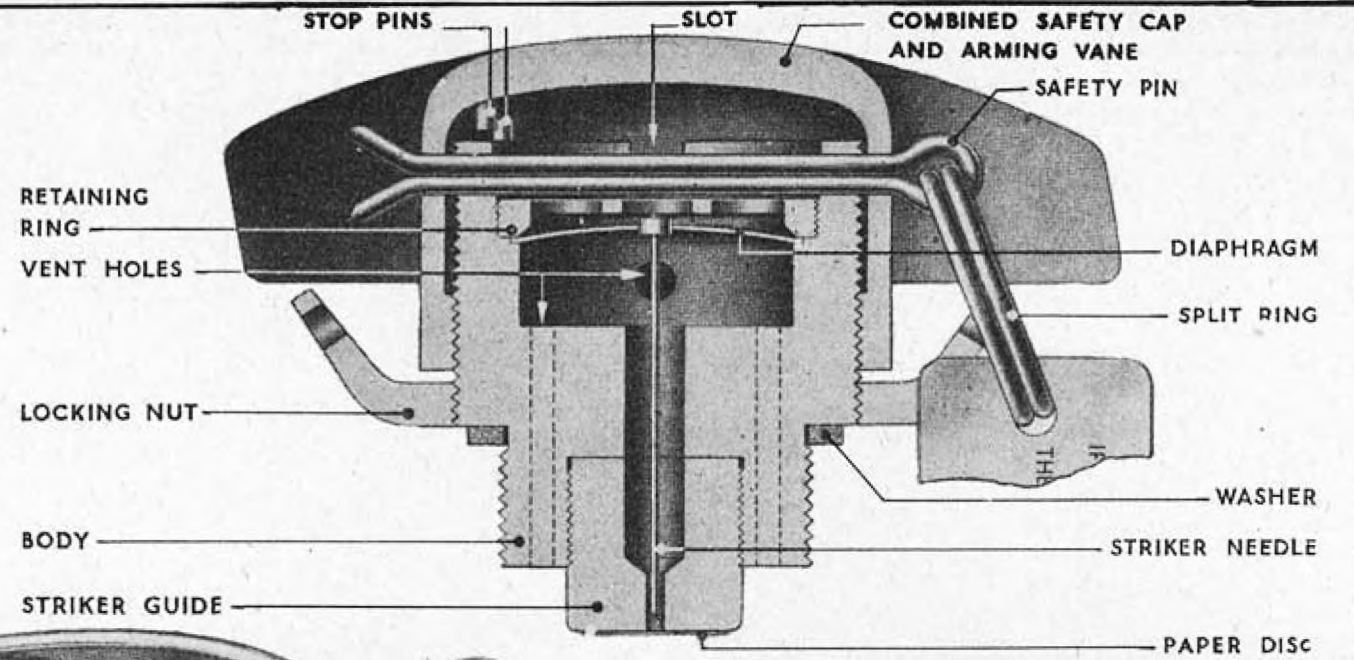
STOP PINS  
 ARMING VANE  
 DIAPHRAGM  
 VENT HOLE  
 SAFETY CAP  
 LOCKING NUT  
 LEATHER WASHER  
 BODY

SLOT  
 SPLIT PIN  
 RETAINING RING  
 SPLIT RING  
 TABLET  
 STRIKER GUIDE  
 STRIKER NEEDLE

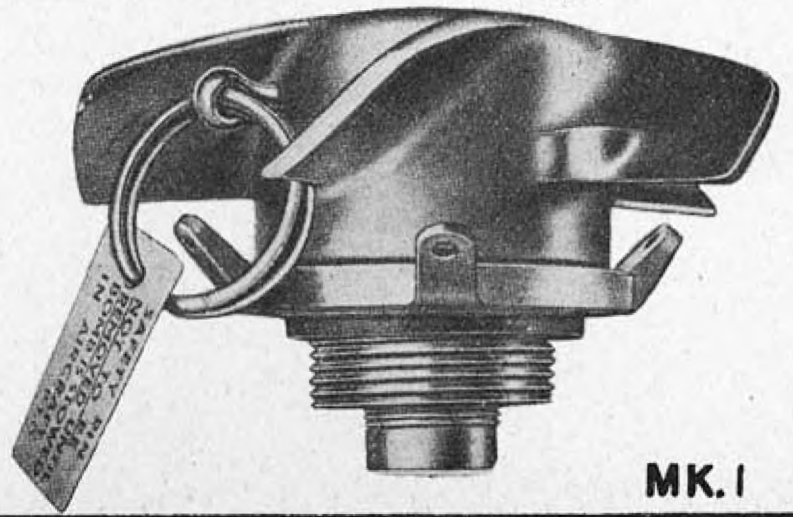


**BRITISH NOSE PISTOL NO. 45  
 MK. I**

# BRITISH NOSE PISTOL NO. 52

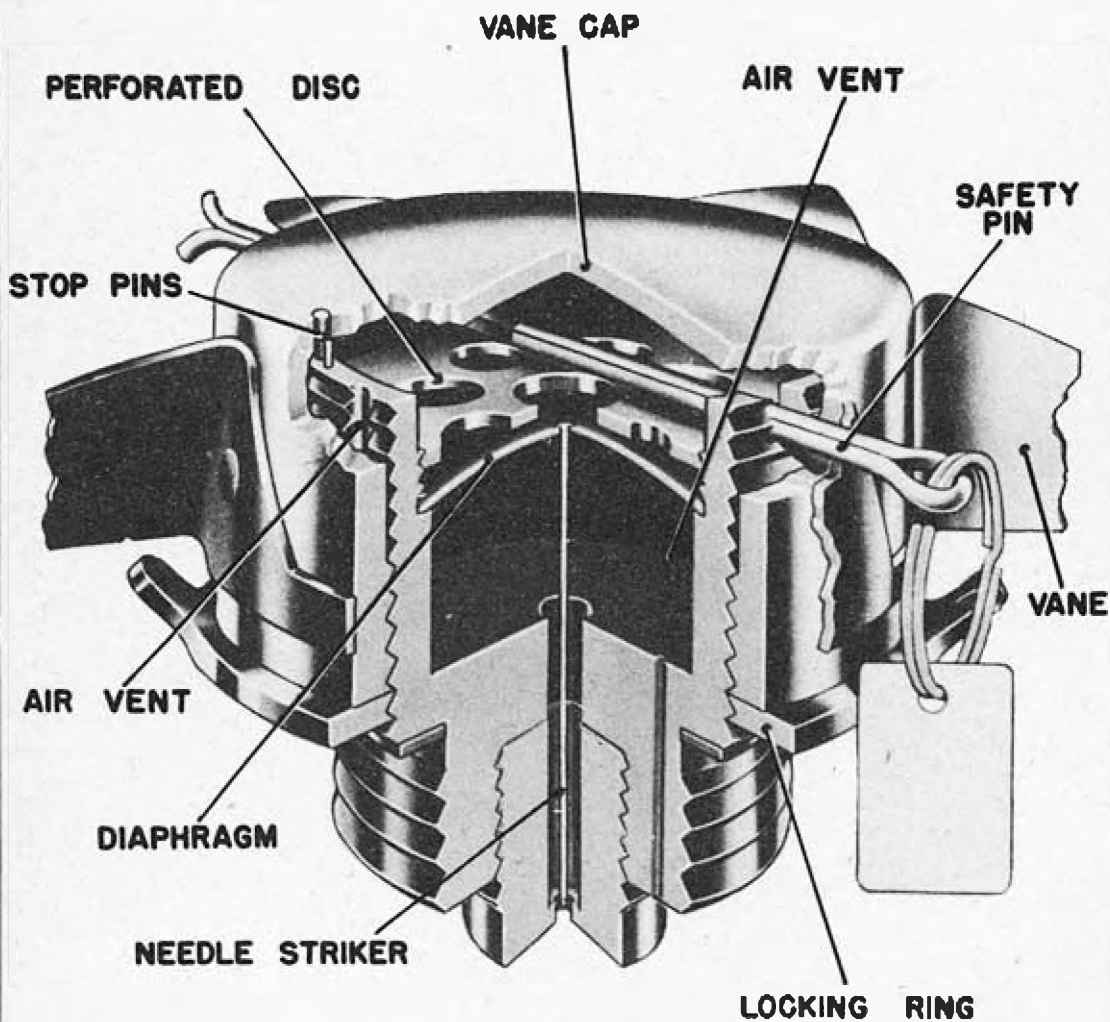


MK. II



MK. I

# BRITISH NOSE PISTOL NO. 52



BOMBS USED IN . . . . (a) F 20 lb.  
 G.P. 40 lb.  
 (b) All U.S. AN-GP Bombs

FUNCTIONING . . . . Impact, instantaneous; dia-  
 phragm operated.

ARMED CONDITION . . . Vane cap unscrewed

FUZES USED WITH . . . None

ARMING TIME . . . . 12 vane revolutions

VANE SPAN . . . . (a) 4.0"  
 (b) 3.75"

MAX. BODY DIAMETER. . (a) 1.75"  
 (b) 2.0"

OVERALL LENGTH . . . 2.5"

COLOR . . . . Brass body and locking ring;  
 (a) Black cap and vanes.  
 (b) Brass cap and vanes.

BRITISH NOSE PISTOL(A) **NO. 45**

Mks I &amp; II

(B) **NO. 52**

Mk. I &amp; II

(Service)

**DESCRIPTION:**

The pistol consists of a vane cap, body, and body extension. The pistol is similar to the No. 44 Pistol, but the pistol itself and all its parts are smaller so that it may fit in smaller bombs. Six vanes in pairs are riveted to the black vane cap. A steel stop pin on the inside of the vane cap engages a similar pin on the top of the pistol body to prevent the cap from screwing down too tightly and binding. In the upper part of the pistol body there is screwed a steel retaining disc, in which are drilled seven holes to allow air passage. Located under the disc is a sheet brass diaphragm to which is soldered a steel needle striker, which extends into the body extension. There are two air pressure holes in the side of the body which equalize the pressure above and below the diaphragm as the bomb falls. Around the pistol body is a brass locking ring.

**OPERATION:**

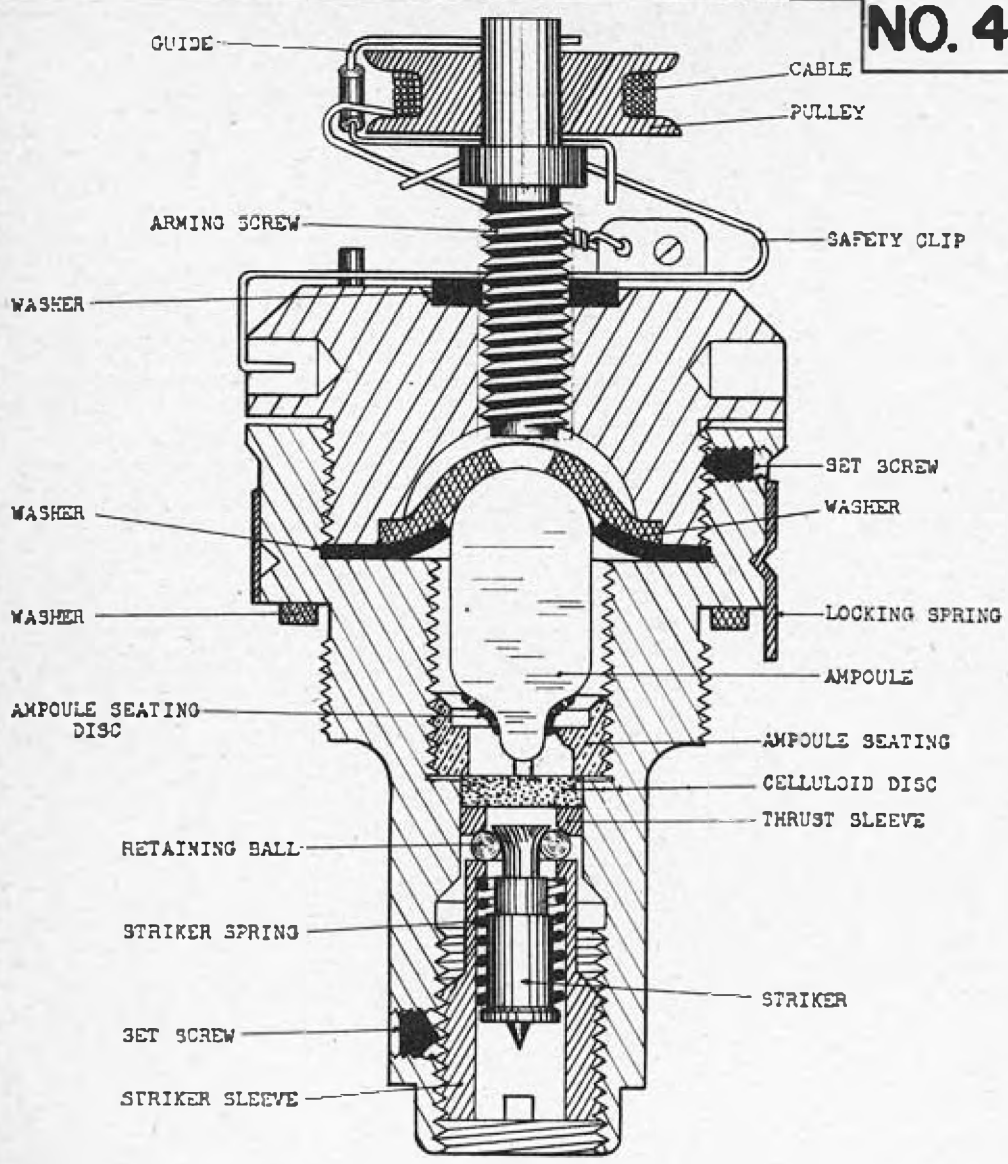
The safety pin is removed when the bomb is loaded aboard the plane. Upon release, the arming vanes rotate, and after 12 revolutions the vane cap and vanes fall away leaving the retaining disc and diaphragm exposed. On impact, the diaphragm is reversed by the compressed air beneath the fuze, and the striker is driven into the detonator. The blast wave of the preceding bomb may fire the pistol.

**REMARKS:**

1. If on examination it is determined that the diaphragm has been reversed, it must be assumed that the pistol is in the fired condition, with the striker imbedded in the detonator.
2. No. 45 Mk. II: similar to the Mk. I except that the two air vents in the side of the pistol body are replaced by the three air vents in the base of the pistol body.
3. No. 52 Mk. I: similar to the No. 45 Mk. II except that only five vanes are used, and the vanes and vane cap are of unpainted brass.
4. No. 52 Mk. II: similar to the No. 52 Mk. I, except as follows: (a) the vane cap is retained by a new type spring safety clip, the hook end of which locates in a hole in one of the arming vanes, while the plain end passes through the single hole in the vane cap and engages a safety pin groove in the pistol body; (b) the two safety pin holes in the cap and the four notches in the fuze body are omitted; (c) the air pressure relief groove is diametrically opposite the safety pin groove and extends from the top of the body to a point level with the top of the safety pin groove.

# BRITISH SIDE POCKET PISTOL

## NO. 47



BOMBS USED IN . . . . . a. G.P. 250 & 500 lb. Mk. IV  
 G.P. 1000, 1900, & 4000 lb.  
 All M.C. bombs  
 S.A.P. 250 & 500 lb. Mk. V  
 A.P. 2000 lb. Mk. IV  
 A.S. 100, 250, & 500 lb. Mk. V  
 b. I.B. 400 lb. Mk. I

FUNCTIONING . . . . . Impact; instantaneous; semi-  
 all-ways action.

ARMED CONDITION . . . . . Arming spindle unscrewed  
 from striker head.

FUZES USED WITH . . . . . a. Nose pistols No. 27, 42,  
 or 44.  
 b. None.

ARMING TIME . . . . . 15 arming fork revolutions

MAX. BODY DIAMETER . . . . . 2.4"

OVERALL LENGTH . . . . . 3.6" w/o striker guide

BRITISH TAIL PISTOL

**NO. 54**

Mk. I

**NO. 60**

Mk. I

(Service)

**DESCRIPTION:**

This pistol has been developed to replace the No. 30 pistol for low level attacks, when the bomb may be expected to make side or angle impact. Although resembling the No. 28 pistol externally, this pistol, however, is considerably greater in diameter than the No. 28.

The pistol consists of a brass body with a hollow cavity into which is placed the striker assembly, an inertia ring, a retaining plate, and an arming fork with a threaded spindle. The striker assembly is composed of a tapered striker head, bored and threaded internally to receive the arming spindle, and a needle striker positively secured to the striker head and positioned by a striker guide threaded into the lower extension of the pistol body. A creep spring bears upwards against the striker head, and a guide pin, located in the pistol body and riding in a groove in the striker head, prevents the striker head from rotating. The body is recessed to permit downward movement of the striker head, and an internal shoulder is provided in the large hollow cavity to seat the retaining plate, which is held in place by three grub screws. The arming spindle is pinned to the arming fork and threads through the retaining plate into the striker head. The inertia ring fits loosely under the retaining plate and is beveled internally to mate with the conical shaped striker head.

A special locking washer is used with this pistol. This washer has four studs bent downward in such a manner that they engage in recesses in the exploder container. When the pistol is fully screwed home, one of the 19 external tabs of the locking washer is bent upwards to engage in one of the two grooves cut in the base of the pistol head.

