

CONFIDENTIAL

ORDNANCE PAMPHLET 898

(SECOND REVISION)

MINE IDENTIFICATION MANUAL



4 AUGUST 1945

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NAVY DEPARTMENT
BUREAU OF ORDNANCE
WASHINGTON 25, D. C.

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4 August 1945

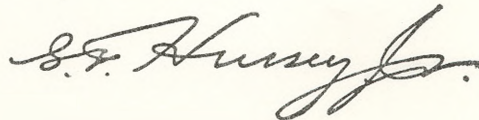
ORDNANCE PAMPHLET 898 (SECOND REVISION)
MINE IDENTIFICATION MANUAL

1. Ordnance Pamphlet 898 (Second Revision) describes and contains illustrations of almost all types of mines used by Allied and enemy forces during World War II.

2. It is intended that this publication be given wide distribution ashore and afloat for the purpose of identifying mines which may be encountered and of facilitating reports thereon.

3. This pamphlet supersedes Ordnance Pamphlet 898 (First Revision) which should be destroyed. The material contained in this pamphlet was assembled and edited by the U. S. Navy Mine Disposal School.

4. This publication is CONFIDENTIAL and shall be safeguarded in accordance with the security provisions of U. S. Navy Regulations, 1920, Article 76.



G. F. HUSSEY, JR.
Rear Admiral, U. S. Navy
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Chapter 1

INTRODUCTION

Scope and Purpose of Pamphlet

1. The naval mine plays a vitally important part in modern naval warfare, both in protecting our own waterways (defensive mining) and in obstructing those of the enemy (offensive mining). It is therefore most desirable that naval personnel be familiar with the various types of naval mines now in service in allied and enemy mine warfare. This pamphlet is intended to aid in the visual identification of all known naval mines, and to give basic information about each which will permit the observer to understand the nature of the weapon after identification has been accomplished. It is not intended as a guide for disassembly or disposal and no operations in these fields should be conducted by other than Navy Mine Disposal Units.

2. The remainder of this introductory chapter is devoted to setting forth certain fundamentals of mine operation and identification. Subsequent chapters treat, by nationalities, the various types of naval mines which are known to have been in service during World War II. Each mine treatment consists of a brief text, which gives the basic physical and operational characteristics of the mine, and suitable photographs and/or drawings designed to facilitate identification.

Operational Features of Mines

1. Many of the allied and enemy naval mines now in service are extremely intricate weapons. It is possible, however, for non-technical personnel to know the basic physical and operational characteristics of any mine assembly without undertaking an intensive course of study. A combination of the answers to the following questions will provide the information needed for an understanding of the essential features of any naval mine:

(a) How is it laid?

(b) What is its intended position in the water when in the fully armed condition?

(c) How is it fired? Is its firing device an independent unit or must it be controlled, either automatically or manually, from a distant control station?

Each of the many possible answers to the foregoing questions is discussed briefly below.

Methods of Laying

1. Almost all mines are laid by one of the following three methods:

(a) **By aircraft.** The mine may be dropped in the manner of a bomb. If the nature of the mine case or firing device is such that damage might result from unchecked impact with the surface of the water or with the bottom, a parachute is attached to slow the rate of descent.

(b) **By submarine.** The mine may be launched either from the torpedo tubes or from special minelaying shafts.

(c) **By surface craft.** Various types and sizes of craft are used for this purpose, including small trawlers, destroyers, and specially-constructed minelayers, some of which may be of cruiser tonnage. The mine is ordinarily dropped from the fantail off specially-built tracks, although standard hoisting tackle may be used in some cases.

Positions of Mines When Armed

1. Mines may be divided into four types, according to their final armed position in the water, as follows:

(a) **Moored mines.** These mines are buoyant but are held beneath the surface of the water by a chain or wire attached to a heavy weight or anchor which rests on the bottom.

(b) **Drifting mines.** These mines are buoyant, unanchored, and float on or just beneath the surface of the water.

(c) **Oscillating mines.** These mines are unanchored, and oscillate beneath the surface of the water around a preset depth.

(d) **Ground mines.** These mines are heavier than water and rest on the bottom.

Methods of Firing

1. Mines may be divided into three types, depending on the type of firing employed, as follows:

(a) **Contact mines.** These mines require that the target ship or other actuating object contact either the mine case proper, an extension thereon such as a horn, or an antenna or snag line attached thereto, in order to fire. Following is a brief description of each of the contact type firing devices now in use:

(1) **Chemical horn (Hertz horn)**—consists of a glass vial of acid solution contained in a cylindrical lead horn and mounted above a battery cup which contains a carbon and a zinc electrode. The electrodes are connected across an electric detonator. If the vial is broken or crushed, the acid runs down into the battery cup and forms a battery cell which provides sufficient current to fire the detonator. Snag lines secured to the horn may be used to enable the vial to be broken without the target contacting the horn proper.

(2) **Switch horn**—consists of a spike connected to one side of a battery-detonator circuit and mounted between contacts which are connected to the opposite side of the circuit. Different amounts of spring tension, varying from 10-80 lb., may be used to hold it off its contacts. If the spike is forced against the contacts, the circuit is completed and the battery fires the detonator. A variation of this device may be encountered whereby a rigid antenna of the curtain-rod type replaces the spike. Snag lines secured to the spike may be used to enable it to make the contacts without the target's contacting the horn proper.

(3) **Galvanic action.** This type of firing device operates on the principle of the sea battery. A positive electrode, usually a copper antenna or copper spike horn, is suspended from or attached to the mine case. If a dissimilar metal, such as the steel in the hull of a ship, contacts the antenna or horn, a small cur-

rent is set up which flows to the interior electrical system of the mine and completes a battery-detonator circuit.

(4) **Hydrostatic horn**—consists of a hollow horn connected by a watertight channel to a spring-loaded, hydrostatically-operated firing pin. If the horn is broken or crushed, water enters and passes through the channel to the hydrostat. If the mine is at a depth of water providing a pressure head sufficient to operate the hydrostat, the firing pin is released to strike and fire a detonator.

(5) **LeClanche-cell horn**—consists of a hollow horn mounted over a battery cup which contains a copper and a zinc electrode. The electrodes are covered by powdered ammonium nitrate and are connected across an electric detonator. If the horn is broken or crushed sufficiently to allow water to enter, the wet ammonium nitrate provides an electrolyte for the battery cell which provides sufficient current to fire the detonator.

(6) **Impact-inertia (pendulum)**—although many different versions of this type of device have been used, each is basically similar. A pendulum is suspended freely between a number of contacts or against a firing pin release lever. If the mine is tilted or jarred sufficiently to cause the pendulum to make any of the contacts or move the release lever, a battery-detonator circuit is completed or a spring-loaded firing pin is released to strike a detonator.

(7) **Bridle type (mechanical horn)**—consists of a semi-circular bridle attached to the top and bottom centers, respectively, of the mine case. The bridle is free to rotate and is connected mechanically to a spring-loaded firing pin and firing pin release. Bridle rotation operates the firing pin release, and allows the firing pin to strike and fire the detonator. A variation of this device may be encountered whereby individual spike horns are used instead of a bridle. Bending a horn operates the firing pin release in the same manner as bridle rotation.

(8) **Impact-direct action type**—consists of a firing pin which is restrained by a shear pin and is connected to a firing ring. Pressure upon the ring shears the shear pin and forces the firing pin onto the detonator.

(9) **Tension type**—consists of a spring-

loaded firing pin and a tension-operated firing pin release. If the proper amount of tension comes on the firing pin release, the firing pin strikes and fires the detonator.

(10) Each of the above types of contact firing devices is self-contained. It should be noted that more than one type of contact firing device may be incorporated into a single mine assembly. The only combinations encountered to date are chemical horn-switch horn, chemical horn-galvanic (antenna), and switch horn-galvanic (antenna).

(b) **Influence mines.** These mines differ from the contact type in that the target ship need not contact the mine proper or any attachment thereof in order to operate the firing device. The firing device operates, rather, when subjected to an influence caused by the mere fact that the target is present near or moving past the mine. Following is a brief description of each of the influence-type firing devices of this classification or below which are now in use:

(1) **Magnetic dip-needle**—consists essentially of a pivoted compass-type needle which is held off a pair of contacts by a light spiral torque spring. The contacts are in a battery-detonator circuit. If a mass of magnetic metal, such as a ship, passes near the needle, and if the magnetic field incident upon the needle is of sufficient strength, the tension of the torque spring is overcome and the needle is forced onto the contacts, completing the circuit and allowing the battery to fire the detonator.

(2) **Magnetic induction**—consists essentially of a coil of wire wound around a core of magnetically-permeable metal. The coil is connected to an associated electrical circuit which in turn controls a switch in a battery-detonator circuit. If a moving magnetic field, such as that of a ship underway, is brought to bear on the coil, a small current is induced in the coil. This current energizes the associated circuit which in turn closes the switch in the battery-detonator circuit, allowing the battery to fire the detonator.

(3) **Acoustic**—consists essentially of a sonic pick-up unit which controls an associated electrical circuit which in turn controls a switch in a battery-detonator circuit. If sound of the proper frequency, intensity, and duration is

incident upon the pick-up, a small direct current is set up which passes through a transformer and energizes the associated electrical circuit. This closes the switch in the battery-detonator circuit and allows the battery to fire the detonator.

(4) **Magnetic-acoustic**—consists essentially of a magnetic dip-needle or induction device of the type described above combined with an acoustic firing device.

(5) **Pressure**—consists essentially of a number of small air volumes in one of which a diaphragm-controlled switch is mounted. The volumes are so arranged that the negative pressure differential created beneath a moving ship will compress the diaphragm and operate the switch. This device may be used alone or combined with other influence firing devices.

(c) **Controlled Mines.** These mines differ from the types discussed above mainly in that their firing devices are not independent but must be controlled electrically from a distant point, usually a control station ashore. Mines of this type may be fired by one or more of the following methods:

(1) An observer at the control post detects the presence of a target visually or by instruments and puts the source of power across the detonator, firing the mine.

(2) The presence of the target is detected by a monitoring device in the mine case. The monitoring device signals the control post and the observer fires the mine as above.

(3) The presence of the target is detected by a monitoring device in the mine case. The monitoring device signals the control post where an elaborate automatic selector system fires the mine from which the signal was originally transmitted.

(4) Some controlled mines may be fitted with standard influence firing mechanisms which may be switched on if automatic operation is desired.

Identification Features

1. The following should be carefully noted when attempting identification of a particular mine:

(a) **Color.** Almost all mines are painted black over a protective coating of red lead.

Other colors may be used, however, as may elaborate camouflage designs. It should be noted that mines which have been immersed over long periods of time, especially in tropical waters, may be completely covered by various types of marine growth.

(b) **Size and Shape.** Approximately 90% of all the mines currently in service conform to one of the following size and shape patterns:

(1) **Two hemispheres welded together to form a sphere.** Mines of this type may vary in diameter from 16 to 46 inches, and are usually moored contact mines laid by surface craft.

(2) **Two hemispheres welded to and joined by a cylindrical midsection.** Mines of this type may vary in diameter from 26 to 46 inches, in length from 44 to 56 inches, and are usually moored contact mines laid by surface craft.

(3) **Cylindrical.** Mines of this type may vary in diameter from 14 to 26 inches, in length from 44 to 126 inches, and are usually ground influence mines laid either by aircraft or by submarine.

(c) **External Fittings.** Numerous fittings situated on or protruding from mine cases may be effectively employed in mine identification. The following are most often encountered:

(1) **Horns.** Almost all contact mines are fitted with varying numbers of horns which extend from the case. The three most common

types include the lead type used with chemical horn firing devices, the steel spike type used with switch horn firing devices, and the short copper spike type used with the galvanic firing devices. Where used, the horns may vary in length from $\frac{1}{2}$ inch to slightly over 1 foot, but are ordinarily about 5 inches long. As many as 11 horns may be fitted to a single mine. It should be noted that horns of mines which have broken adrift may be bent or entirely broken off.

(2) **Cover plates.** Either one or both ends of a mine case may be closed by a round plate bolted to the case. These plates ordinarily vary from one to two feet in diameter.

(3) **Arming and Firing Mechanisms.** On many mines, parts of the arming or firing mechanisms may protrude from the case or be conspicuously placed thereon. These are most important for identification purposes with influence mines, which are not fitted with horns.

(4) **Miscellaneous fittings** such as eyes, hooks, or lugs.

2. Small floats, generally spherical in shape, are used to buoy antennae above mine cases. The floats are about 12 inches in diameter and may vary in length from $1\frac{1}{2}$ to 2 feet. They are usually painted black and may be fitted with small horns. The floats frequently break loose and are found by themselves, in which case they are harmless.

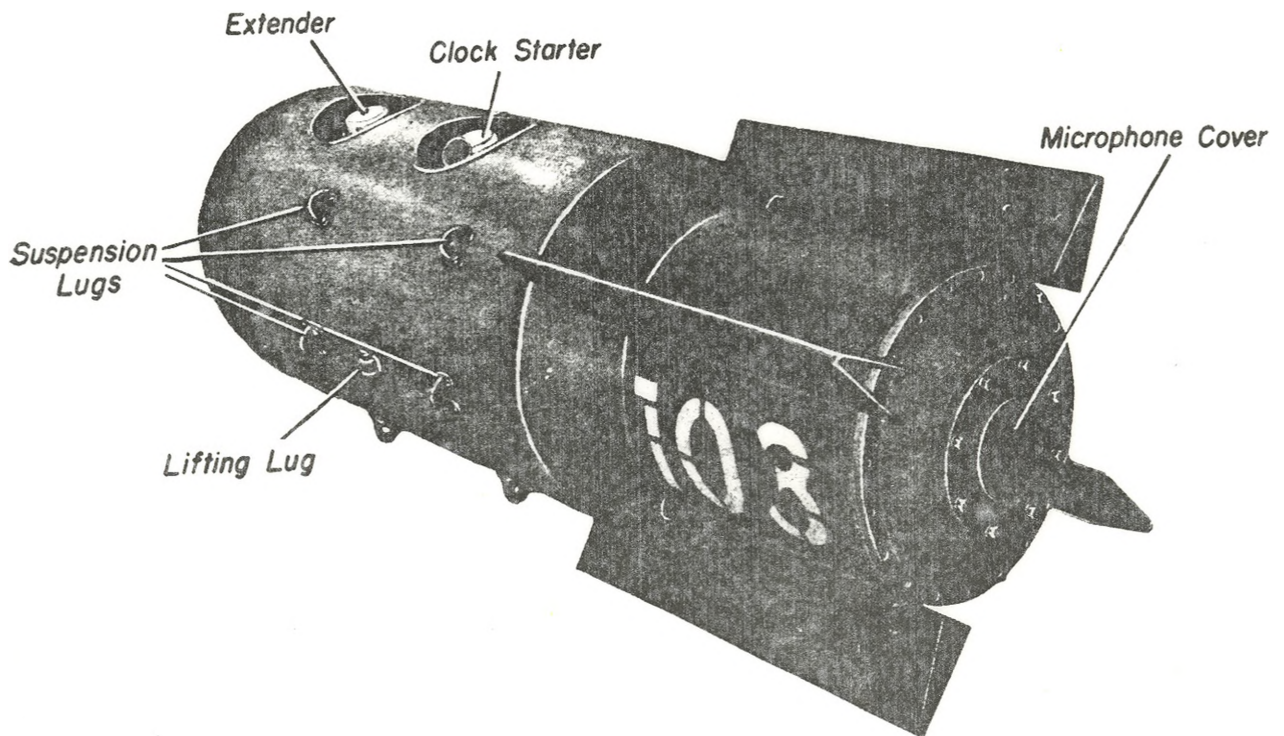
Chapter 2

U.S. MINES

Mk 6-0 (6-2, 6-3, 6-4)	6
Mk 7-0	7
Mk 10-1	8
Mk 10-3 (10-6, 10-7, 10-8, 10-9)	9
Mk 16-1	10
Mk 16-2	11
Mk 19-0 (19-1, 19-2)	12
Mk 23-0	13
Mk 12-0 (12-1, 12-3, 12-4)	14
Mk 13-0 (13-3, 13-4)	15
Mk 13-5 (13-6)	16
Mk 18-0	17
Mk 25-0 (25-1, 25-2)	18
Mk 26-1	19
Mk 36-0 (36-1)	20
Army Controlled Mine M4	21

U.S. Designation**Mark 13 Mods 5 and 6**

1. Ground, influence, acoustic mine, laid by aircraft (parachute used with Mk 13-6).
2. Same as Mark 13 Mod 0.
3. Offensive mine for use in maximum depth of 17 fathoms against surface craft.
4. Identification Features: Same as Mark 13-0 except for microphone cover, marked "BRUSH," fitted to center of tail.

**Figure 22—Mine Mk 13-5**

Chapter 3

JAPANESE MINES

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Type 92 (92 Model 1) (JK)	32
Type 94 Model 2 (94 Model 2 Mod 1) (JF)	33
Small Model Mine Model 1 (JE)	34
Small Model Mine Model 2 (JG)	35

Japanese Designation

U.S. Designation

Type 88 Mod 1

JA

1. Moored, contact, chemical horn mine, laid by submarine.
2. Shape Two hemispheres joined by cylindrical mid-section.
Color Black
Diameter 33"9
Length 45"8
Charge 396 lb. Shimose.
3. Offensive mine for use in maximum depth of 25 fathoms. Maximum case depth is 11 fathoms.
4. Identification Features: Shape of case; four lead chemical horns on upper hemisphere; distinctive mooring bail-hydrostat assembly.

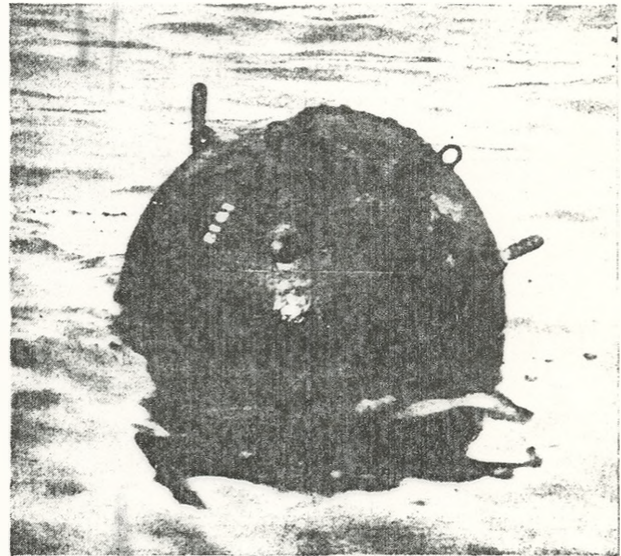


Figure 31—Mine Type 88 Mod 1, adrift

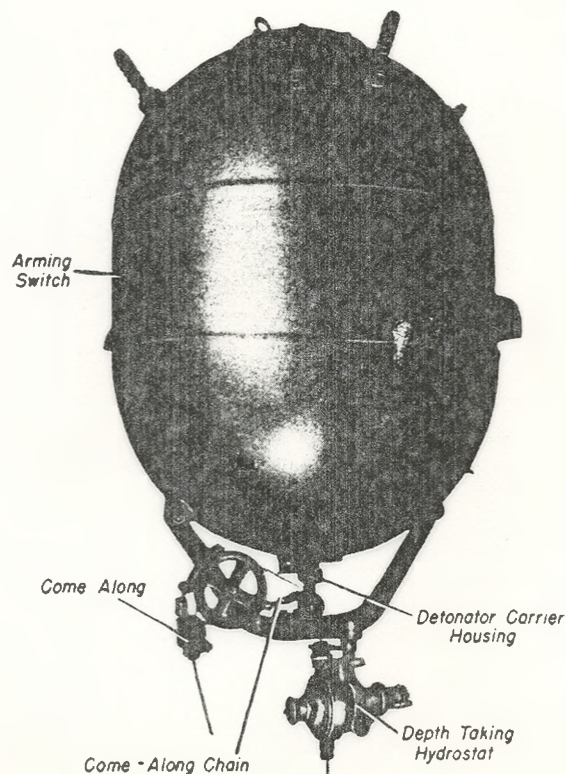


Figure 32—Mine Type 88 Mod 1

Japanese Designation**U.S. Designation****JB****Type 93 Model 1**

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 34"
Charge 221 lb. Type 88 explosive
3. Defensive mine for use in maximum depth of 547 fathoms against surface craft. Maximum case depth is 41 fathoms.
4. Identification Features: Four chemical horns on upper hemisphere; cover plate in center of upper hemisphere; two lifting lugs on upper hemisphere.

Type 93 Model 3 Mod 1

- 1.
2. Same as Type 93 Model 1.
- 3.
4. Identification Features: One horn in center of upper hemisphere; five horns on upper hemisphere; two or three horns on lower hemisphere; two lifting lugs on upper hemisphere.

Type 93 Model 4

1. Same as Type 93 Model 1.
2. Same as Type 93 Model 1 except its charge is of Temporary Type 1 explosive.
3. Same as Type 93 Model 1.
4. Same as Type 93 Model 3 Mod 1 except that it is always fitted with three horns on its lower hemisphere.

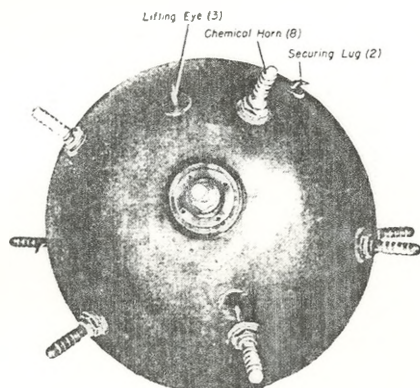


Figure 33—Mine Type 93 Model 3 Mod 1, top view

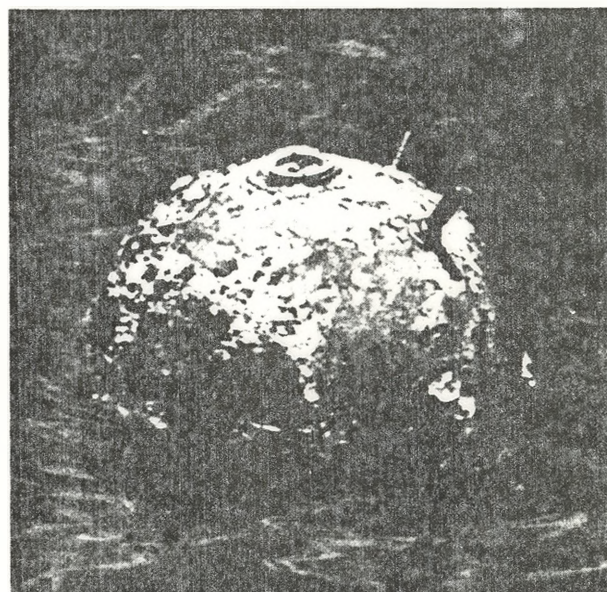


Figure 34—Mine Type 93 Model 1, adrift

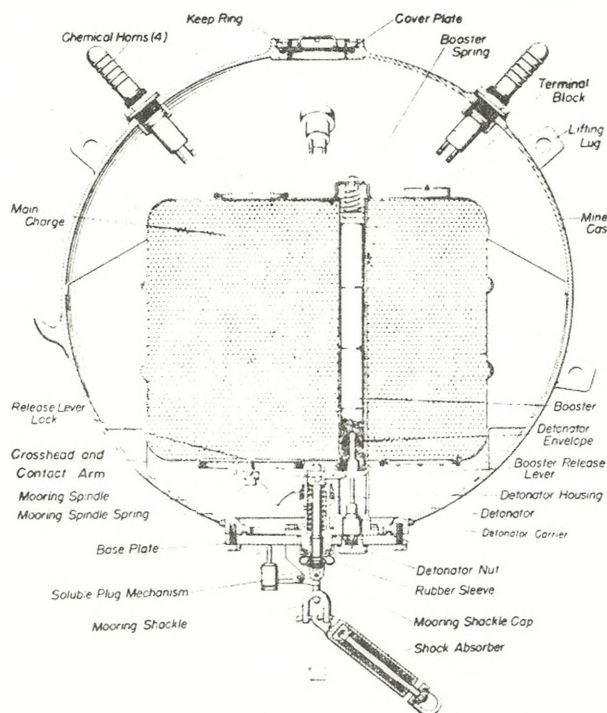


Figure 35—Mine Type 93 Model 1, sectional view

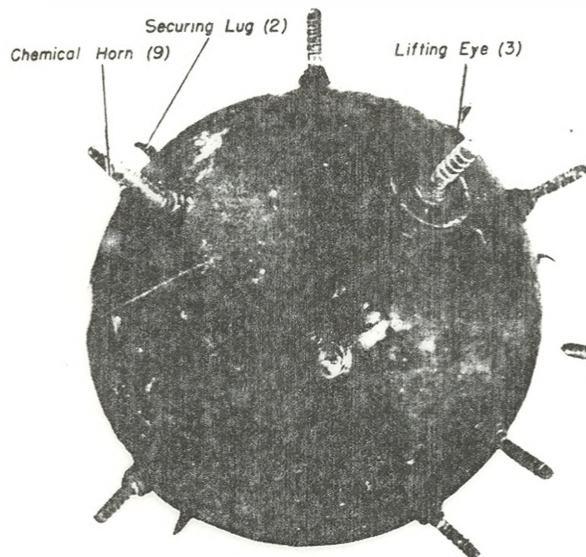


Figure 36—Mine Type 93 Model 4, top view

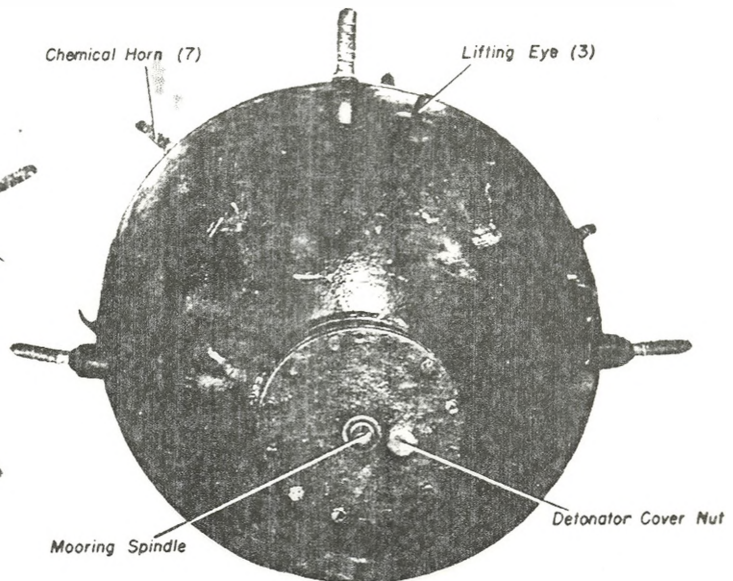


Figure 37—Mine Type 93 Model 4, bottom view

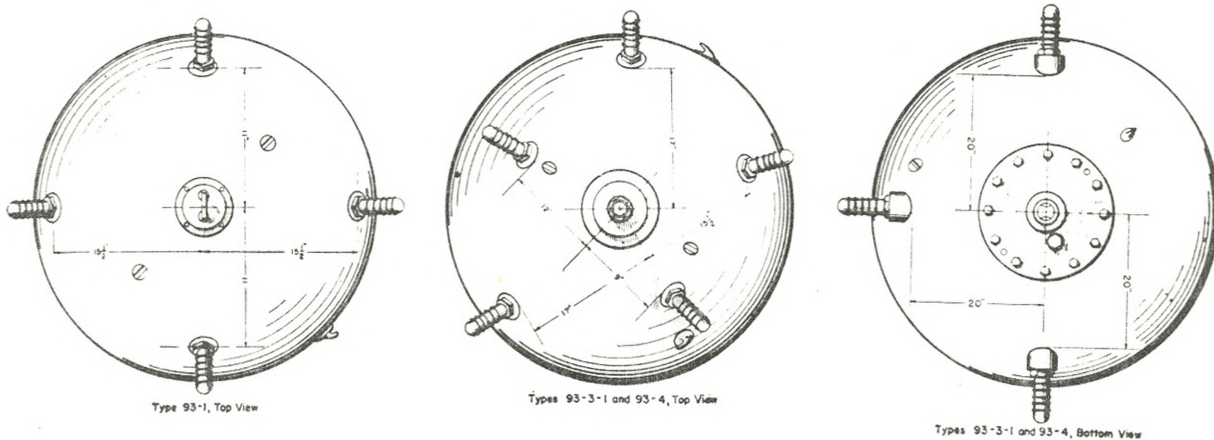
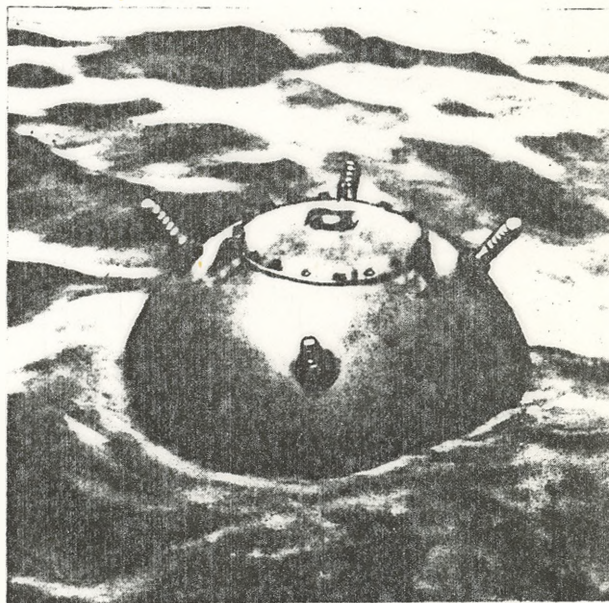
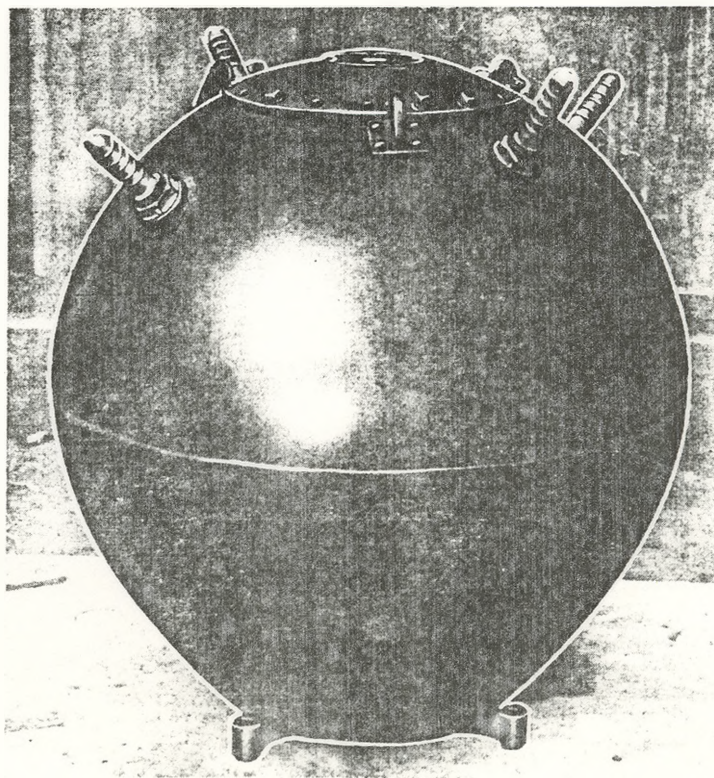


Figure 38—Horn arrangements on various models of Type 93 mine

*Japanese Designation**U.S. Designation***Mark 5 Mod 1****JC**

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 32"7
Charge 182 lb. Shimose (Picric)
3. Defensive mine for use in maximum depth of 87 fathoms against surface craft or submarines. Maximum case depth is 27 fathoms.
4. Identification Features: Four chemical horns on upper hemisphere; four equally spaced support legs on lower hemisphere: rubber sleeve fitted between mooring chain and recessed base plate.

