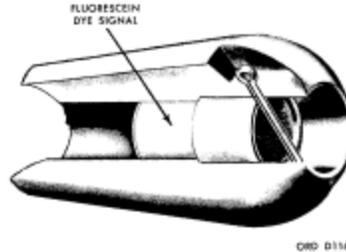
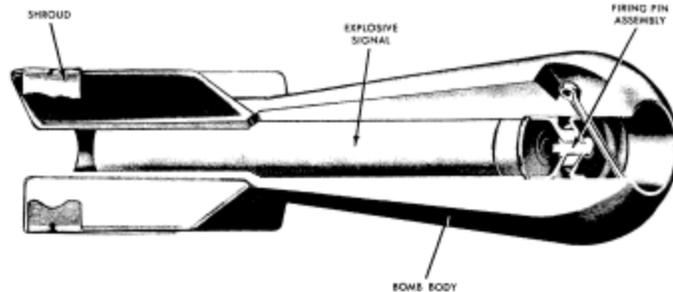


**APPENDIX C**  
**ORDNANCE SHEETS**

# MINIATURE PRACTICE BOMBS

## AN-Mk 5 Mod 1, AN-Mk 23, AN-Mk 43

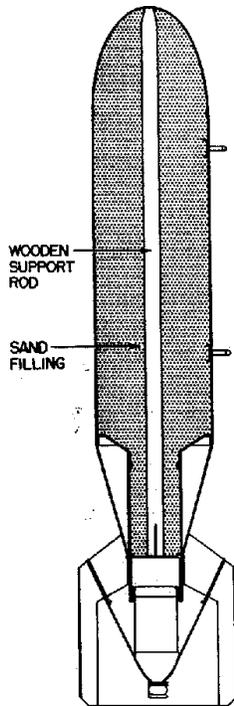


*Description.* These bombs are used for low-altitude horizontal, or dive-bombing practice. The three bombs are similar in physical appearance, but differ basically in the metal used to cast the body. Bombs are used with the AN-Mk 4 practice bomb signal that is a blank 10-gauge shotgun shell (extended length). Signals contain a black powder expelling charge and a red phosphorous pyrotechnic mixture. These bombs also are used with the MK5 signal that contains a fluorescein dye and is actuated by impact on water. When the Mk5 signal is installed, the firing pin assembly is not used.

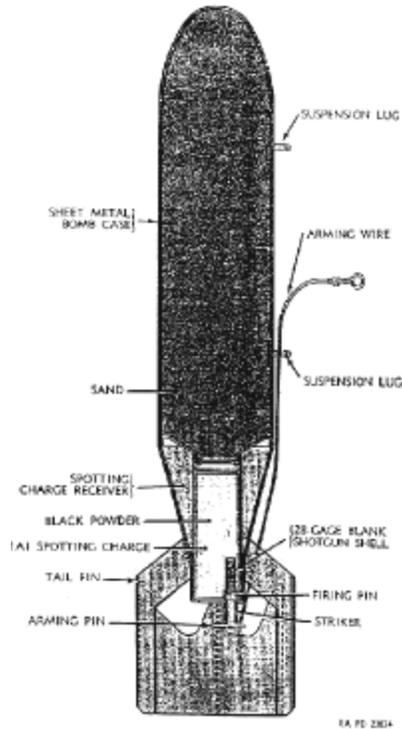
<b>Over-all length</b> .....	8.25 inches
<b>Body Diameter</b> .....	2.18 inches
<b>Fin Dimension</b> .....	2.5 inches
<b>Weight</b> .....	AN-Mk 5 Mod 1 - 2 lb. 11 oz. $\pm$ 1 oz AN-Mk 23 - 3 lb. $\pm$ 2 oz AN-Mk 43 - 4 lb. 7 oz. $\pm$ 2 oz.
<b>Signal</b> .....	AN-Mk 4, Black powder/pyro- Technic charge Mk 5, Fluorescein dye

