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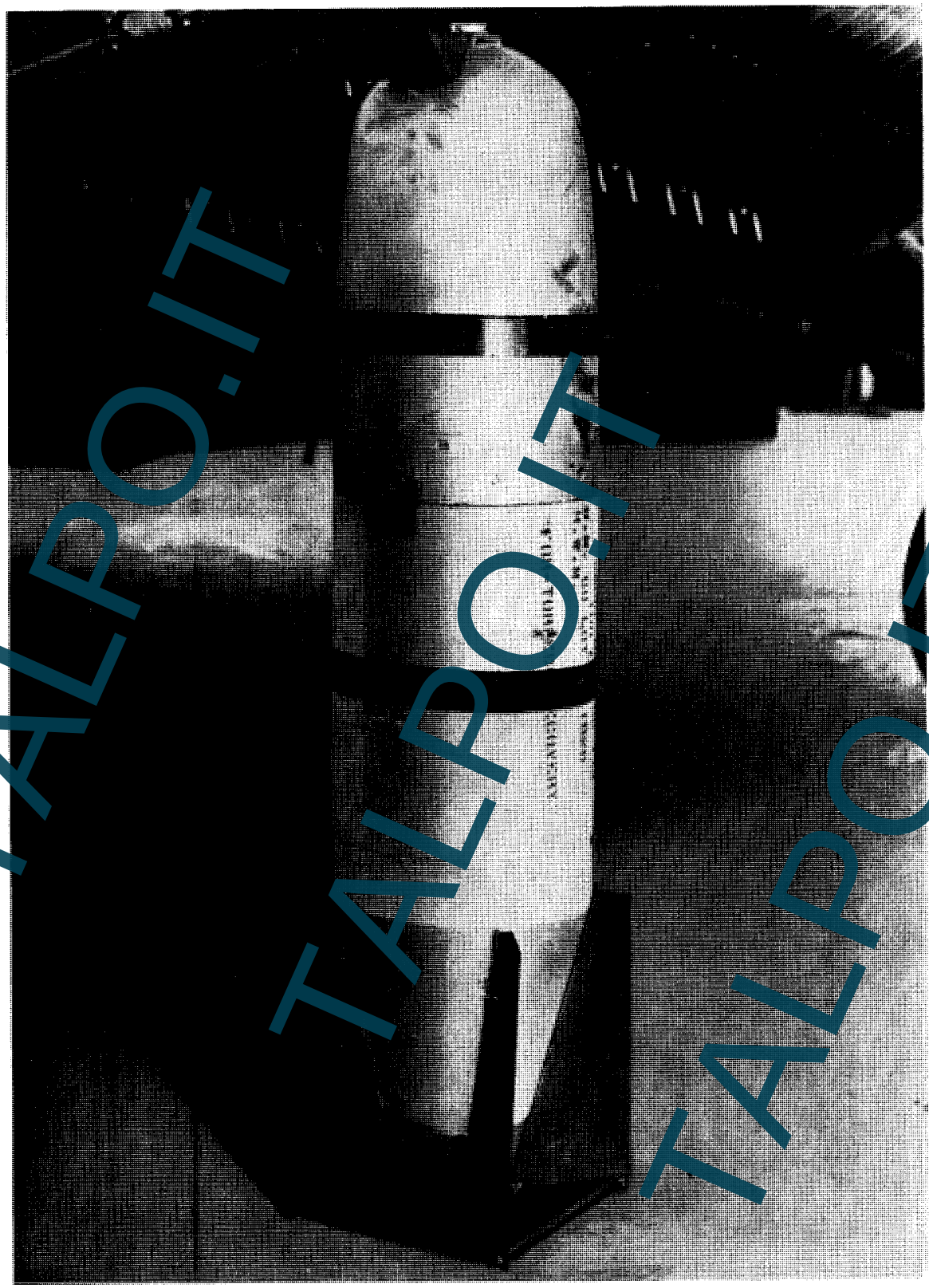


Figure 1—100-lb. Aircraft Smoke Bomb Mark 3

SECTION 1

INTRODUCTION

A. Purpose

This publication is intended to provide instruction for the installation, handling, stowage, suspension, and use of aircraft smoke bombs.