**OPERATION:**

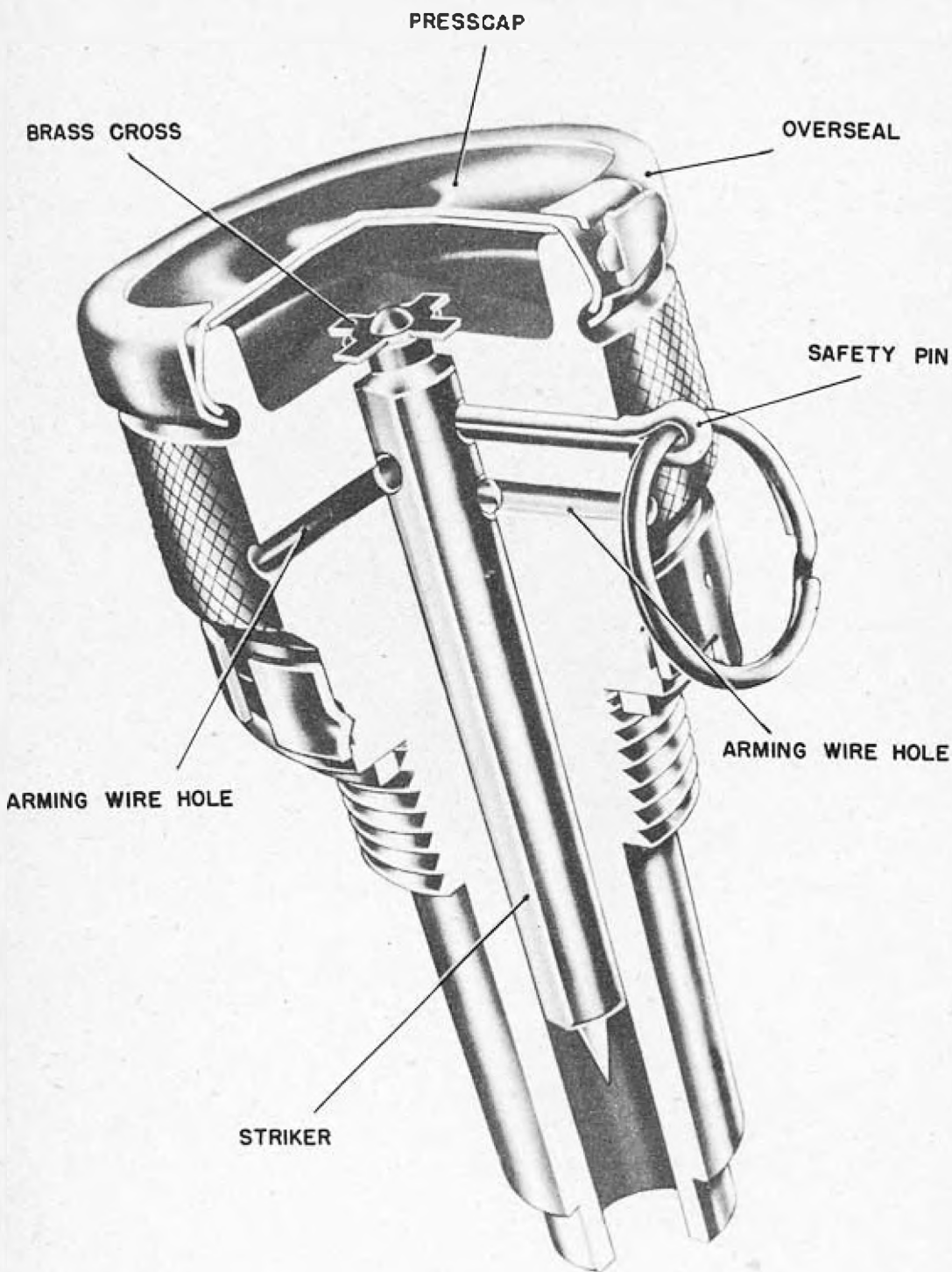
When the bomb is released, the arming vanes in the tail cone rotate and in so doing thread upwards the arming fork and attached spindle. After approximately 15 revolutions the arming spindle is completely withdrawn from the striker head and inertia ring, and the striker head is now held upwards only by the creep spring. On impact, the striker head overcomes the resistance of the creep spring and drives the needle striker into the detonator.

If the bomb lands on its side, the inertia ring moves sideways, bearing against the beveled top of the striker head and driving it downward against the creep spring, firing the detonator.

**REMARKS:**

1. This pistol is restricted to employment in low-level bombing operations on fighter/bomber aircraft only. Therefore only sensitive type detonators of 11 seconds delay or longer may be used.
2. Tail Pistol No. 60 Mk. I: This pistol, used with the 400 lb. Mk. I Incendiary Bomb, is identical to the No. 54 Mk. I pistol, except that the arming spindle is considerably lengthened, and the arming fork is replaced by a T-bar firmly attached to the top of the spindle.

**BRITISH TAIL PISTOL NO. 58**



BOMBS USED IN . . . . . D.P. 12,000 lb. & 22,000 lb.  
 FUNCTIONING . . . . . Impact; may be used with  
 detonators having delays up  
 to 11 seconds.  
 ARMED CONDITION . . . . . Safety pin and arming wire  
 withdrawn.  
 FUZZES USED WITH . . . . . None  
 ARMING TIME . . . . . Instantaneous upon release.  
 MAX. BODY DIAMETER . . . . . 2"  
 OVERALL LENGTH . . . . . 3-7/8"  
 IDENTIFICATION . . . . . Identical externally with  
 No. 28 pistol; however,  
 press cap and oversal will  
 not have been removed.  
 COLOR . . . . . Brass.

BRITISH TAIL PISTOL

**NO. 58**

Mk. I

(Service)

**DESCRIPTION:**

This pistol is a simple impact mechanism consisting of a brass body with a central channel to accommodate a heavy striker. The striker is retained by a small brass cross which is fastened to the top of the striker by a copper pin. In the normal condition, the four tabs of the brass cross extend outwards over the top of the pistol body, preventing the striker from descending.

Two arming wire holes are drilled in separate planes at 90° to each other. The hole to be used is that which gives the more favorable angle of pull-off for the arming wire from the pistol to the fuzing unit. Parallel to one of these arming wire holes, and about 1/4" above it, is located a safety pin hole.

**OPERATION:**

When the bomb is released from the aircraft the arming wire is withdrawn from the pistol, leaving the striker supported only by the brass cross. On impact, the inertia of the striker bends the tabs of the brass cross, allowing the striker to move forward and pierce the detonator.

**REMARKS:**

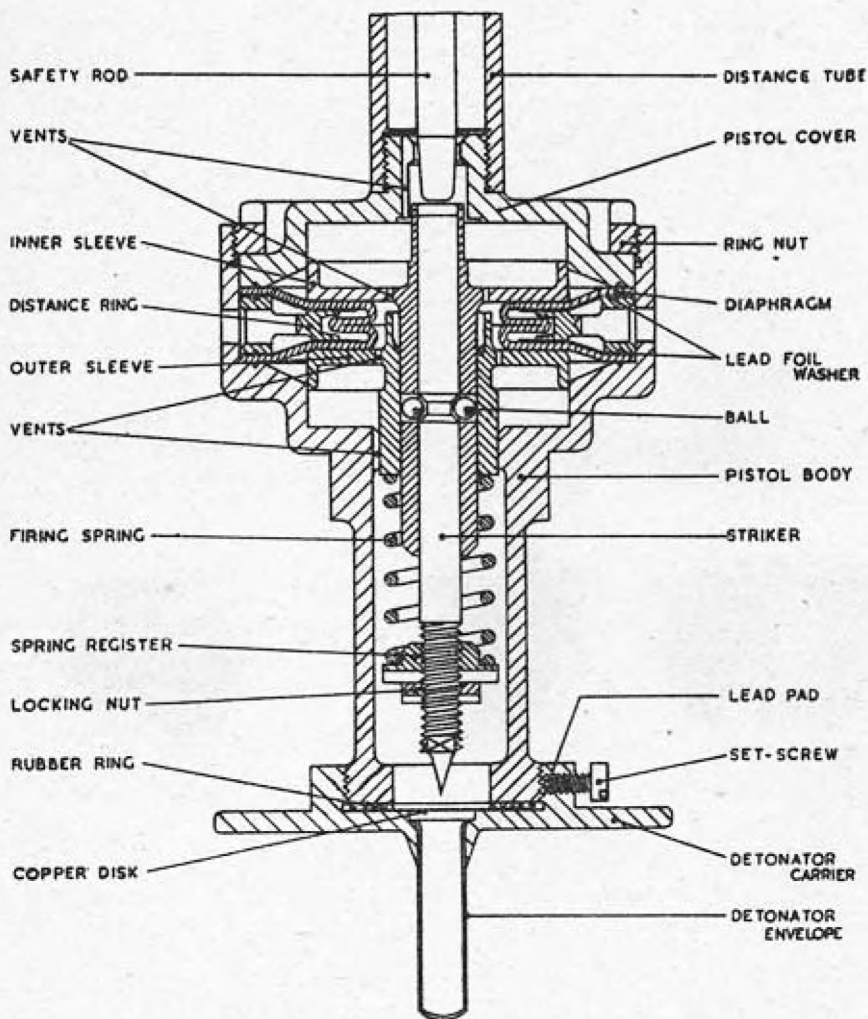
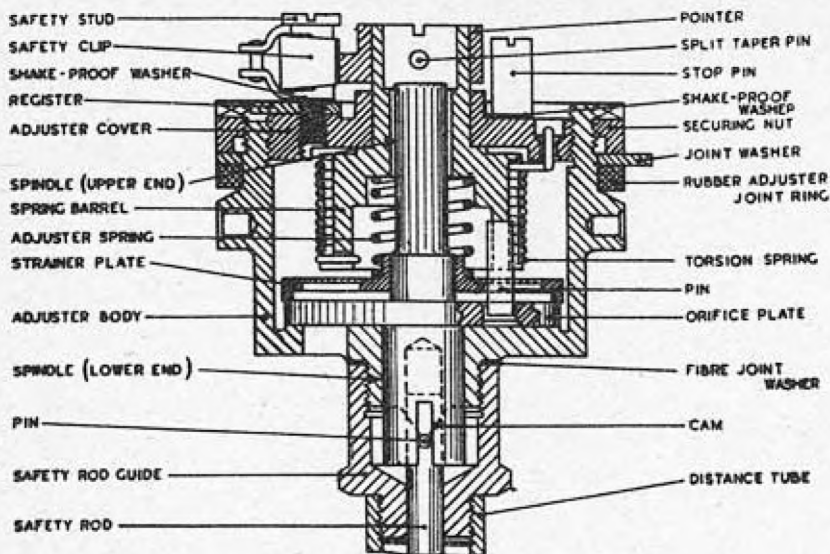
1. The use of this pistol is restricted to high level bombing operations, as there is danger of non-functioning from low altitudes.

2. Three of these pistols, located 120° apart in the base plate, are used with the D.P. 12,000 lb. bomb.

3. The striker used with this pistol is of the needle type, thus only sensitive type detonators can be used.

4. Early issues of the No. 58 Mk. I pistol were conversions of No. 30 pistol bodies. A heavy brass plug was fitted into the top of the pistol body and held in place with four screws, while the later Mk. I body is machined from one piece of brass. In addition, the early Mk. I had a circumferential groove cut around the knurling on the outside of the pistol body, resembling the No. 30 pistol, except that the groove was not painted green.

# BRITISH DEPTH CHARGE PISTOL MK. X \*\*



BOMBS USED IN . . . AS 250 lb. Mks I - III  
 AS 500 lb. Mks I - III  
 FUNCTIONING . . . Impact; instantaneous, or delay  
 of .5, 1.0, 1.5, or 2.0 seconds.  
 ARMED CONDITION . . . No external evidence.  
 ARMING TIME . . . 200 ft. of air travel at 100 mph  
 MAX. BODY DIAM . . . 2.8"  
 OVERALL LENGTH . . . 7.0"

BRITISH NOSE FUZE**NO. 32**

Mks II\* &amp; III

(Obsolescent)

**DESCRIPTION:**

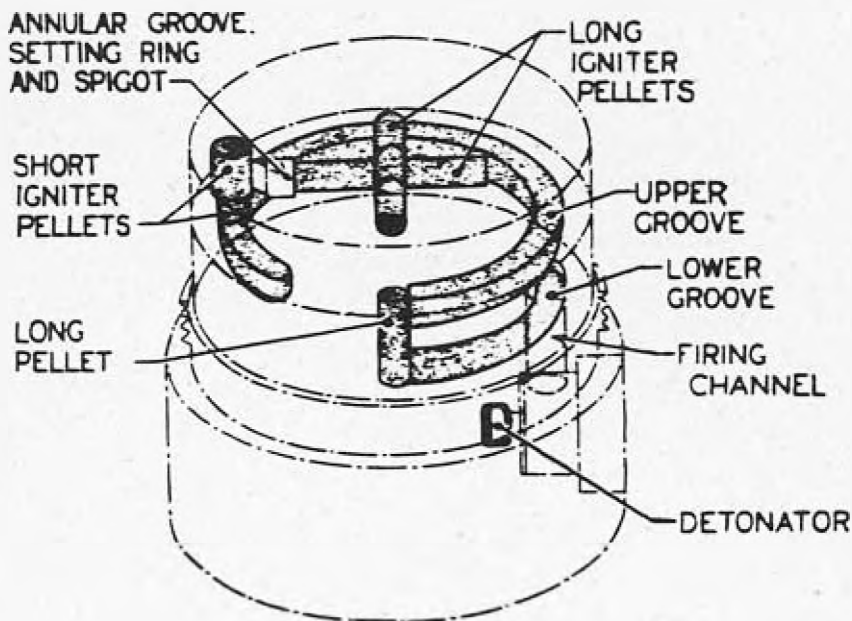
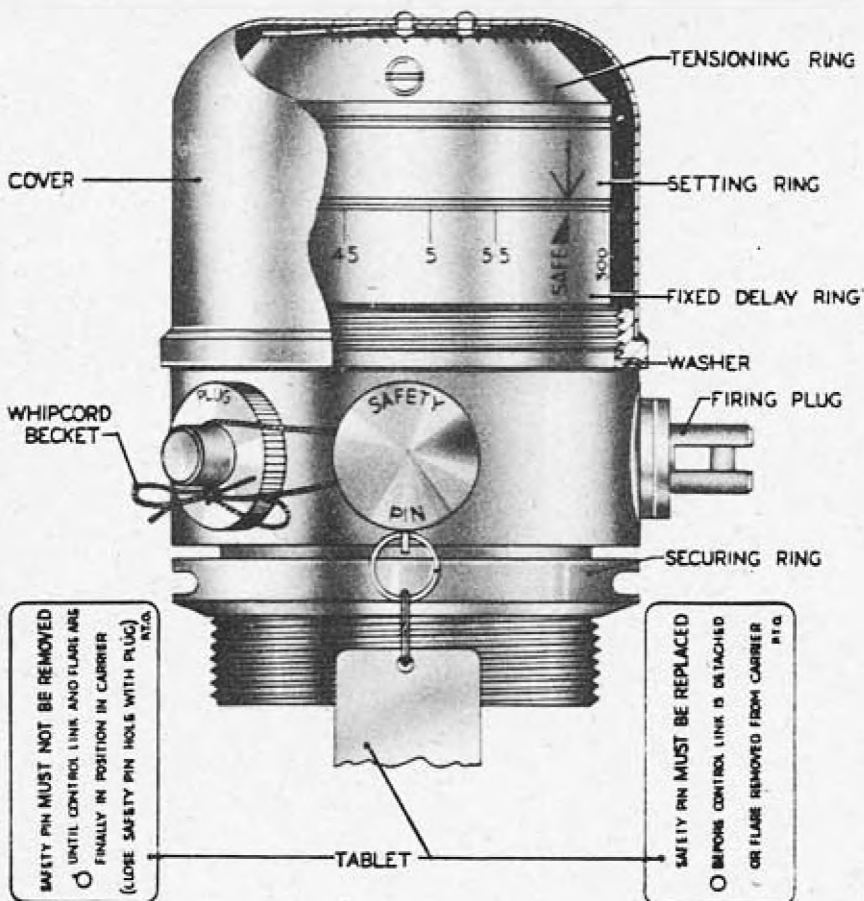
This fuze consists of a two-piece body, the upper part of aluminum, the lower of brass. Both parts, however, may be painted black, so this difference is not readily apparent. The lower body is cylindrical, while the upper body is sloping. Through the upper body extends the vane hub and arming vanes, and on the sides are attachments for the safety pillar and the safety wire. On the lower body is found the delay ring with the markings ZERO, 0.5, 1.0, 1.5, 2.0, and BRIDGE. The delay setting spindle is covered by the setting ring cap.

Within the upper body is housed the gear system, consisting of a movable and a stationary gear. The former is attached to the end of the arming spindle and has 60 teeth; the latter is fixed to a bearing in the fuze body and has 69 teeth. Around these move a rotatable pinion and counterweight. To the lower end of the arming spindle is threaded the arming nut, into which is fitted the upper end of the striker. The arming nut is prevented from rotating by a guide screw moving in a longitudinal slot in the arming nut. In the unarmed condition the striker rests in a hole in the spring-loaded shutter, preventing it from moving into the armed position. When the gear system has moved the arming nut up and removed the striker from the detonator shutter, the shutter is forced over by its spring and locked in place by a spring-loaded plunger. Located to one side of the arming nut is an igniferous detonator, held off a needle striker by a creep spring. This detonator is carried in an inertia pellet which contains a flash channel. This pellet is prevented from moving against the creep spring until after the arming nut is raised on the spindle. At the lower end of the flash channel in the inertia pellet are two chamber closing plugs, in one of which is loose gunpowder. The plug containing this powder has radial holes extending from the powder cavity to an annular groove on the outside of the plug. A flash channel from the annular groove extends through the fuze body to a space between the delay ring and the tensioning ring. A hole housing the ignition pellet extends from the tensioning ring to the delay ring, which contains the circular groove holding the delay train. From the end of the delay train to the firing hole there is a flash hole pellet and two connecting hole pellets. The firing hole leads into a detonator located in the detonator shutter. Below this is a C.E. stemmed channel which leads into the magazine with its C.E. pellet. Around the threaded lower body of the fuze is a securing ring, above which is a rubber ring to afford a water-tight seal in the bomb.