**Reference:** OP 1280, *Aircraft Bombs*, February 1945; TM 9-1325-200, *Bombs and Bomb Components*, April 1966

# BOMB, PRACTICE, 100 POUND, M38A2



with M5 spotting charge



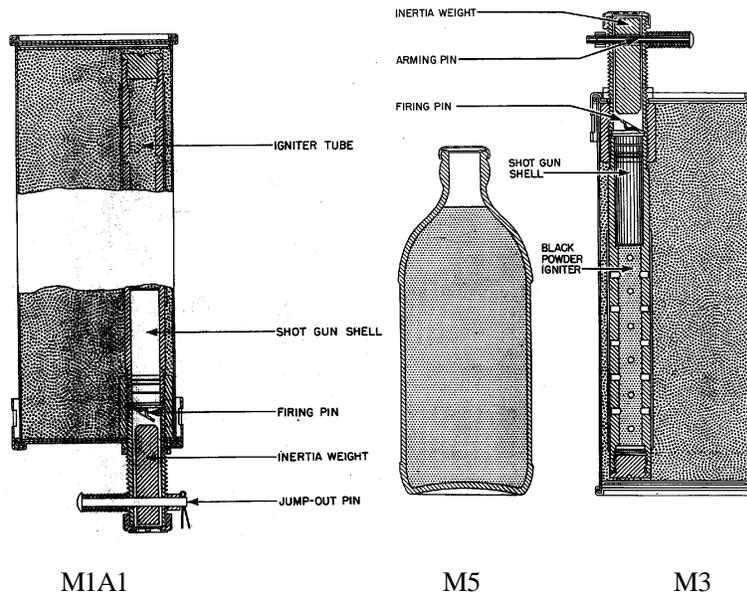
with M1A1 spotting charge

*Description.* This bomb simulates a General Purpose bomb of the same size. It is constructed of light sheet metal, approximately 22-gage, formed by rolling a rectangular sheet of metal into the form of a cylinder approximately 8 inches in diameter, and spot-welding the seam. The rounded nose is pressed from the same metal, as is the tail, which is formed in the shape of a cone. The tail portion ends in box type fins, which is welded to the cone. Inside of the smaller end of the conical tail section is welded the spotting charge receiver. The spotting charge is assembled in a sleeve at the base of the bomb, within the fin box. Authorized spotting charges are the M1A1, M3, and M5. When using the M5 spotting charge a wooden support rod is installed in the bomb. Two suspension lugs are bolted to the bomb body during fabrication. The Suspension Band M1 is provided for single suspension. The band is a separate component. The over-all length of the bomb body is 47.2 inches. When empty, the bomb body weighs approximately 14 pounds. When completely loaded with sand and spotting charge, the weight of the bomb is approximately 100 pounds.

<b>Over-all length</b> .....	47.5 inches
<b>Diameter</b> .....	8.13 inches
<b>Weight empty</b> .....	15.7 pounds
<b>Weight sand loaded &amp; spotting charge</b> .....	100 pounds

**Reference:** TM 9-1904, *Ammunition Inspection Guide*, March 1944; NAVSEA OP 1664 Volume 2, *U.S. Explosive Ordnance*, February 1954; *Complete Round Chart #5981*, October 1944