B. Scope

This publication covers the following smoke bombs available to the Navy:

1. The Aircraft Floating Smoke Bombs, of which there are two sizes. The 100-lb. Aircraft Smoke Bomb Mark 3 Mod 0 and the 50-lb. Aircraft Smoke Bombs Mark 1 Mod 1 and Mark 1 Mod 2.
2. The 100-lb. Quick Opening Cluster E44 of fourteen 10-lb. HC Smoke Bombs M77.
3. The 100-lb. Smoke Bomb M47A2 and AN-M47A3.

SECTION 2

AIRCRAFT FLOATING SMOKE BOMBS

A. General

The aircraft floating smoke bombs for Naval use are filled with HC smoke mix (Type A, composed of hexachloroethane, zinc dust, ammonium perchlorate, ammonium chloride and magnesium carbonate), which upon burning produces a dense white smoke. The 100-lb. Smoke Bomb Mark 3 Mod 0 produces smoke for 6 to 10 minutes, the 50-lb. Smoke Bomb Mark 1 Mod 1 produces smoke for 3.0 to 5 minutes, and the 50-lb. Smoke Bomb Mark 1 Mod 2 produces smoke for 6 to 7.5 minutes. All floating smoke bombs are safe for take-offs and landings anywhere, including carriers. These smoke bombs are floating bombs designed for dropping from aircraft for the purpose of creating a smoke screen, primarily on the surface of a body of water. By means of the fuze adapter Mark 1 Mod 0 these bombs will also function on land impact.

B. Description of Bombs

1. **The 100-lb. Aircraft Smoke Bomb Mark 3 Mod 0 (Figs. 1 & 2).** The 100-lb. Smoke Bomb Mark 3 Mod 0 consists of an aluminum nose casting which carries the smoke charge, a hollow wood float to provide buoyancy, and four tail fins to provide good flight characteristics. The bomb is shipped with a water-impact Fuze Mark 3 Mod 1 in the nose. At the tail of the float is a valve cap with a valve to prevent water from leaking into the interior of the bomb and to act as a baffle giving lateral distribution to the smoke. The bomb weighs 102 pounds, loaded and fuzed, and contains 59 pounds of HC smoke mixture. The outside dimensions of the bomb are 48.5 inches long by 10.25 inches in diameter. The bomb has two movable suspension bands.

2. **The 50-lb. Aircraft Smoke Bombs Mark 1 Mod 1 and Mark 1 Mod 2 (Figs. 3 & 4).** These bombs are similar to the 100-lb. Smoke Bomb Mark 3 Mod 0 but are smaller in size. They weigh 54 pounds, loaded and fuzed, and contain 28 pounds of HC smoke mixture. The outside dimensions of this bomb are length 38.3 inches and diameter 8.85 inches. These bombs may have either one (Fig. 3) or two (Fig. 4) suspension bands; latest issue will have two bands. An interim issue will have one lug band with a forward lug attached by a metal strap to the band for double suspension. Either single or two lug suspension may be used.

The only difference between the characteristics of the Smoke Bomb Mark 1 Mod 1 and the Smoke Bomb Mark 1 Mod 2 is the burning time, the Mark 1 Mod 1 emitting smoke for 3.0 to 5 minutes and the Mark 1 Mod 2 for a period of 6 to 7.5 minutes.