**OPERATION:**

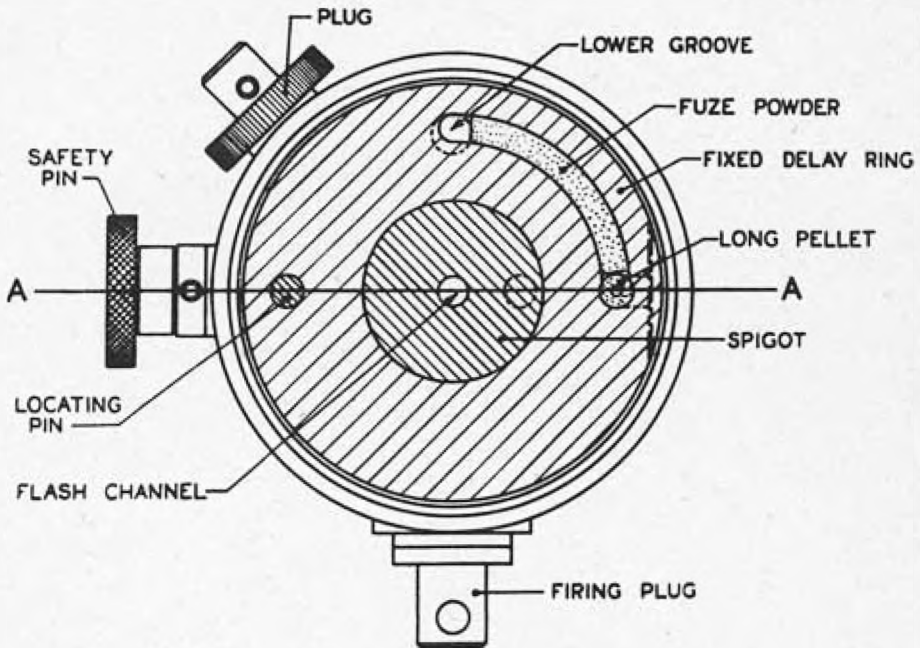
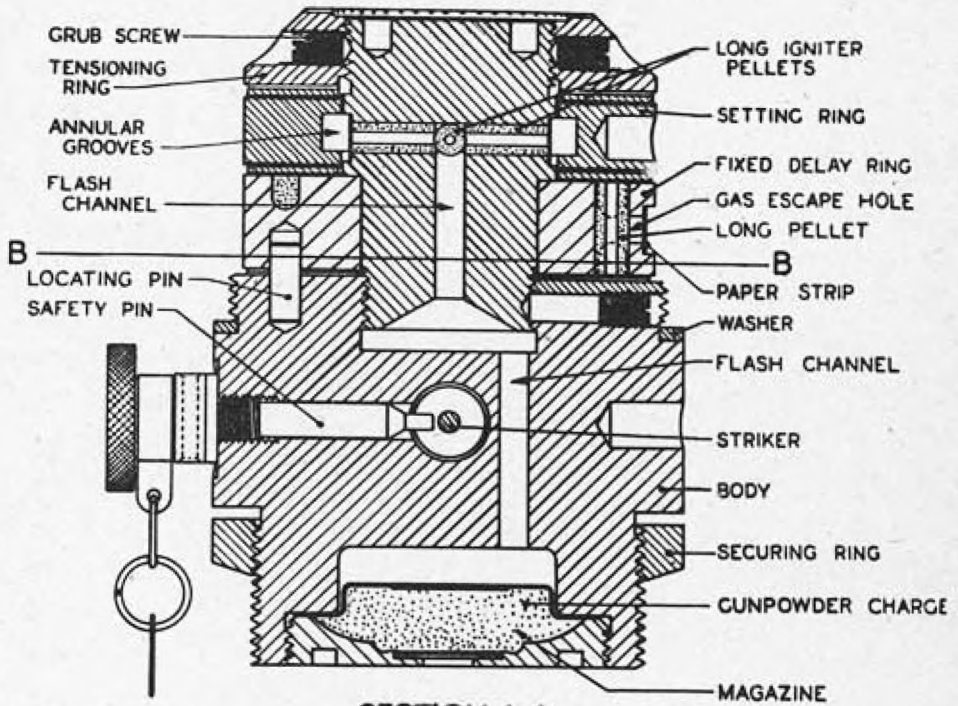
When the bomb is fuzed and loaded aboard the plane, the safety pillar is removed. The safety clip with the stop pin is pulled free when the bomb is released. The vanes rotate and turn the pinion gear and counterweight around the movable and stationary gears. For each sixty rotations of the vanes the movable gear is rotated once. This action threads the arming nut upwards on the arming spindle, thus removing the striker from its hole in the shutter. The detonator shutter spring lines up the detonator with the striker and above the stemmed fire channel. The shutter is locked in this position by a spring-loaded plunger. The fuze is now armed. The delay mechanism is in operative condition as soon as the arming nut has been threaded up the arming spindle. The inertia pellet is then free to move forward and force the igniferous detonator against the striker. The fuze functions either on impact or with delay. If it strikes steel plate at 3/8" or thicker, the sides of the upper body will crush and force the striker down into the detonator. If, on the other hand, the fuze hits the water from 500 to 4000 feet, or hits a target not sufficiently hard to crush the upper body, the igniferous detonator and the inertia pellet move forward compressing the creep spring and hitting the needle striker. The flash travels down the channel in the inertia pellet and ignites the loose gunpowder. The flash from the gunpowder passes through the flash channel firing the ignition pellet and the delay train. When the latter has burned out, the flash hole pellets and the connecting hole pellets are fired and send a flash down through the firing hole to the detonator. The magazine pellet is then fired, initiating the explosion of the bomb.

# BRITISH NOSE FUZE NO. 35

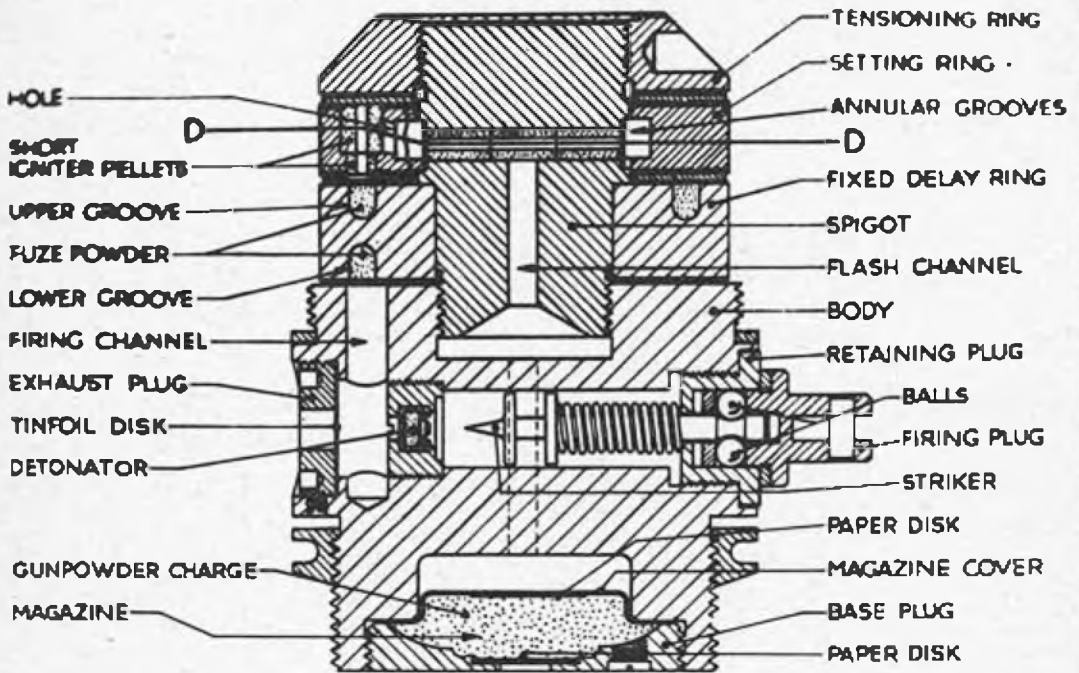


DETAILS OF DELAY TRAIN

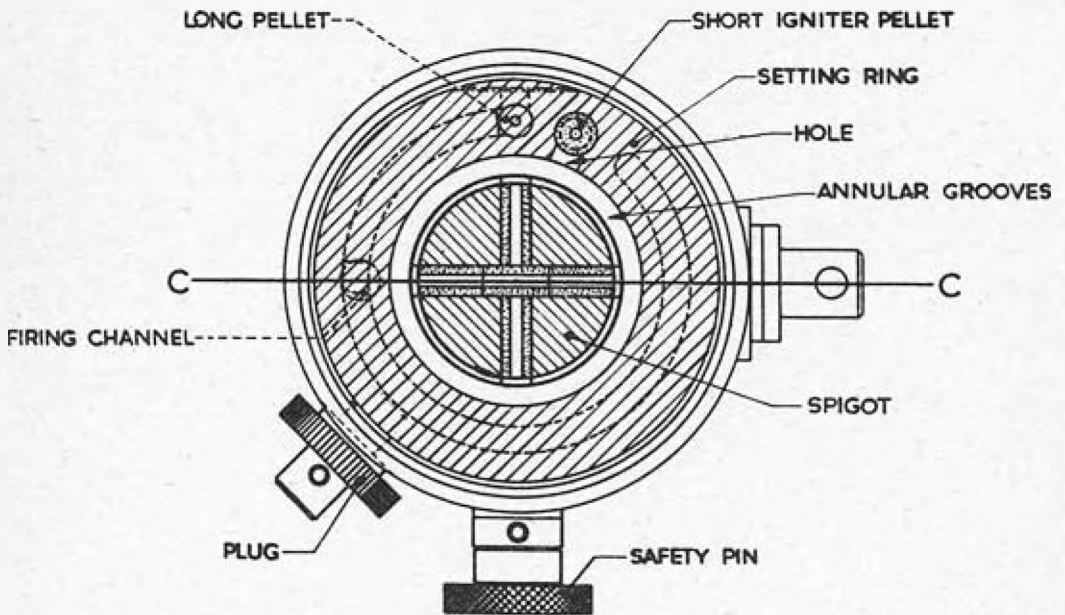
# BRITISH NOSE FUZE NO. 35



# BRITISH NOSE FUZE NO. 35



SECTION C.C.



SECTION D.D.  
(SETTING RING SHOWN IN SAFE POSITION)

BOMBS USED IN . . . . . Flare, reconnaissance, 4.6"  
 FUNCTIONING . . . . . Pyrotechnic aerial burst  
 ARMED CONDITION . . . . . Safety pin removed  
 ARMING TIME . . . . . Instantaneous  
 MAX. BODY DIAMETER . . . . . 2.36"  
 OVERALL LENGTH . . . . . 3.4"

BRITISH NOSE FUZE**NO. 35**

Mk. IV

(Service)

(For other marks, see REMARKS below)

**DESCRIPTION:**

This fuze consists of a body containing an igniter mechanism, a delay system, a setting ring and magazine charge igniters, and a magazine holding a gunpowder charge. The igniter mechanism comprises a spring-loaded striker and a detonator located in a horizontal channel in the fuze body. The striker is held in a firing plug by two retaining balls which engage an annular groove in the striker. The firing plug protrudes from the fuze body and is attached to the aircraft by a fuzing link. A safety pin, screwed into the body, retains the striker in the safe position.

The delay system consists of a quantity of delay composition contained in two grooves cut into the upper and lower surfaces of the fixed delay ring. A bridge of metal separates the ends of each groove, and a long pellet connects the grooves. The powder in the lower groove provides a fixed minimum delay period and communicates with a firing channel located between the detonator and the exhaust plug. The fixed delay ring is secured to the fuze body by a locating pin, and its outer surface is graduated in hundreds of feet up to 800, and thereafter in thousands of feet, representing the distance of fall before the magazine is fired.

The setting ring, on which a red setting arrow is marked, contains two short igniter pellets, and a hole leads from the upper pellet to an annular groove formed in the ring. This groove is aligned with an annular groove cut in a spigot which is screwed into the fuze body. A number of long igniter pellets, arranged in the form of a cross in the spigot, communicate with the groove in the spigot. A flash channel leads down from the center of the cross, through the spigot, and into another flash channel in the fuze body, the latter channel leading to the magazine. A tensioning ring, locked in position with grub screws, determines the ease with which the setting ring may be rotated.

The magazine consists of an apertured magazine cover held in position by a base plug screwed into the bottom of the fuze body. A paper disc covers the aperture in the magazine cover, and a hole leading out of the base plug is sealed with another paper disc. The magazine contains a gunpowder charge of about 30 grains.

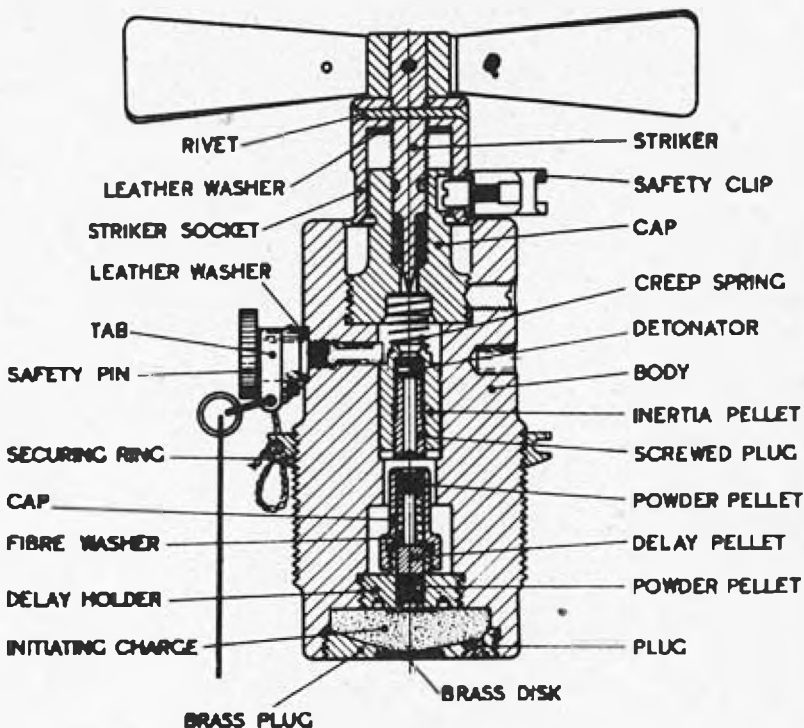
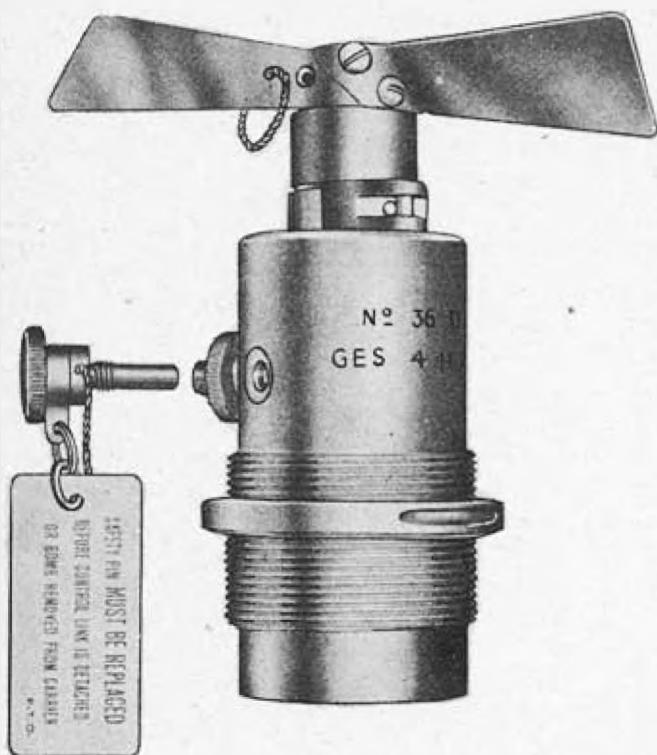
**OPERATION:**

The safety pin is removed manually when the flare is loaded aboard the aircraft. Upon release, the firing plug is withdrawn, pulling back the striker against its spring until the two balls are clear of the retaining plug. The balls then fall away, and the striker is forced by its spring against the detonator. The flash passes upwards through the firing channel and ignites the powder in the lower groove of the fixed delay ring. This fires the long pellet connecting the upper and lower grooves, which in turn ignites the powder in the upper groove. After a time interval determined by the position of the short igniter pellets in the setting ring, these pellets are fired by the powder in the upper groove. The flash from the short igniter pellets passes through the hole communicating with the annular grooves in the setting ring and spigot and ignites the long igniter pellets in the spigot. The flash from these pellets passes downward through the flash channels in the spigot and the fuze body and fires the gunpowder charge in the magazine.

**REMARKS:**

1. No. 35 Mk. I: identical with the Mk. IV, except that the fixed delay ring is graduated from 3½ to 17, representing seconds of delay. The magazine contains 50 grains of gunpowder.
2. No. 35 Mk. I\*: identical with the Mk. I, except that the gunpowder charge is reduced to 30 grains.
3. No. 35 Mk. II: identical with the Mk. IV, except that the gunpowder charge in the magazine is 50 grains.
4. No. 35 Mk. II\* & III: substantially identical to the Mk. IV fuze.

# BRITISH NOSE FUZE NO. 36



BOMBS USED IN . . . . I.9. 250 lb. Mks. I & II  
 FUNCTIONING . . . . Impact; instantaneous or  
 short delay.  
 ARMED CONDITION . . . Safety pin and safety clip  
 removed; vane hub screwed  
 down.  
 MAX. BODY DIAMETER. . . 1.9"  
 OVERALL LENGTH . . . 4.8" (Unarmed)  
 COLOR . . . . Brass

## BRITISH NOSE FUZE

**NO. 36**

Mks. I &amp; II

**NO. 36 N.D.**

Mk. II

(Service)

## DESCRIPTION:

The fuze consists of a brass body housing an inertia pellet and a creep spring. Into the upper portion of the fuze body is threaded a striker plug, which is held in place by a set screw through the fuze body. The striker plug is threaded internally to receive a threaded striker, which is firmly fixed to the inside of the arming vane hub. The creep spring separates the inertia pellet from the base of the striker plug. A detonator is located in the top of the inertia pellet, with a long firing channel bored in the pellet beneath the detonator.

Into the base of the fuze is screwed a delay holder containing two powder pellets separated by a distance tube and a delay pellet. Immediately below the delay holder is located an initiating charge of black powder, and the fuze base is then closed with a base plug.

Safety during transit is provided by a safety pin, inserted in the side of the fuze body, which engages the top of the inertia pellet, preventing it from moving upward against its spring. In addition, a safety clip fits around the vane hub, and a stud in the clip passes through the vane hub into a locating hole in the striker plug, preventing the vane hub from rotating.

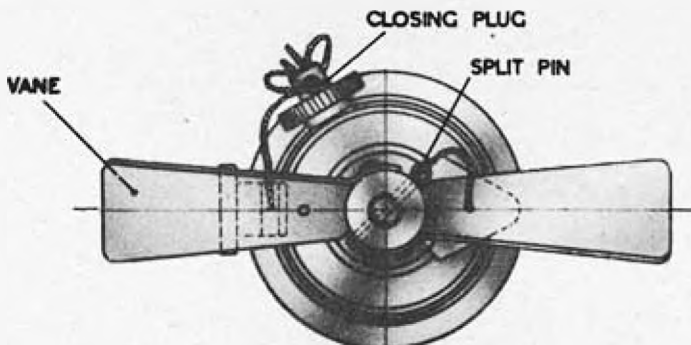
The fuze body is threaded externally for insertion in the bomb, and a securing ring is provided to lock the fuze in position.