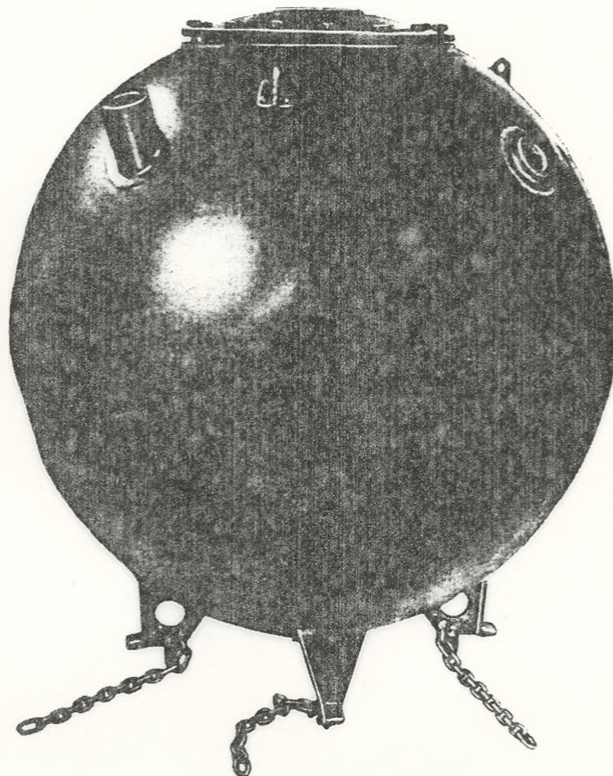
**Figure 39—Mine Mk 5 Mod 1, adrift****Figure 40—Mine Mk 5 Mod 1**

*Japanese Designation**U.S. Designation*

JH

Mark 6 Model 1

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 41"4
Charge 478 lb. Shimose (Picric)
3. Tactical use and expected laying depths not known.
4. Identification Features: Four chemical horns on upper hemisphere, two mounted on bosses; five-legged chain mooring bridle; four support legs on lower hemisphere.

**Figure 41—Mine Mk 6 Model 1, adrift****Figure 42—Mine Mk 6 Model 1**

Japanese Designation

U.S. Designation

JL

Mark 6 Model 2

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 41"1
Charge 440 lb. Shimose (Picric)
3. Defensive mine. Expected laying depths and intended targets not known, but believed same as Mk 5 Mod 1.
4. Identification Features: Four chemical horns on upper hemisphere; large dome-shaped cover plate; base plate arrangement similar to Mk 5 Mod 1 except plate is not recessed.

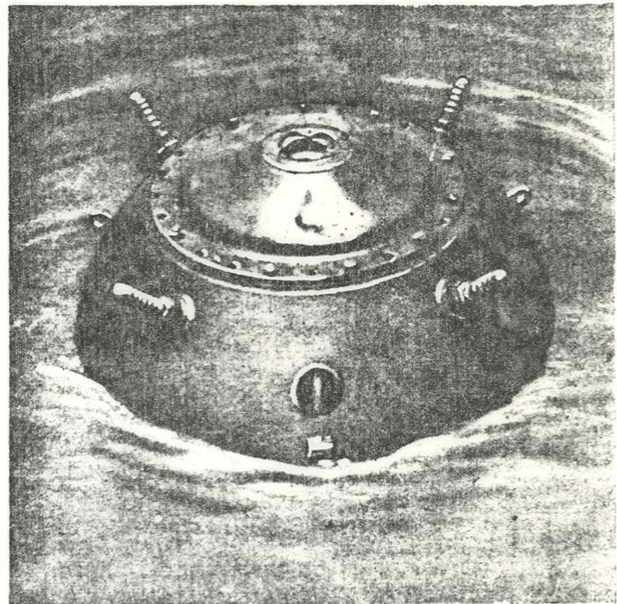


Figure 43—Mine Mk 6 Model 2, adrift

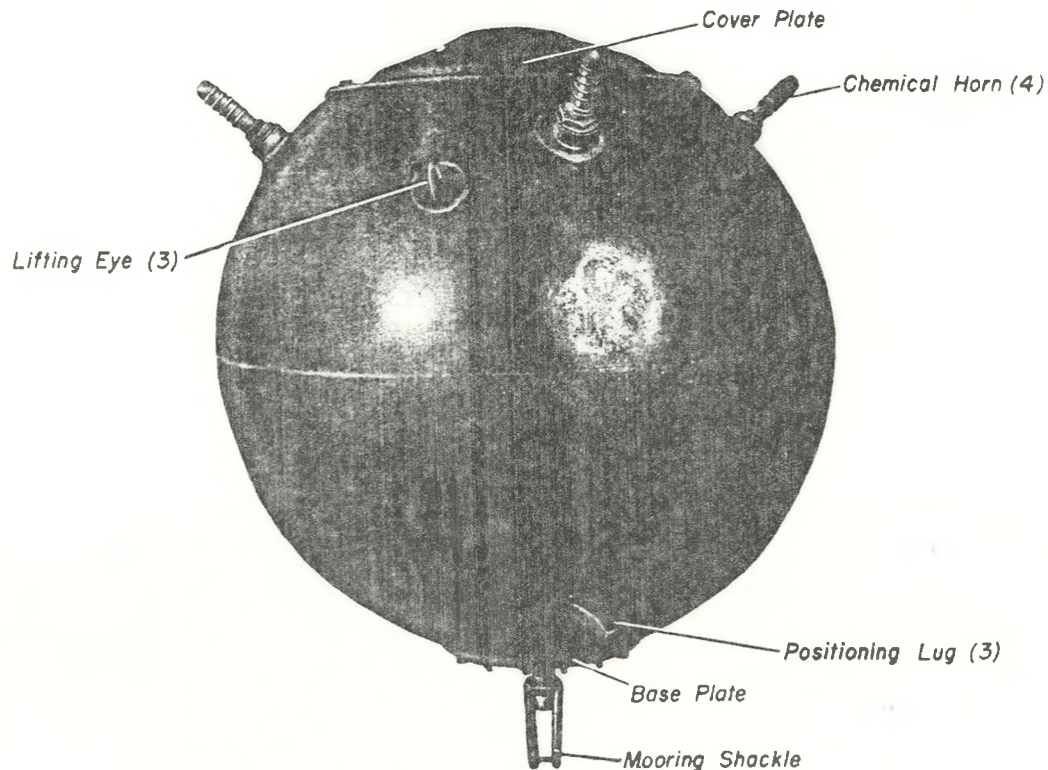
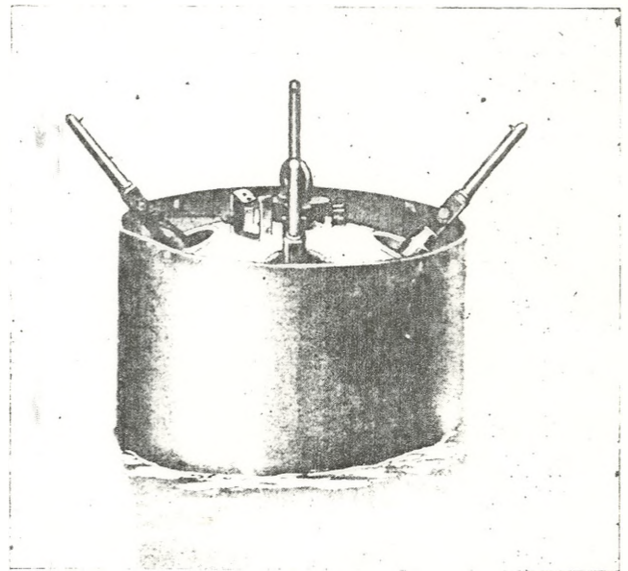


Figure 44—Mine Mk 6 Model 2

*Japanese Designation**U.S. Designation***Type 3 Mark 1 Aircraft Mine
Model 1****JJ**

1. Moored, contact, chemical horn mine, laid by surface craft or by aircraft with parachute.
2. Shape Cylindrical with convex ends
Color Black
Diameter 23"5
Length 52"5 (73" with parachute housing)
Charge 240 lb. Type 98 explosive
3. Offensive or defensive mine. Expected laying depths and intended targets not known.
4. Identification Features: Four chemical horns in upper convex end, with extensions as in U.S. Mine Mk 10 Mod 1; depth-taking hydrostat and mooring lever assembly on base plate.



**Figure 45—Type 3 Mk 1 Aircraft Mine Model 1,
adrift**

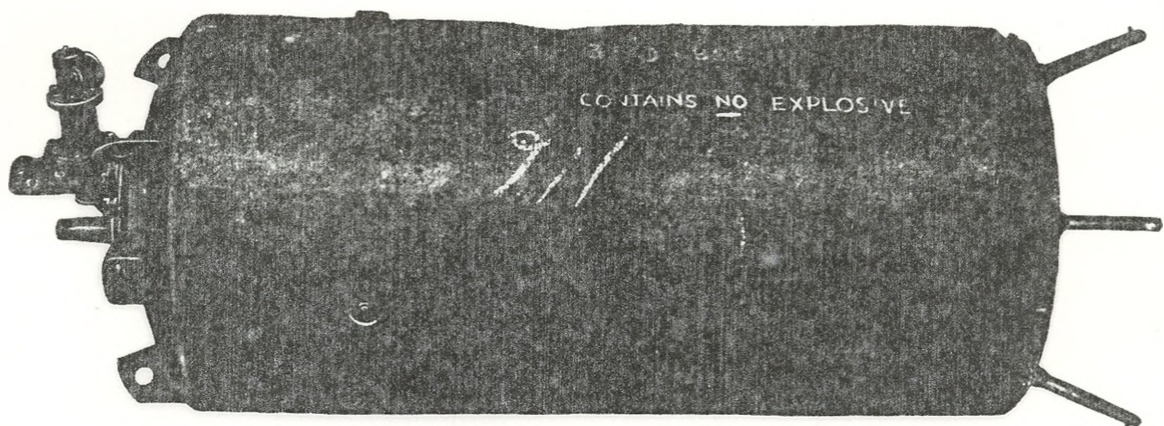


Figure 46—Type 3 Mk 1 Aircraft Mine Model 1

Japanese Designation

U.S. Designation

Type 3 Mark 2 Aircraft Mine

Model 1

1. Drifting, contact, switch horn mine. Laid by aircraft.
2. Shape

Forward Section	Cylindrical with rounded ends.
Tail Section	Conical section fitted with four radial fins and welded to cylindrical belt.
Color	Black over red lead
Length	
Overall	72'5
Forward	49"
Tail	23'5
Charge	123 lb. Type 98 explosive
3. Offensive mine for use in restricted waters against surface craft. Laying depths not known, but minimum depth of 20 feet required to arm mine. Depth of floating case is 6 feet.
4. Identification Features: Three switch horns in after end of forward section; cover plate on nose; arming switch, booster release mechanism and suspension lug on top center line. Mine floats suspended from tail section. When mine is floating unarmed, visible portion resembles tail of bomb; when armed, resembles oil drum.

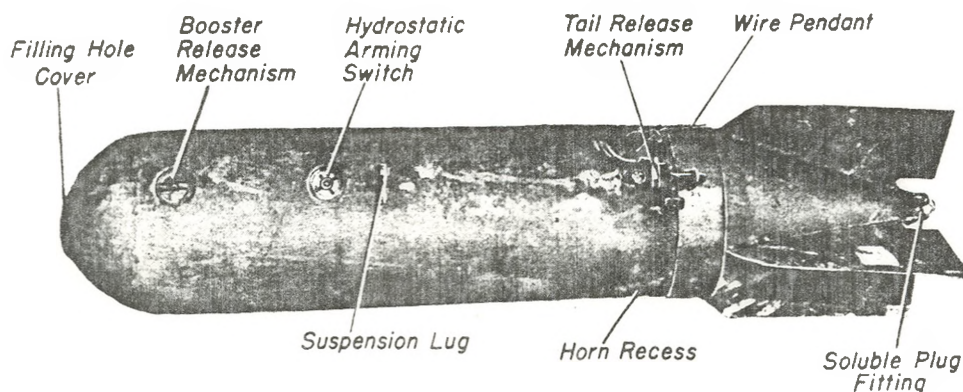


Figure 48—Type 3 Mk 2 Aircraft Mine Model 1



Figure 47—Type 3 Mk 2 Aircraft Mine Model 1, adrift

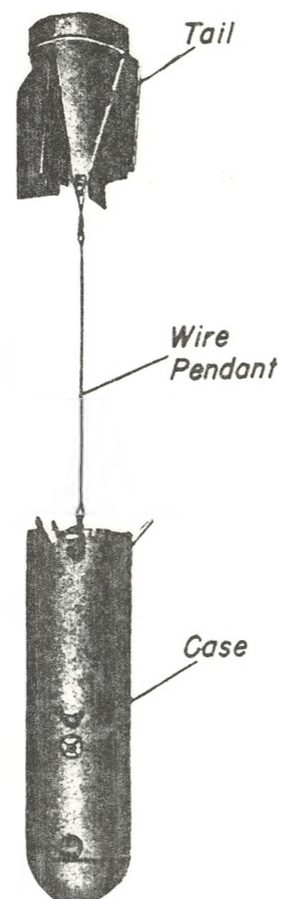


Figure 49—Type 3 Mk 2 Aircraft Mine Model 1, armed position

Japanese Designation

(unknown)

1. Moored, contact, impact-inertia firing mine, laid by surface craft.
2. Shape Pear-shaped; upper section is truncated sphere whereas lower section is truncated cone.
Color Black over red lead
Diameter 32"5
Charge 110 lb. Shimose (Picric)
3. Believed to be a defensive mine. Expected laying depths and intended targets not known.
4. Identification Features: Unusual shape; no horns; three-legged chain mooring bridle on base.

NOTE: Mine floats in inverted position due to its high center of gravity.

U.S. Designation

JM

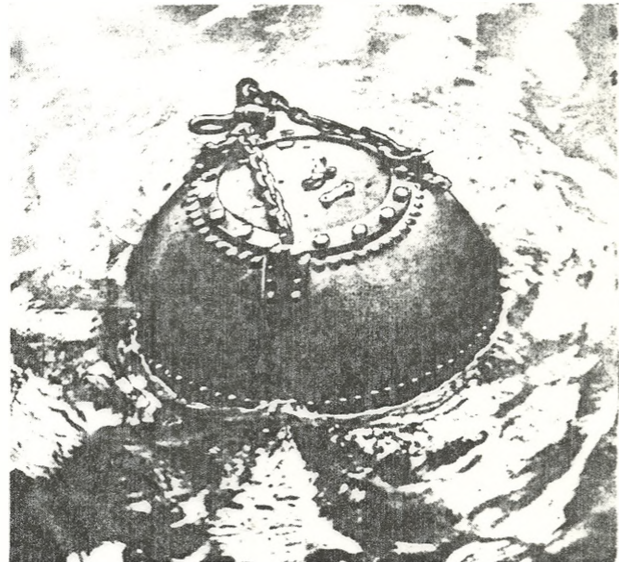


Figure 50—Mine Type JM, adrift

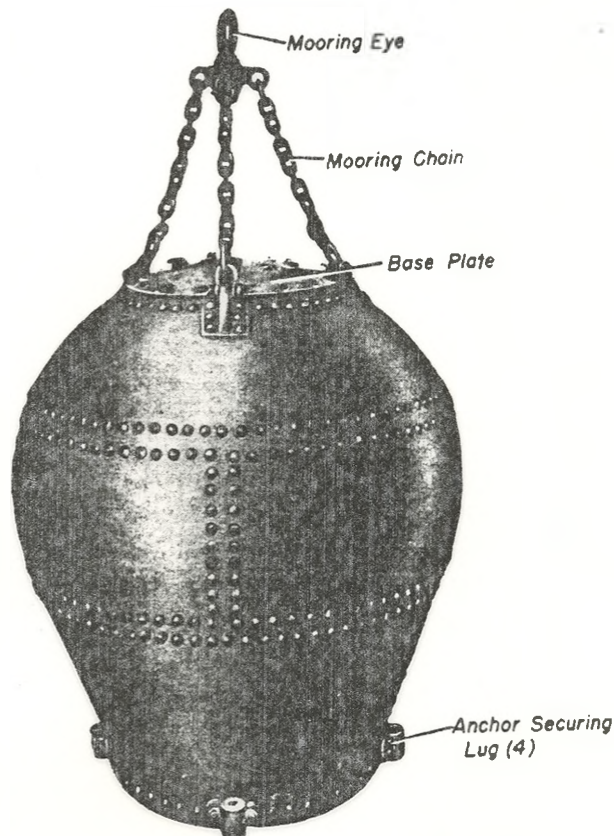


Figure 51—Mine Type JM, in inverted position

Japanese Designation

U.S. Designation

Type 92

JK

1. Moored, acoustically and or visually monitored, manually fired controlled mine, laid by surface craft.
2. Shape Two hemispheres joined by a cylindrical mid-section.
Color Black
Diameter 41.5
Length 55"
Charge 1100 lb. Type 88 explosive
3. Defensive mine for use in maximum depth of 66 fathoms against surface craft or submarine. Maximum case depth is 33 fathoms.
4. Identification Features: No horns; cover plates on top center and on side of upper hemisphere; rubber-covered mooring-firing cable.

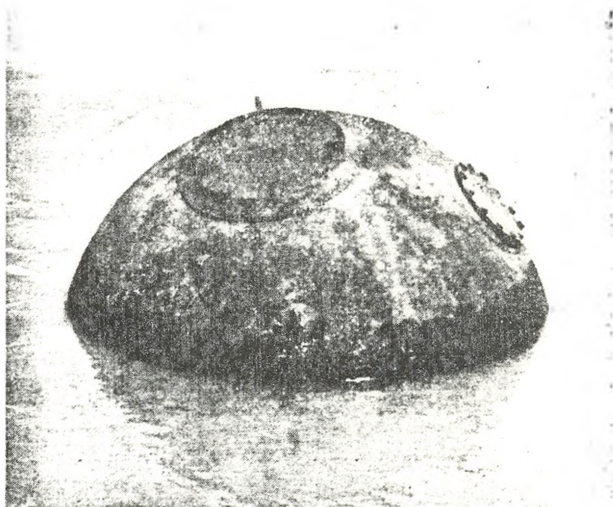


Figure 52—Mine Type 92 Model 1, adrift

Type 92 Model 1

1. Moored, magnetically monitored, automatically or manually fired controlled mine, laid by surface craft.
2. Same as Type 92.
3. Same as Type 92.
4. Same as Type 92.

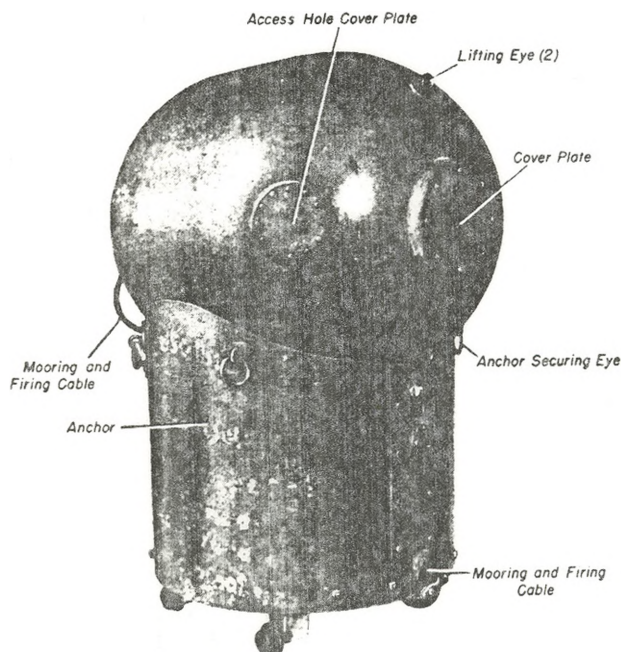


Figure 53—Mine Type 92 Model 1, on anchor

*Japanese Designation**U.S. Designation***JE****Small Model Mine Model 1**

1. Ground, contact, chemical horn mine, laid manually.
2. Shape Hemispherical
Color Black
Diameter 20"5
Height 10"5
Charge 44 lb. cast Type 98 explosive.
3. Defensive anti-boat mine for use in shallow water approaches or on beaches above the high-water mark. May be used as a land mine.
4. Identification Features: Two horns and two carrying handles on hemisphere; arming switch in top center.

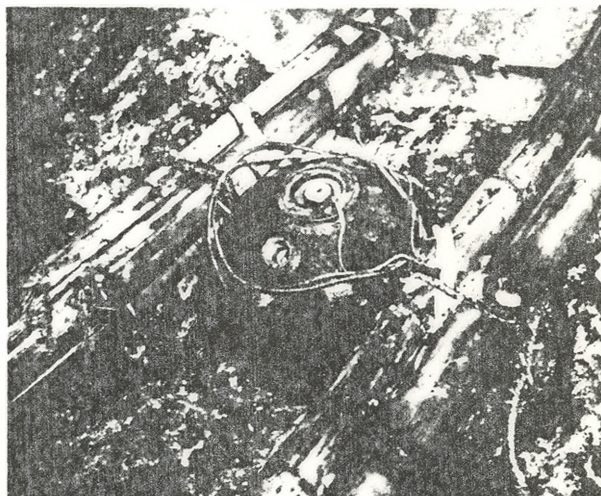


Figure 56—Small Model Mine Model 1, lashed to raft for use as tactical drifting mine

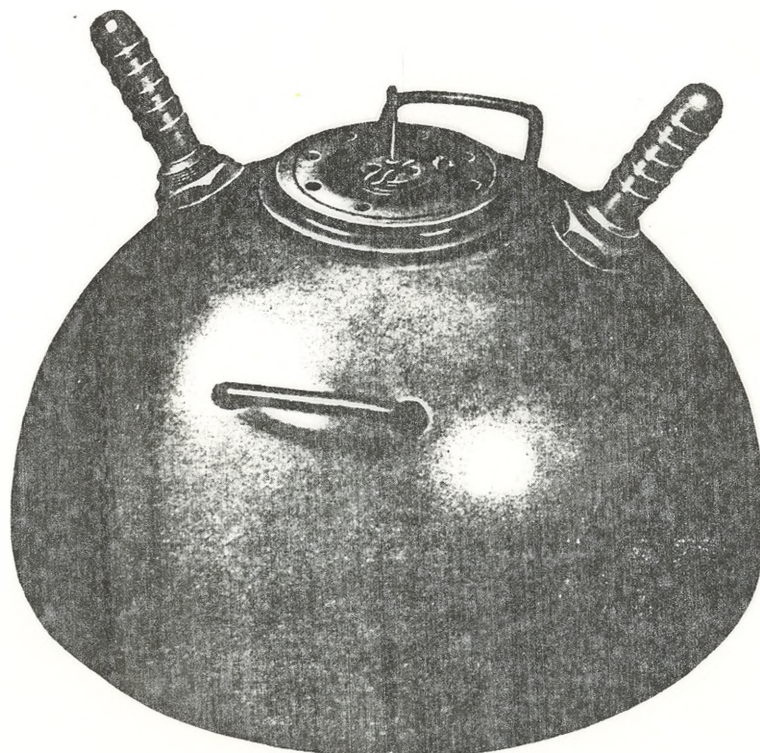


Figure 57—Small Model Mine Model 1

Japanese Designation

U.S. Designation

Small Model Mine Model 2

JG

1. Ground, contact, chemical horn mine, laid manually.
2. Shape Truncated cone
Color Black
Diameter
 Base 14'3 — 14'5
 Top 7"
Height
 Case 10'25 — 10'35
 With horns 14'6 — 14'7
Charge 22 lb. cast Type 98 explosive.
3. Defensive anti-boat mine for use in shallow water approaches or on beaches above the high water mark. May be used as a land mine.
4. Identification Features: Single horn on cover plate, slightly off center; two carrying handles on side of case.