# SPOTTING CHARGES, M1A1, M3, M5



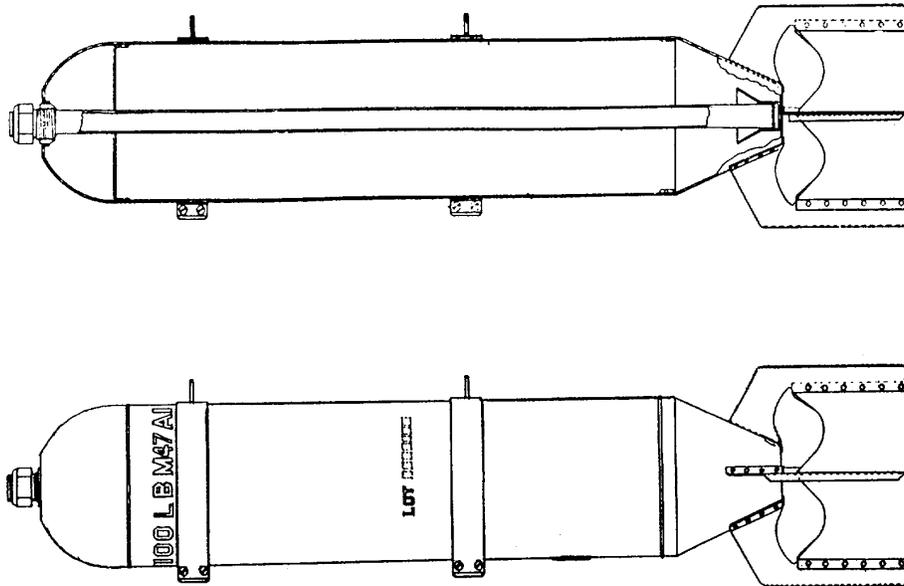
*M1A1 Spotting Charge.* This type of spotting charge fits in the after end of the 100-pound Practice Bomb M38A2. It produces a flash of flame and white smoke for observation of bombing accuracy. It is made from a large tin can, 11.18-inches long, 3.43-inches diameter, weighing 4.25-pounds. At the top of the can is a cover, which has a hole in it for the insertion of a 28-gage blank shotgun shell and firing mechanism. Upon impact, the inertia weight drives the firing pin into the shotgun-type primer, igniting the 3-pounds of black powder.

*M3 Spotting Charge.* The spotting charge has a 2 1/3-pound dark smoke filling and a black-powder igniter. It is 5/8 of an inch longer than the Spotting Charge M1A1, but otherwise similar. The M3, with its dark smoke filler, is well adapted for bombing practice over snow-covered terrain. The black-powder igniter charge contains approximately 425 grains. It is used in the M38A2 Practice Bomb.

*M5 Spotting Charge.* The spotting charge consists of a glass bottle filled with FS smoke mixture. An ordinary bottle cap seals the mixture. The bottle is held to the Practice Bomb M38A2 by a wire twisted around the neck of the bottle and attached to the tail vanes. The charge assembly weighs 2.54 pounds.

**Reference:** TM 9-1904, *Ammunition Inspection Guide*, March 1944; NAVSEA OP 1664 Volume 2, *U.S. Explosive Ordnance*, February 1954

# BOMB, CHEMICAL, 100-POUND M47 SERIES



*General.* The bomb was developed to meet the requirements of the Air Forces for a chemical bomb for "bombardment" purposes. It is a thin case bomb whose design and construction is such as to provide maximum efficiency after release from the plane.

*Description.* The body of this bomb is made of 1/32-inch sheet metal rolled and lap welded into a cylindrical shape 8-inches in diameter. The nose is hemispherical and welded to the body as is the box type tail fin assembly, which forms the tail taper of the bomb body. The over-all length is 45 inches excluding fuze. The burster well is screwed into the bomb body by means of pipe threads to make a gas-tight seal at the nose. It is held in place at the tail of the bomb body by an attached cone in the inner side of the fin assembly. It is internally threaded to receive a sleeve, which has a groove in its lower portion to seat the fuze, which is pressed in place. Around the bomb body are two suspension bands 14-inches apart which provide suspension lugs for horizontal suspension. One blade of the fixed box type tail assembly is in line with the suspension lug. The bomb utilizes the Bomb Fuze M108 (Nose) in conjunction with the M4 Burster, which has a charge of tetryl when used with a White Phosphorous (WP) or Mustard (H) filler. The H filler has been found to leak when loaded into this bomb. At the date of publication, the M47 and M47A1 were not allowed to be loaded. When loaded with H, the entire weight of the bomb is 93 pounds, of which 73 pounds is chemical agent.

The Bomb may be loaded with an incendiary filler of rubber and gasoline in the field. The base filling is gasoline supplemented by one of the four different incendiary ingredients as follows:

1. LA-60. Consists of crude latex or sap in combination with caustic soda, coconut oil, and water
2. Crepe rubber (CR). This is crude latex but is reduced to a solid by precipitation and kneading.
3. LA-100. This is crude latex dried until it is approximately 100 percent solid.
4. Smoked rubber sheets (SR) a crude latex, which has been dried over a smoky fire until it is approximately 100 percent solid.