## OPERATION:

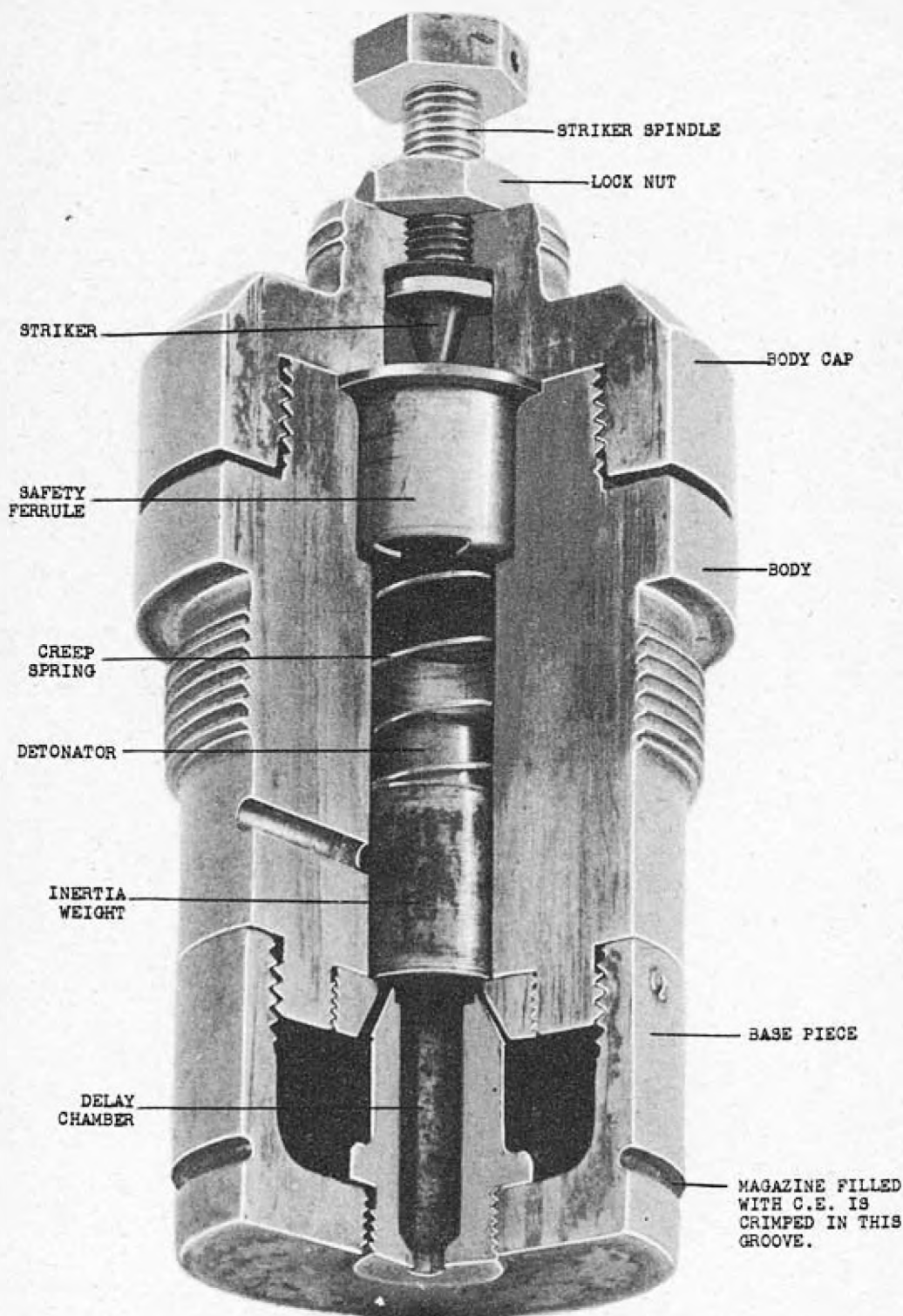
The safety pin is removed from the fuze when the bomb is loaded aboard the plane, and a plug, normally located in a blind hole in the fuze body, is placed in the safety pin hole to seal the fuze. The safety clip is pulled away when the bomb is dropped, and the vanes are free to rotate the vane hub, screwing the striker downwards. On impact the inertia pellet moves against the creep spring, bringing the detonator into contact with the striker. The explosion of the detonator initiates the powder pellet, delay pellet, and second powder pellet, located in the delay holder. The second powder pellet fires the initiating gunpowder charge, which then initiates the No. 2 Mk. I ejection charge in the bomb.

## REMARKS:

1. No. 36 Mk. I: This fuze is identical to the No. 36 Mk. II (illustrated), except that the fuze body above the external threading is greatly reduced in diameter.
2. No. 36 N.D. Mk. II: This fuze is identical to the No. 36 Mk. II (illustrated), except that the powder pellets and delay pellet in the delay holder are replaced by a quantity of loose gunpowder, giving the fuze instantaneous action.



# BRITISH NOSE FUZE NO. 38



BOMBS USED IN . . . . 4.5" Flare  
 No. 1 Cluster Mk I  
 FUNCTIONING . . . . Aerial burst  
 ARMED CONDITION . . . . When vane cap and safety pin  
 are removed.  
 MAX. BODY DIAMETER. . . 3.0"  
 OVERALL LENGTH . . . . 6.0"

BRITISH NOSE FUZE**NO. 849**

Mk II &amp; III

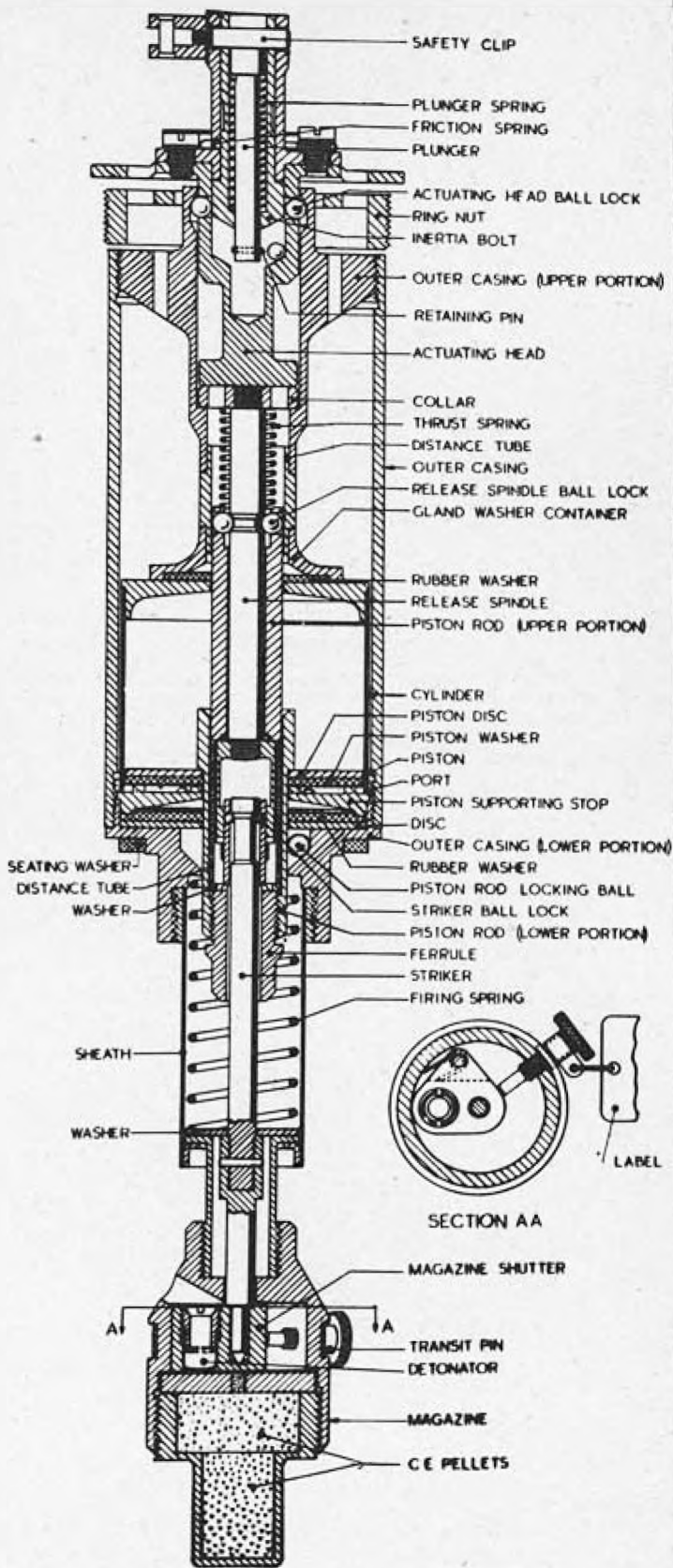
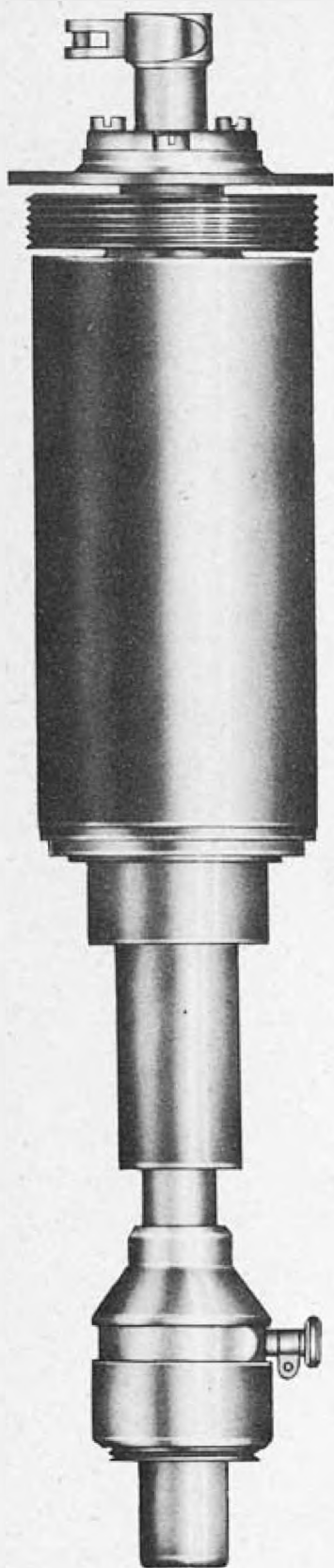
(Service)

**DESCRIPTION:** The vane and vane assembly consist of a vane cap which is held on three retaining clips, the vanes, and the arming spindle. To the retaining clips is soldered a steel ring to prevent damaging the vanes which are of sheet steel and are staked to the arming spindle. The spindle threads into the arming vane support and down onto the ball retaining cap which holds four retaining balls in the groove in the top of the spring-loaded striker. A safety pin passes through the arming vane support and the striker. Below the striker is a percussion cap which flashes straight down to the primary powder pellet. At right angles to the flash channel below the cap is a vent hole and vent hole pellet. This vent hole leads to the outside, but is sealed by the outer cover in the unfired condition. At the outer end of the primary pellet chamber is a short powder pellet which flashes through a flash channel in the fuze drum to the length of Bickford type time fuze contained in a lead foil sheath surrounding the fuze drum. From the timing fuze to the long powder pellets leading to the magazine is a short fire hole. In the lower fuze body is housed the magazine. On the side of the fuze on the outside is a graduated scale from 0 - 95 seconds with an indicator which moves around it, thus setting the fuze. Joining the outer cover and fuze body is a red sealing disc.

**OPERATION:** When the flare is put in the plane the indicator on the side is set at the desired delay, and when it is released the safety pin and vane cap are removed. As the flare falls the vanes rotate the arming spindle out and allow the ball retaining cap to be moved away by the pressure of the balls holding up the spring loaded striker. The striker is then freed and hits the percussion cap which flashes down and fires both the vent hole pellet and the primary powder pellet. The products of combustion break the seal of the vent hole in the outer body. The flash passes to the short powder pellet through the flash channel to the delay fuze. This burns in a clockwise direction and flashes through the fire hole into the lower fuze body and along the long powder pellets and fires the magazine.

**REMARKS:** (1) Mk III time setting disc is calibrated from 0 - 70 seconds; includes a safe setting.

# BRITISH TAIL FUZE NO. 850



BOMBS USED IN . . . . . "B" 250 lb. Mks III & IV  
 ARMED CONDITION . . . . . Safety pin removed; bomb  
 found in water.  
 FUZES USED WITH . . . . . None  
 FUNCTIONING . . . . . Hydrostatic arming;  
 Contact firing.  
 MAX. BODY DIAMETER . . . . . 2.5"  
 OVERALL LENGTH . . . . . 14.25" (with gaine assem-  
 bled).  
 COLOR . . . . . Fuze body, unpainted  
 steel.  
 Gaine, brass colored.

BRITISH TAIL FUZE**NO. 850**

Mk I

(Service)

(For Mk II, see REMARKS below)

DESCRIPTION: The No. 850 Mk I bomb fuze is a hydrostatic arming, contact firing bomb fuze specially designed for use in the 250 lb. Buoyancy bombs. The fuze itself consists of two portions, the upper portion housing the hydrostatic mechanism, the lower portion forming the magazine.

The upper portion of the outer casing houses the actuating head, the head being locked to the casing by a ball lock which is freed on impact with water.

The cylinder is of slightly less diameter than the outer casing, leaving a small annular space between the cylinder wall and the casing. The lower end of the cylinder is in the form of a disc contained in the lower end of the outer casing to which it is soldered. A piston supporting stop, consisting of a metal disc with protrusions on both faces, clamps a rubber washer in position and also supports the cylinder wall and the piston. The upper protrusion of the piston supporting stop is provided with ports which, together with ports formed in the lower end of the cylinder wall, connect the space below the piston with that between the cylinder wall and the outer casing.

The piston consists of a metal disc with a central hole into which the lower portion of the piston rod is inserted. This portion of the piston rod has a shoulder at its upper end by which the piston rod is raised when the piston is forced up the cylinder by hydrostatic pressure. The piston rod, which is hollow, is made in two sections. The upper section of the rod houses the release spindle, to which it is locked by a ball. The lower portion of the piston rod is threaded internally to accommodate a screwed ferrule which houses the upper end of the striker, which is locked to the ferrule by a ball lock. The ferrule is bevelled at its lower end and forms part of a lock to prevent the return of the piston after the fuze has been armed. The lock is formed by a locking ball housed in a conical recess formed in the lower portion of the outer casing. A washer and a distance tube are inserted in the lower portion of the piston rod to support the upper section of the piston rod.

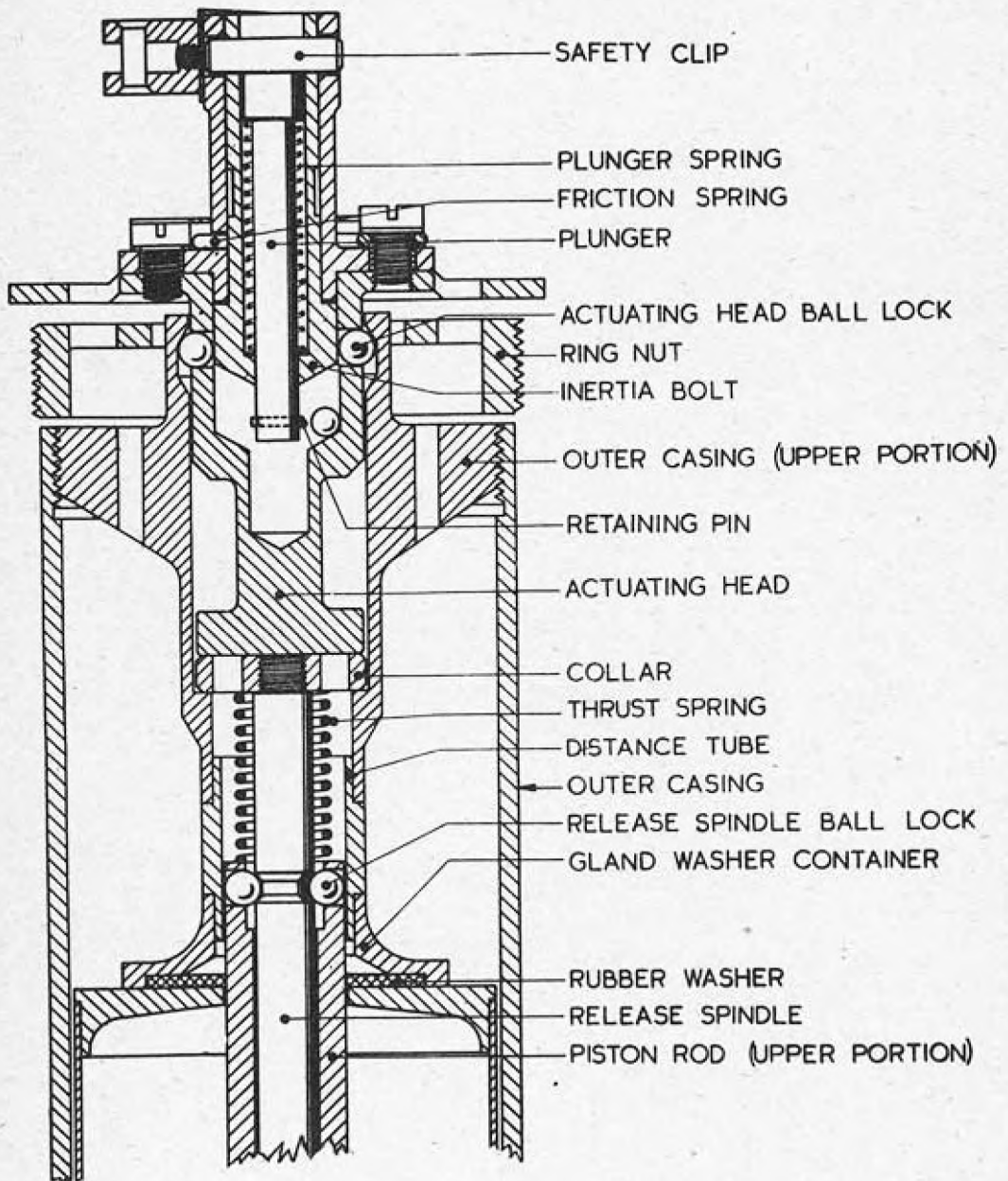
The striker is locked by a ball lock to the screwed ferrule in the lower section of the piston rod and protrudes through the lower end of the ferrule. The lower end of the striker is housed in a blind hole in the spring-loaded shutter of the magazine when the fuze is in the safe position. The firing spring, encased in a sheath, is interposed between the lower end of the outer casing, and a washer supported on a shoulder formed on the striker.

A collar is screwed to the top of the release spindle and forms a bearing surface for the lower end of the actuating head. The thrust spring is interposed between this collar and the upper portion of the piston rod. The actuating head is contained in the upper portion of the outer casing, to which it is locked by a ball lock. The actuating head is bored axially to house a hollow inertia bolt which accommodates a spring-loaded plunger. This plunger is retained in position by the fuze safety clip which passes through the inertia bolt and the actuating head. A retaining pin prevents ejection of the plunger by its spring when the safety clip is withdrawn.