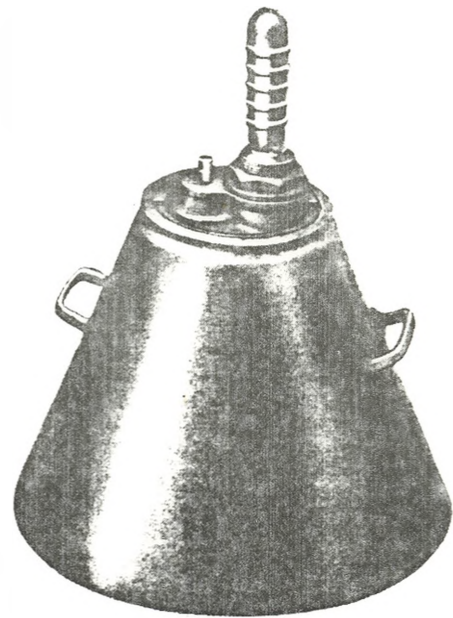


Figure 58—Small Model Mine Model 2

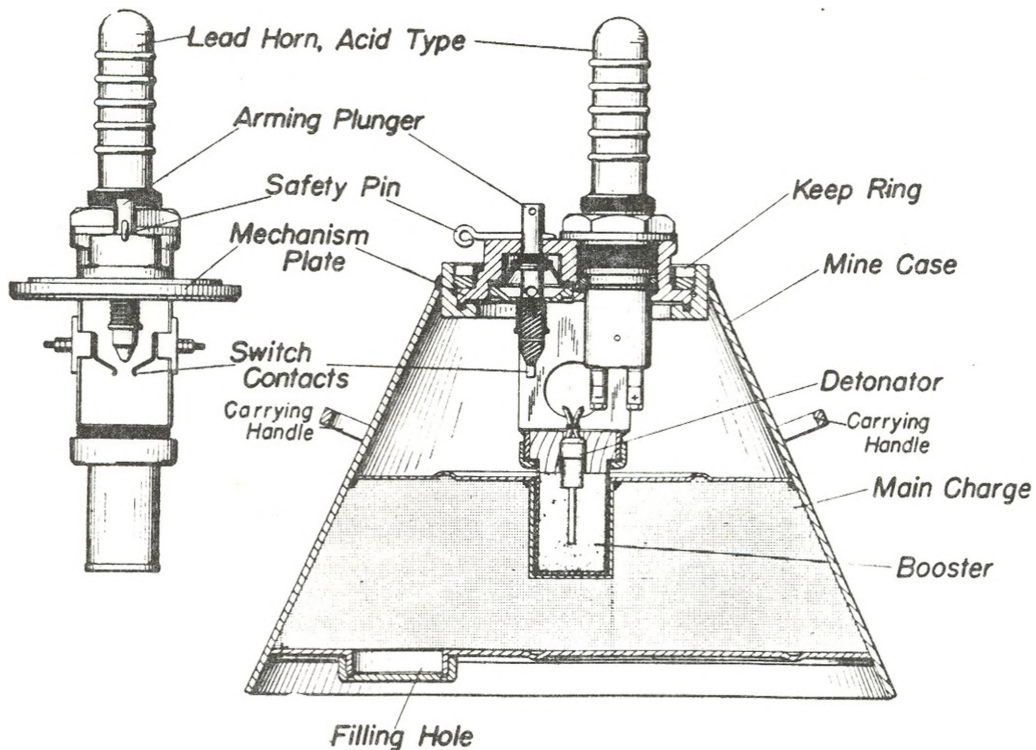


Figure 59—Small Model Mine Model 2, sectional view

Chapter 4

BRITISH MINES

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*British and U.S. Designation***H II Mark II**

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black or brown-green camouflage.
Diameter 38"
Charge 320 lb. TNT or Amatol.
3. Identification Features: Seven horns, one on cover plate in center of upper hemisphere, four equally spaced around upper hemisphere, two on lower hemisphere on brackets.

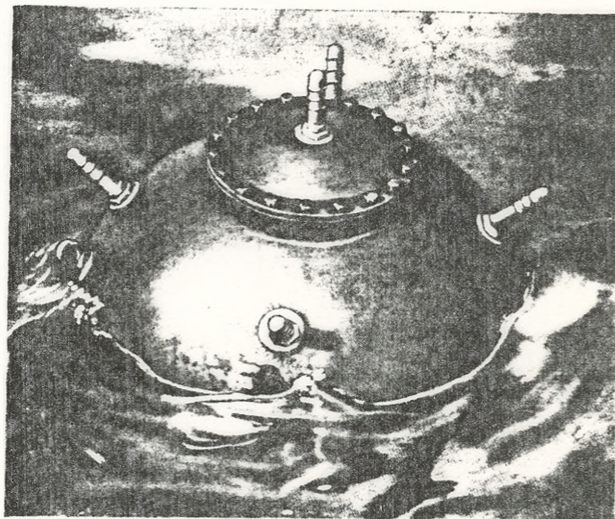


Figure 60—Mine H II Mk II, adrift

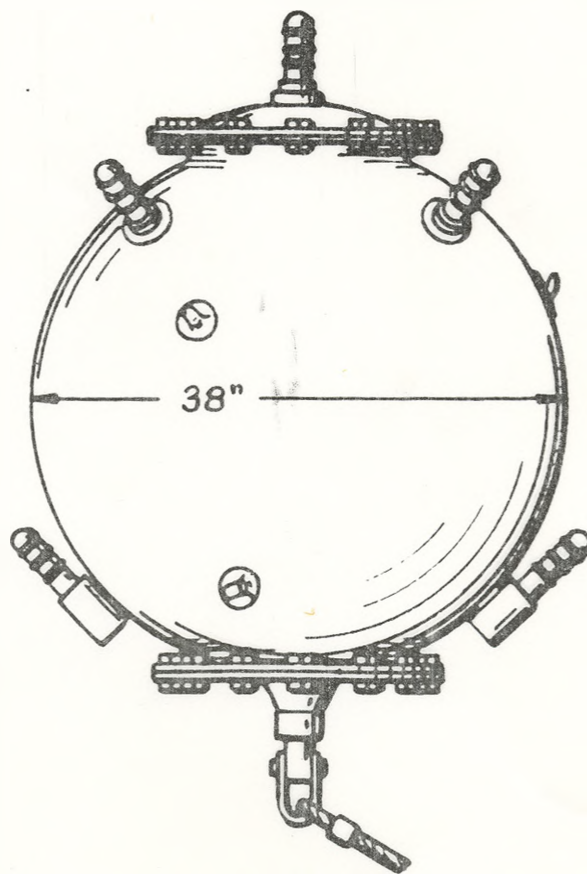
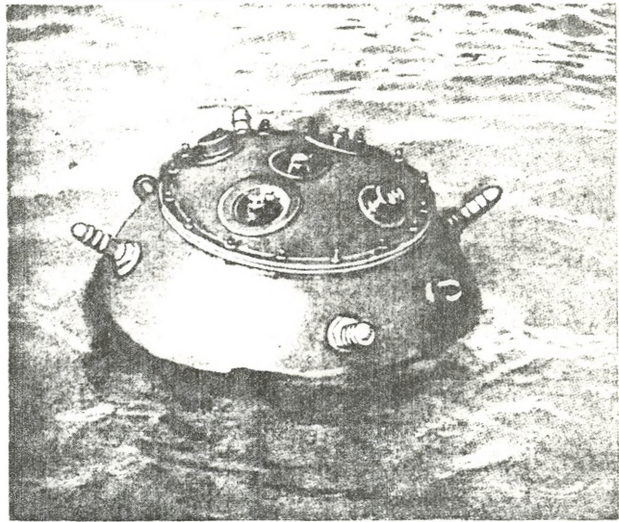
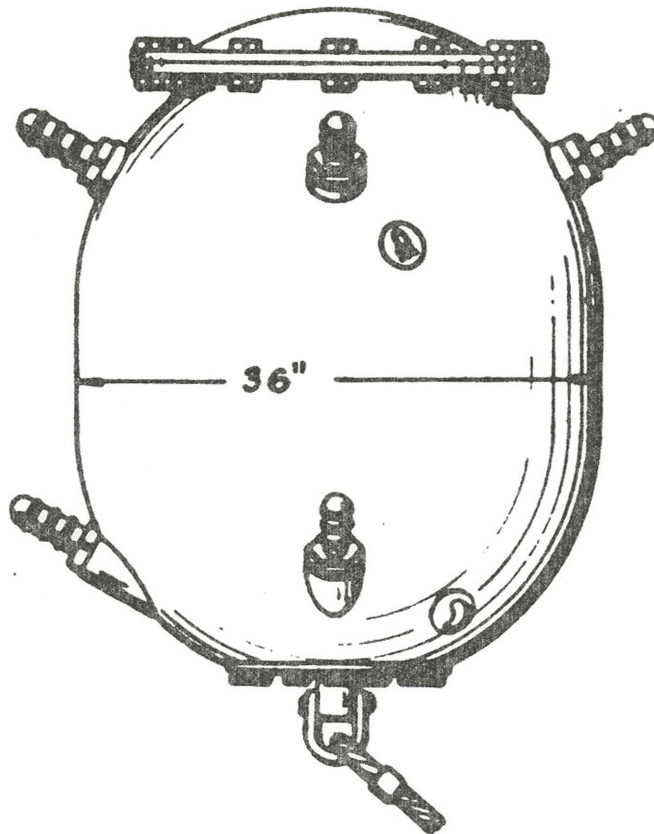


Figure 61—Mine H II Mk II, elevation view

British and U.S. Designation**"T" Mark III**

1. Moored, contact, chemical horn mine, laid by surface craft or submarine.
2. Shape Two hemispheres joined by a cylindrical mid-section.
 Color Black
 Diameter 36"5
 Length 47"
 Charge 440 lb. TNT
3. Identification Features: Six horns, four equally spaced around upper hemisphere, two on lower hemisphere on brackets; large cover plate with bung in center.

**Figure 62—Mine "T" Mk III, adrift****Figure 63—Mine "T" Mk III, elevation view**

*British and U.S. Designation***Vickers Antenna Mine**

1. Moored, contact, chemical horn mine, laid by surface craft or submarine. May be fitted with upper and/or lower antenna.
2. Shape Spherical
Color Black
Diameter 41"
Charge 320 lb. or 500 lb. TNT or Amatol.
3. Identification Features: Six horns, four equally spaced around upper hemisphere, two on lower hemisphere; electrode ring bolted to periphery of base plate; upper and/or lower antenna attachments; float release on upper hemisphere.

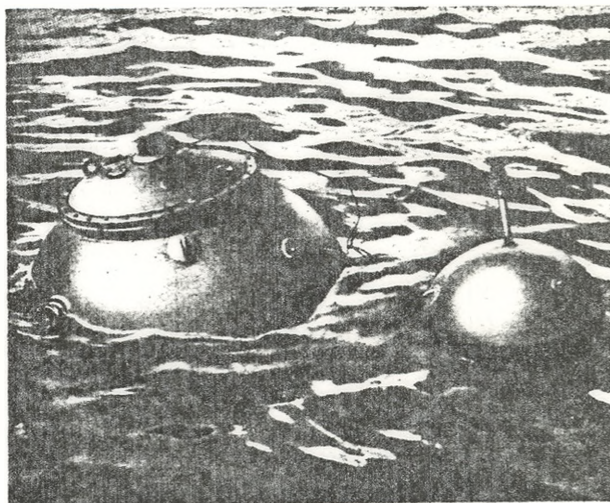
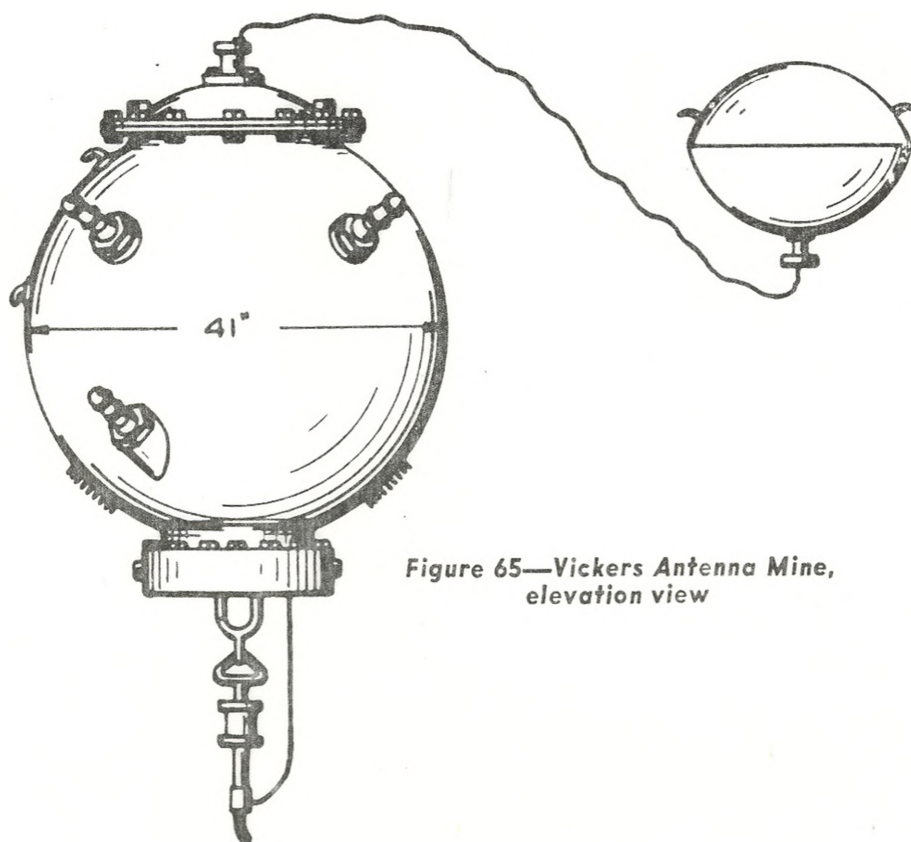


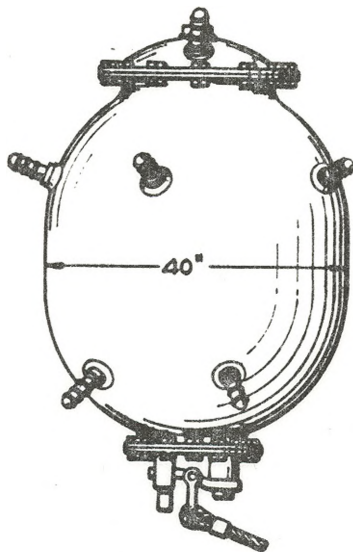
Figure 64—Vickers Antenna Mine, adrift



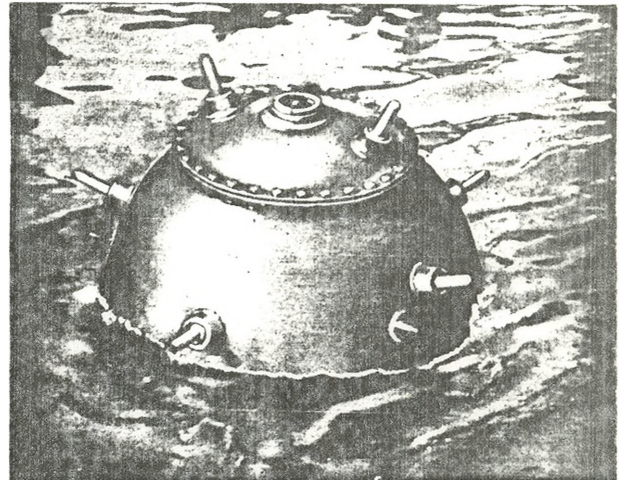
**Figure 65—Vickers Antenna Mine,
elevation view**

*British and U.S. Designation***Mark XIV**

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Two hemispheres joined by a cylindrical mid-section.
Color Black
Diameter 40"
Length 52"
Charge 320 lb. or 500 lb. TNT or Amatol.
3. Identification Features: Eleven horns, two on cover plate, five equally spaced around upper hemisphere, four on lower hemisphere; large cover plate fitted with bung.

**Figure 67—Mine Mk XIV, elevation view****Mark XV**

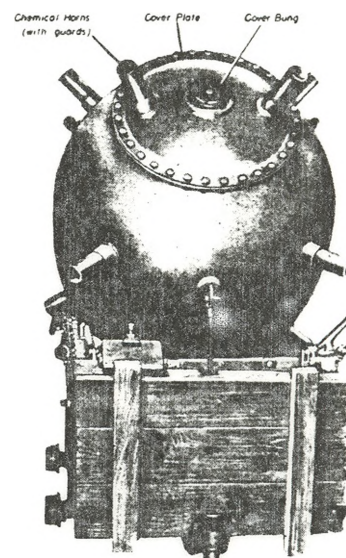
1. Moored, contact, switch horn mine, laid by surface craft.
2. Same as Mark XIV except that it is 57" long.
3. Same as Mark XIV.

**Figure 66—Mine Mk XIV, adrift****Mark XVI**

1. Moored, contact, chemical horn mine, laid by surface craft or submarine.
2. Same as Mark XIV except that it is 48" long.
3. Identification Features: Nine horns, two on cover plate in center of upper hemisphere, four equally spaced around upper hemisphere, two on lower hemisphere; large cover plate fitted with bung.

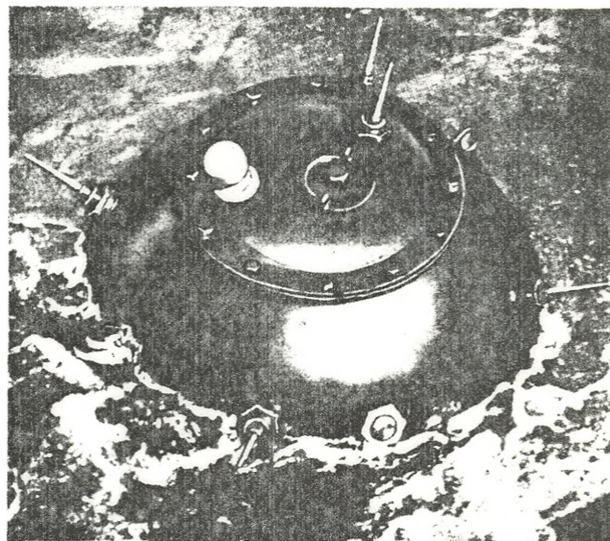
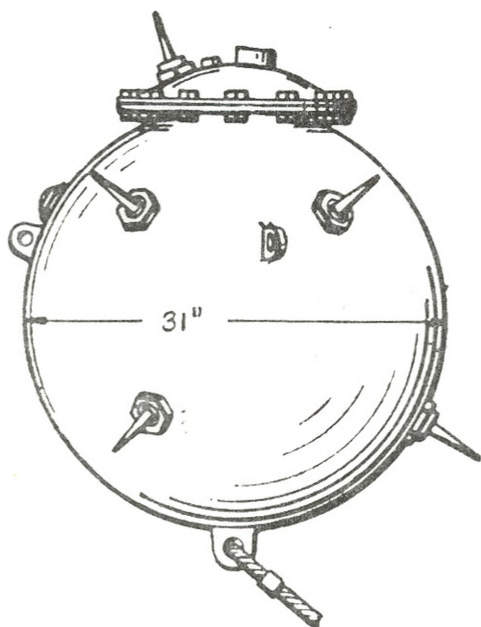
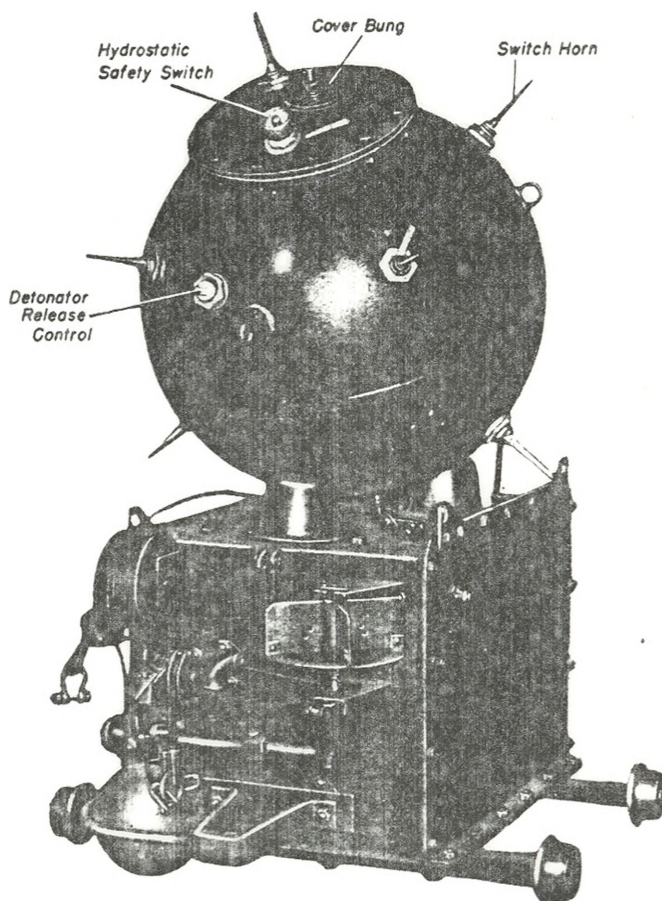
Mark XVII

1. Same as Mark XV.
2. } Same as Mark XIV.
3. }

**Figure 68—Mine Mk XIV, on anchor**

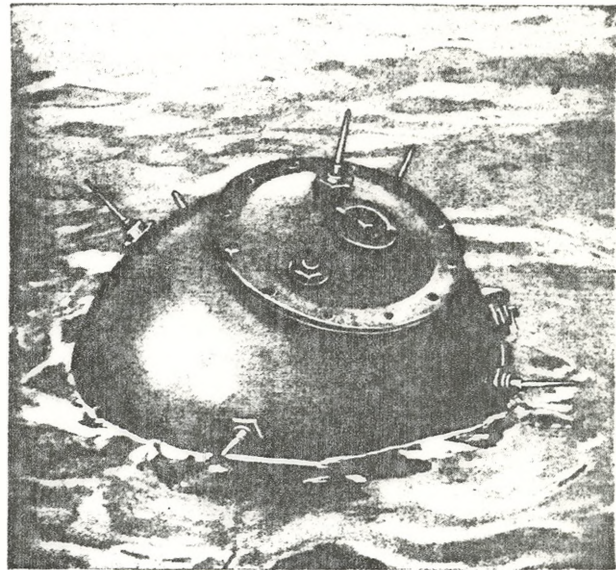
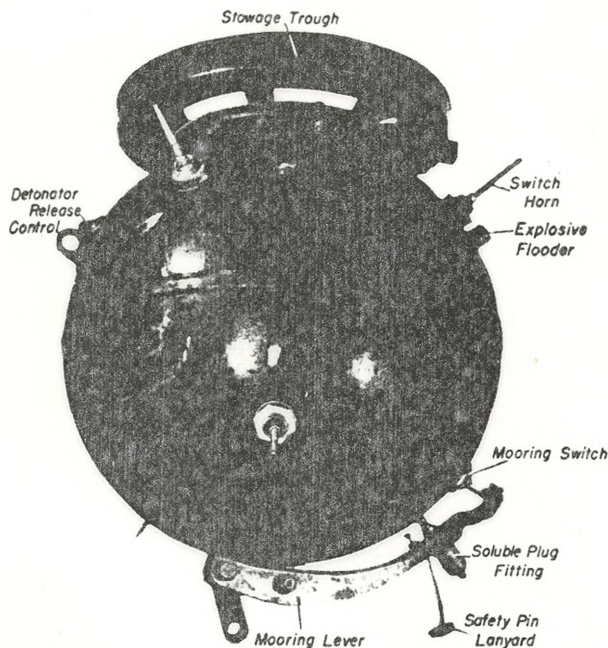
*British and U.S. Designation***Mark XIX**

1. Moored, contact, switch horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 31"
Charge 100 lb. TNT or Amatol
3. Identification Features: Eight horns, one on cover plate, four equally spaced around upper hemisphere, three on lower hemisphere; mooring eye in center of lower hemisphere; three lifting eyes on upper hemisphere.

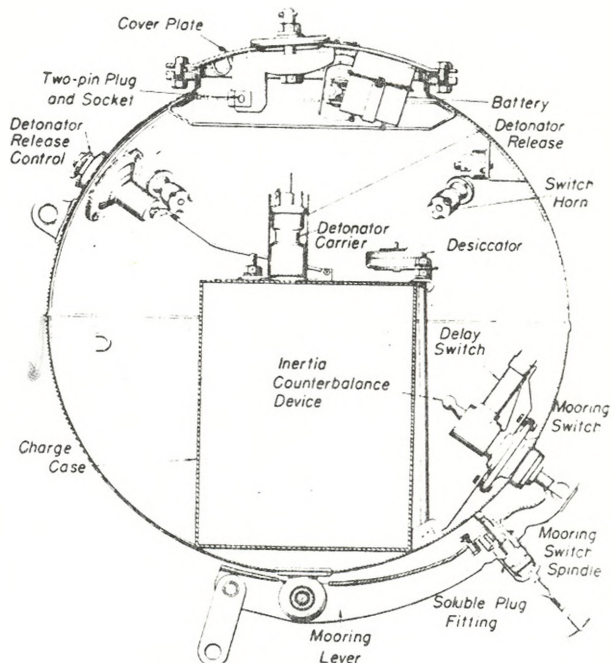
**Figure 69—Mine Mk XIX, adrift****Figure 70—Mine Mk XIX, elevation view****Figure 71—Mine Mk XIX, on anchor**

British and U.S. Designation**Mark XIX^s**

1. Same as Mark XIX.
2. Same as Mark XIX.
3. Identification Features: Seven horns, one on cover plate, four equally spaced around upper hemisphere, three on lower hemisphere; mooring lever extending from center of lower hemisphere to mooring switch; three lifting eyes on upper hemisphere.

**Figure 72—Mine Mk XIX^s, adrift****Figure 73—Mine Mk XXVII****Mark XXVII**

1. Moored, contact, switch horn mine, laid by surface craft. Fitted with 75 ft. snag line.
2. Same as Mark XIX^s.
3. Same as Mark XIX^s plus snag line and stowage trough; horn omitted from cover plate.

**Figure 74—Mine Mk XIX^s, sectional view**

British and U.S. Designation

Mark XX

1. Moored, contact, switch horn mine, laid by surface craft. May be fitted with lower antenna.
2. Same as Mark XIV.
3. Identification Features: Eight horns, four equally spaced around both upper and lower hemispheres; full ring or segment—type copper electrode secured to periphery of cover plate.