When loaded with the incendiary filler the Bomb Fuze M108 (Nose) with a 1-pound black powder Burster Charge M7 is used. This burster charge bursts the bomb and scatters and ignites the filler. When filled, the body weighs 85 pounds of which 65 pounds is incendiary filler. This is a typical example of the scatter type of incendiary filler.

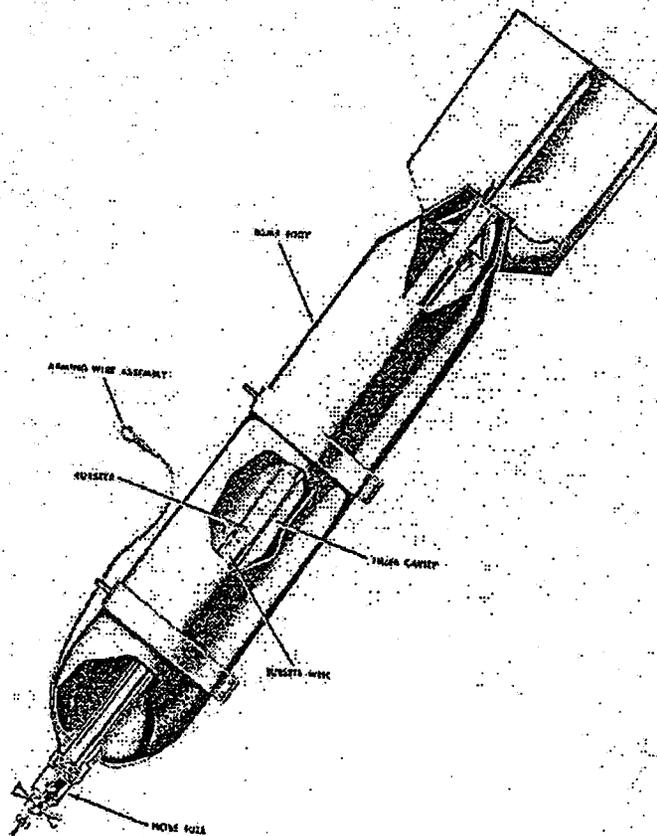
*Painting.* The bomb is painted as other chemical ammunition with a blue-gray base color. If loaded with H, it will have two green bands and will be stenciled in green. If loaded with WP, it will have one yellow band and will be stenciled in yellow. If loaded with incendiary filler, it will have one purple band and will be stenciled in purple. The stenciling for the incendiary bomb will indicate the type of rubber filling such as "incendiary oil, LA-60" or "incendiary oil SR".

*Comparison.* The M47A1 was designed to replace the 100-pound M47. The M47 was found to have too thin a wall section, and in handling and storage, it developed leaks due to corrosion and rough treatment. Consequently, the wall thickness was increased from 1/32 inch to 1/16 inch, and coating inside with acid-proof black paint protected the case. This special inside coat of paint was to provide a resistance of 100-pound pressure. However, chemical agent was still found to leak from the bomb case as with the previous bomb and is not to be loaded in empty 100-pound M47A1 Bomb Cases. In design, it is similar to the 100-pound M47. It is however, approximately 9 pounds heavier and weighs, when loaded with H, 102 pounds, of which 73 pounds is H. When loaded with Incendiary Oil, it weighs 94 pounds, of which 65 pounds is incendiary oil. An additional fuze, which may be found used with this chemical bomb, is Fuze Bomb M126 (Nose).

The M47A2 was designed to be able to receive the chemical filler mustard (H) without leaking. It was coated on the inside with special oil, which provided in theoretical tests too are resistant to filler pressure having a resistance of 400-pounds pressure. It does not differ from the 100-pound M47A1 in any appreciable way. It was found, however, that this bomb was also subject to leaking, but not to such an extent as its predecessors. The chemical agent H is still to be loaded into this bomb as temporary emergency filler. The fuze is the Nose Bomb Fuze M108 or Fuze Bomb M126 (Nose). When the M126 Fuze is used, the special adapter for the M108 Fuze is removed, as the M126 Fuze can screw directly in the burster well. In all other components, the bomb is exactly the same.