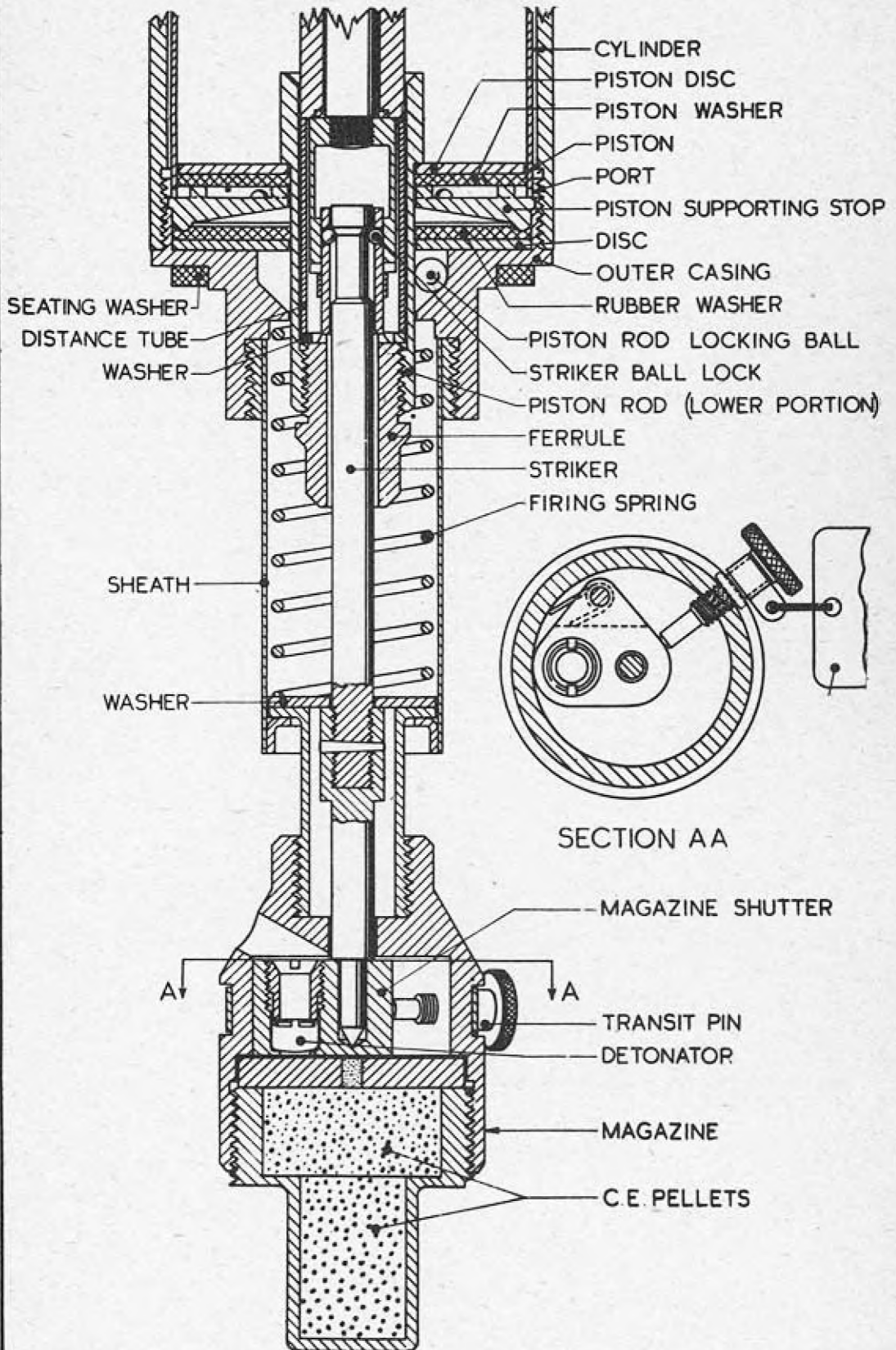
A light friction spring is fitted to the actuating head and bears on the inertia bolt; this spring engages in a groove in the inertia bolt when the bolt moves downwards.

The magazine containing two C.E. pellets is attached to the lower end of the sheath surrounding the firing spring and is arranged so that the fuze can accommodate itself to any tolerance in the length of the central tube and exploder column in the bomb. A spring-loaded shutter carrying a detonator is incorporated in the magazine. The shutter is held in the safe position by the striker, and by a transit pin during storage and transit.

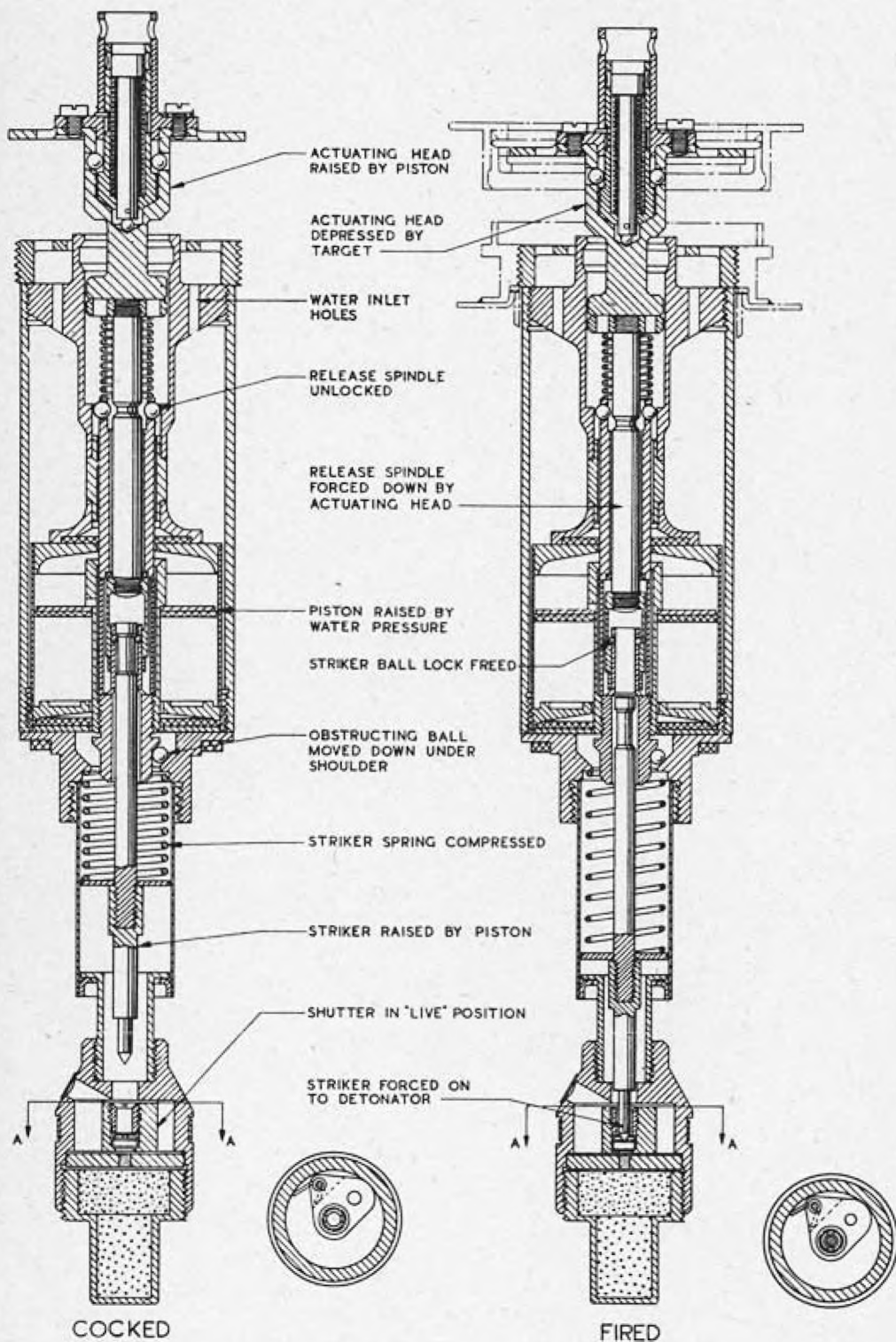
## BRITISH TAIL FUZE NO. 850



# BRITISH TAIL FUZE NO. 850



## BRITISH TAIL FUZE NO. 850



BRITISH TAIL FUZE

NO. 850

Mk I

(Service)

**DESCRIPTION (Cont'd):** The fuze is retained in position in the bomb by a ring nut situated between the flange on the actuating head and the upper portion of the outer casing. A rubber washer around the lower portion of the outer casing forms a water-tight seating when the fuze is assembled in the fuze pocket of the bomb.

**FUNCTIONING:**Bomb Dropped Live:

On release from the plane, the safety clip on the fuze is removed by the fuze setting control link, allowing the plunger to move up under the action of its spring.

The ball in the bore of the actuating head is then free to move into the recess in the bottom of the bore.

On impact of the bomb with the water, the nose attachment and tail break away. The inertia weight in the fuze moves downward, due to the retardation of the bomb in the water, thus releasing the ball lock securing the actuating head to the upper portion of the outer case.

When the bomb is submerged, water enters the outer casing of the fuze through the holes in the upper portion of the outer casing, and flows through the annular space between the outer casing and the cylinder wall. It then enters the cylinder through the ports in the cylinder wall and exerts pressure on the lower face of the piston. The piston is thereby raised in the cylinder, taking with it the piston rod assembly.

The striker, being locked to the release spindle, moves upward with the piston, and the washer on the shoulder of the striker compresses the firing spring. The raising of the striker also frees the spring-loaded shutter in the magazine, the shutter moving over to align the detonator with the striker.

The motion of the piston also raises the release spindle and the actuating head, which, being attached to the contact disc of the bomb, raises the contact disc to the limit of its securing chains. The raising of the piston rod frees the ball lock securing it to the release spindle.

The ball in the lower portion of the outer casing moves under the bevelled shoulder on the screwed ferrule and so prevents return of the piston once arming of the fuze has been achieved.

Having descended to its maximum depth the bomb ascends contact disc uppermost, at a speed of 3½ ft/sec under the influence of its buoyancy. Any possibility of the bomb's firing due to water drag on the contact disc is overcome by the thrust spring in the fuze.

On impact with the target during its upward motion, the contact disc is forced down relatively to the bomb, causing the actuating head to move down relatively to the outer casing of the fuze. This in turn causes the release spindle to move down relatively to the piston rod, thus freeing the ball lock by which the striker is locked to the release spindle. The striker is then forced by its spring into the detonator, initiating the normal explosive train.

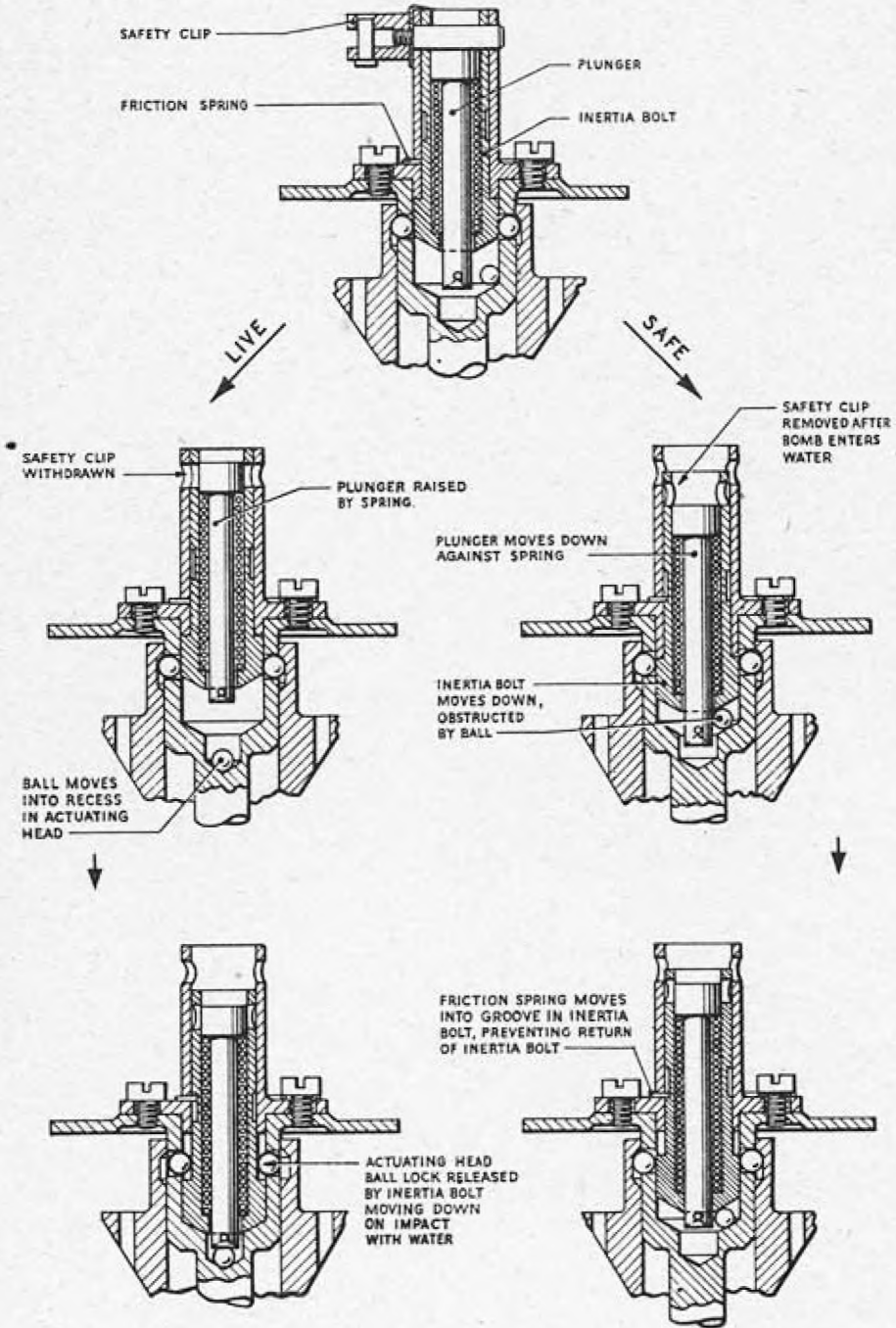
If the bomb fails to encounter any obstruction during its upward motion, it will rise to the surface and remain there for approximately ten minutes. After this time sufficient water will have entered through the two sinking holes in the buoyancy chamber to cause the bomb to sink to the bottom.

If the contact disc is depressed during the time that the bomb is floating on the surface, the fuze will function and detonate the bomb.

Bomb Dropped Safe:

Provision is made in the fuze for dropping the bomb safe. This is necessary to provide for jettisoning the bomb in the event of engine trouble

# BRITISH TAIL FUZE NO. 850



BRITISH TAIL FUZE**NO. 850**

Mk I

(Service)

**FUNCTIONING (Cont'd):**

during or shortly after the aircraft takes off from a carrier. Safe dropping is achieved by a ball, accommodated in the bore of the actuating head, which prevents the inertia bolt from moving sufficiently in a downward direction to release the actuating head ball lock.

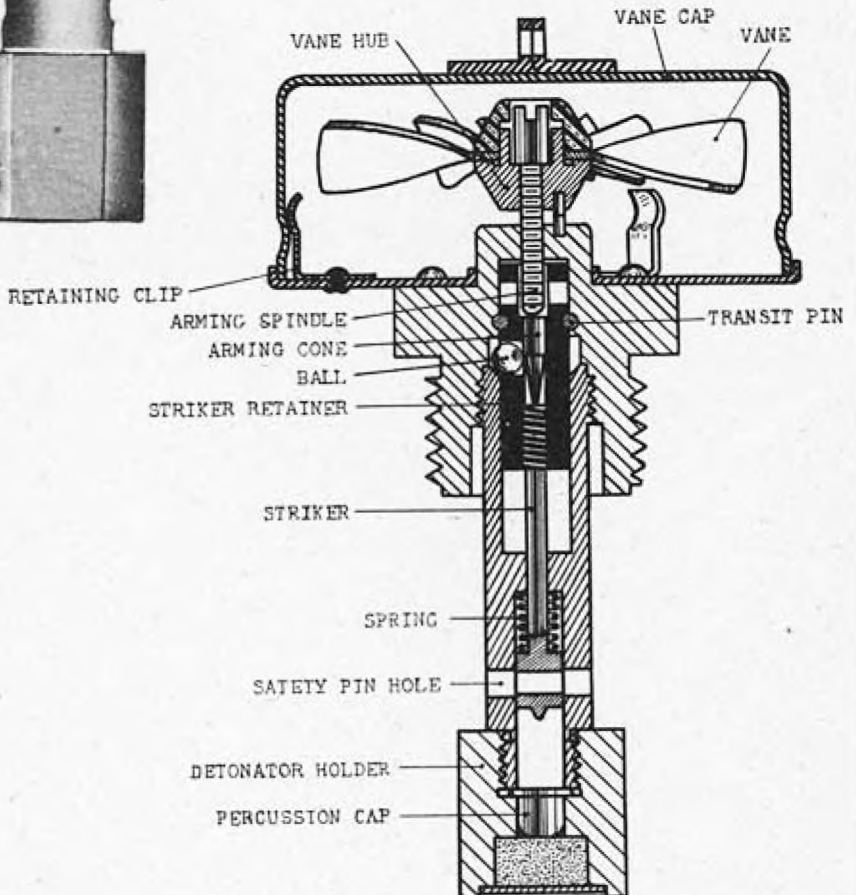
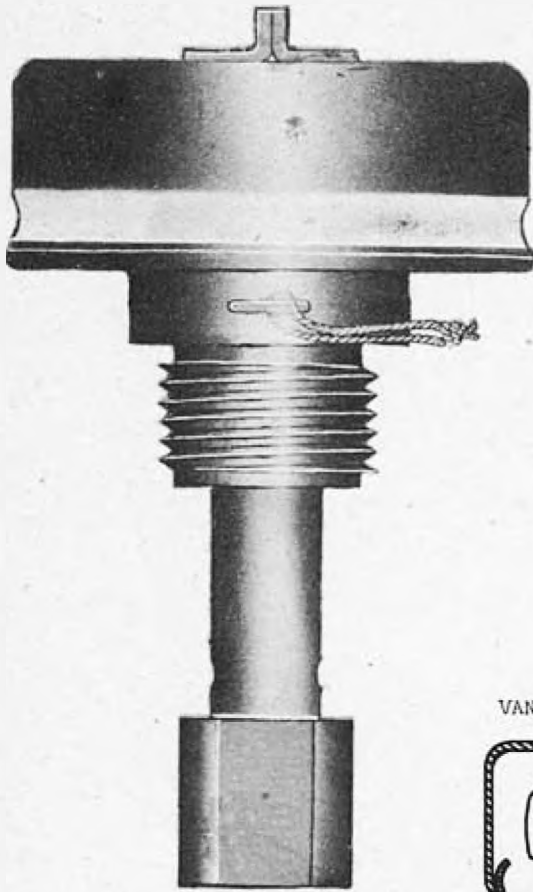
On release from the plane, the safety clip remains in position on the fuze. On impact with the water, the break-up and removal of the tail may cause the safety clip of the fuze to be withdrawn accidentally. The retardation of the bomb in the water causes the plunger to move downward against the action of its spring, preventing escape of the ball into the recess in the bore of the actuating head. The inertia bolt also moves downward, but it is obstructed by the ball and cannot move sufficiently to release the ball lock securing the actuating head to the upper portion of the outer casing of the fuze. The friction spring in the actuating head falls into the groove in the inertia bolt, thus preventing the actuating head from being lifted by wave motions after the bomb has been dropped "safe", insuring that the bomb remains in the safe condition.

**REMARKS:**

1. No. 850 Mk II: The Mk II fuze differs from the Mk I as follows:

- (a) The safety clip is replaced by a cotter pin, which pierces both the plunger and the actuating head.

# BRITISH NOSE FUZE NO. 855



BOMBS USED IN . . . . 400 lb. S.C. Mk I/A  
 "Flying Cow"  
 FUNCTIONING . . . . Aerial burst  
 ARMED CONDITION . . . . When the safety pin is removed and the safety cap is off  
 FUZZES USED WITH . . . . None  
 MAX. BODY DIAMETER. . . 2.75"  
 OVERALL LENGTH . . . . 4.5"  
 COLOR . . . . . Brass upper body, steel lower body, black vane cap.