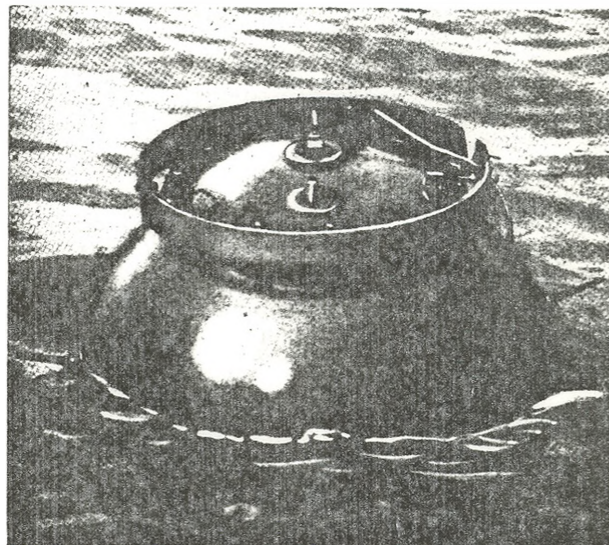


Figure 75—Mine Mk XX, adrift

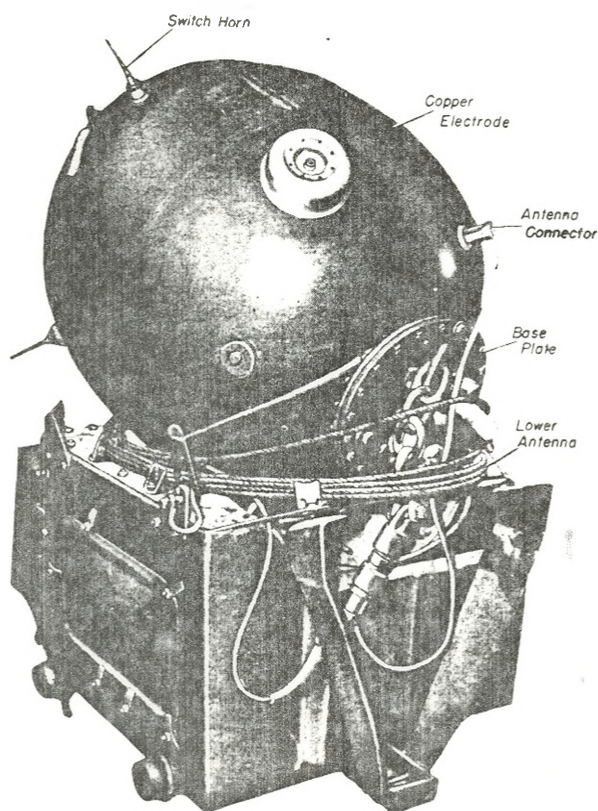


Figure 76—Mine Mk XX, on anchor

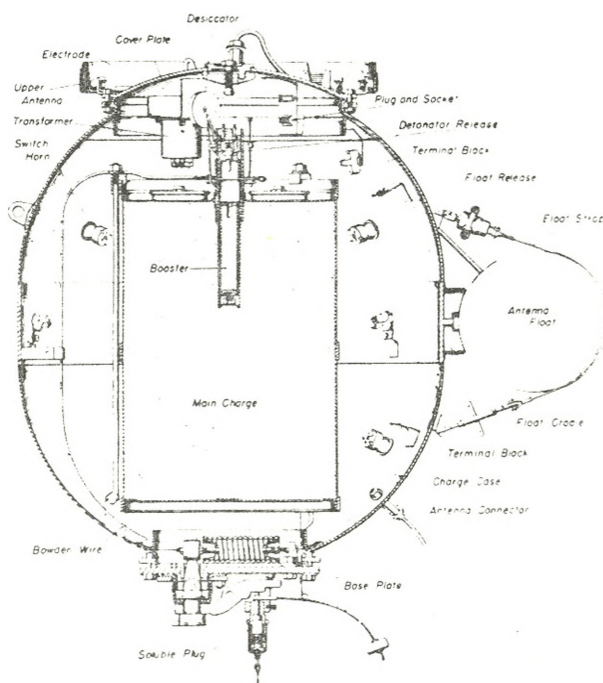
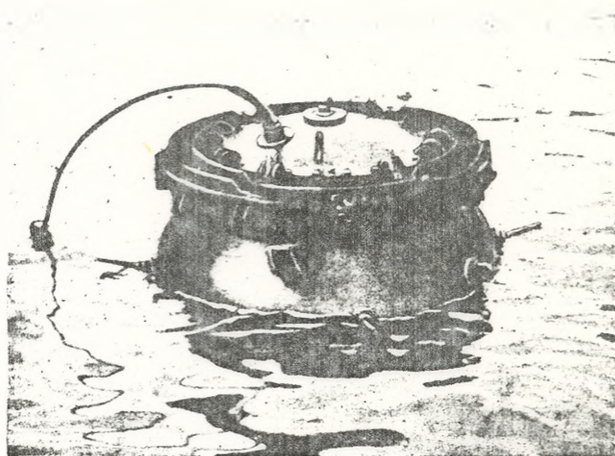


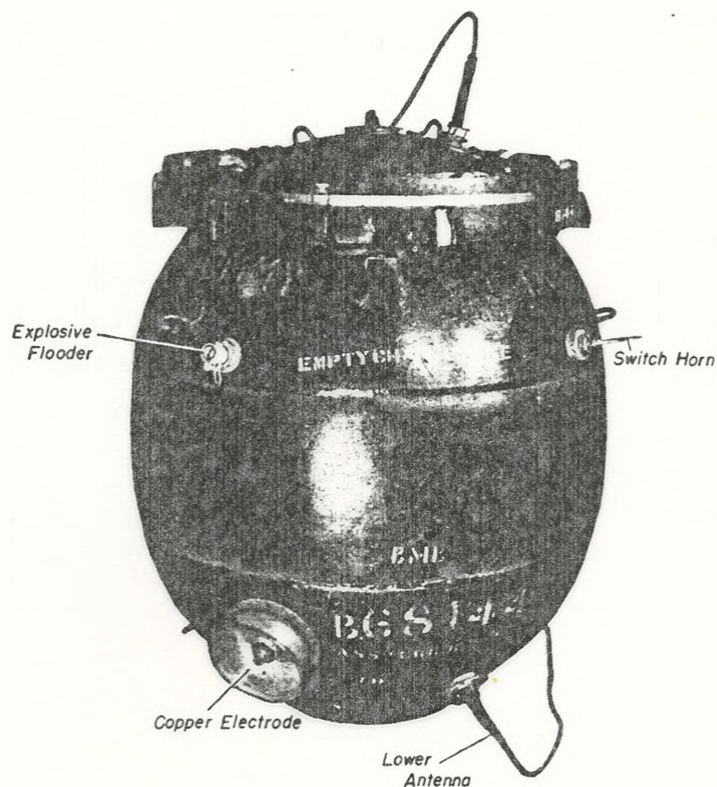
Figure 77—Mine Mk XX, sectional view

*British and U.S. Designation***Mark XXII**

1. Moored, contact, switch horn mine, laid by surface craft. Fitted with upper antenna.
2. Same as Mark XIV.
3. Identification Features: Four horns equally spaced around upper hemisphere; antenna stowage trough bolted to periphery of cover plate; five lifting eyes, two on cover plate and three on upper hemisphere.

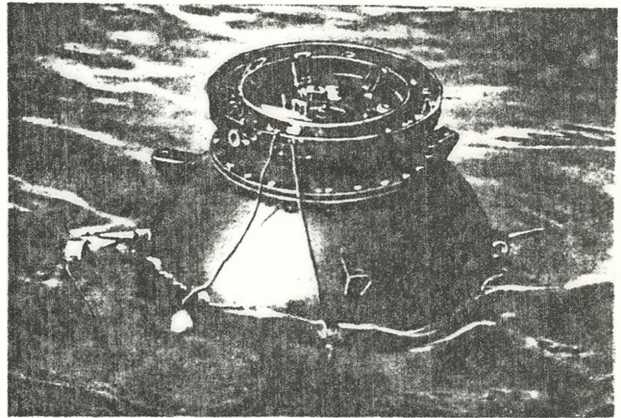
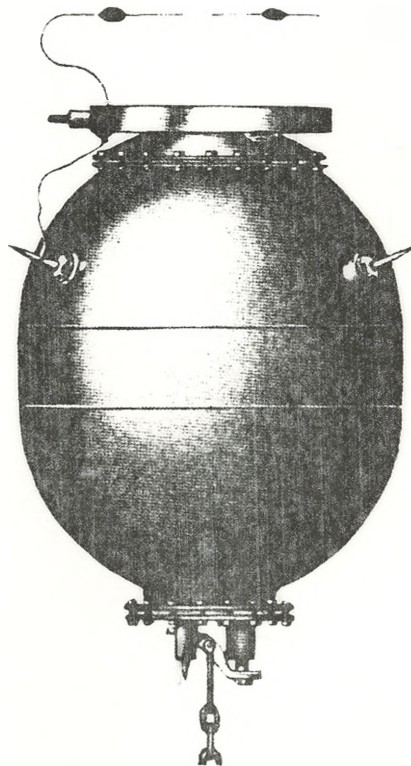
**Figure 78—Mine Mk XXII, adrift****Mark XXII***

1. Same as Mark XXII except it may be fitted with a lower antenna.
2. } Same as Mark XXII.
3. }

**Figure 79—Mine Mk XXII**

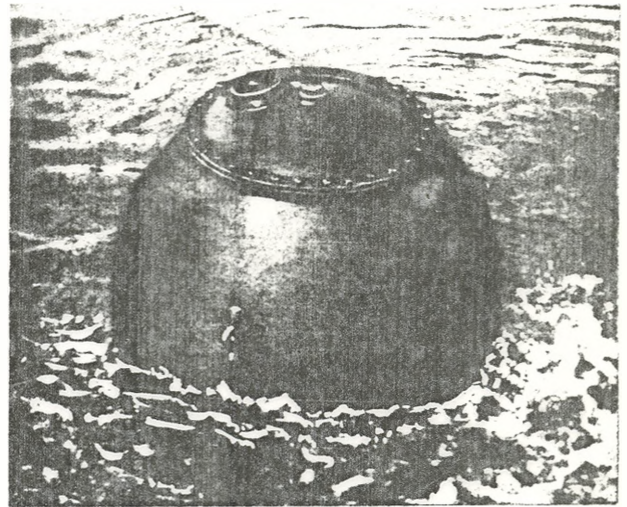
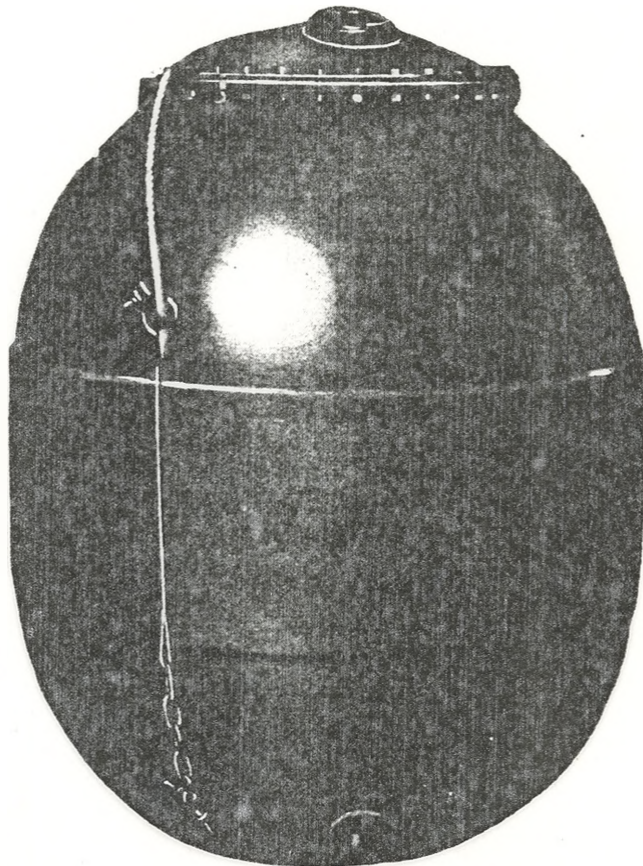
*British and U.S. Designation***Mark XXV**

1. Moored, contact, switch horn mine, laid by surface craft. Fitted with snag line.
2. Same as Mark XIV.
3. Identification Features: Four horns equally spaced around upper hemisphere; circular snag line stowage trough bolted to periphery of cover plate; 75 ft. snag line.

**Figure 80—Mine Mk XXV, adrift****Figure 81—Mine Mk XXV**

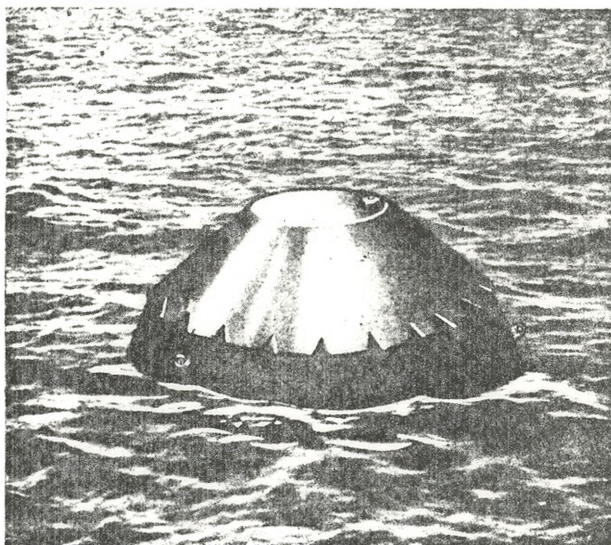
British and U.S. Designation**"M" Mark I**

1. Moored, influence, magnetic induction mine, laid by surface craft.
2. Shape Two hemispheres joined by a cylindrical mid-section.
 Color Black
 Diameter 40"
 Length 64"
 Charge 320 lb. or 500 lb. TNT or Amatol.
3. Identification Features: Shape of case; three lifting eyes around upper hemisphere; cover plate in center of upper hemisphere; small bung on cover plate.

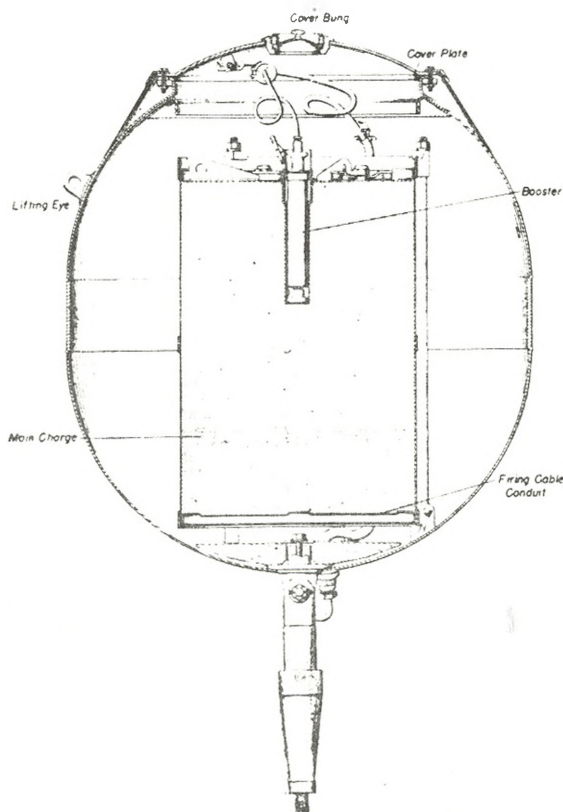
**Figure 82—Mine "M" Mk I, adrift****Figure 83—Mine "M" Mk I**

*British and U.S. Designation***L Mark I**

1. Moored, controlled mine, laid by surface craft.
2. Shape Two hemispheres, joined by a cylindrical mid-section. Upper end enclosed by truncated conical protective cover.
- Color Black
- Diameter 38"5
- Length 50"
- Charge 500 lb. TNT or Amatol
3. Identification Features: Protective cover; three lifting eyes on upper hemisphere with recovery chain suspended between two eyes.

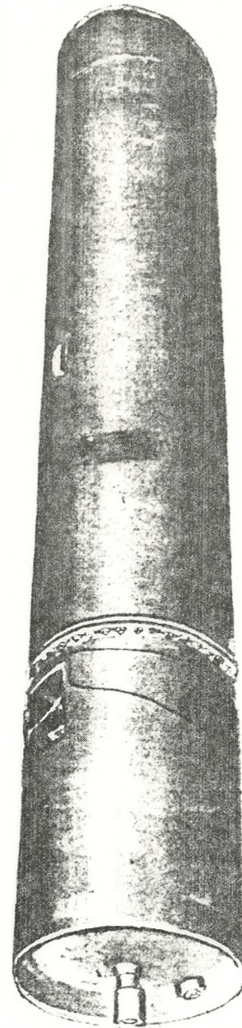
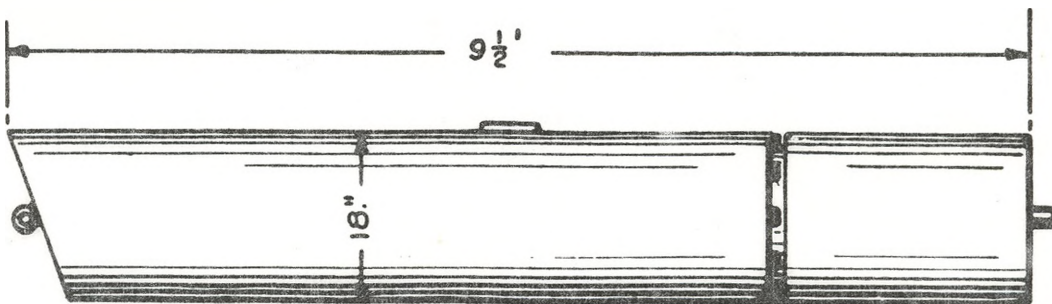
**Figure 84—Mine L Mk I, adrift****L Mark II**

1. Same as L Mark I.
2. Shape Same as L Mark I except that the protective cover does not enclose the entire top of the case.
- Color Black
- Diameter 40"
- Length 50"
- Charge 500 lb. TNT or Amatol
3. Identification Features: Protective cover; cover plate in center of upper hemisphere, fitted with bung; three lifting eyes on upper hemisphere with recovery chain suspended between two eyes.

**Figure 85—Mine L Mk II, sectional view**

*British and U.S. Designation***"A" Marks I, II, III, and IV**

1. Ground, influence mine, laid by surface craft or by aircraft with parachute. Magnetic induction, acoustic, or magnetic-acoustic firing.
2. Shape Cylindrical with slant nose.
 Color Black or dark green.
 Diameter 17"7
 Length
 Overall 13'8"
 Forward
 Section 7'3"
 Tail 4'2"
 After
 Section 2'3"
 Charge 750 lb. Amatol or 775 lb.
 Minol.
3. Identification Features: Lifting eye in center of nose; locating lug and pocket for hydrostatic switch on top center line; break in case between forward and after sections.

**Figure 86—Mine "A" Mk III****Figure 87—Mine "A" Mks I-IV, elevation view**

British and U.S. Designation**"A" Mark V**

1. Ground, influence mine, laid by aircraft with parachute. Magnetic induction, acoustic or magnetic-acoustic firing.

2. Shape Cylindrical with slant nose.

Color Black or dark green.

Length 6'9"

Diameter 15.75

Charge 625 lb. Amatol or 675 lb. Minol.

3. Identification Features: Suspension lug and hydrostatic switch pocket on top center line.

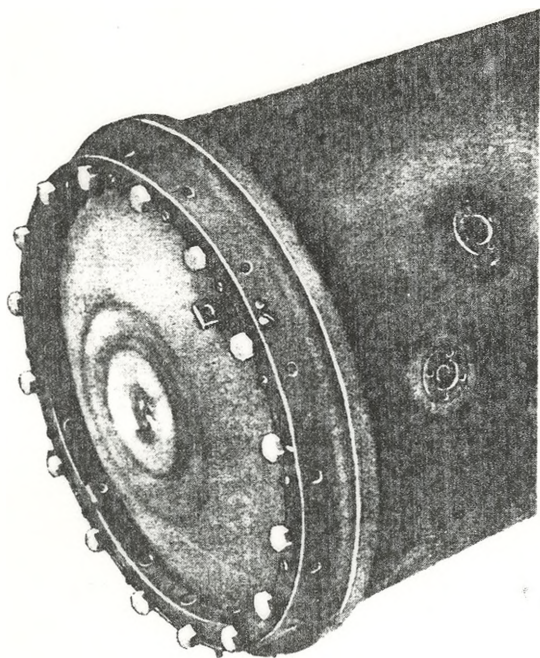


Figure 88—Mine "A" Mk V, after end

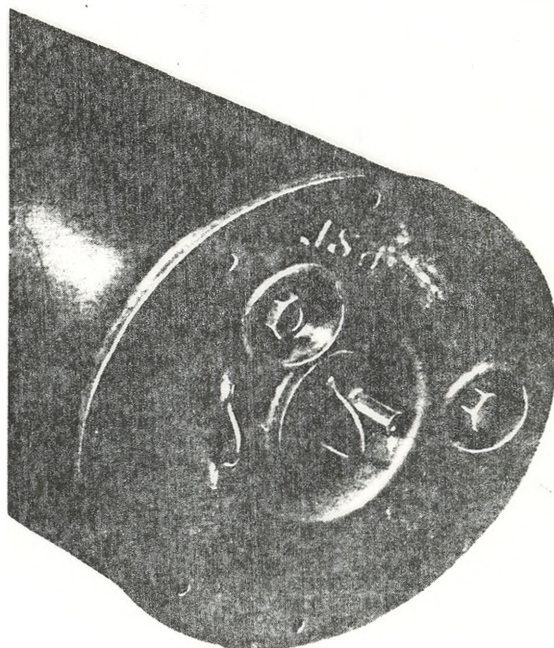


Figure 89—Mine "A" Mk V, forward end

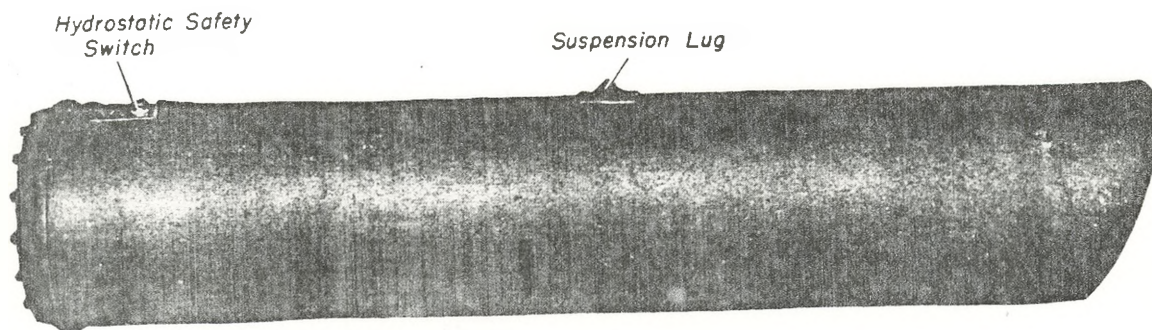


Figure 90—Mine "A" Mk V

British and U.S. Designation**"A" Mark VI**

1. Ground, influence mine, laid by surface craft or by aircraft with parachute. Magnetic induction, acoustic, or magnetic-acoustic firing.

2. Shape Cylindrical with slant nose.
Color Black or dark green.

Diameter
Maximum 19"45
Forward Section 18"53
After Section 17"35
Length
Overall 9'1"

Forward
Section 6'11"

After
Section 18"

Parachute
Housing 4'75

Parachute 7"

Charge 950 lb. Amatol.

3. Identification Features: Lifting eye on nose; suspension lug, recessed channel, and switch pocket on top center line; unusual parachute housing; inspection bung and detonator hydrostat on side of case; arrangement of fittings on nose.

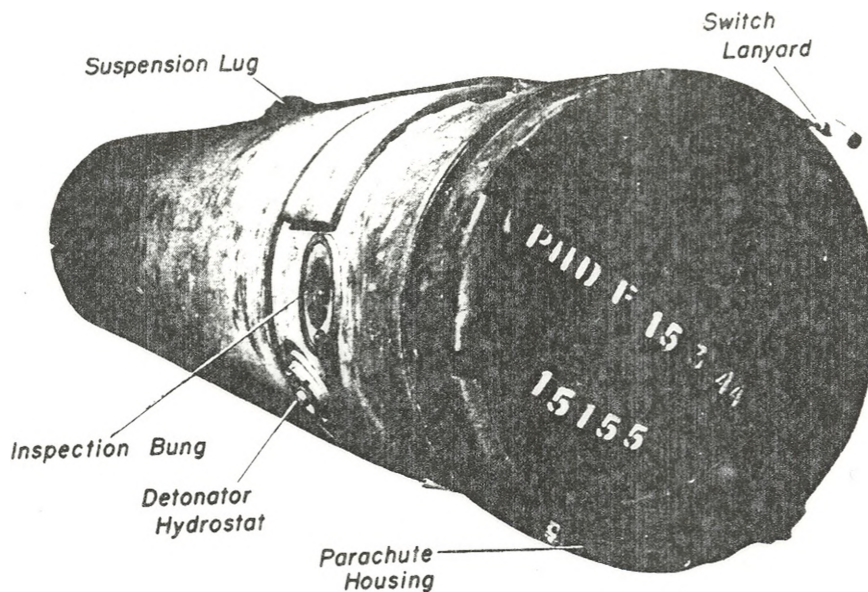


Figure 91—Mine "A" Mk VI

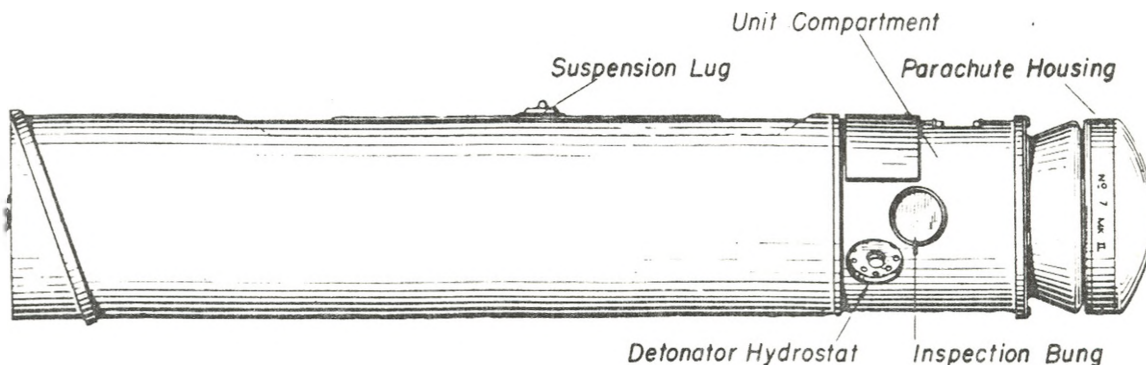


Figure 92—Mine "A" Mk VI, elevation view

British and U.S. Designation**"A" Mark VII**

1. Ground, influence mine, laid by aircraft with parachute. Magnetic induction, acoustic, or magnetic-acoustic firing.

2. Shape Cylindrical with slant nose.

Color Black or dark green.

Diameter 15"75

Length 7'6"

Charge 620 lb. Amatol.

3. Identification Features: Suspension lug and switch pocket on top center line; arrangement of fittings on nose.

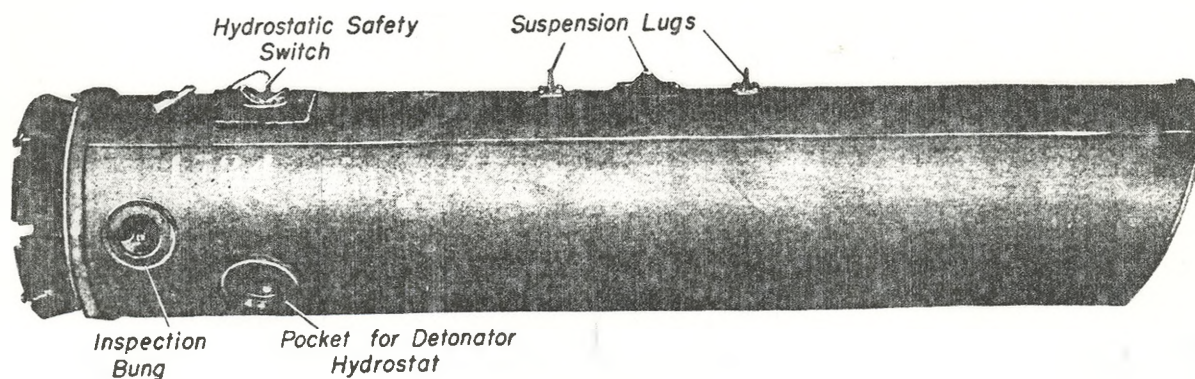


Figure 93—Mine "A" Mk VII

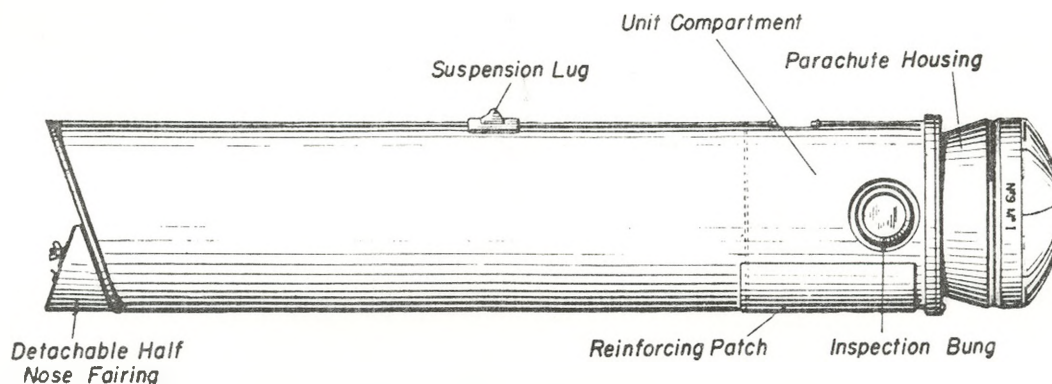


Figure 94—Mine "A" Mk VII, elevation view

British and U.S. Designation

"A" Mark VIII

1. Ground, influence mine, laid by aircraft.
Magnetic induction, acoustic, or magnetic-acoustic firing.

2. Shape Cylindrical with slant nose.
Color Black or dark green.

Diameter 13'05

Length 4'9"

Charge 196 lb. Amatol or 215 lb. Minol.