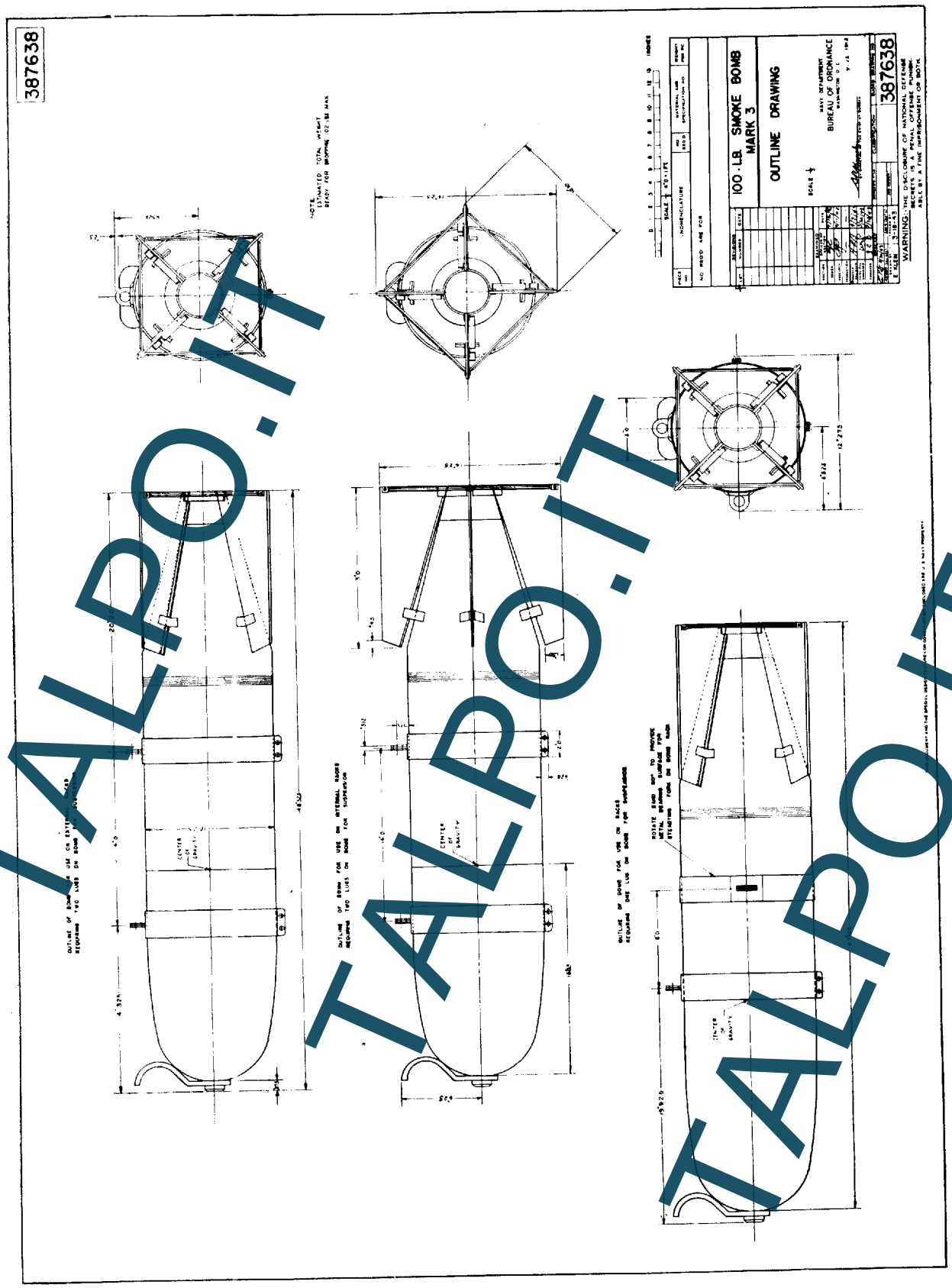