**Reference:** TM 9-1904, *Ammunition Inspection Guide*, and March 1944

# BOMB, INCENDIARY, 100-POUND, M47 SERIES



*Bomb, Incendiary, 100-pound, M47, MCMC, drawing.*

*Description.* This bomb can be found in four modifications, A1 through A4. The bomb body is sheet-steel tube with a longitudinal seam weld. The nose end is hemispherical. A base plate at the rear end is welded to the tube. Several bursters may be used interchangeably. The burster runs the length of the bomb. The burster AN-M12 is a tube containing a 50-50 mixture of black powder and magnesium. The burster AN-M13 is a tube containing TNT and tetryl pellets at each end, and is used in conjunction with the Igniter AN-M9 (WP or NA). Four vanes are welded to a truncated cone with box-type interior struts to form the tail

Over-all length.....	51.7 inches
Diameter.....	8.1 inches
Weight Loaded.....	70-72 pounds
Weight empty.....	29.0 pounds
Filler.....	Gasoline, gasoline gel, gasoline/waste, rubber
Filler Weight.....	45-48 pounds
Fuze.....	AN-M126 or AN-M126A1A1 (impact)
Burster.....	AN-M12 or AN-M13

Reference: *Aircraft Munitions Versus Specific Targets, Vol 1, May 1945*

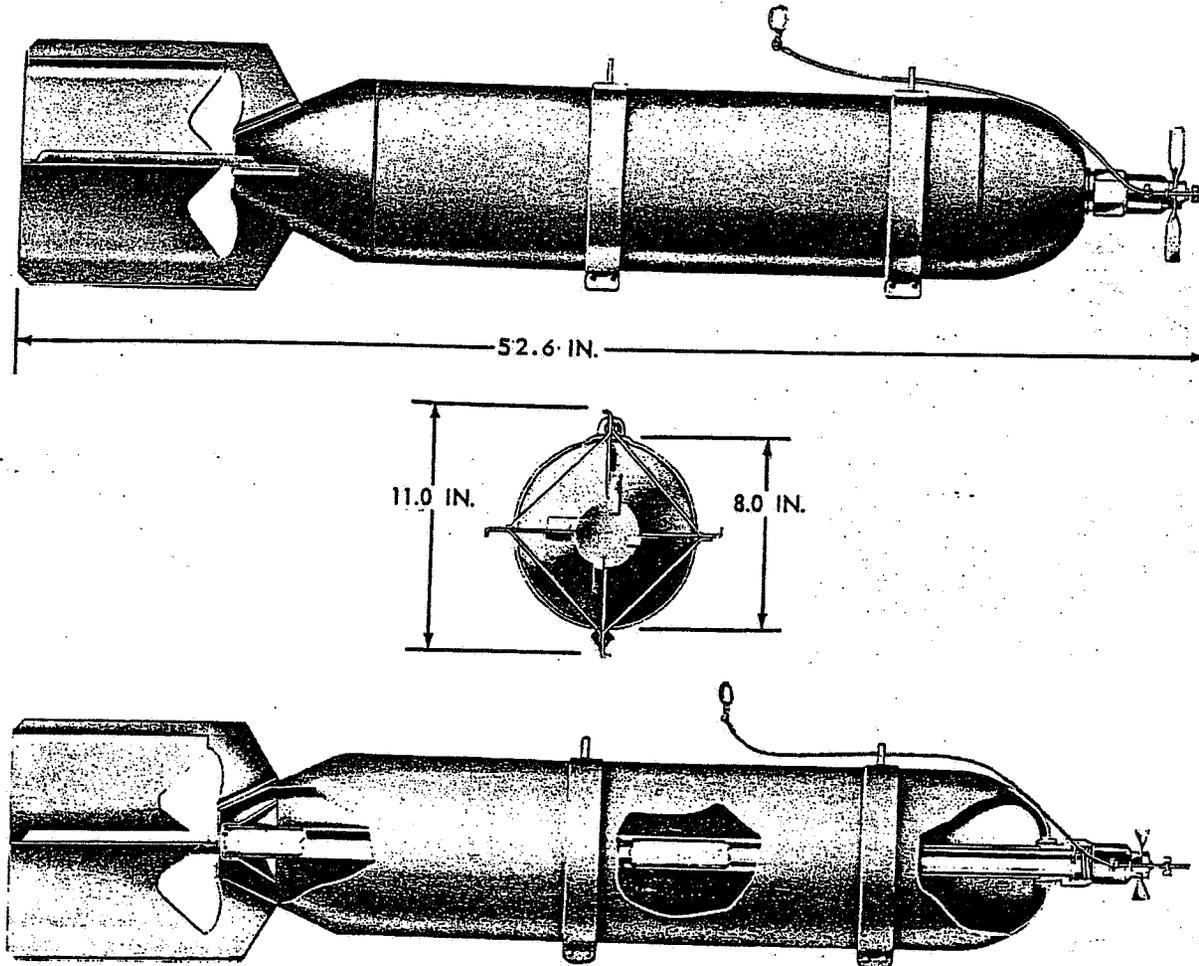
## Section VI. SMOKE BOMBS

### 2-32. General

Smoke bombs are generally used for screening purposes to conceal combat areas, the movement of troops and ships, for marking targets, and for anti-personnel effect. The standard filling for these bombs is plasticized white phosphorus (PWP),

which is a smoke-producing agent. White phosphorus (WP) has a mild incendiary effect and will set fire to materials having a low kindling point, such as clothing, dry brush, paper, canvas, etc.

### 2-33. Bomb, Smoke: PWP or WP, 100-Pound, AN-M47A4



ORD. D1146

Figure 2-40. Bomb, Smoke: PWP or WP, 100-pound, AN-M47A4

Table 2-36. Bomb, Smoke: PWP or WP, 100-Pound, AN-M47A4

Model.....	AN-M47A4
Length of Assembled Bomb (in.).....	52.6
Diameter of Body (in.).....	8.0
Weight of Assembled Bomb (lb):	
Filled with PWP.....	105.0
Filled with WP.....	131.0
Filler Weight (lb):	
PWP.....	74.0
WP.....	100.0
Fuze.....	AN-M159 AN-M126A1
Burster:	