3. Identification Features: Suspension lugs and switch pocket on top center line.

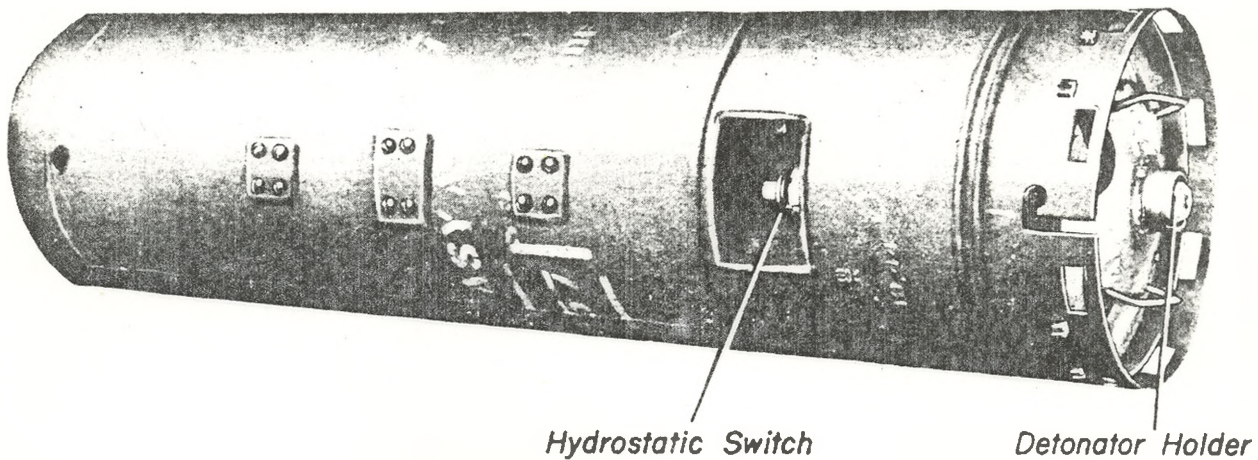


Figure 95—Mine "A" Mk VIII

British and U.S. Designation**"A" Mark IX**

1. Ground, influence mine, laid by aircraft.
Magnetic induction, acoustic, or magnetic-acoustic firing.

2. Shape Cylindrical with slant nose.
Color Black or dark green.

Diameter 17.5 (approx.)

Length
Overall 9'1" (approx.)

Charge Unknown.

3. Identification Features: Suspension lugs and switch pocket on top center line.

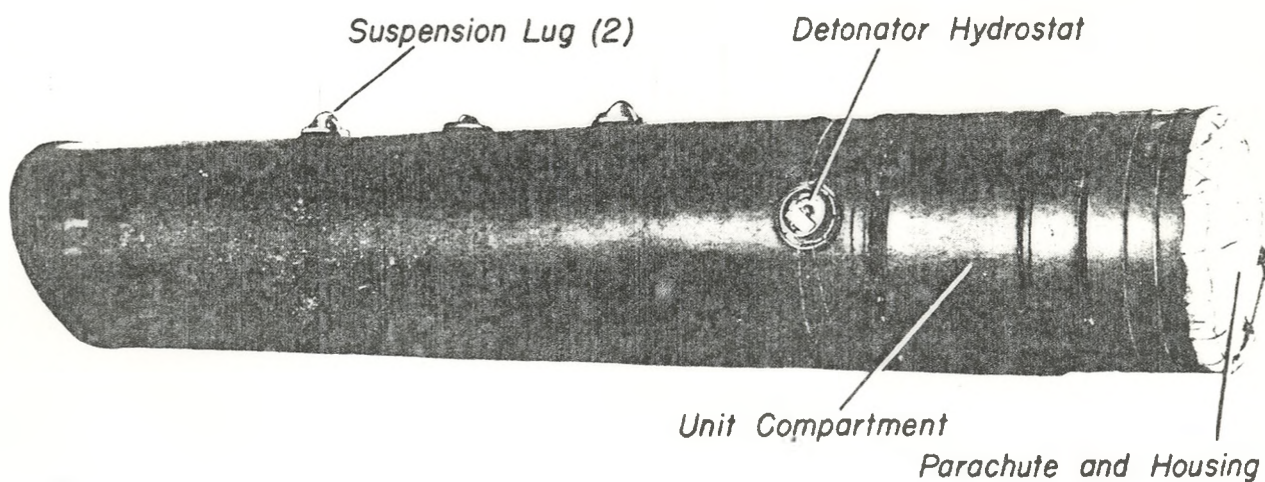
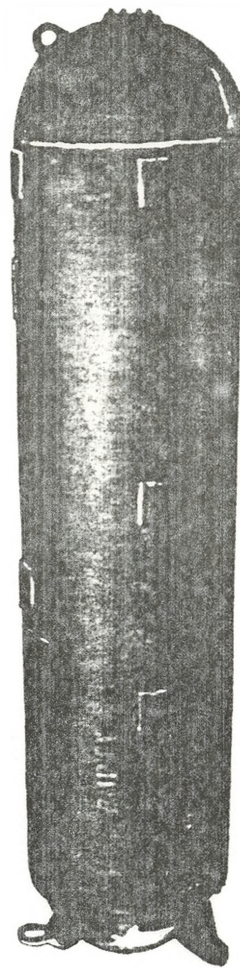
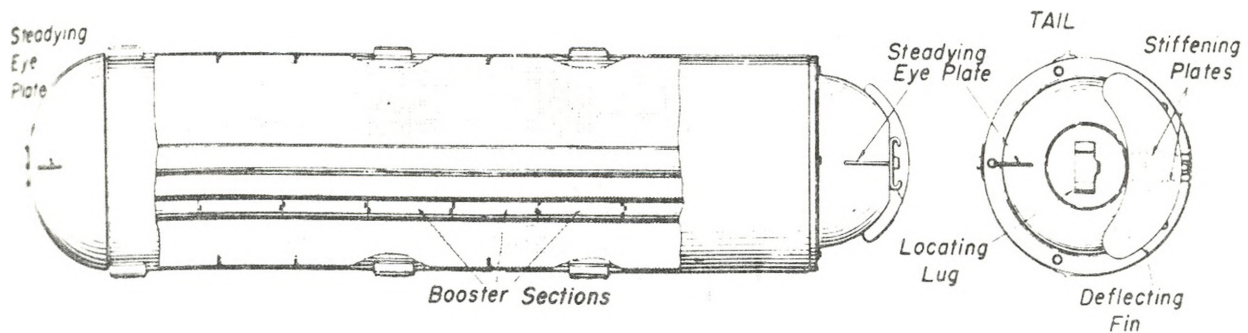


Figure 96—Mine "A" Mk IX

*British and U.S. Designation***"M" Mark II**

1. Ground, influence mine, laid by submarine or surface craft. Magnetic induction or acoustic firing.
2. Shape Cylindrical with hemispherical nose and rounded tail cover.
 Color Black or dark green.
 Diameter 21"
 Length 8'
 Charge 1000 lb. Amatol or 1060 lb. Minol.
3. Identification Features: Shape of case; six positioning lugs; bottom rubbing strip extending full length of case.

**Figure 97—Mine "M" Mk II****Figure 98—Mine "M" Mk II, sectional view**

British and U.S. Designation**"M" Mark III**

1. Ground, influence, magnetic induction mine,
laid by surface craft.

2. Shape Cylindrical with small mechanism chamber on top and larger protruding buoyancy chamber at

lower part of case. Supported by wheeled truck.

Color Black

Diameter 27"

Height 5'10"

Charge 1600 lb. Amatol or 1750 lb. Minol.

3. Identification Features: Shape of case; nine lifting eyes; wheel truck support.

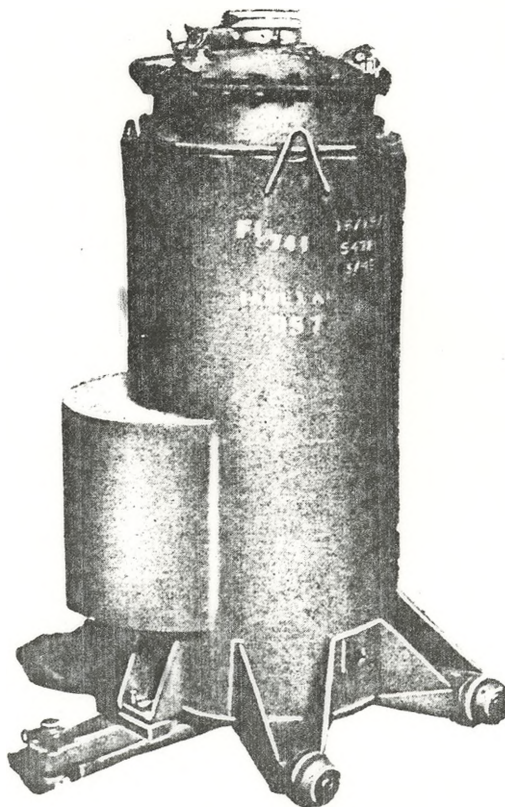


Figure 99—Mine "M" Mk III

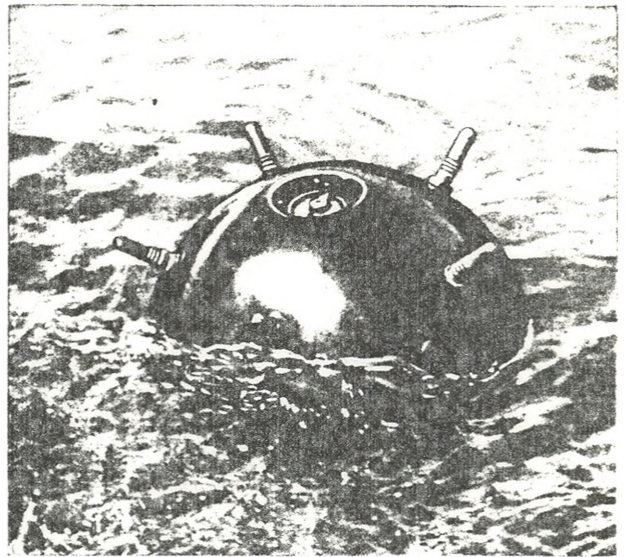
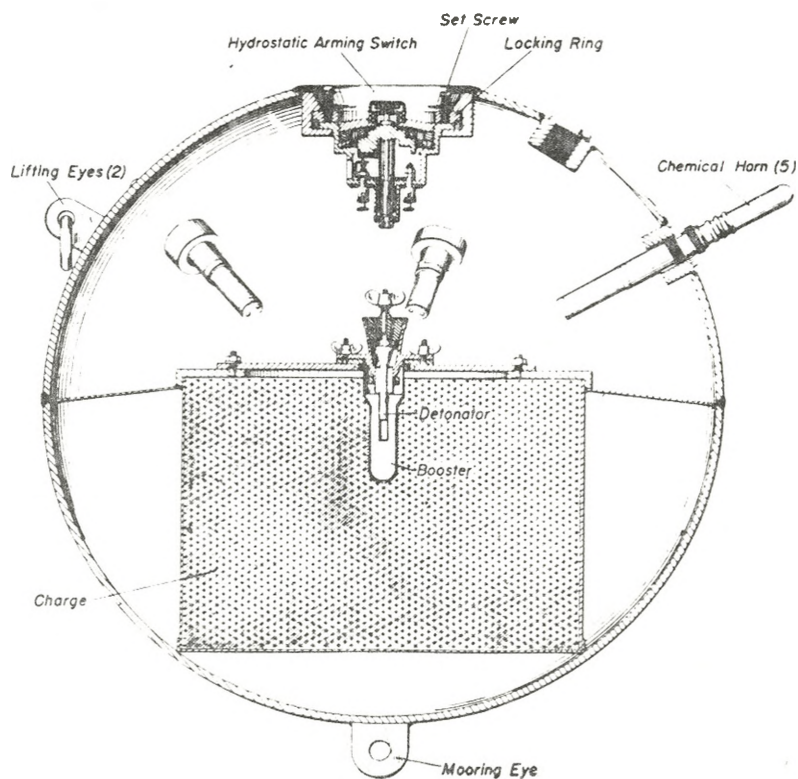
Chapter 5

RUSSIAN MINES

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MZ-26	63
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*Russian and U.S. Designation***Mark M-08**

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Green
Diameter 34"5
Charge 253 lb. TNT
3. Defensive mine for use in maximum depth of 60 fathoms against surface craft. Maximum case depth is 4 fathoms.
4. Identification Features: Five horns equally spaced around upper hemisphere; arming switch in center of upper hemisphere; two lifting rings on upper hemisphere; mooring eye in center of lower hemisphere.

**Figure 100—Mine Mk M-08, adrift****Figure 101—Mine Mk M-08, sectional view**

Russian and U.S. Designation

Mark M KB

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Two hemispheres joined by a cylindrical mid-section.
Color Green
Diameter 34"5
Length 52"
Charge 506 lb. TNT
3. Defensive mine for use in maximum depth of 149 fathoms against surface craft. Maximum case depth is 5 fathoms.
4. Identification Features: Five horns with spring-loaded horn guards equally spaced around upper hemisphere; arming switch in center of upper hemisphere; three antenna stuffing boxes, one on upper hemisphere, one on mid-section and one on lower hemisphere; five lifting eyes, two on upper hemisphere, two on mid-section and one on lower hemisphere.

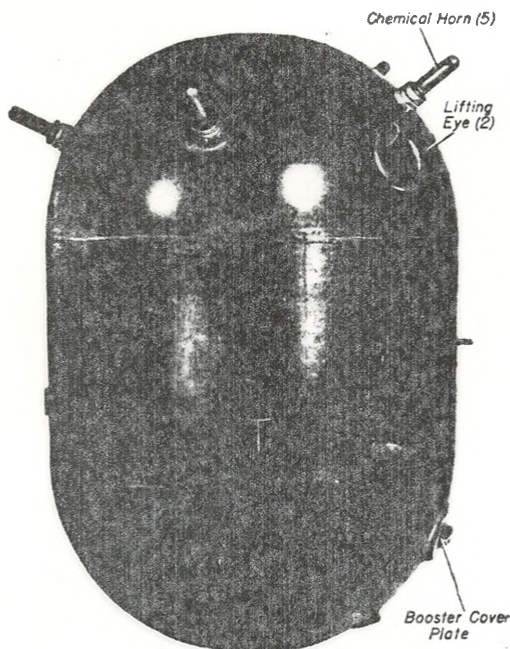


Figure 103—Mine Mk M KB

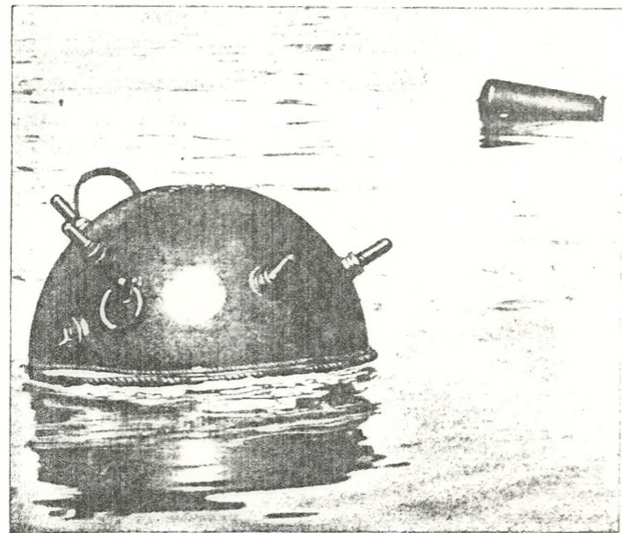


Figure 102—Mine Mk M AG, adrift

Mark M AG

1. Moored, contact, chemical horn mine, laid by surface craft. May be fitted with upper and/or lower antennae.
2. } Same as Mark M KB.
3. }
4. Same as Mark M KB except for the addition of the antennae. If a single antenna is fitted, a coil of copper wire is wound around the mid-section.

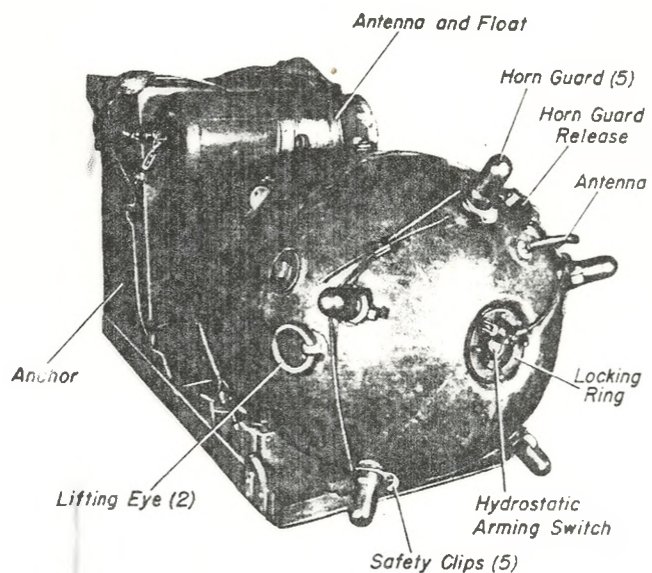
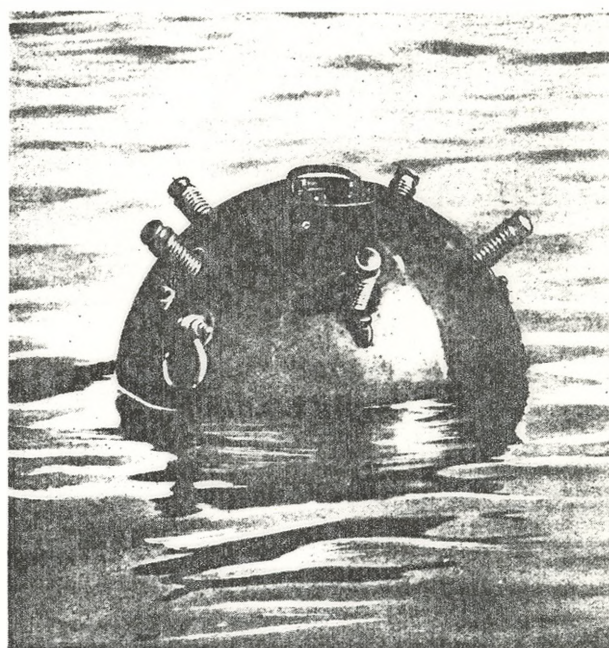
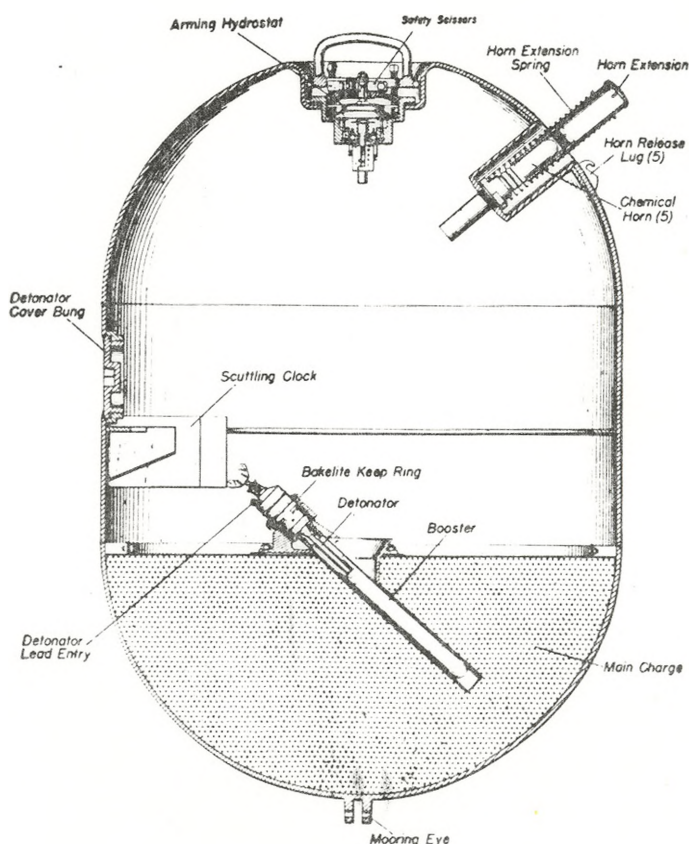


Figure 104—Mine Mk M AG, on anchor

*Russian and U.S. Designation***Mark M AMG-1**

1. Moored, contact, chemical horn mine, laid by aircraft.
2. Shape Two hemispheres, joined by a cylindrical mid-section.
 Color Green
 Diameter 34"5
 Length 52"
 Charge 572 lb. TNT
3. Offensive mine, for use in maximum depth of 550 fathoms against surface craft. Maximum case depth is 5 fathoms.
4. Identification Features: Five spring-loaded, telescopic chemical horns, equally spaced around upper hemisphere; arming switch in center of upper hemisphere; one horn release lug adjacent to each horn; mooring eye in center of lower hemisphere.

**Figure 105—Mine Mk M AMG-1, adrift****Figure 106—Mine Mk M AMG-1,
sectional view**

Russian and U.S. Designation

Mark M PLT

1. Moored, contact, impact-inertia firing mine, laid by submarine.

2. Shape Cylindrical, with rounded ends. Cylindrical mooring drum welded to bottom.

Color Green

Diameter ·

Case 31"5

Mooring

Drum 26"

Length

Overall 55 $\frac{3}{4}$ "

Case 50 $\frac{1}{2}$ "

Mooring

Drum 5 $\frac{1}{4}$ "

Charge 506 lb. TNT

3. Offensive or defensive mine for use in maximum depth of 76 fathoms against surface craft. Maximum case depth is 5 fathoms.

4. Identification Features: Arming switch in top center of case; three lifting eyes around top center; three positioning lugs around bottom; wire fair-lead 13" from top center.

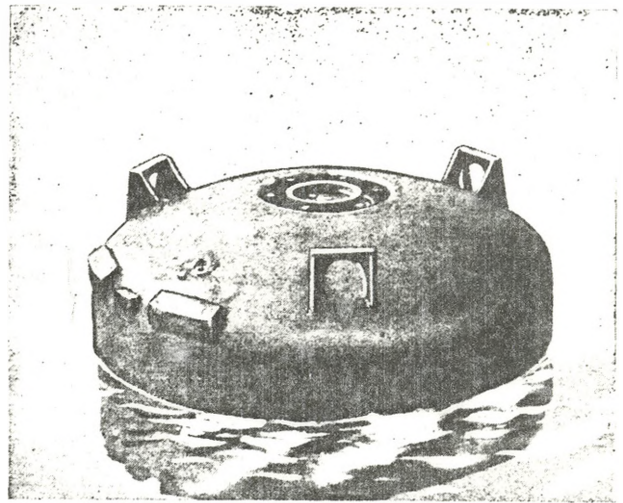


Figure 107—Mine Mk M PLT, adrift

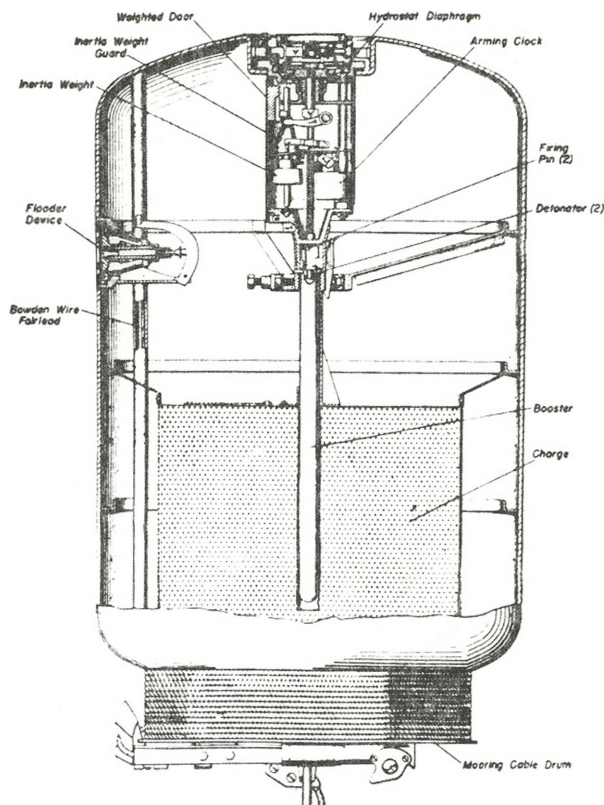
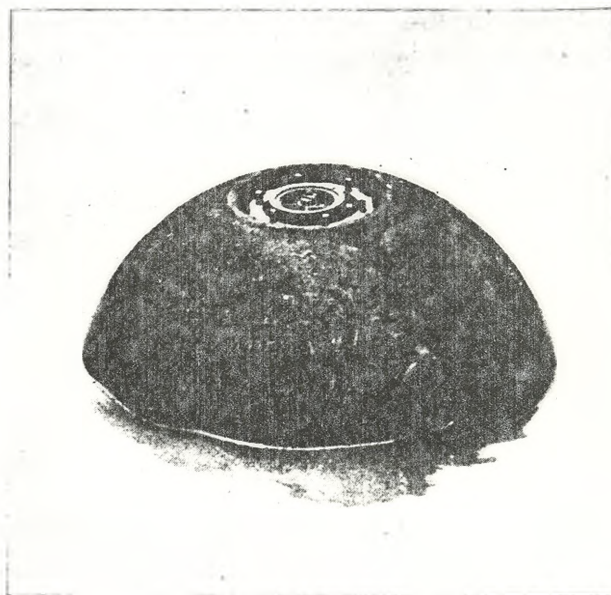
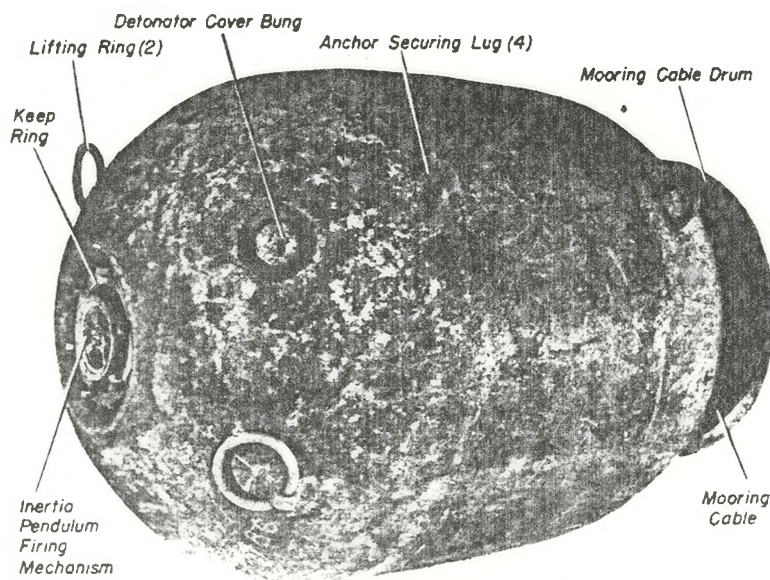
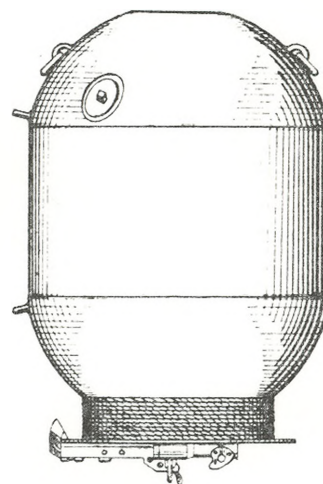


Figure 108—Mine Mk M PLT, sectional view

*Russian and U.S. Designation***Mark M-26**

1. Moored, contact, impact-inertia firing mine, laid by surface craft.
 2. Shape Two hemispheres joined by a cylindrical mid-section. Cylindrical mooring drum on bottom.
- Color Green
- Diameter 34"5
- Length 52"5
- Charge 528 lb. Picratol
3. Defensive mine for use against surface craft. Maximum laying depth and case depth unknown.
 4. Identification Features: Five blanked-off horn pockets equally spaced around upper hemisphere; arming switch in center of upper hemisphere; mooring drum.