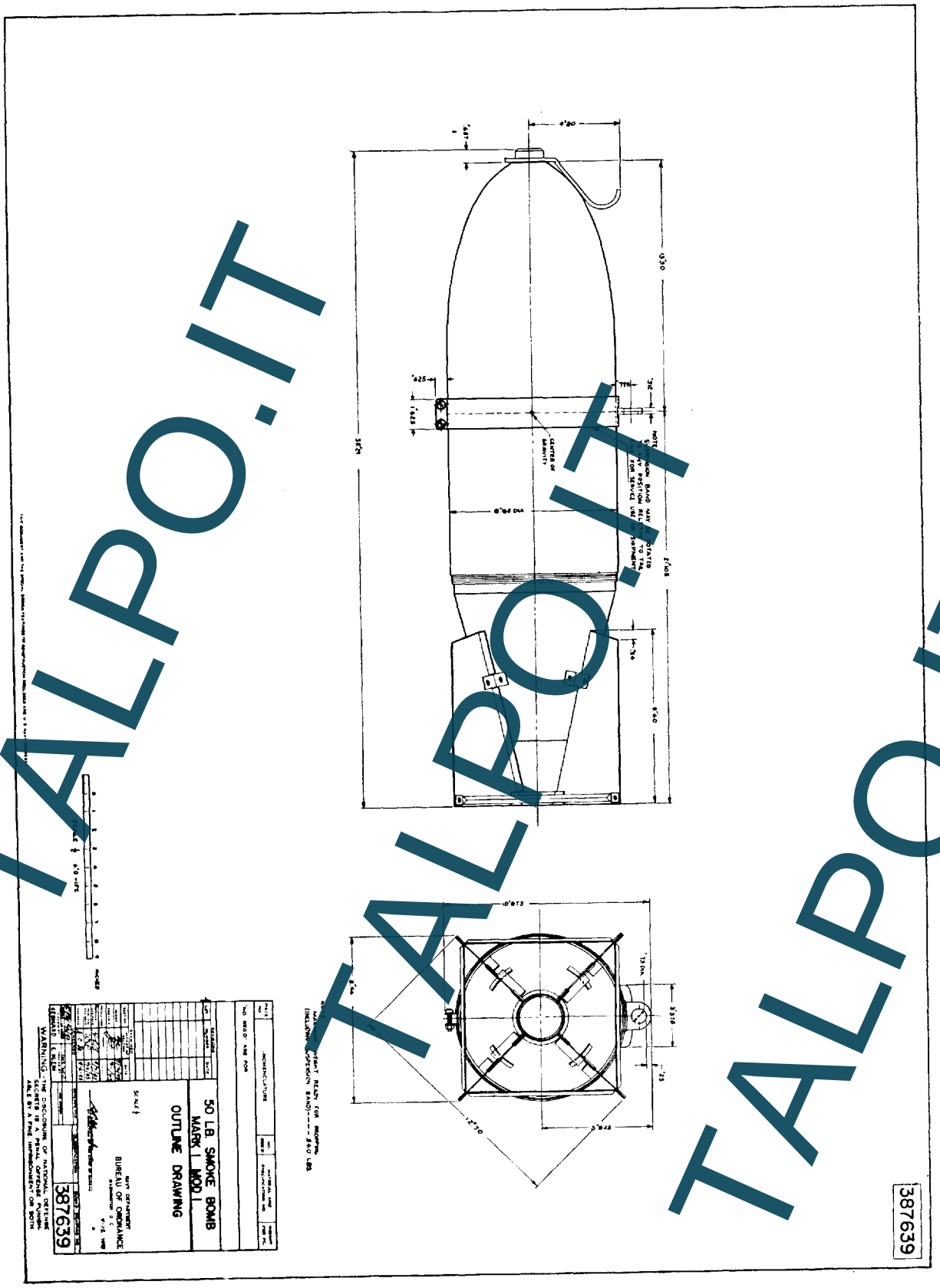