BRITISH NOSE FUZE**NO. 855**

Mk I

(Service)

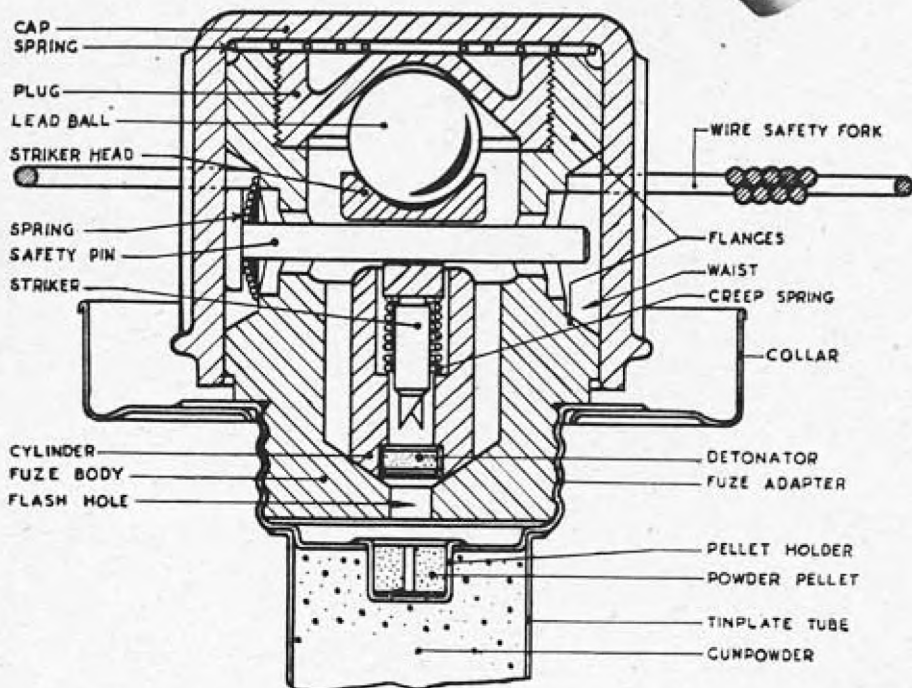
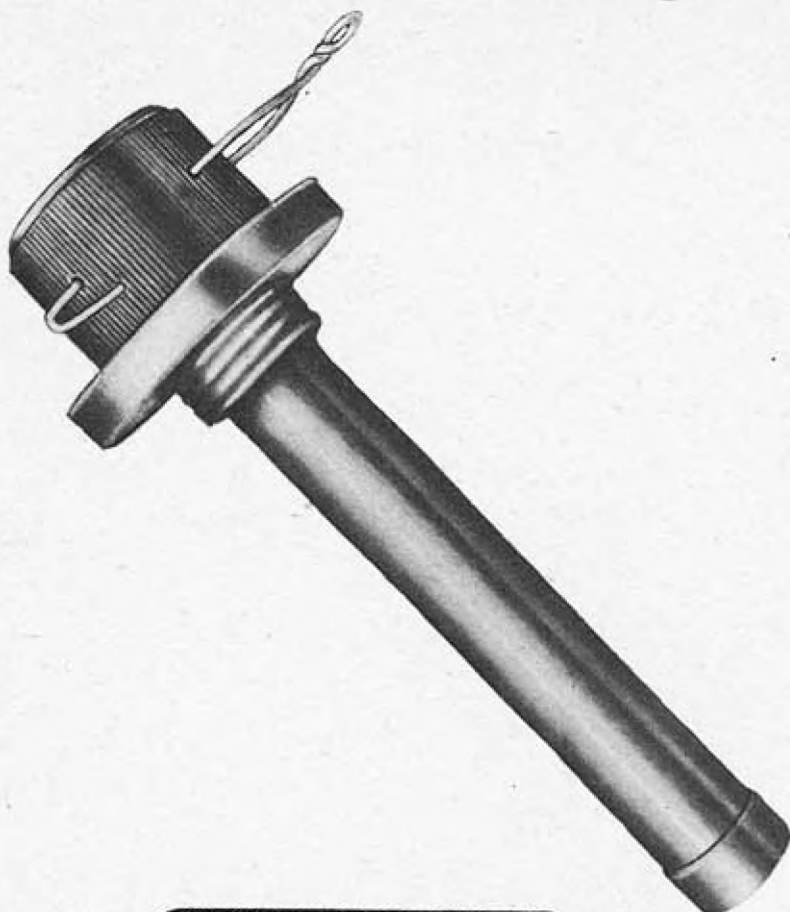
**DESCRIPTION:**

The fuze has a black vane cap on which is stamped the number and Mark of the fuze. This is held on by three retaining clips riveted to the shoulder of the upper fuze body. The steel steel vanes are attached to the vane hub connecting to the top of the arming spindle. The arming spindle holds down a black plastic arming cone which rests in a striker retainer and holds out three retaining balls. The striker retainer is screwed to the upper end of a spring-loaded striker. A safety pin hole passes through the body and also the striker. The striker retainer is grooved in order to accommodate a transit pin. To the bottom of the body is screwed a detonator holder which carries the percussion cap. This fits into the float.

**OPERATION:**

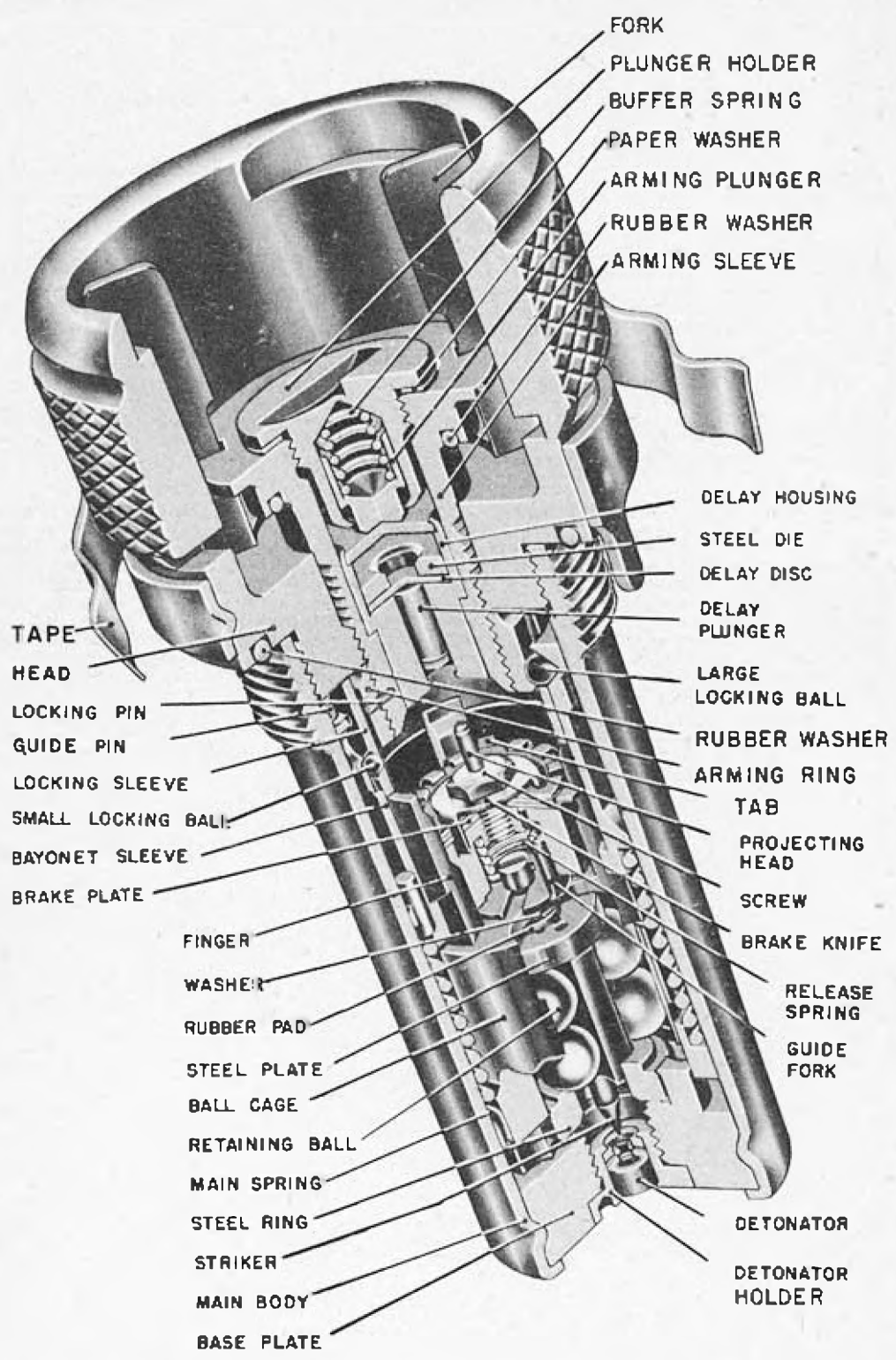
The transit pin is removed when the bomb is put in the plane. On release the safety cap is pulled and the vanes are then freed to rotate, threading the arming spindle up off the arming cone. The vanes and arming spindle rotate out and fall away. When the arming spindle has threaded up, the 3 retaining balls are cammed in by a shoulder on the fuze body and move the arming cone up. This allows the striker retainer to move down with the blunt spring-loaded striker and hit the percussion cap setting off the fuze.

## BRITISH TAIL FUZE NO. 854





# BRITISH TAIL FUZE NO. 871



BOMBS USED IN . . . . Any bomb in which a No.30  
 tall pistol may be used.  
 FUNCTIONING . . . . Long delay, anti-disturb-  
 ance.  
 ARMED CONDITION . . . Arming sleeve screwed  
 down.  
 FUZES USED WITH . . . None  
 ARMING TIME . . . .  
 MAX. BODY DIAMETER . . . 1.75"  
 OVERALL LENGTH . . . . 3.94"  
 COLOR . . . . . Brass or steel  
 IDENTIFICATION . . . . Knurled upper body; deep  
 V slot cut through base  
 of upper body and covered  
 with adhesive tape.  
 DELAY TIMES . . . . .

BRITISH TAIL FUZE

**NO. 871**

MK I

(SOON IN SERVICE)

**DESCRIPTION:**

This fuze is a combination long delay, anti-disturbance tail fuze, and consists of a No. 881 fuze mechanism placed in a No. 28 pistol body. The detonator in this fuze is not shuttered.

**OPERATION:**

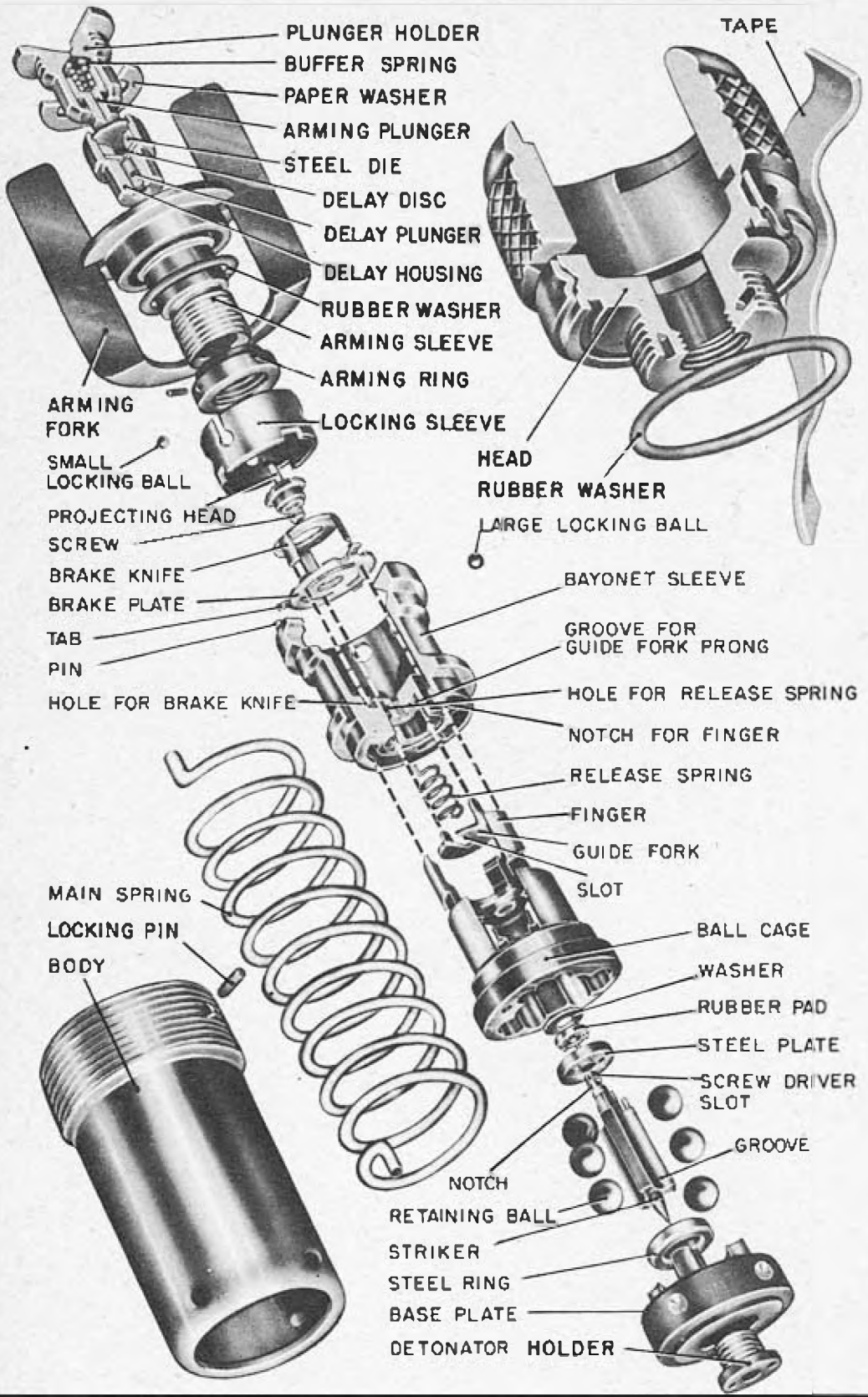
When the bomb is released from the plane, the arming fork is rotated by the vanes and reach rod located in the standard British tail. Rotation of the arming fork screws the arming sleeve downward, until the rubber washer in the shoulder of the sleeve is firmly set against the top of the fuze body. This action brings the delay assembly adjacent to the extended portion of the screw in the top of the bayonet sleeve, and also brings the chamfered edge of the arming ring opposite the large locking ball, allowing the ball to move inward and partially disengage the bayonet sleeve from the locking sleeve. Variation in the delay times of the fuze is accomplished by varying the length of the buffer spring. This varies the distance that the bayonet sleeve must force upward the delay assembly before the plunger begins to puncture the plastic delay disc.

On impact the bayonet sleeve moves downward due to its inertia until stopped either by its main spring or contact with the top of the ball cage. This allows the small locking ball to move into a recess in the bayonet sleeve, fully disengaging the locking sleeve from the bayonet sleeve.

Although the main spring is assembled under considerable torque tension, rotation has previously been prevented by the ball lock between the locking sleeve and the bayonet sleeve. The latter is firmly positioned by a pin extending down from the fuze body. The three upward extending fingers of the ball cage engage in similar notches cut in the bottom edge of the locking sleeve. When the locking sleeve and the bayonet sleeve are disengaged, the main spring exerts its torque influence and commences to rotate the ball cage and locking sleeve in a clockwise direction. This rotational movement, however, is slowed down by the brake plate and knife assemblies. The brake plate assembly consists of two perforated plastic discs held in a metal housing. Tabs in the outer edges of the brake plate assembly are engaged by the three fingers of the ball cage, causing the assembly to rotate with the cage. The three knife edges of the brake knife extend downwards through the perforations in the brake plate assembly and into three holes in the top of the bayonet sleeve. The brake knife, therefore, cannot rotate, but must cut through the plastic discs of the brake plate assembly when the ball cage rotates. Holding the brake plate and knife assemblies loosely in place is a small screw with a long projecting head. This screw threads into the top of the bayonet sleeve.

Located inside the ball cage are the striker and six retaining balls. The lower end of the release spring is fitted into a screwdriver slot in the top of the striker; the upper end of this spring engages a hole in the base of the bayonet sleeve. The spring itself is loaded under torque tension, attempting to rotate the striker. But the striker is prevented from rotating by the guide fork. A notch cut in the upper portion of the striker is engaged in a slot cut in the guide fork, and two upward extending prongs on the guide fork engage in similar grooves in the base of the bayonet sleeve. The six retaining balls are arranged, one on top of the other, in two layers of three balls each. In the unarmed position, these balls are held in place around the striker by the inner walls of the ball cage. The ball cage is prevented from rotating more than 60°, since the fingers of the cage at the end of that distance come up against the ends of the slots in the base of the bayonet sleeve. Rotation of the ball cage through 60°, however, presents cut away portions of its inner walls to the balls. The balls are then prevented from scattering only by point contact between themselves, the steel ring placed around the striker above them, and the steel plate placed around the striker below the balls.