**Figure 109—Mine Mk M-26, adrift****Figure 110—Mine Mk M-26****Figure 111—Mine Mk M-26, elevation view**

Russian and U.S. Designation

Mark MZ-26 (Sweep Obstructor)

1. Moored, explosive sweep obstructor, laid by surface craft.
2. Shape See Fig. No. 113
 Color Green
 Float
 Diameter 11 1/2"
 Charge One lb. TNT charge containers are contained in the cutters attached to the float mooring cable.
3. Defensive weapon for use in minefields in maximum depth of 7 fathoms. Maximum float depth is 4 fathoms.
4. Identification Feature: General appearance.

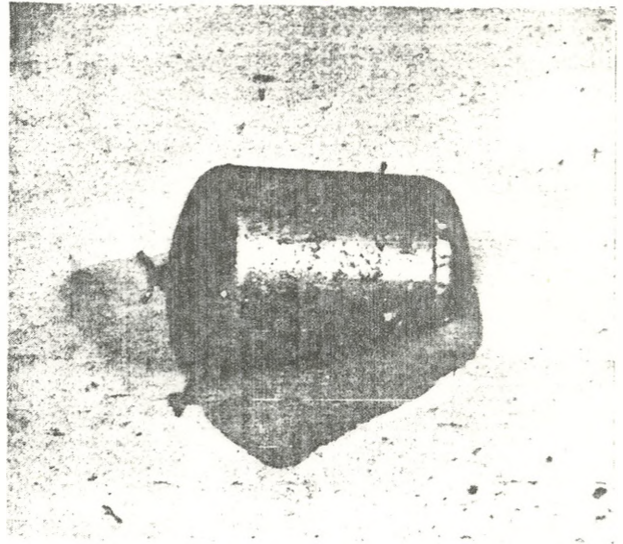


Figure 112—Mk MZ-26 Float, adrift

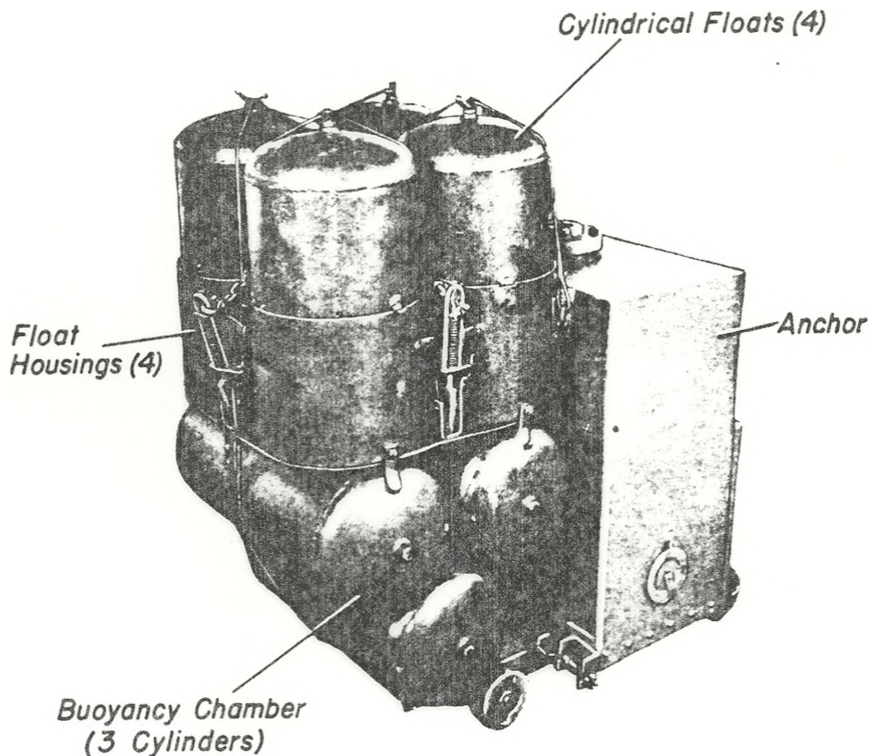


Figure 113—Mk MZ-26 Float

*Russian and U.S. Designation***Mine Type Mirab**

1. Ground, influence, magnetic-induction mine, laid by surface craft.

2. Shape Flat-bottom ovoid, fitted with four launching wheels.

Color Green

Length 40"5

Width 27"5

Height 27"5

Charge 140 lb. TNT .

3. Offensive mine for use in maximum depth of 4 fathoms against small surface craft.

4. Identification Features: Shape of case; 5" brass band riveted around base; four wheels on bottom of case.

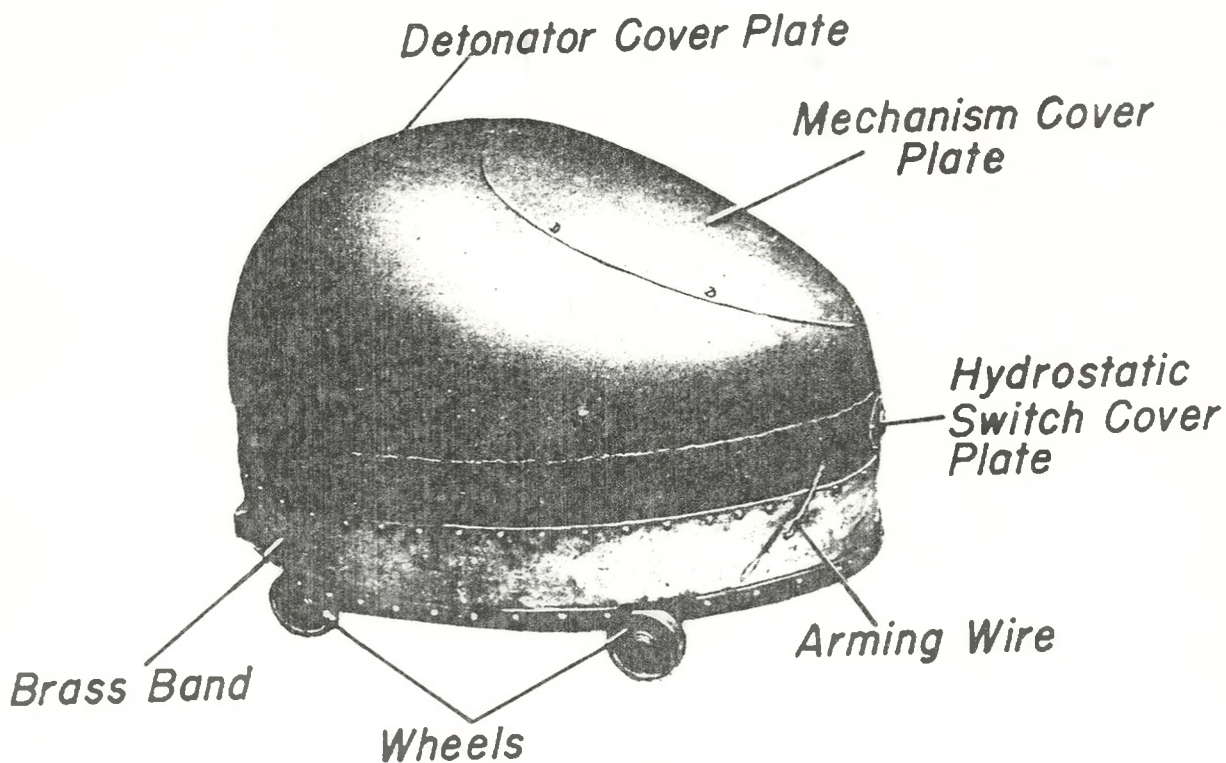


Figure 114—Mine Type Mirab

Chapter 6

GERMAN MINES

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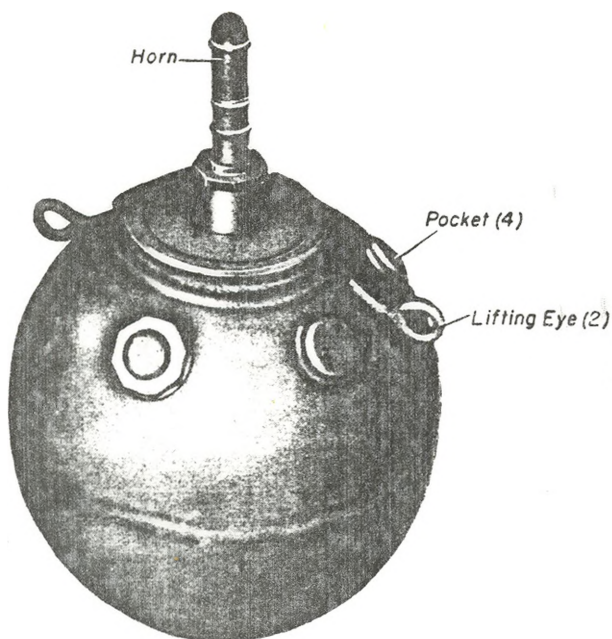
U.S. Designation

GJ¹

1. Moored or ground, contact, chemical horn mine, laid by surface craft.
2. Shape Elliptical
Color Black
Diameter 15"
Charge 25 lb. (approx.)
3. Defensive mine for use in shallow water. May also be used as an anti-vehicular land mine on beaches or as a demolition charge. When used as a land mine, it is buried in the sand.
4. Identification Features: Single horn fitted on top center of case; two lifting eyes on upper hemisphere; four pockets staggered around upper hemisphere.

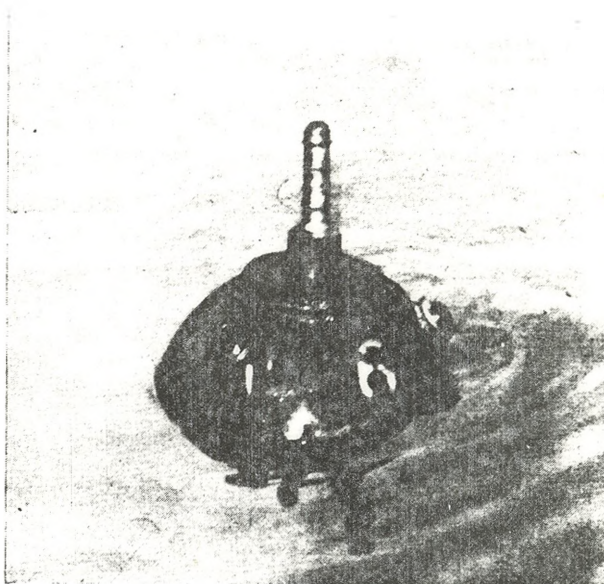
GJ²

- 1.
2. Same as GJ¹.
- 3.

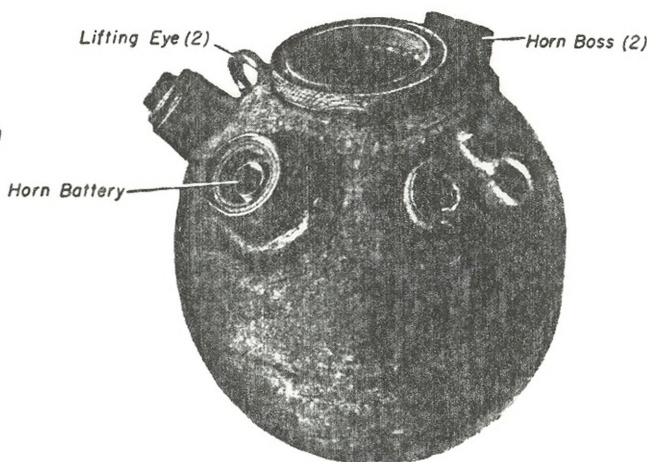
Figure 116—Mine Type GJ¹

German Designation

(unknown)

Figure 115—Mine Type GJ¹, adrift

4. Same as GJ¹ except that it is fitted with two horns, both off set from the top center.

Figure 117—Mine Type GJ², horns removed

U.S. Designation

GL

1. Drifting, contact, antenna-switch mine, laid manually.
2. Shape Ovoidal, with skirt around base. Antenna protrudes from top center of case.
- Color Dark green
- Diameter 15"
- Length Overall (includes antenna) 6'9"
- Case 18"
- Charge 25 lb. TNT
3. Offensive mine for use in rivers and harbors against bridges, dams, docks, etc. Normal case depth when drifting is one foot.
4. Identification Features: 5'3" brass antenna, consisting of 5 telescopic spring-loaded sections, fitted to top of case.

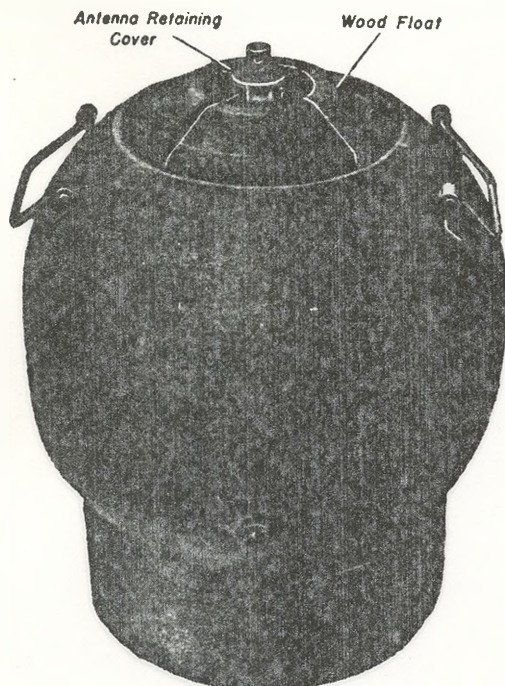


Figure 118—Mine Type GL, unarmed position

German Designation

K. Tr. Mi. 41

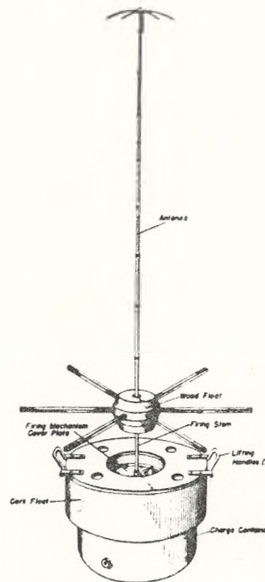


Figure 119—Mine Type GL-P, armed position, elevation view

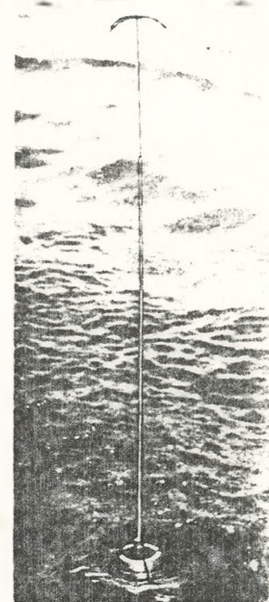


Figure 120—Mine Type GL, adrift

GL-P

(German Designation Unknown)

1. Drifting, contact, antenna-switch mine, laid manually.
2. Shape Cylindrical with antenna protruding from top center of case.
- Color Green or brown.
- Diameter 17 $\frac{3}{4}$ "
- Length 6 $\frac{1}{4}$ "
- Charge 44 lb. TNT
3. Offensive mine for use in rivers and harbors against bridges, dams, docks, etc. Normal case depth when drifting is one foot.
4. Identification Features: 4'6" bamboo or hazelwood antenna fitted to metal firing stem on top center of case; six wooden contact arms on wood float; two lifting eyes on top edge of case.

U.S. Designation

German Designation

GM**BMC**

1. Moored, contact, LeClanche-cell horn mine, laid by aircraft or surface craft.
2. Shape Two hemispheres joined by a cylindrical mid-section.
Color Dark gray
Diameter 26"
Length 44"
Charge 120 lb. Hexanite
3. Offensive or defensive mine for use in maximum depth of 75 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Four horns on upper hemisphere; horn release disc above center of cover plate; mooring eye in base plate.

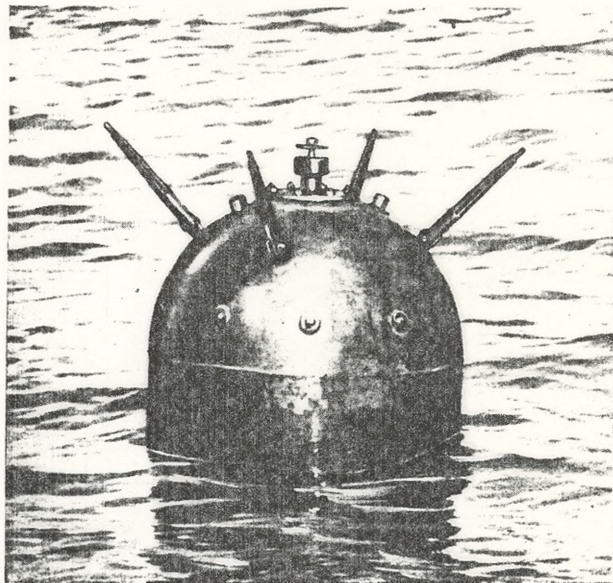


Figure 121—Mine Type GM, adrift

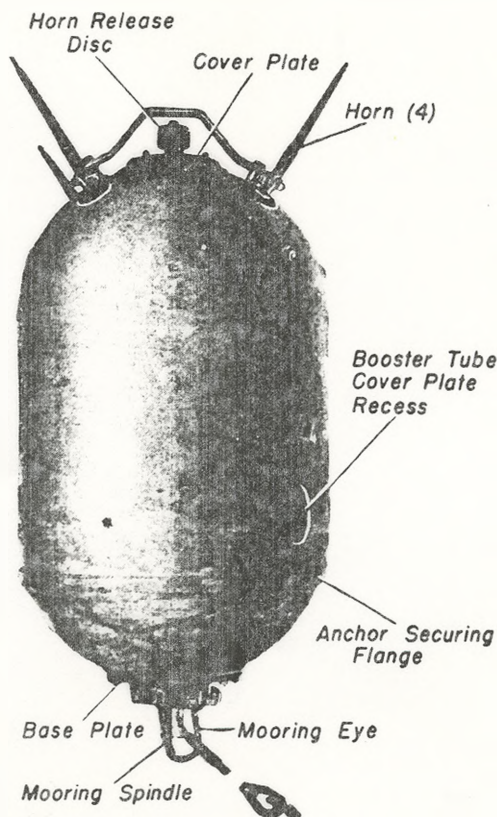


Figure 122—Mine Type GM

U.S. Designation

GO¹

1. Moored, influence, magnetic dip-needle mine, laid by submarine.
2. Shape Two hemispheres joined by a cylindrical mid-section.
Color Dark green
Diameter 46"
Length 56"
Charge 750 lb. Hexanite
3. Offensive or defensive mine for use in maximum depth of 240 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Large cover plate in center of upper hemisphere; two lifting eyes on upper hemisphere; three angular-shaped anchor securing lugs on lower hemisphere; two fin-shaped positioning lugs on mid-section.

GO² (German Des. EMF)

1. Moored, influence, magnetic dip-needle mine, laid by surface craft.
2. Shape Two hemispheres joined by a cylindrical mid-section.
Color Light blue
Diameter 45"

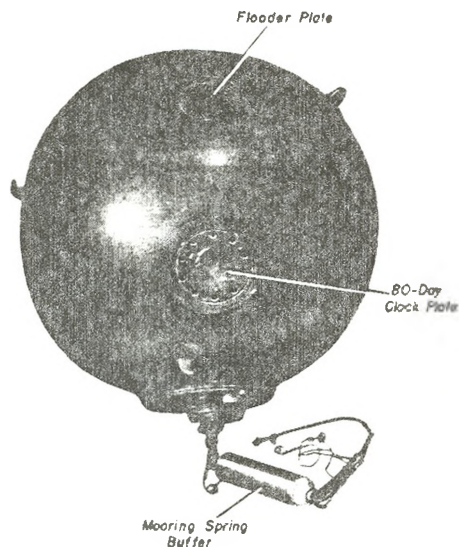


Figure 123—Mine Type GO²

German Designation

SMA

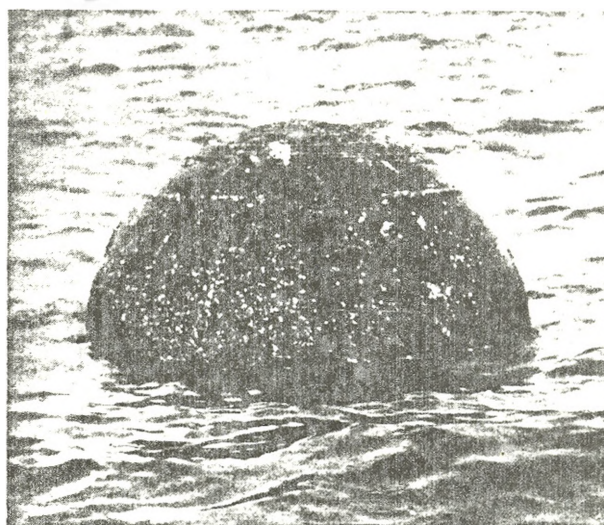


Figure 124—Mine Type GO¹, adrift

Length 50"
Charge 700 lb. Hexanite

3. Offensive or defensive mine for use in maximum depth of 275 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Three hook shaped anchor securing lugs, two on lower hemisphere, one on upper hemisphere; large cover plate in center of upper hemisphere; two small cover plates, one on upper and one on lower hemisphere.

GO³ (German Des. EMF)

1. Same as GO².
2. Shape Spherical
Color Light blue
Diameter 45"
Charge 700 lb. Hexanite
3. Same as GO².
4. Same as GO² except that small cover plate is omitted from lower hemisphere.

U.S. Designation

GP

1. Moored, influence, magnetic dip-needle mine, laid by aircraft with parachute.
2. Shape Cylindrical with hemispherical nose and tapered finned tail.
Color Black
Diameter 26"
Length 7'8"
Charge 612 lb. Hexanite
3. Offensive mine for use against surface craft. Maximum laying depth and case depth unknown.
4. Identification Features: Three anchor securing lugs and mooring eye on nose; finned tail; suspension lug on top center line.

German Designation

LMF

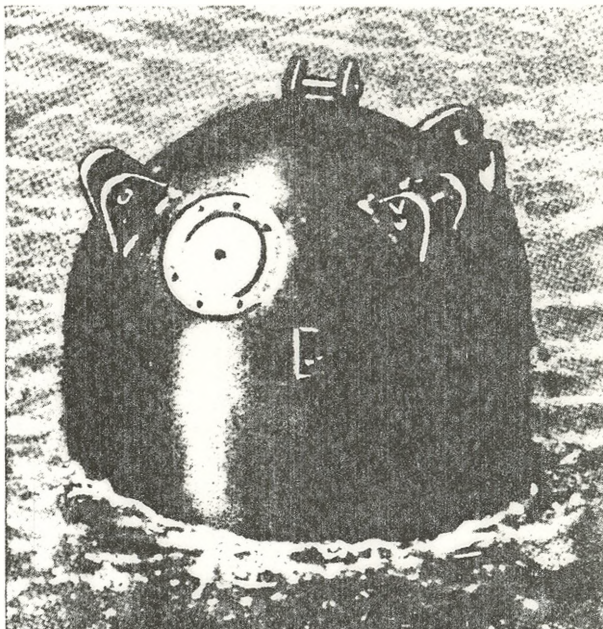


Figure 125—Mine Type GP, adrift

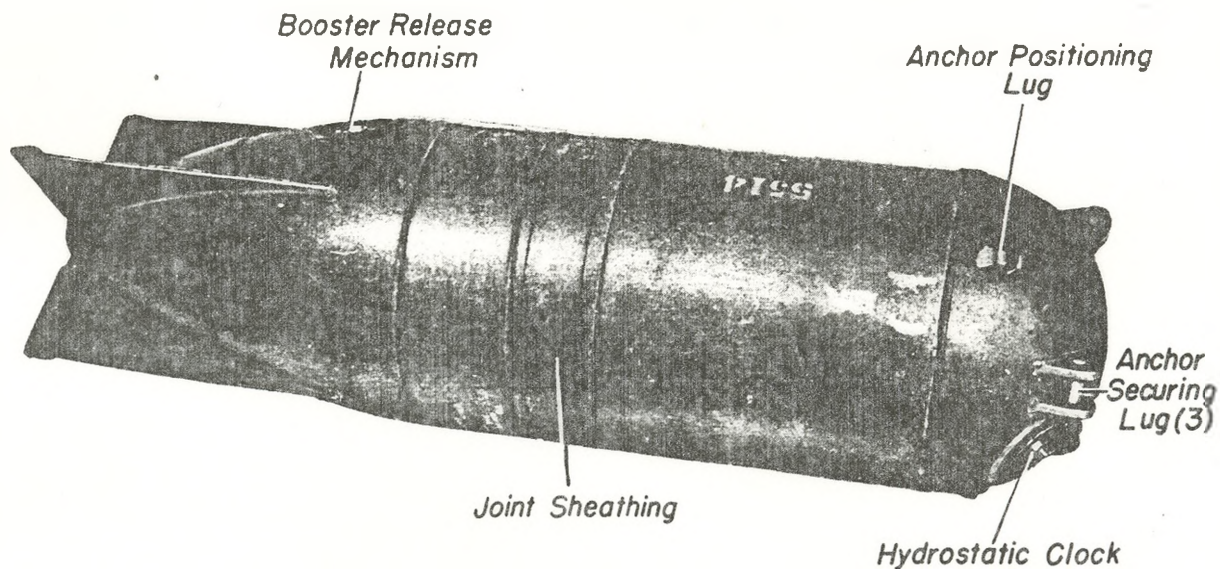


Figure 126—Mine Type GP

U.S. Designation

German Designation

GQ

FMC

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 29"25
Charge 88 lb. Hexanite
3. Offensive mine for use in maximum depth of 79 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Five horns, one in center of upper hemisphere, four around upper hemisphere; three anchor securing lugs, one on upper, two on lower hemisphere; one lifting eye on upper hemisphere.