Figure 2



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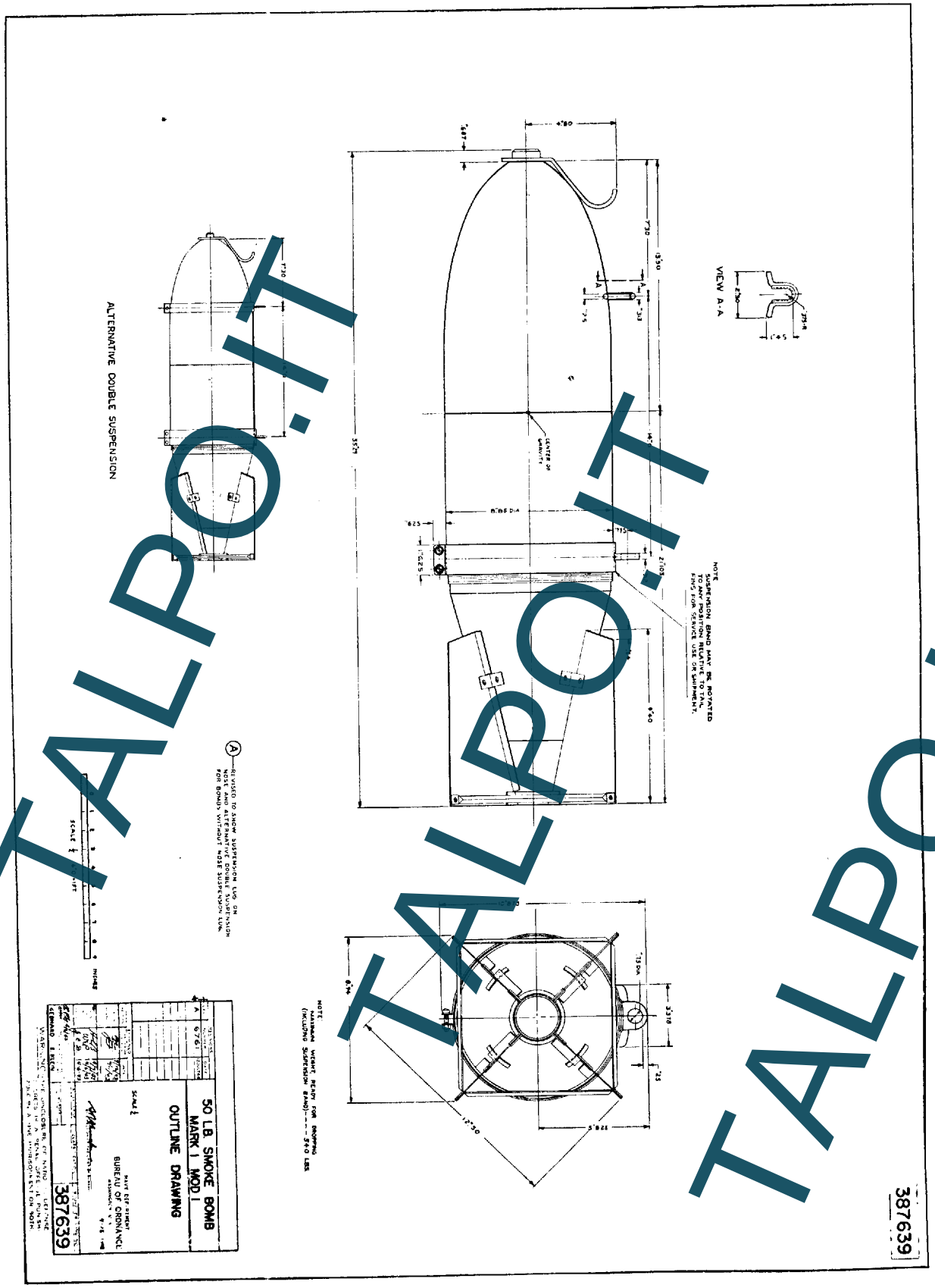