PWP.....	AN-M20
WP.....	M18
Arming-Wire Assembly.....	C5 or M2

a. *Description.* Smoke bomb AN-M47A4 (fig. 2-40 and table 2-36) is approximately 52.56 inches long and weighs approximately 105 pounds when filled with PWP and approximately 131 pounds when filled with WP. It is approximately 8.50 inches in diameter and has a rounded nose, a truncated conical tail section, and a fixed tail fin. The complete round consists of a bomb body, filler, a burster, a fuze, and an arming wire. Smoke bomb AN-M47A4 is essentially the same as incendiary bomb AN-M47A3 except for the filler, the burster, and the suspension lugs, which are of heavier construction in bomb AN-M47A4.

(1) *Body.* The bomb body is made of sheet steel. A burster well, which is a metal tube closed at one end, extends the full length of the bomb. It is installed in the bomb during manufacture. A threaded

hole in the nose end of the bomb receives the fuze. During shipment, the hole is closed by a nose plug. Two suspension bands with suspension lugs at the top are clamped around the body by machine screws. The tail fin, which has four vanes, is welded to the tail section during manufacture.

(2) *Filler.* The bomb is filled during manufacture with either 74 pounds of PWP or 100 pounds of WP.

(3) *Burster.* A burster AN-M20 is used in a bomb filled with PWP; a burster M18 is used in a bomb filled with WP. The burster is installed in the bomb during assembly.

(4) *Fuze.* The preferred fuze is nose bomb fuze AN-M159. Nose bomb fuze AN-M126A1 is an authorized alternate. The fuze is shipped separately and is installed in the bomb during assembly.

(5) *Arming wire.* Arming wire C5 is used with this bomb.

b. *Functioning.* Functioning of a fuze and a burster shatters the bomb on impact, dispersing the agent in burning particles over a wide area. The particles are ignited spontaneously by atmospheric oxygen and produce a dense white smoke.

c. *Differences.* An earlier model of bomb AN-M47A4 was the AN-M47A3. The two bombs are identical except that the AN-M47A3 has more lightly-constructed suspension lugs and is authorized for filling with PWP only.