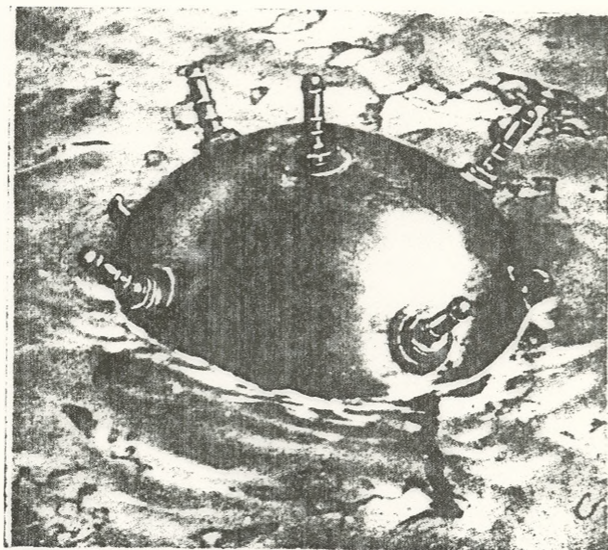


Figure 127—Mine Type GQ, adrift

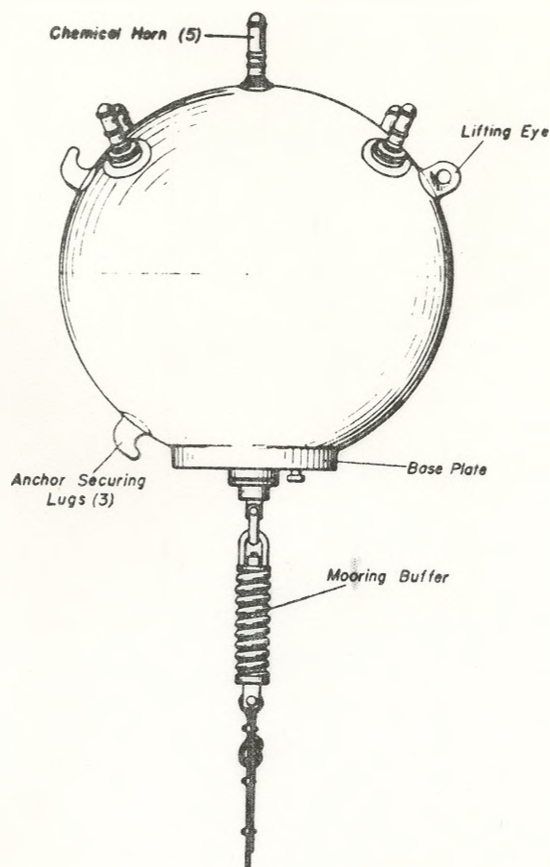


Figure 128—Mine Type GQ, elevation view

U.S. Designation

German Designation

GR

UMB

1. Moored, contact, chemical and switch horn mine, laid by surface craft. May be fitted with snag line.
2. Shape Spherical
Color Black
Diameter 33"5
Charge 90 lb. Hexanite
3. Offensive or defensive mine for use in maximum depth of 84 fathoms against surface craft. Maximum case depth is 19 fathoms.
4. Identification Features: Eight horns, one chemical in center of upper hemisphere, four chemical around upper hemisphere, and three switch horns on lower hemisphere; small cover plate on upper hemisphere; two hydrostatic switches, one each on upper and lower hemispheres.

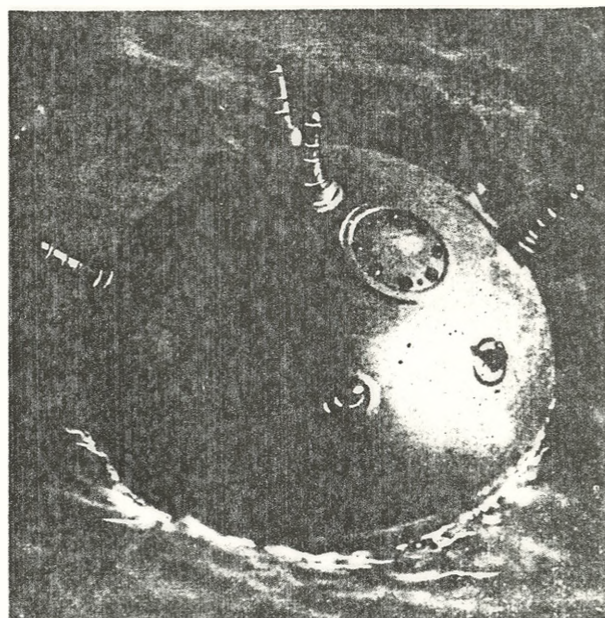


Figure 129—Mine Type GR, adrift

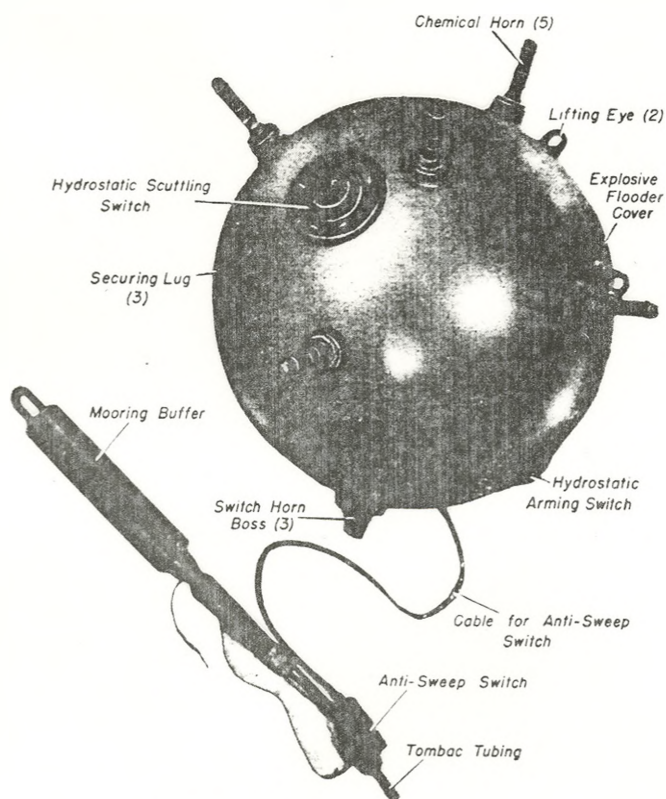


Figure 130—Mine Type GR

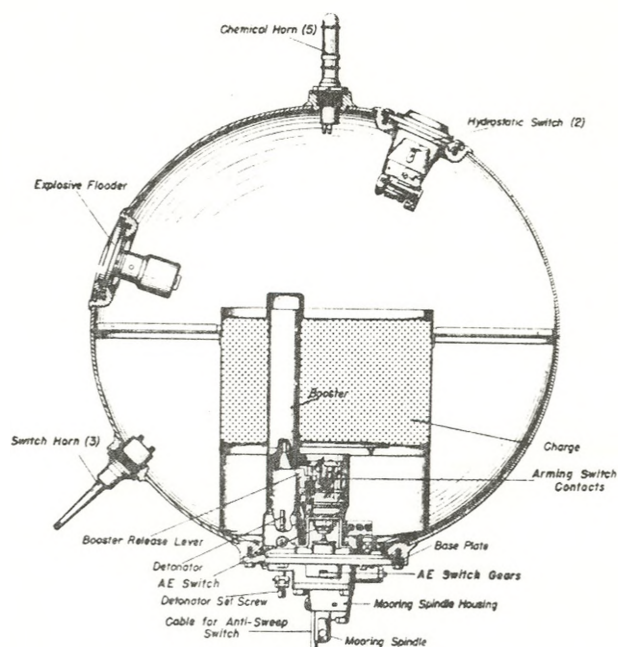


Figure 131—Mine Type GR, sectional view

U.S. Designation

German Designation

GT

TMA

1. Moored, influence, magnetic dip-needle mine, laid by submarine.
2. Shape Cylindrical, with hemispherical nose and tapered finned tail.
Color Black or dark green
Diameter 21"
Length 9'3"5
Charge 475 lb. Hexanite
3. Offensive mine for use in maximum depth of 142 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Bowden wire channel extending length of case; five positioning lugs, mooring eye, and two securing lugs on nose; four tail fins; safety latch on tail.

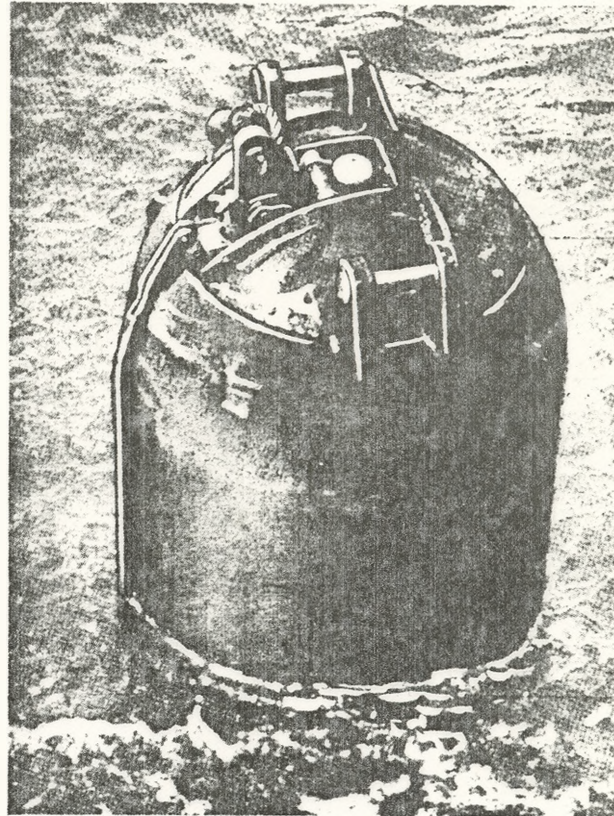


Figure 132—Mine Type GT, adrift

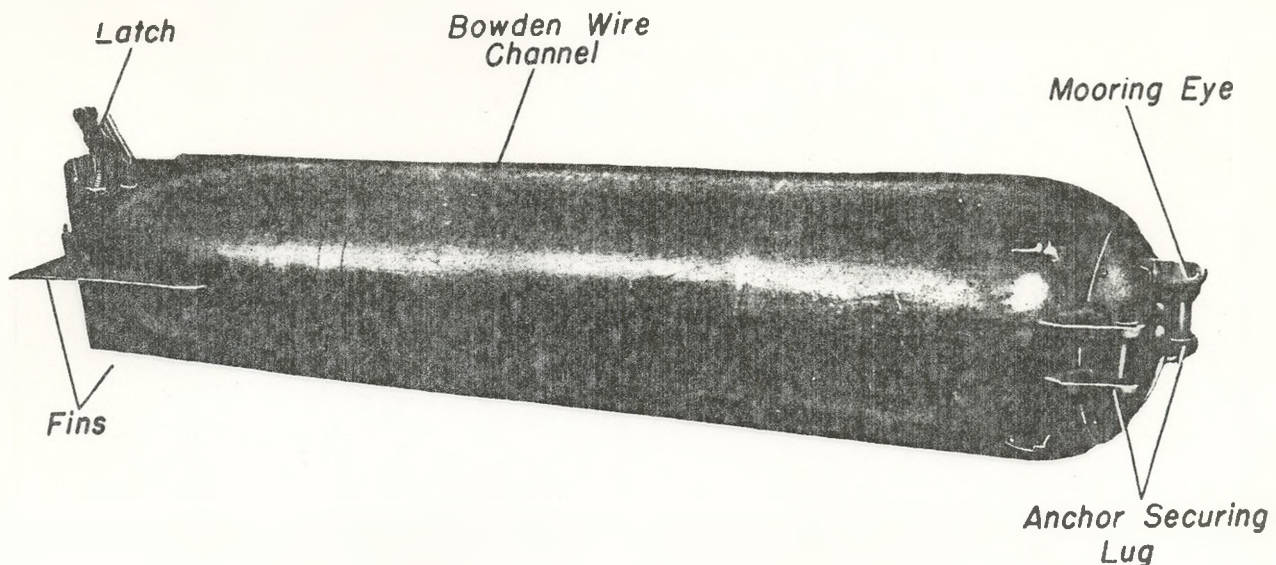


Figure 133—Mine Type GT

U.S. Designation

GU

1. Moored, contact, chemical horn mine, laid by surface craft or submarine.
2. Shape Two hemispheres joined by a cylindrical mid-section.
- Color Black
- Diameter 34"
- Length 46"
- Charge 360 lb. Hexanite
3. Offensive or defensive mine; maximum laying depth and case depth unknown.
4. Identification Features: Five horns, one in center of upper hemisphere; four equally spaced around upper hemisphere; depth taking hydrostat, mooring pulley and "come-along," mooring bracket and white metal mooring switch on lower hemisphere.

German Designation

EMA

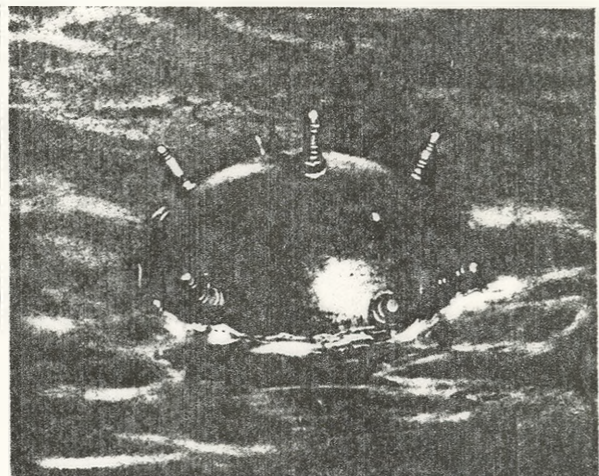


Figure 134—Mine Type GU, adrift

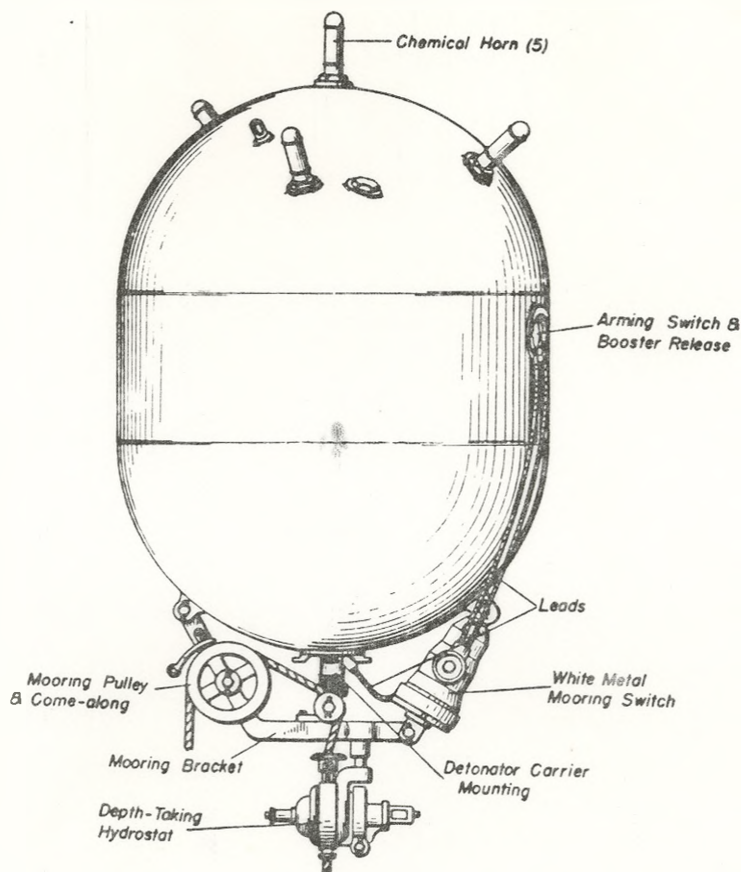


Figure 135—Mine Type GU, elevation view

U.S. Designation

GW

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Dark gray
Diameter 34"5
Charge 250 lb. TNT or Hexanite
3. Defensive mine for use in maximum depth of 50 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Five horns on upper hemisphere; two lifting eyes on upper hemisphere; mooring eye in center of lower hemisphere.

German Designation

(unknown)

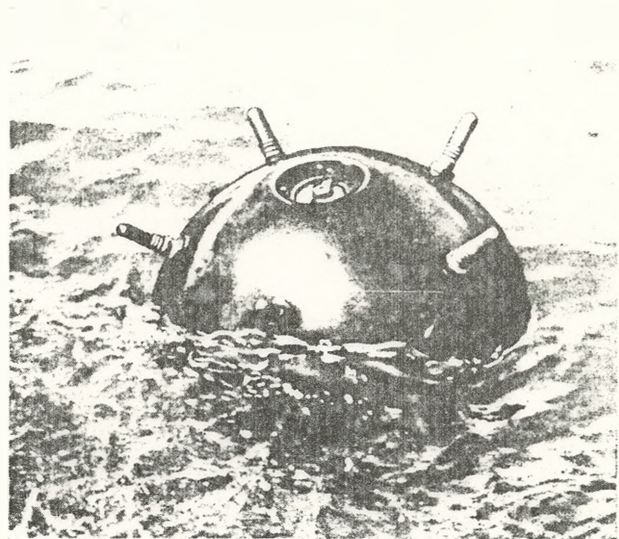


Figure 136—Mine Type GW, adrift

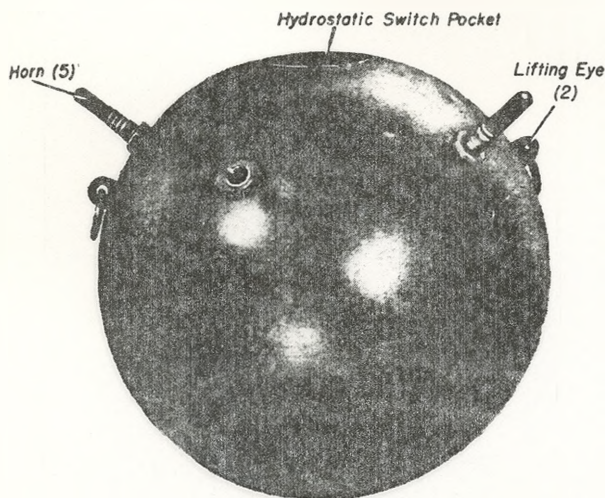


Figure 137—Mine Type GW

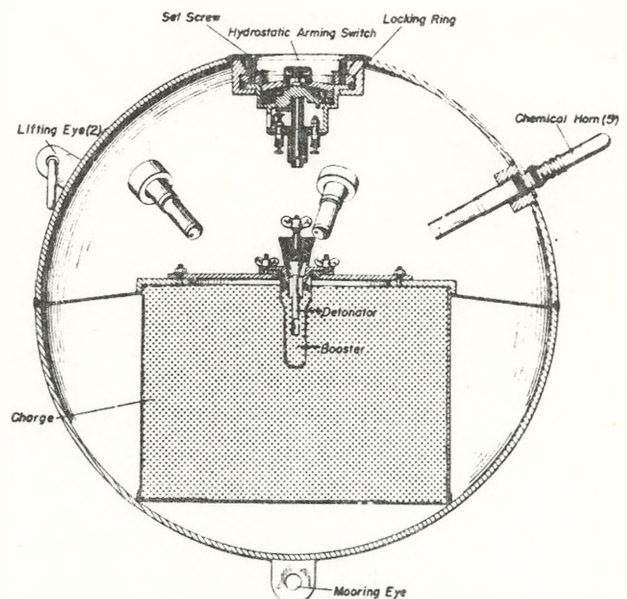


Figure 138—Mine Type GW, sectional view

U.S. Designation

GX

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 40"
Charge 330 lb. Hexanite
3. Offensive or defensive mine for use in maximum depth of 284 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Five horns, one on cover plate in center of upper hemisphere, four equally spaced around upper hemisphere; two lifting eyes in upper hemisphere.

GX*

1. } Same as GX.
2. }
3. }
4. Same as GX except that a small cover plate is fitted between the two lifting eyes, and the horn in the center of the upper hemisphere may be omitted.

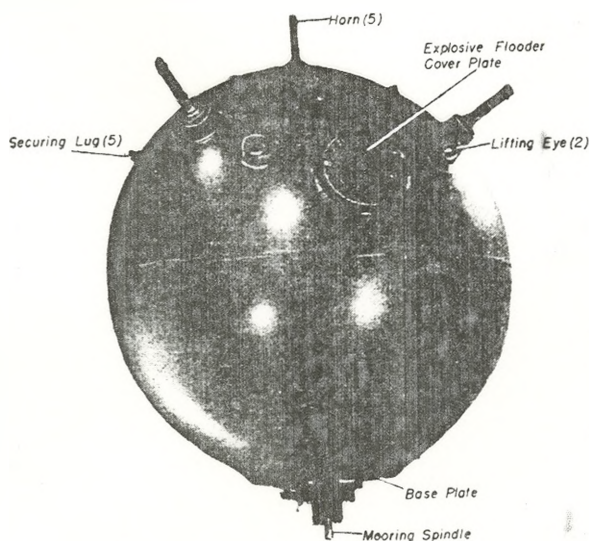


Figure 140—Mine Type GX*

German Designation

EMD

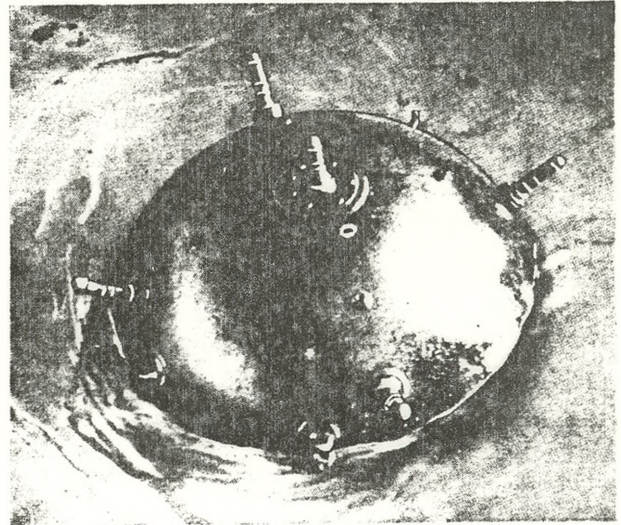


Figure 139—Mine Type GX, adrift

GV

1. Moored, contact, chemical horn mine, laid by surface craft. Fitted with upper antenna.
2. } Same as GX.
3. }
4. Same as GX* except that a dish-shaped electrode plate replaces the cover plate in the center of the upper hemisphere.

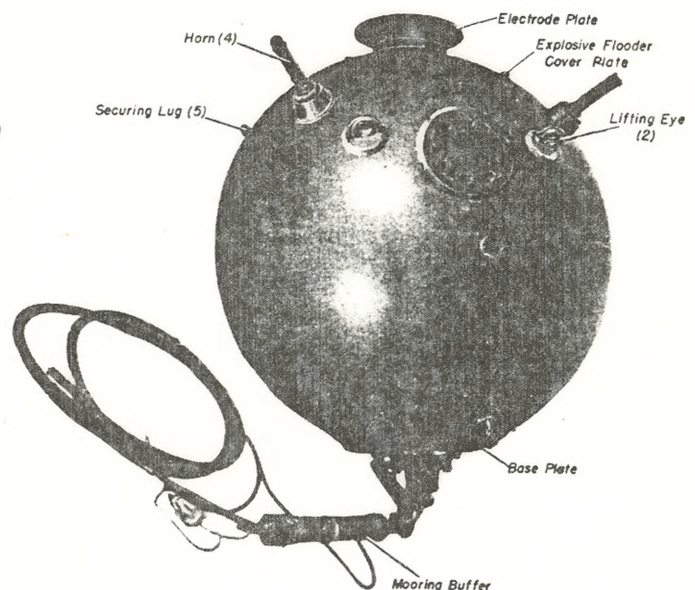


Figure 141—Mine Type GV

U.S. Designation

GY

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Two hemispheres, joined by a cylindrical mid-section.
Color Black
Diameter 46"
Length 48"5
Charge 660 lb. Hexanite
3. Offensive or defensive mine for use in maximum depth of 284 fathoms. Maximum case depth is 17 fathoms.
4. Identification Features: Seven horns, one on cover plate in center of upper hemisphere; four equally spaced around upper hemisphere; two on brackets on lower hemisphere; two lifting eyes on upper hemisphere.

GY*

1. } Same as GY.
2. }
3. }
4. Same as GY except that a small cover plate is fitted between the two lifting eyes.

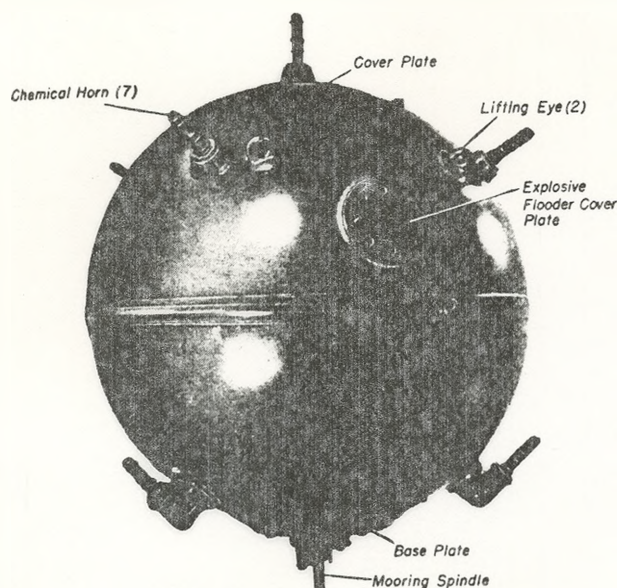


Figure 143—Mine Type GY*

German Designation

EMC

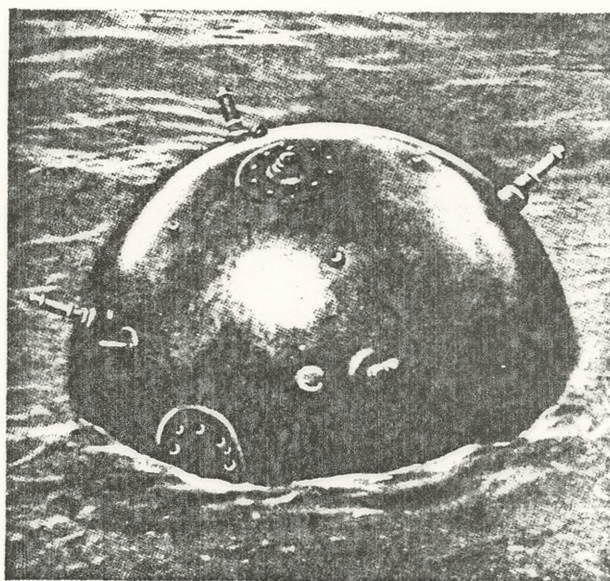


Figure 142—Mine Type GY, adrift

GV*

1. Moored, contact, chemical horn mine, laid by surface craft. Fitted with upper antenna.
2. } Same as GY.
3. }
4. Same as GY* except that a dish-shaped electrode plate replaces the cover plate and horn in the center of the upper hemisphere.

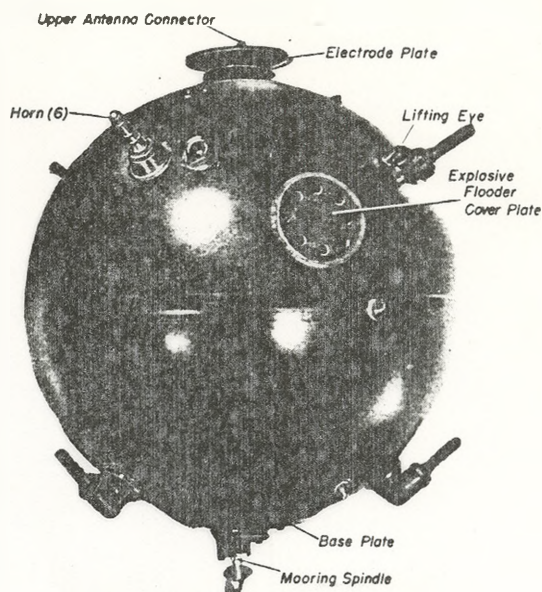


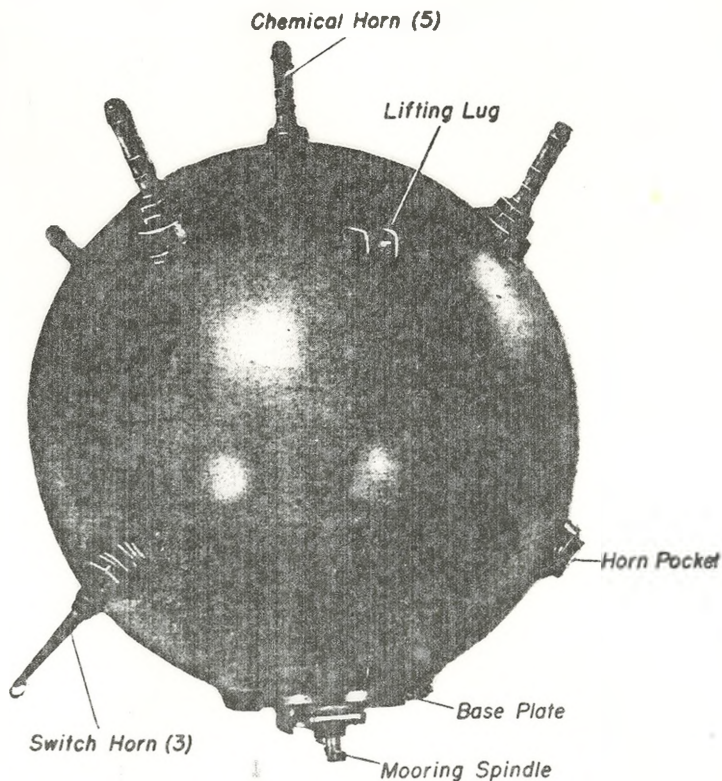
Figure 144—Mine Type GV*

U.S. Designation

GZ

1. Moored, contact, chemical and switch horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 32"
Charge 66 lb. Hexanite
3. Defensive mine for use in maximum depth of 59 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Eight horns, one chemical in center of upper hemisphere, four chemical around upper hemisphere, three switch on lower hemisphere; one lifting eye in upper hemisphere; one lifting lug in upper hemisphere.