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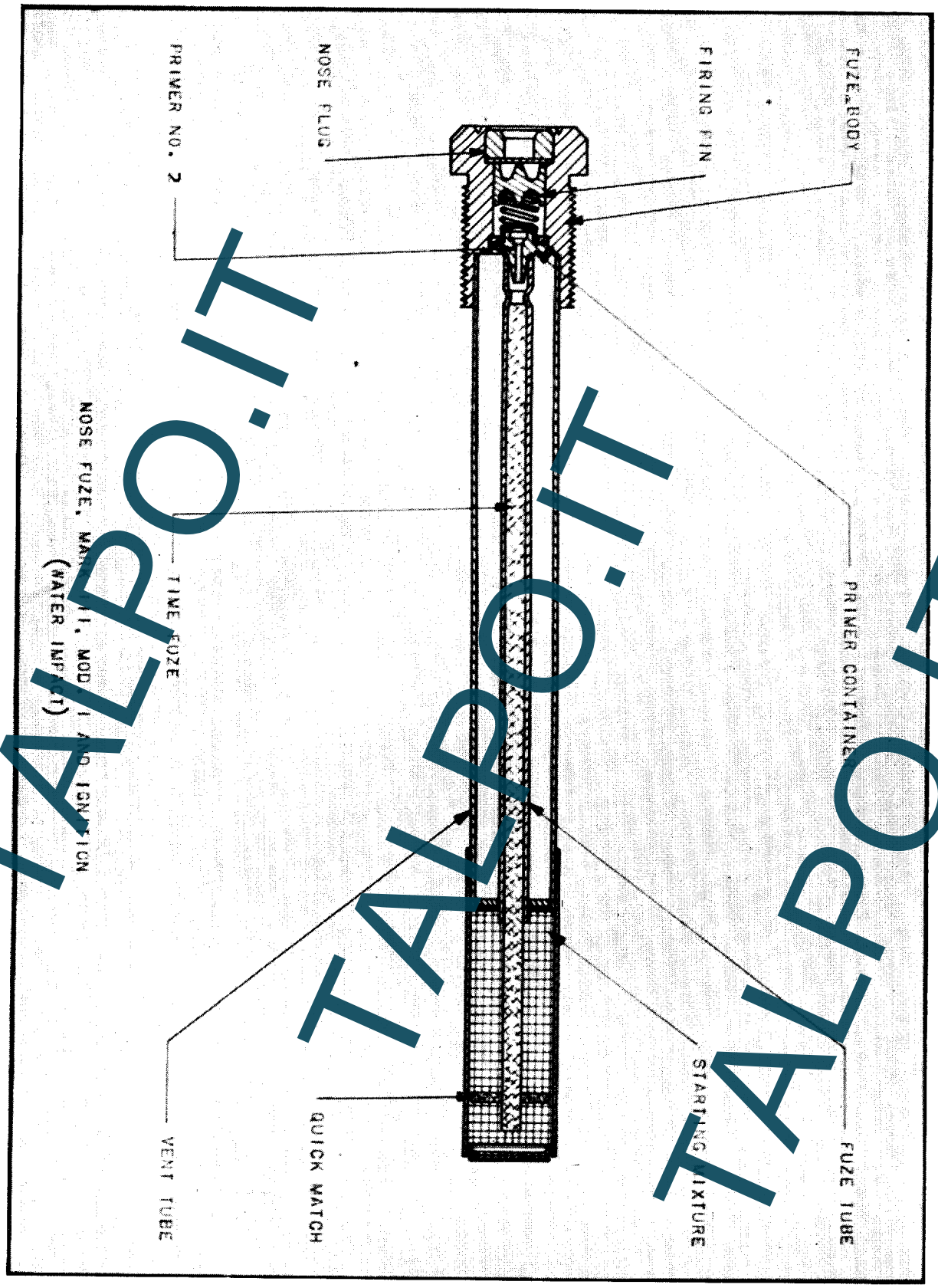

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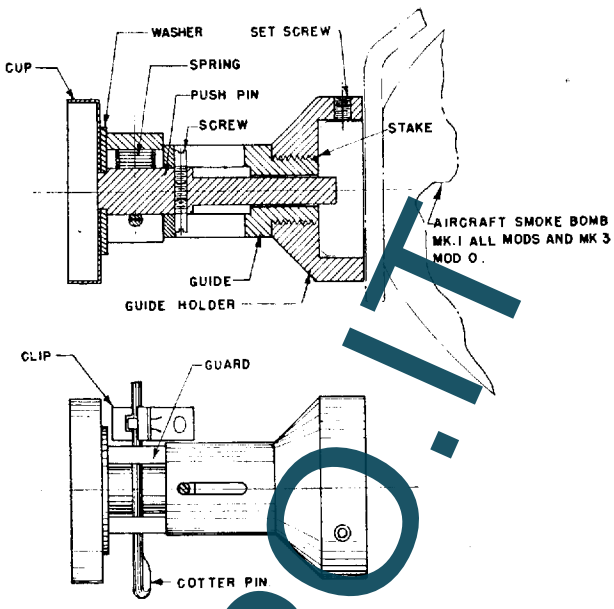

Figure 6—Adapter Mark 1 Mod 0 for Aircraft Smoke Bomb Mark 1 all Mods and Mark 3 Mod 0

G. Use

The Navy floating smoke bombs were originally designed for use over water only, and should not be used over land unless a Fuze Adapter Mark 1 Mod 0 is installed. Tests indicate that these bombs function satisfactorily when used under the following conditions:

Altitude of Release in Feet (Level Bombing)	*Minimum Depth of Water in Feet*	*Type of Bottom*
Over 5000	20-40	Sand
1500-5000	10-20	Sand
Below 1500	3-10	Sand
Up to 2500	5 or greater	Hard Coral