# BRITISH TAIL FUZE NO. 871



BRITISH TAIL FUZE

**NO. 871**

MK I

(SCOM IN SERVICE)

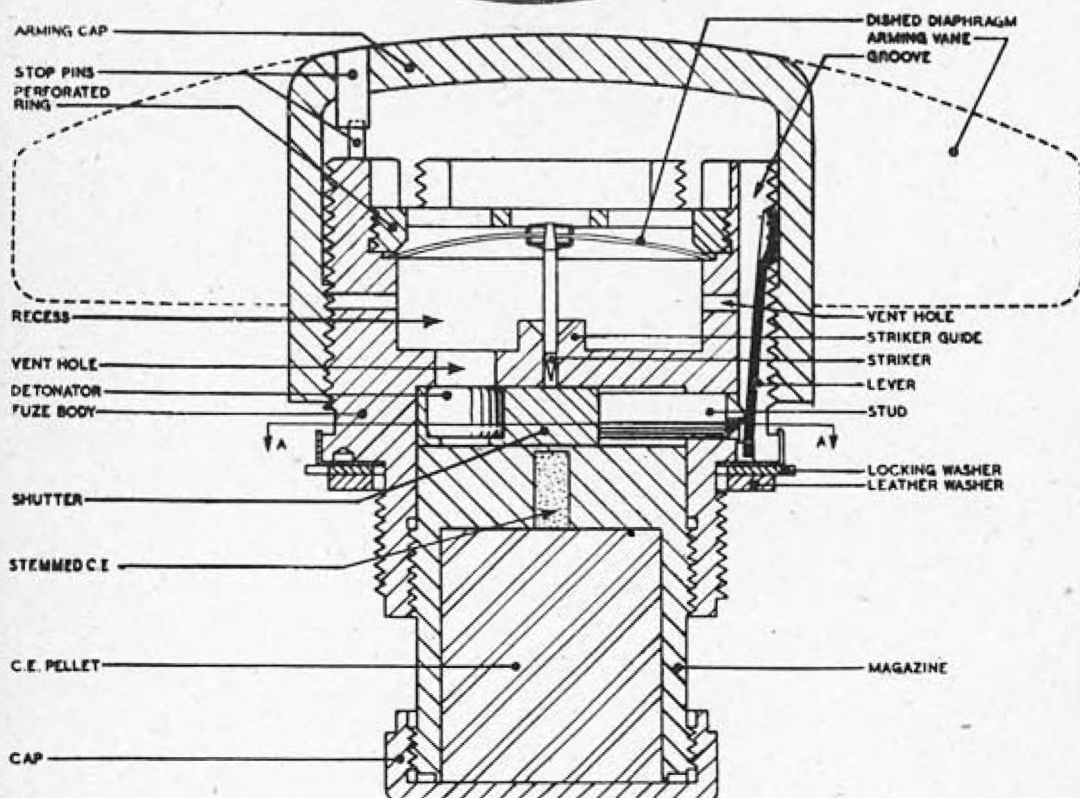
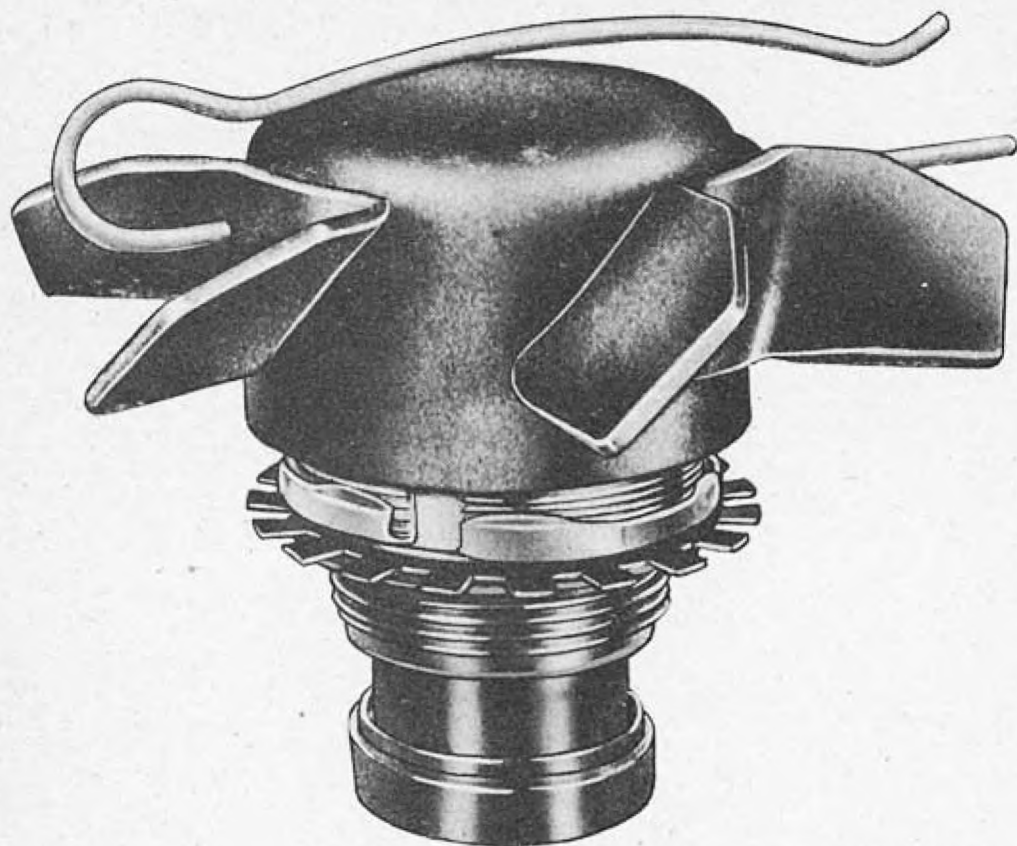
OPERATION - cont'd:

When the ball cage has completed its 60° rotation, the fuze is fully armed. A delay assembly in the top of the fuze consists of a housing containing a metal plunger and a plastic delay disc. When the bayonet sleeve is disengaged from the locking sleeve, the main spring forces the bayonet sleeve upwards, bringing the extended portion of the screw into contact with the plunger, which gradually forces its way through the delay disc. When the bayonet sleeve has risen sufficiently to disengage the prongs of the guide fork, the striker is allowed to rotate under the torque tension of the release spring. The flick motion imparted to the striker scatters the balls and allows the striker to be forced into the detonator by the main spring working through the ball cage. Disturbance of the fuze prior to its long delay functioning will scatter the balls from under the striker, and the ball cage under the compression of the main spring will move downward, bringing the striker into contact with the detonator.

REMARKS:

1. The detonator in this fuze is not shuttered, but is at all times aligned with the striker.
2. An internal weakening groove is cut around the inside of the head of the fuze, completely severing the fuze head except at four places, equi-spaced and 0.2" wide. Alternatively, instead of the internal weakening groove, a deep V-groove may be cut around the outside of the fuze. The external open portions of the groove are covered with adhesive tape. The weakening groove has three purposes:
  - a. Insures that the fuze head will shear at that point rather than at another where fuze functioning might be obstructed.
  - b. Makes difficult identification by means of external fuze characteristics.
  - c. Eliminates surfaces to which a wrench might be applied for extraction purposes.

# BRITISH NOSE FUZE NO. 873



BOMBS USED IN . . . . P 20 lb.  
 G.P. 40 lb.  
 FUNCTIONING . . . . Diaphragm operated  
 ARMED CONDITION . . . . When the vanes and vane cap  
 are off.  
 ARMING TIME . . . . 12 revolutions of the vanes  
 FUZZES USED WITH . . . . None  
 VANE SPAN . . . . 3.75"  
 MAX. BODY DIAMETER. . . 1.75"  
 OVERALL LENGTH . . . . 3.0"  
 COLOR . . . . . Unpainted steel vanes and  
 vane cap, brass body.

BRITISH NOSE FUZE**NO. 873**

Mk I

(Service)

**DESCRIPTION:**

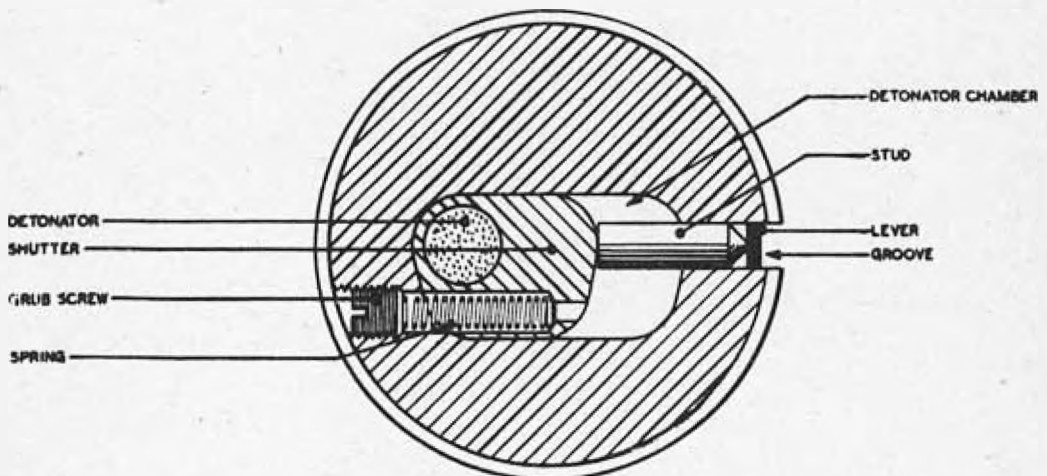
The vanes and vane cap are of unpainted steel with the 5 vanes cut out of one piece of sheet steel and soldered onto the cap. In the top of the cap is a small stop pin which hits a stop pin on the fuze body and prevents the cap from being screwed down too tightly. The vane cap threads all the way down the fuze body, which is made of brass. In the upper part of the fuze body is a sheet metal diaphragm with a needle striker soldered to its center. This rests on a shoulder in the fuze body and is covered by a sheet steel retaining disc in which 7 holes are drilled to allow air passage. The retaining disc in this fuze is staked in. In the lower fuze body is a detonator shutter moving in a chamber at right angles to the striker. In the unarmed position the shutter is out of line, with the detonator lined up under a safety flash hole. On one end of the shutter is the shutter spring and on the other a detent which holds the shutter out of line. The detent rests in a hole that leads to the outside and is held in the shutter chamber by a steel clip which rests in a longitudinal groove along the outside of the threaded fuze body. This clip is pivoted on its lower end and there is continual pressure exerted on it by the detent which, in turn is being forced out by the shutter and shutter spring. Below the detonator is a flash channel leading to the magazine. Around the lower fuze body is a leather securing ring and a locking ring.

**OPERATION:**

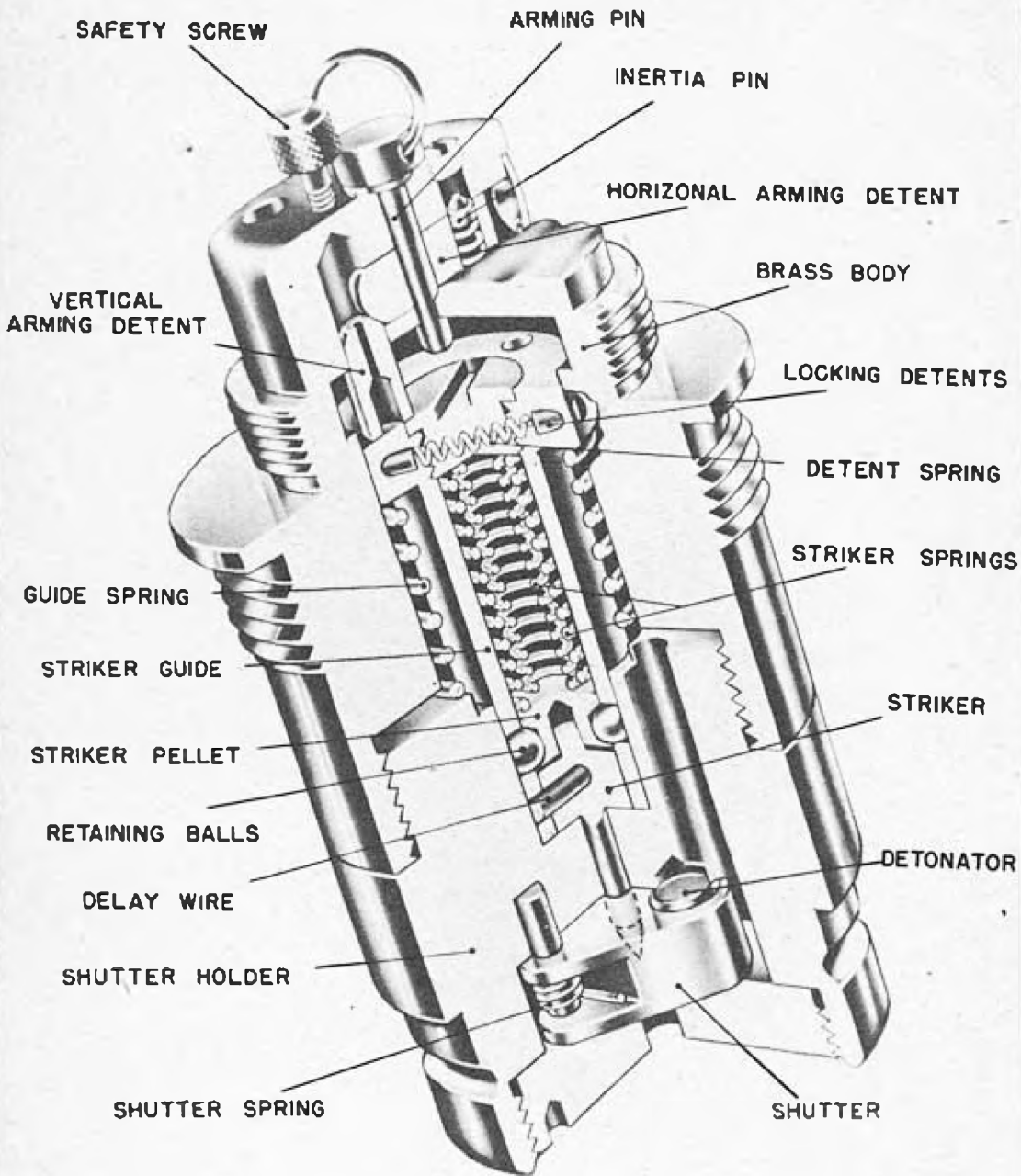
When the bomb is dropped from the plane the safety wire is pulled out and the vanes and vane cap are free to rotate. After about 11 rotations of the vanes, the vane cap releases the steel clip in the fuze body, allowing the clip to be pivoted down by the detent under pressure of the shutter and shutter spring. The detent is thus forced out of the fuze, and the shutter is allowed to align itself with the striker.

**REMARKS:**

This fuze is designed to give aerial burst functioning on all but the first bomb of a stick or cluster. The first bomb explodes on impact, and blast pressure from its explosion snaps the diaphragm of the fuze in the bomb next above it. Blast pressure from the explosion of the second bomb fires the third, etc., giving a "stepped" explosion effect to the whole stick or cluster.



# BRITISH TAIL FUZE NO. 880



BOMBS USED IN . . . "F" 8 lb. Mk. II  
 FUNCTIONING . . . Lon; Delay  
 ARMED CONDITION . . Safety screw removed; arming  
 pin withdrawn.  
 FUZES USED WITH . . None  
 ARMING TIME . . . Instantaneous upon impact.  
 MAX. BODY DIAMETER . 2.2"  
 OVERALL LENGTH . . . 3.35" (w/o safety pin)  
 COLOR . . . . . Brass  
 DELAY TIMES . . . . ½ min. to 6 hrs. at 50° F.

BRITISH TAIL FUZE**NO. 880**

Mk. II

(For Mk. I, see REMARKS below)

(Service)

**DESCRIPTION:** This fuze is a fatigue type long delay fuze with delay times designed to vary from ½ min. to 6 hrs. at 50 F. The designed delay time is set during the manufacture of the fuze and cannot later be altered. The nominal delay time cannot be ascertained from the external appearance of the fuze. At higher or lower temperatures, the delay times will vary considerably from those designed at 50° F. At below freezing temperatures the fuze has been known to delay 26 hrs. before functioning.

The fuze consists of a brass body, bored centrally to house a striker guide and a striker guide spring, located between a shoulder at the top of the striker guide and the top of the shutter holder.

The shutter holder is of machined brass and is threaded into the bottom of the fuze body. It contains a spring-loaded detonator shutter.

The striker guide contains a striker pellet under double spring load from the two striker springs. An annular groove in the pellet is engaged by three retaining balls, located in holes in the striker guide and prevented from moving outward by the walls of the shutter holder. Beneath the striker pellet, and loosely fitted to it, is a striker block and striker. A lead delay wire passes through the striker block and the striker guide. A horizontal channel bored in the top of the striker guide contains two spring-loaded locking detents. In the unarmed position, these detents bear against the walls of the fuze body.

The striker guide is held compressed against its spring by an arming pin and by the vertical arming detent. The vertical arming detent, in turn, is held in position by the end of the horizontal arming detent. The horizontal arming detent contains an inertia pin which engages a hole in the top of the fuze body, preventing the horizontal detent from moving.

Safety during shipment and storage is provided by a threaded safety screw in the top of the fuze body, preventing accidental removal of the arming pin. In addition, the end of the striker in the unarmed position fits into a blind hole in the detonator shutter, holding the detonator out of alignment.

**OPERATION:** The safety screw is removed manually when the bomb is loaded into its cluster, and the arming pin is withdrawn by the parachute shrouds as the parachute opens. The striker guide now is held depressed against its spring only by the series of arming detents.

On impact, the inertia pin in the horizontal arming detent moves downward against its spring, and the horizontal detent is allowed to be forced over by the vertical arming detent, which is pushed upward by the striker guide and spring. When the striker guide rises, the two locking detents are forced into the enlarged recess in the top of the fuze body, firmly locking the striker guide in the raised position.

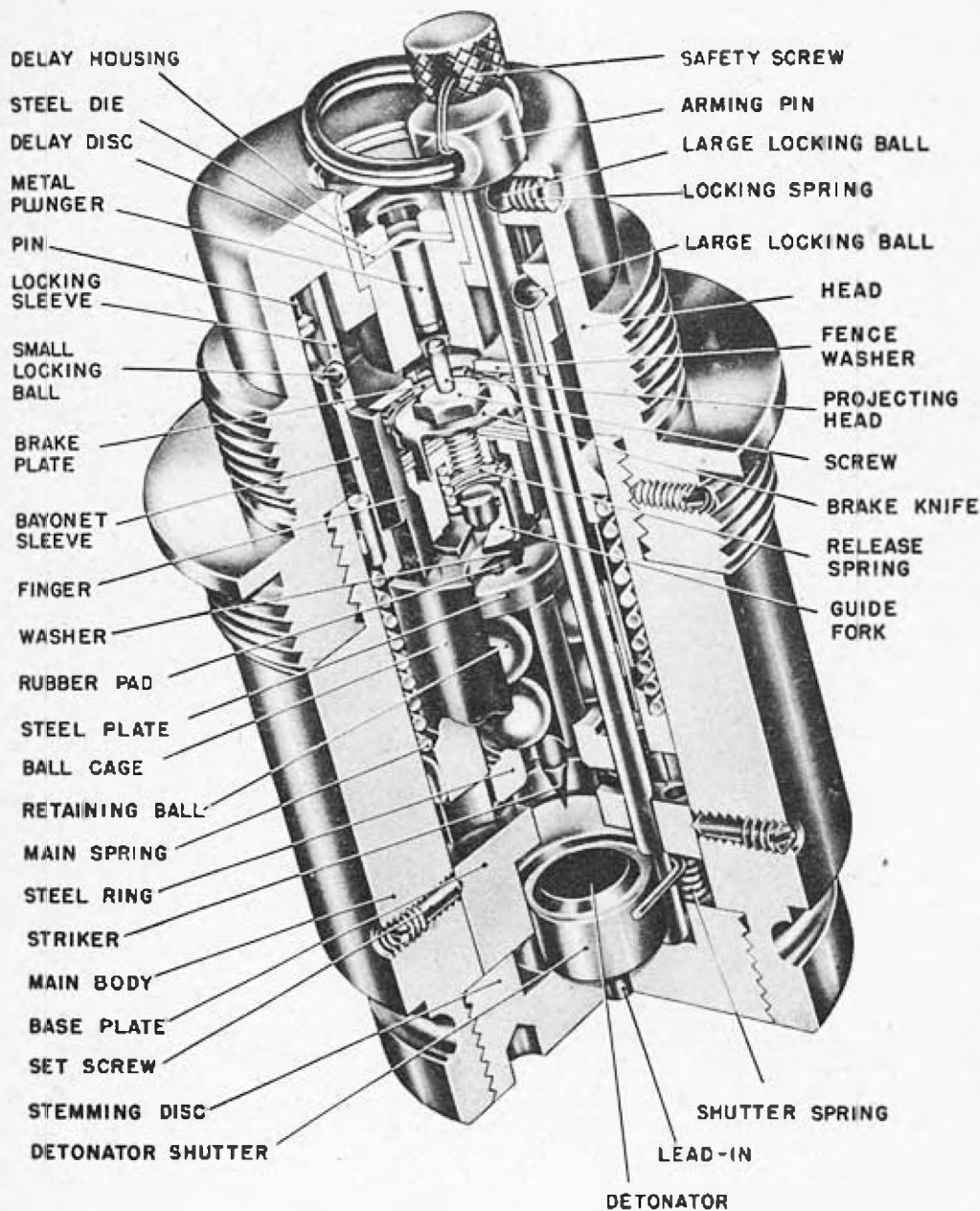
Simultaneously, the retaining balls are freed, and the spring-loaded striker pellet is forced against the striker block. The striker has been removed from the detonator shutter, which is now caused by its spring to align the detonator with the striker.