SECTION 3

100-LB. QUICK-OPENING CLUSTER E44 OF 14 10-LB. HC SMOKE BOMBS M77

A. General

The 100-lb. Quick-Opening Cluster E44 (designated as the M25 until January 1945), of 14 10-lb. HC Smoke Bombs M77 (Fig. 7) was designed to provide frontal or flank cover for amphibious operations or troop movements and to blanket large areas of enemy positions with smoke. They are for use over land only. Tests have shown that each cluster opens a few feet below the releasing plane and when dropped from 500 feet altitude disperses its bombs over a somewhat elliptical area about 50 yards across. The bombs require two to four minutes after hitting the ground to build up an effective screen, and will produce smoke from eight to twenty minutes. Instructions for the proper operational use of these clusters may be found in Cominch publication P-04 "Smoke Screens for Amphibious Operations." This cluster will function satisfactorily from altitudes of 50 feet to above 5000 feet. A small percentage of duds (10%) may be expected from all altitudes.

B. Description of the 10-Lb. HC Smoke Bomb M77

1. **Construction.** The 10-lb. HC Smoke Bomb M77 consists of a steel hexagonal case 2.87 inches across the flats and 19.5 inches long, weighing approximately thirteen pounds when filled. This bomb has no device for stabilization in flight, and therefore uses the "all-ways" type Fuze M150. Components of the bomb are as follows:

(a) Body—a sheet steel leak-proof casing extending the entire length of the bomb (Fig. 8).

(b) Tail Cup—A tail cup fits into the rear of the casing, having a dome which in turn houses the fuze.

(c) Filling—The bomb is filled with 9.5 pounds of Type "C" HC smoke mixture (Hexachlorethane-zinc oxide-aluminum mix).

(d) All-ways Fuze M150 (Fig. 9)—This is an all-ways action type fuze. The body and head are zinc alloy castings. This fuze incorporates the primer M26. The booster cup is made of zinc alloy and is filled with a starter mixture.

Figure 7—View showing side of 100-lb. Cluster E44 (quick-opening) made up of 14 HC Smoke Bombs M77

ward of the rear suspension band in ½-inch letters is the lot number, date of loading, and the identification mark of the loading facility.

F. Packaging

The 100-lb. Smoke Bomb M47A2 is shipped unfuzed and without burster or arming wire in a wooden box, one bomb to a box. The dimensions of the box are $9\frac{3}{16}$ inches by $10\frac{19}{32}$ inches by $50\frac{3}{16}$ inches. The shipping weight is approximately 150-170 pounds. The shipping box is marked with the same information which is on the bomb body.

The markings on the shipping box are for identification of the material, and to comply with Interstate Commerce Commission Regulations. If smoke bomb shipping containers are repainted, they should be marked with a facsimile of the original markings.

The Bursters M4 are packed fifty to a wooden box. The dimensions of the box are 3.44 feet by 1.09 feet by 0.69 foot. The approximate weight of the box and contents is 148 pounds. The Bursters M7 or M18 are also packed fifty to a wooden box of similar dimensions, weighing 128 pounds per box.

The Fuzes AN-M126A1 are packed twelve to a cardboard carton, four cartons to a wooden box. The dimensions of the box are $11\frac{3}{16}$ inches by $9\frac{31}{32}$ inches by $23\frac{1}{16}$ inches. The approximate weight of the box and contents is 80 pounds.

Arming wire assemblies are shipped in individual water-proof envelopes, 100 envelopes to a carton, six cartons to a wooden box. The dimensions of the boxes may vary. The approximate weight of the box and contents is 75 pounds. The Navy will furnish Mark 3 arming wire assemblies to replace arming wires supplied by the Army.

Figure 12—Foreground: typical smoke emission of Floating Smoke Bomb Mark 3 Mod 0 five minutes after initiation

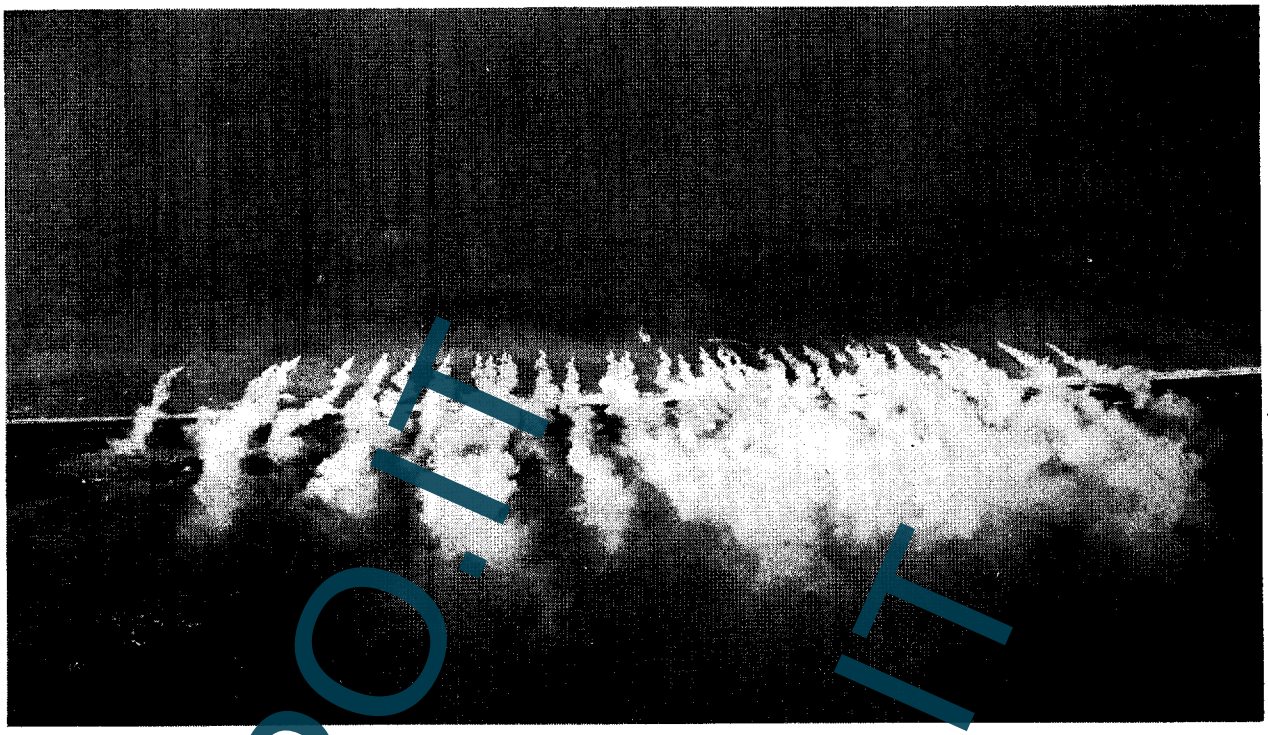

Figure 13—Frontal screen (onshore wind conditions) from Floating Smoke Bombs Mark 1 Mod 2 over 1,000 yards of beach

SECTION 5
PRECAUTIONS IN MAINTENANCE

A. HC Munitions

1. **Handling.** Because the addition of even small amounts of moisture or water to the HC smoke mixtures in floating smoke bombs can cause spontaneous ignition of the smoke mixture, the watertight integrity of these bombs must be preserved. Therefore, smoke bombs should be handled with care during shipment and they should not be dropped, skidded or rolled. Although the smoke mixture in the bombs M77 will not ignite from the effects of moisture or water, clusters of these bombs should also be handled with care to maintain the integrity of the clusters.

2. **Stowage Ashore and Afloat.** HC smoke bombs should be stowed on shipboard during shipment in a tight cargo hold equipped with facilities for flooding, and they should not be overstowed with other cargo. Stowage in a hold in which no other ammunition or cargo is stowed is preferable. HC smoke bombs should be stowed aboard warships and ashore in magazines containing other HC smoke munitions only, such as HC smoke bombs, pots, floats or grenades. Stowage of HC smoke bombs aboard warships should be above the waterline near the stern, with provisions made so that the smoke bombs may be readily jettisoned. HC smoke bombs must be protected from sea spray and high temperature (above 100 degrees F). If a smoke bomb ignites accidentally, the principle danger is from spreading of the fire to adjacent crates and subsequent ignition of these bombs. **Water in large volume** should be used in fighting HC smoke fires. Foamite and carbon dioxide extinguishers or fog nozzles are much less effective than water as HC smoke mix does not require atmospheric oxygen for its combustion.

3. **Special Precautions.** HC smoke has toxic effect on unmasked personnel subjected to strong concentrations and some toxic effect is noticed from long exposure to light concentrations. Gas masks should be adjusted when HC