The entire force of the twin striker springs now bears against the delay wire, which eventually shears and allows the striker to pierce the detonator, initiating the bomb.

**REMARKS:** 1. Two additional fuzes designed for this bomb, and identical in external appearance, are under development by the British. Designated No. 881 and No. 883, the former incorporates an anti-disturbance feature with the long delay functioning, and the latter is anti-disturbance only.

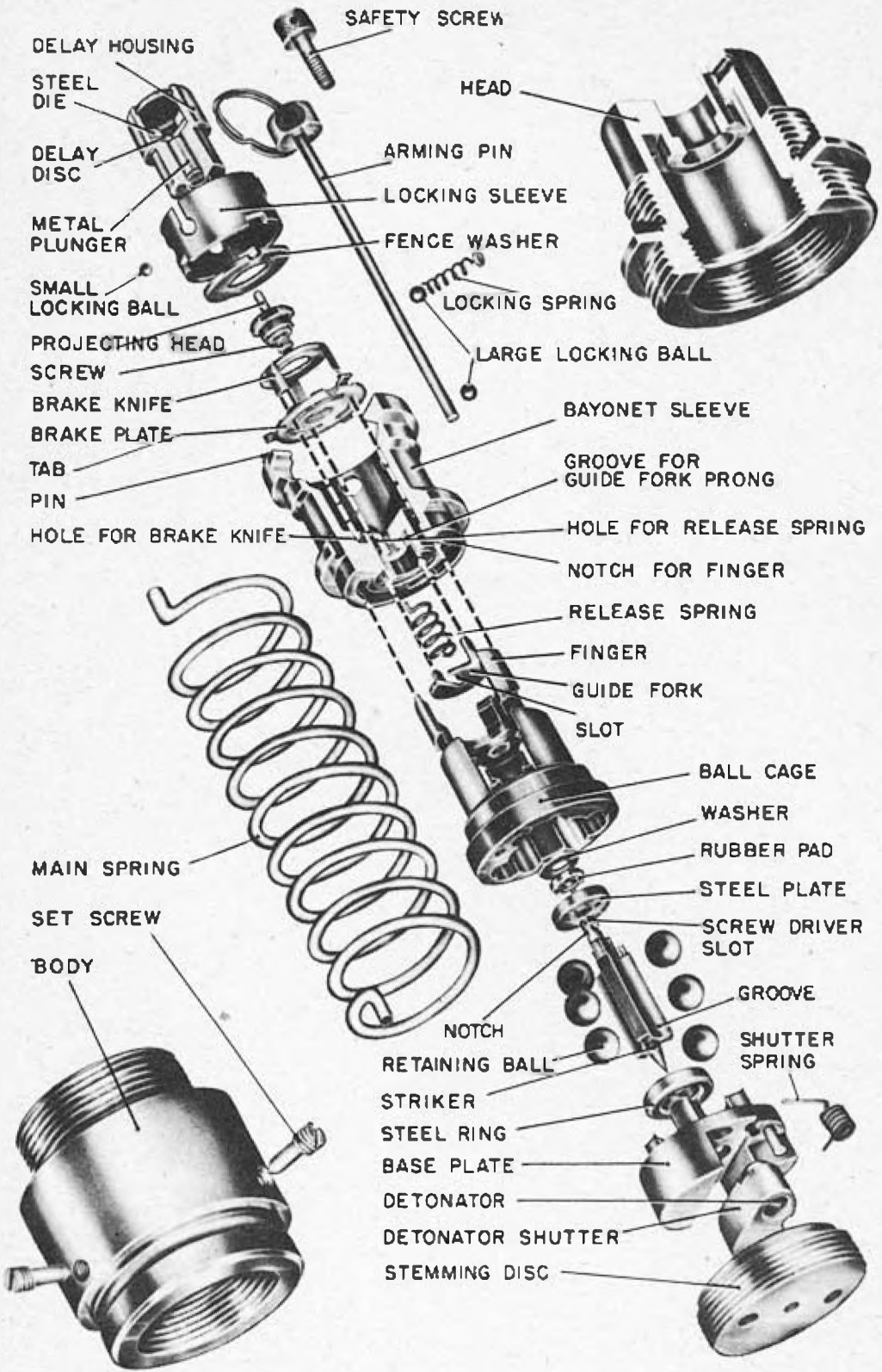
2. No. 880 Mk. I: This is an earlier model of the No. 880 fuze and is identical to the Mk. II, except that the arrangement of the shutter holder is slightly different.

# BRITISH TAIL FUZE NO. 881





# BRITISH TAIL FUZE NO. 881



BRITISH TAIL FUZE

**NO. 881**

MK I

**NO. 883**

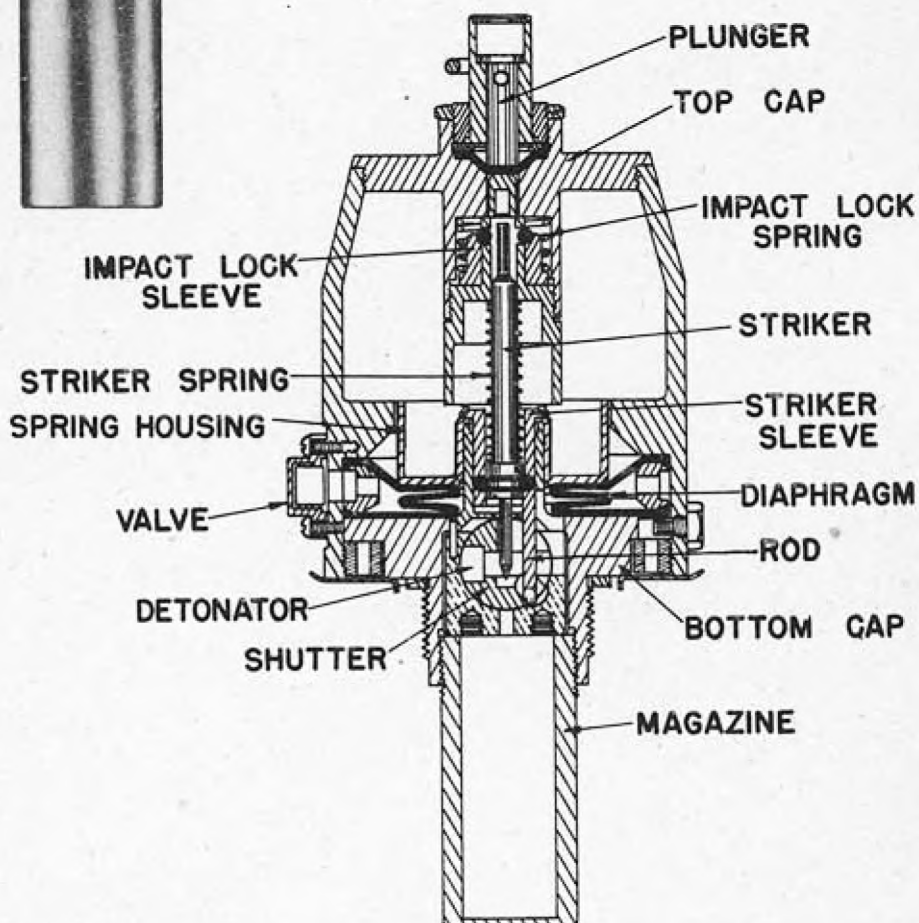
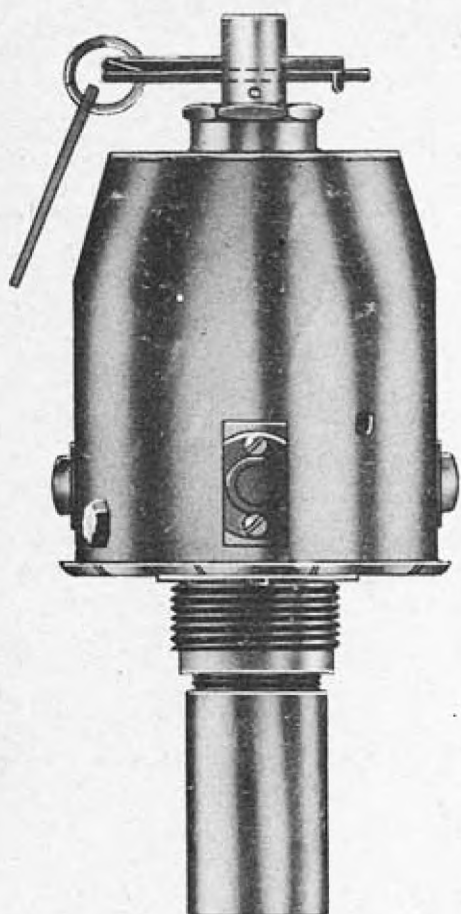
MK I

(SOON IN SERVICE)

OPERATION - cont'd:

fuze is fully armed. A delay assembly in the top of the fuze consists of a housing containing a metal plunger and a plastic delay disc. When the bayonet sleeve is disengaged from the locking sleeve, the main spring forces the bayonet sleeve upwards, bringing the extended portion of the screw into contact with the plunger, which gradually forces its way through the delay disc. When the bayonet sleeve has risen sufficiently to disengage the prongs of the guide fork, the striker is allowed to rotate under the torque tension of the release spring. The flick motion imparted to the striker scatters the balls and allows the striker to be forced into the detonator by the main spring working through the ball cage. Disturbance of the fuze prior to its long delay functioning will scatter the balls from under the striker, and the ball cage under the compression of the main spring will move downward, bringing the striker into contact with the detonator.

## BRITISH TAIL FUZE NO. 895 MK. I



**FUNCTIONING** . . . . Hydrostatic  
**ARMED CONDITION** . . . . Safety wire removed;  
 requires hydrostatic  
 pressure to function.  
**FUZES USED WITH** . . . . None.  
**MAX. BODY DIAMETER** . . . . 2.9"  
**OVERALL LENGTH** . . . . 7.2"  
**COLOR** . . . .

BRITISH TAIL FUZE

**NO. 895**

Mk. I

**NO. 875**

Mk. I  
(Service)

(For other Mk.s., see REMARKS below)

**DESCRIPTION:** Around the sides of the fuse body are water entry ports, protected by small spring loaded valves which serve as anti-countermining devices. The water ports lead into a rubber bellows which rests on a shoulder of the fuse body and under the spring housing. Inside, and resting on the upper lip of the spring housing, is a striker sleeve with two holes drilled in it to accommodate two retaining balls, which rest in a groove of the spring-loaded striker and hold it back. Around the striker sleeve is a stationary sleeve having a cut-away top into which the retaining balls can move. On the upper end of the striker is a lock sleeve which is held down by a spring and which holds retaining balls in a fixed housing. This device functions when the bomb lands on its tail, preventing the action of the fuse. Through the top of the fuse is a drilled hole into which is fitted a safety plunger through which the safety and transit wires are fitted. Below this is a rubber disc which seals the fuse body. In the unarmed position the striker fits down into the detonator shutter and prevents it from moving into line. The detonator shutter is of the rotary type and is attached by a rod to the moving sleeve. Below the detonator is the magazine which is screwed into the lower part of the fuse.

**OPERATION:** When the bomb is put in the plane the transit wire is removed and a safety wire inserted. On release, this wire is pulled, and the fuse is armed. Upon entering the water, water begins to fill the bellows entering through the entry ports. As the bellows fills the spring housing is moved up carrying the striker sleeve with it. This moves the striker up out of the detonator shutter and compresses the striker spring. It also moves the shutter into line because it is attached to it by means of a small rod. When the bellows have expanded sufficiently to move the striker sleeve to the cut-away portion of the stationary sleeve, the striker cams the retaining balls out and the striker hits the detonator and fires the fuse.

- REMARKS:**
1. This fuse is designed to function at a mean depth of 18 feet within the range of 14 to 22 feet.
  2. The fuse will not fire on a normal hard surface impact as such an impact causes no movement of the operative mechanism. Should the bomb impact tail first, firing is prevented by the lock sleeve, lightly spring-loaded.
  3. Countermining, i.e. firing due to sudden increase in hydrostatic pressure resulting from the explosion of another bomb, is prevented by small spring loaded valves fitted over the water entry ports.

4. The No. 875 fuse is similar to the No. 895, except that more positive detonator shutter action has been provided in the latter. The depth settings of the No. 875 are set by the manufacturer and are designed for different uses, as follows:

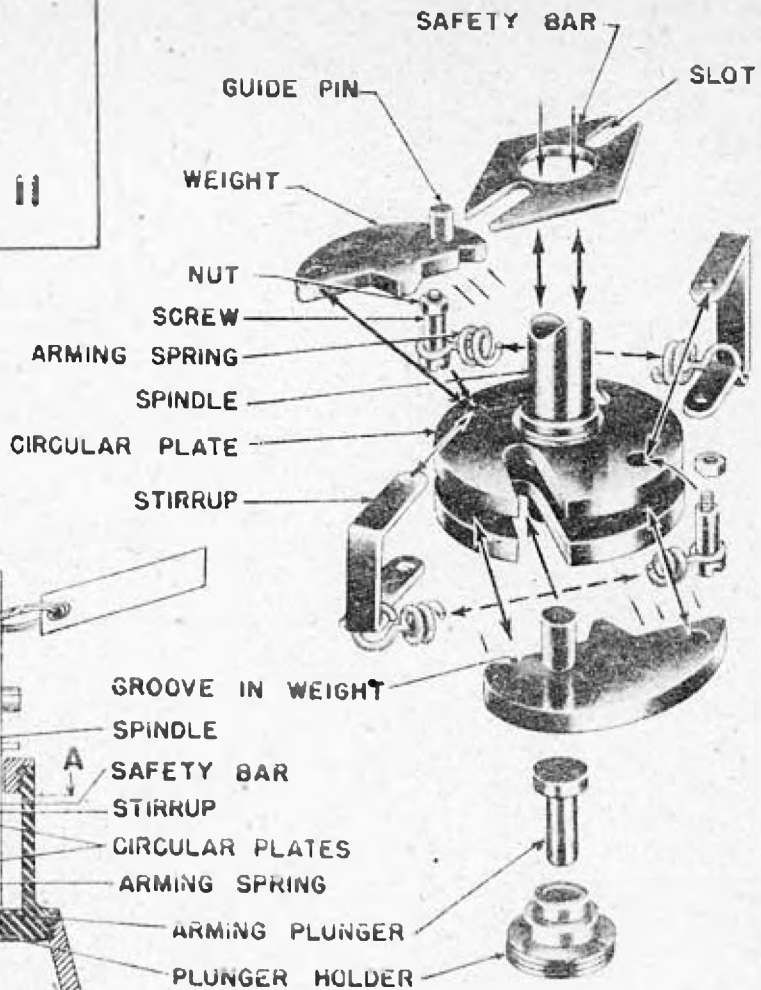
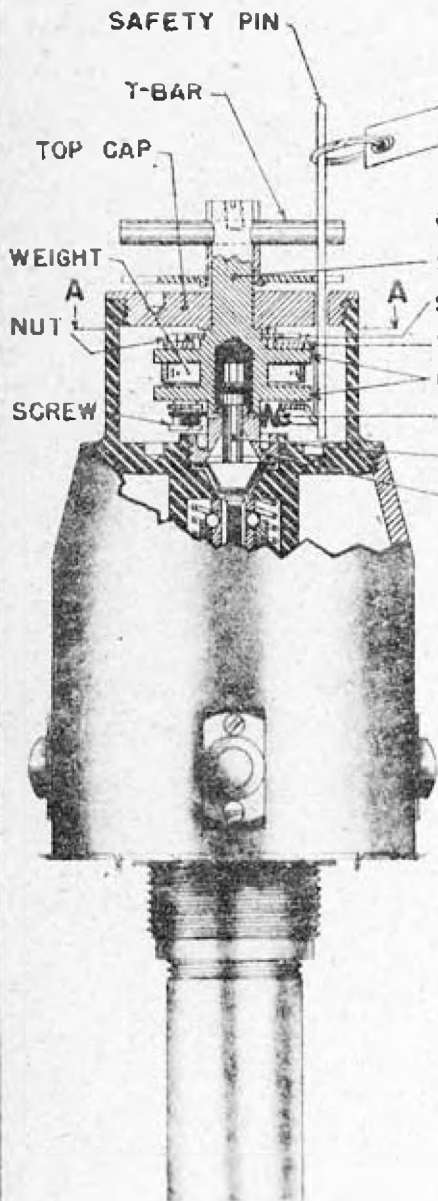
| <u>Designation</u> | <u>Color</u> | <u>Depth Setting</u> | <u>Use</u>              |
|--------------------|--------------|----------------------|-------------------------|
| No. 875A           | Red          | 18'                  | 100 lb. A.S. Mk IV      |
| No. 875B           | Blue         | 22'                  | 25 lb. A.S. Type A Mk I |
| No. 875C           | Green        | 30'                  | 600 lb. A.S. Mk I       |

5. Two issues of the No. 895 Mk. I type of fuse are at present in service use, with the following depth settings and for use in the following bombs:

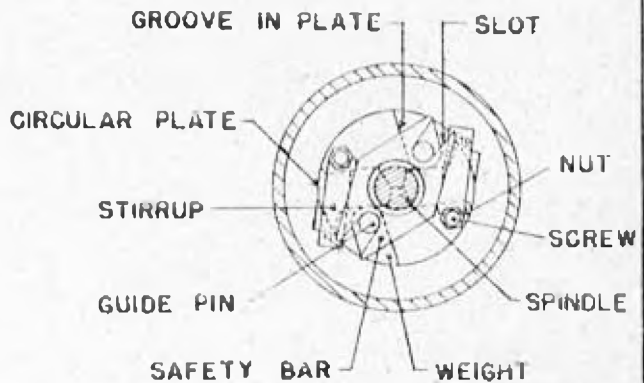
| <u>Designation</u> | <u>Depth Setting</u> | <u>Remarks</u>              |
|--------------------|----------------------|-----------------------------|
| No. 895 A Mk. I    | 18 ft.               | Used in 100 lb. A.S. Mk. VI |
| No. 895/30 Mk. I   | 30 ft.               | Used in 600 lb. A.S. Mk. I  |

The designation of the later issue of the No. 895 Mk. I type was altered to include the nominal depth setting. Changes in depth setting are accomplished by the insertion of an additional spring between the top cap of the fuse and the spring housing.

**BRITISH  
TAIL FUZE  
NO. 895 MK. II**



**DETAILS OF  
ARMING MECHANISM**



**SECTION THROUGH A-A**

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"BRITISH  
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PYROTECHNICS  
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1 NOVEMBER, 1944

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