German Designation

UMA**Figure 145—Mine Type GZ, adrift****Figure 146—Mine Type GZ**

U.S. Designation

**Explosive Conical Float Types
1 and 2**

1. Moored, contact, impact-direct action firing sweep obstructor, laid by surface craft.
2. Shape Conical upper section welded to hemispherical lower section.
Color Black
Diameter 15" max.
Length 37"
Charge 1 lb. 13 oz.
3. Defensive weapon for use in maximum depth of 60 fathoms against minesweeping gear. Maximum case depth unknown.
4. Identification Features: Shape of case; lifting eye on top; firing mechanism in base.

German Designation

Sprengboje

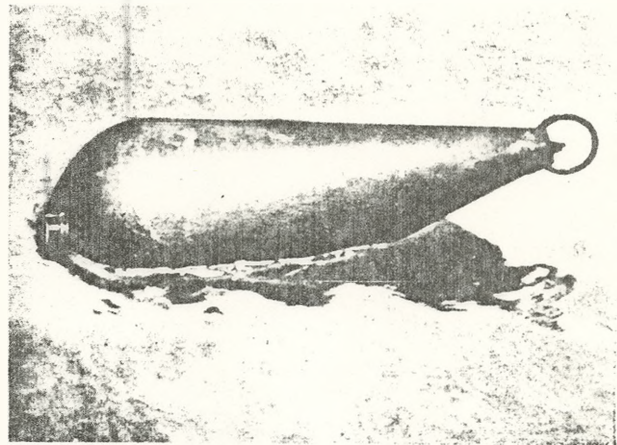


Figure 147—Explosive Conical Float, adrift

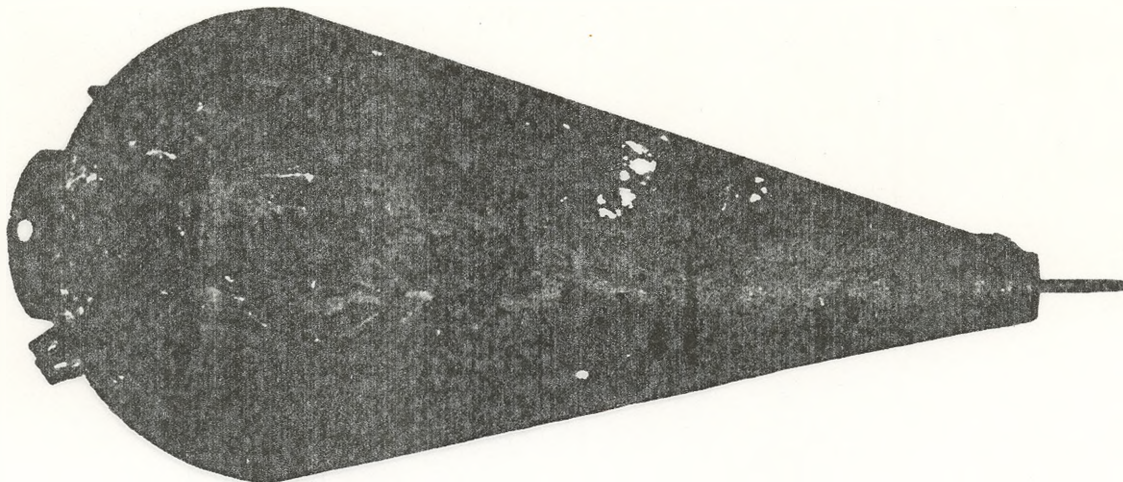


Figure 148—Explosive Conical Float

U.S. Designation

German Designation

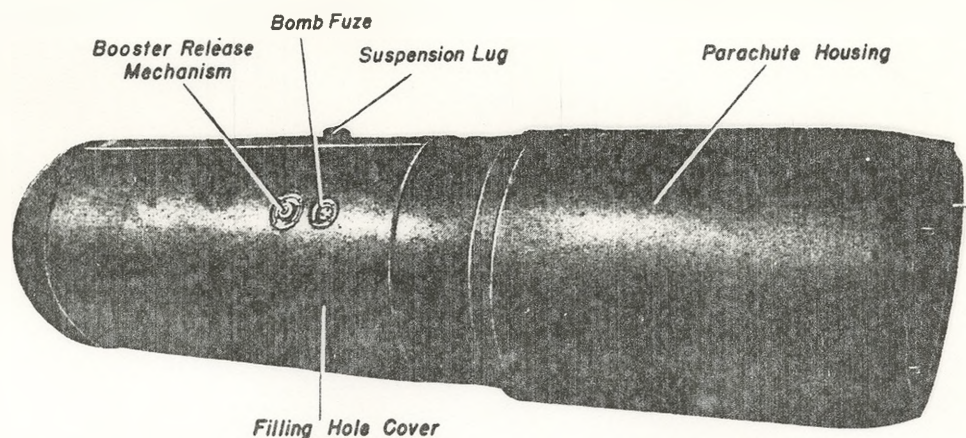
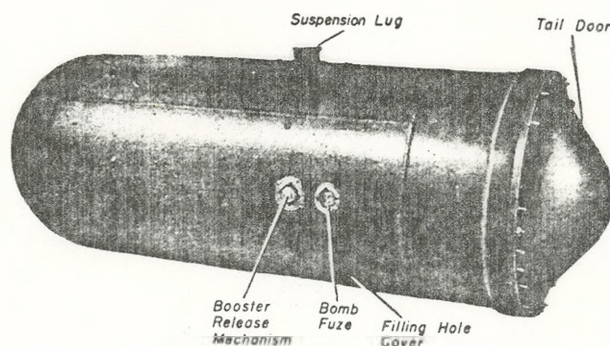
GC¹

LMB

GC²

1. Ground, influence mine, laid by aircraft with parachute. Magnetic dip-needle, acoustic, magnetic-acoustic, or magnetic-pressure firing.
2. Shape Cylindrical with hemispherical nose and tapered tail.
Color Dark green or black
Diameter 26"
Length 9'9½"
Charge 1535 lb. Hexanite
3. Offensive mine for use against surface craft. Maximum laying depth unknown.
4. Identification Features: Suspension lug on top center line; bomb fuze and booster release on side of case; hollow parachute housing on after end.

1. Same as GC¹ except that it is laid by surface craft.
2. Shape Cylindrical with hemispherical nose and rounded tail.
Color Black
Diameter 26"
Length 5'8½"
Charge 1535 lb. Hexanite
3. Same as GC¹.
4. Same as GC¹ except that the parachute housing and probably the bomb fuze are omitted.

Figure 149—Mine Type GC¹Figure 150—Mine Type GC²

U.S. Designation

German Designation

GG

BM 1000

1. Ground, influence, laid by aircraft (parachute may be used). Magnetic dip-needle, acoustic, or acoustic-pressure firing.
2. Shape Cylindrical with ogival nose and truncated, conical or hemispherical dome on tail. May be fitted with false nose and break-off tail section.
- Color Buff or light blue
- Diameter 26"
- Length 6'1"—6'4" depending on dome
- Charge 1600 lb. Hexanite
3. Offensive mine for use against surface craft. Maximum laying depth unknown.
4. Identification Features: Shape of dome on after end; suspension lug and bomb fuze on top center line.

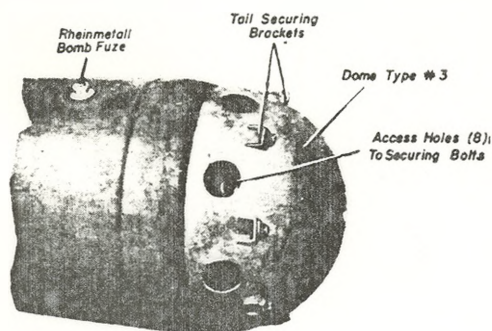


Figure 153—Mine Type GG, dome type No. 3

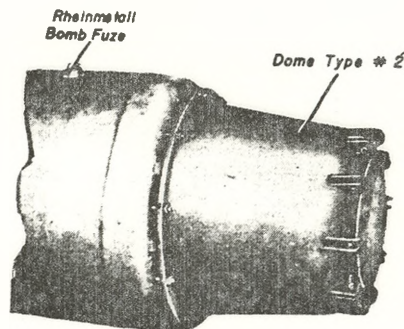


Figure 152—Mine Type GG, dome type No. 2

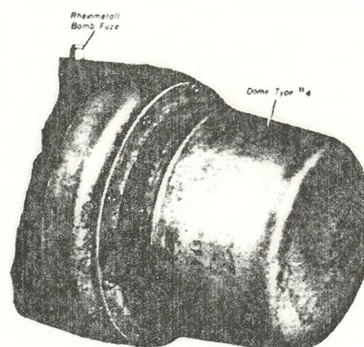


Figure 154—Mine Type GG, dome type No. 4

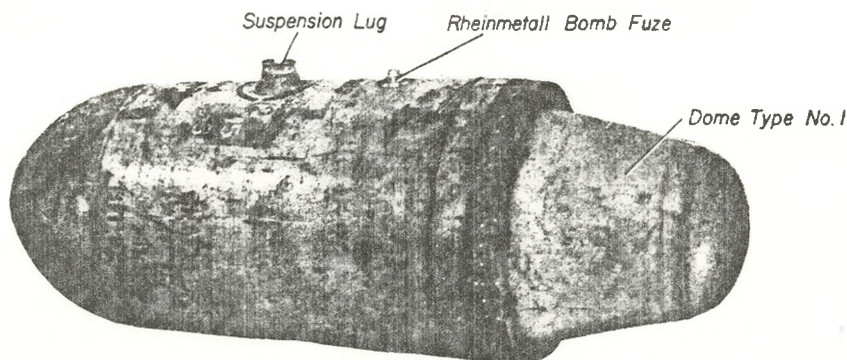


Figure 155—Mine Type GG, fitted with dome type No. 1

U.S. Designation

GH

1. Ground, influence, magnetic dip-needle mine, laid by surface craft. May be used as a controlled mine.
2. Shape Hemispherical. Supported by four-wheeled truck.
- Color Dark blue
- Diameter 50"
- Height 39"
- Charge 1200 lb. Hexanite
3. Defensive mine for use against surface craft. Maximum laying depth unknown.
4. Identification Features: Shape of case; four-wheeled truck support; drogue eye in center of cover plate; launching buffers on bottom edge.

German Designation

RMA

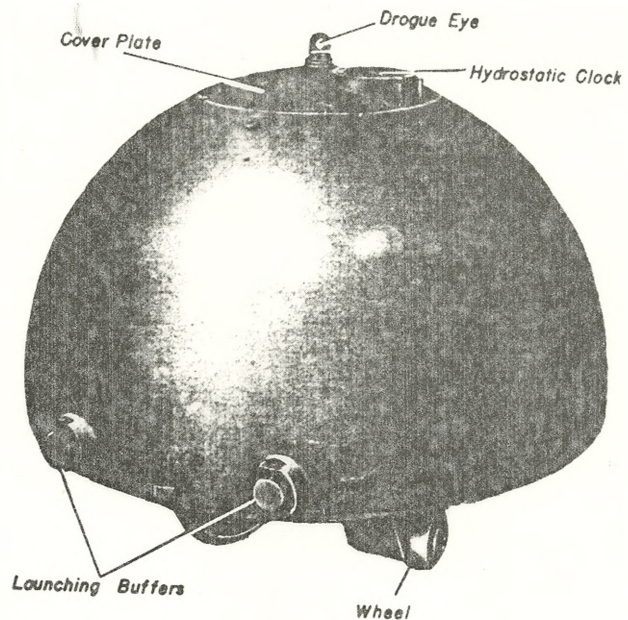


Figure 156—Mine Type GH

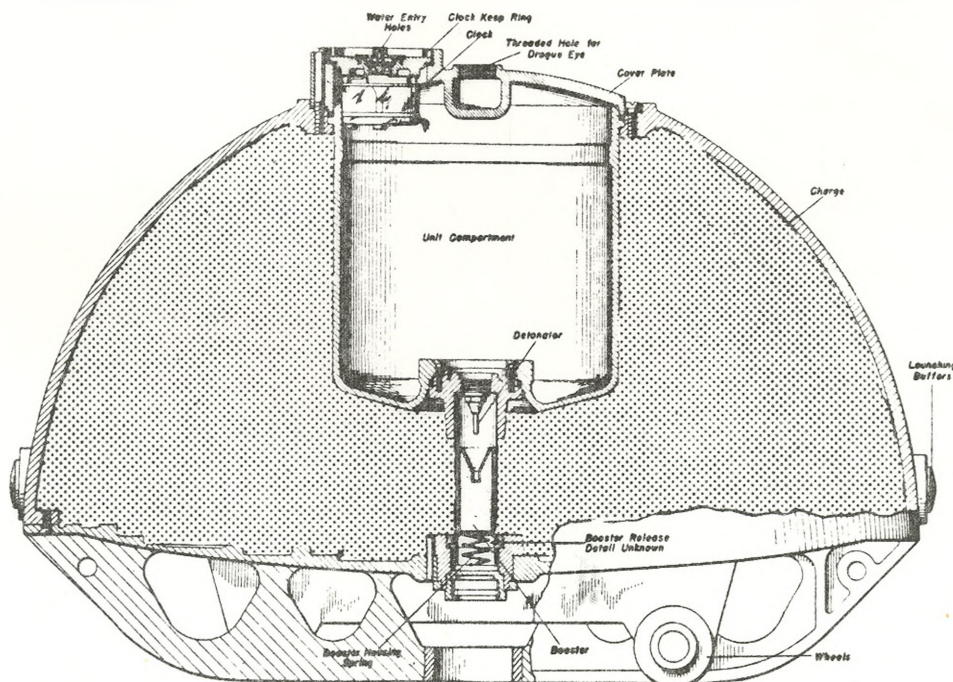


Figure 157—Mine Type GH rigged as controlled mine, sectional view

U.S. Designation

German Designation

GI

RMH

1. Ground, influence, magnetic dip-needle mine, laid by surface craft. May be used as controlled mine.
2. Shape Cuboidal. Supported by four-wheeled truck.
Color Brown (unpainted wood)
Length 3'5"
Width 3'1"5
Height 3'10"
Charge 1935 lb. Hexanite
3. Defensive mine for use against surface craft. Maximum laying depth unknown.
4. Identification Features: Shape of case; wood construction; cover plate on side; four-wheeled support truck.

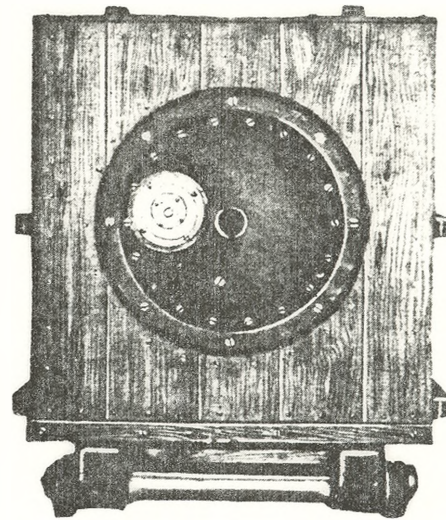


Figure 158—Mine Type GI

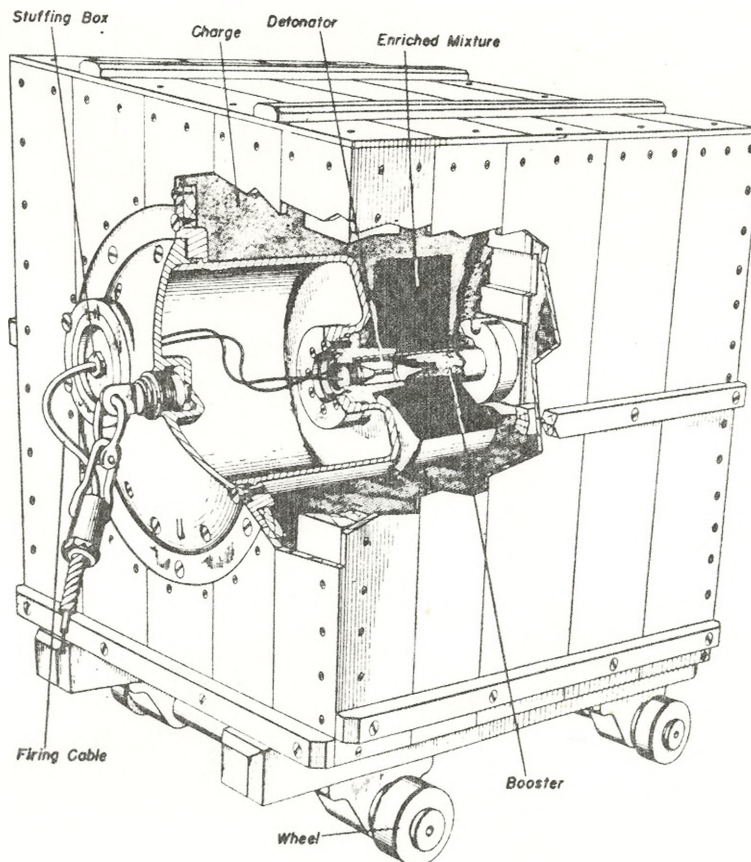


Figure 159—Mine Type GI, sectional view

U.S. Designation

GK

1. Ground, contact, chemical horn mine, laid by surface craft. Usually fitted with snag line.
2. Shape Rectangular, recessed concrete block, fitted with steel tripod on top.
 Color White or gray (unpainted)
 Length 47"
 Width 47"
 Height
 Base 20" (approx.)
 Overall 88"
 Charge 162 lb. Hexanite
3. Anti-invasion mine, for use in maximum depth of 5 fathoms against landing craft.
4. Identification Feature: General appearance.

German Designation

KMA

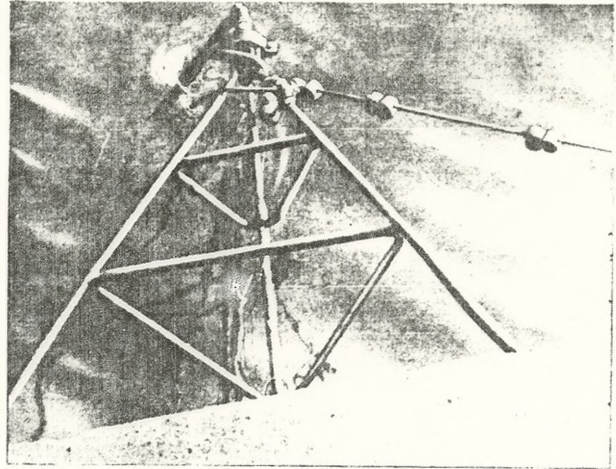


Figure 160—Mine Type GK

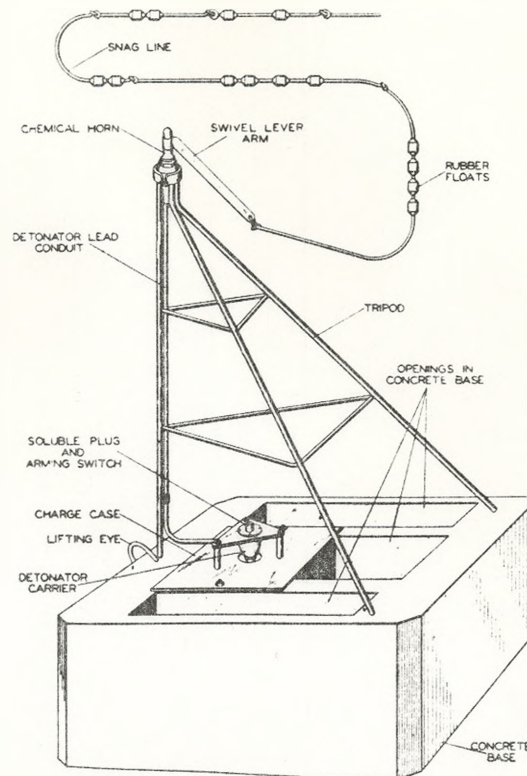


Figure 161—Mine Type GK, elevation view

U.S. Designation

German Designation

GS

1. Ground, influence mine, laid by submarine. Magnetic dip-needle, acoustic, magnetic-acoustic, or magnetic-pressure firing.
2. Shape Cylindrical, with hemispherical ends. Deflecting fin on tail.
Color Black or buff
Diameter 21"
Length 7'7"⁵
Charge 1221 lb. Hexanite
3. Offensive mine for use against surface craft. Maximum laying depth unknown.

TMB

4. Identification Features: Positioning lug and three pockets on top center line; deflecting fin on tail.

GN (German Des. TMC)

1. Same as GS.
2. Shape Cylindrical, with hemispherical ends.
Color Black or buff
Diameter 21"
Length 11' 11¹/₂"
Charge 2000 lb. Hexanite
3. Same as GS.
4. Same as GS.

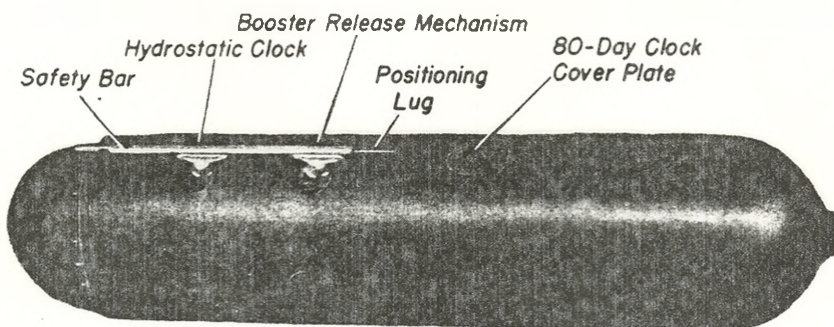


Figure 162—Mine Type GS



Figure 163—Mine Type GN

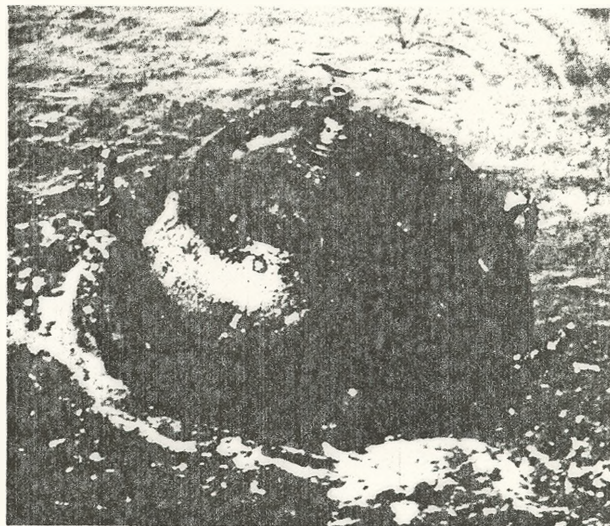
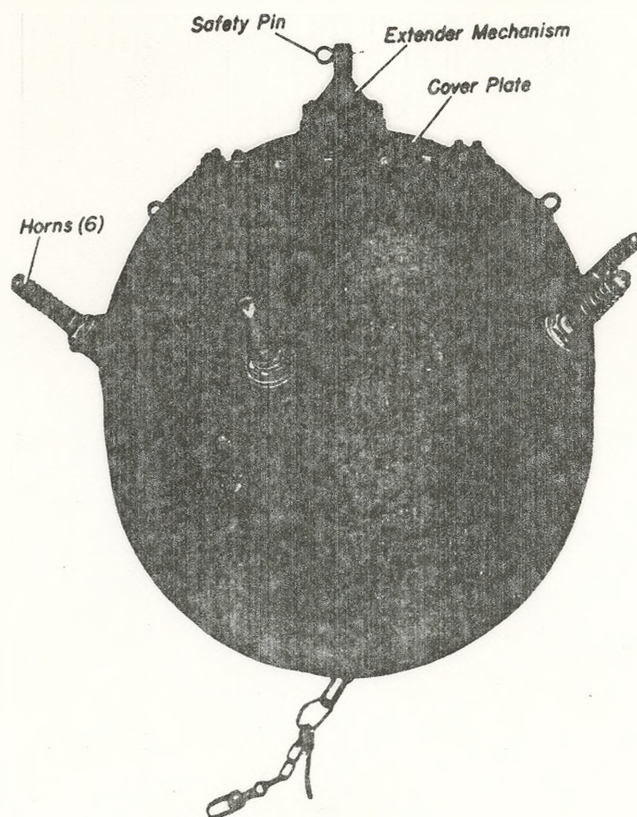
Chapter 7

ITALIAN MINES

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IK	90
IL	91
IM	92
IN	93
IO	94
IP	95

U.S. Designation**II**

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Two hemispheres joined by a cylindrical mid-section.
Color Black
Diameter 33"
Length 40"
Charge 275 lb. TNT
3. Defensive mine for use in maximum depth of 165 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Six horns equally spaced around upper hemisphere; name plate on upper hemisphere; extender mechanism on cover plate in center of upper hemisphere.

Italian Designation**Torpedine aep 125/1933 Bollo****Figure 164—Mine Type II, adrift****Figure 165—Mine Type II**

U.S. Designation

IJ

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 38"
Charge 320 lb. TNT
3. Defensive mine for use in maximum depth of 32 fathoms against surface craft or submarines. Maximum case depth unknown.
4. Identification Features: Seven horns, four equally spaced around upper hemisphere, one in center of upper hemisphere, two on lower hemisphere on brackets; two lifting eyes on upper hemisphere; name plate on lower hemisphere.

Italian Designation

Torpedine aep 145/1935

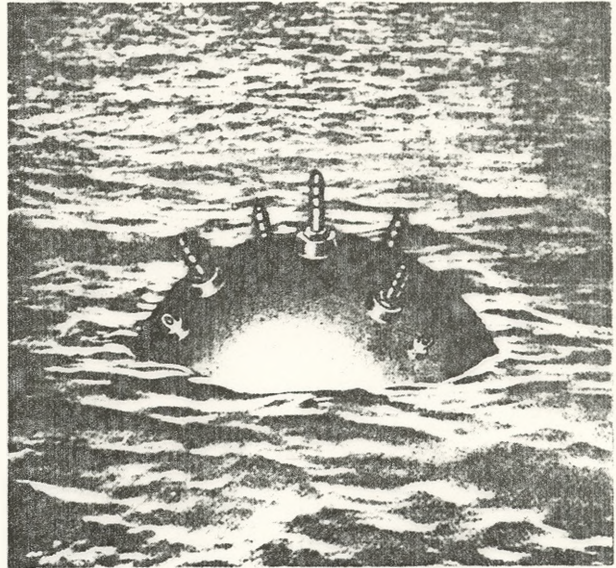


Figure 166—Mine Type IJ, adrift

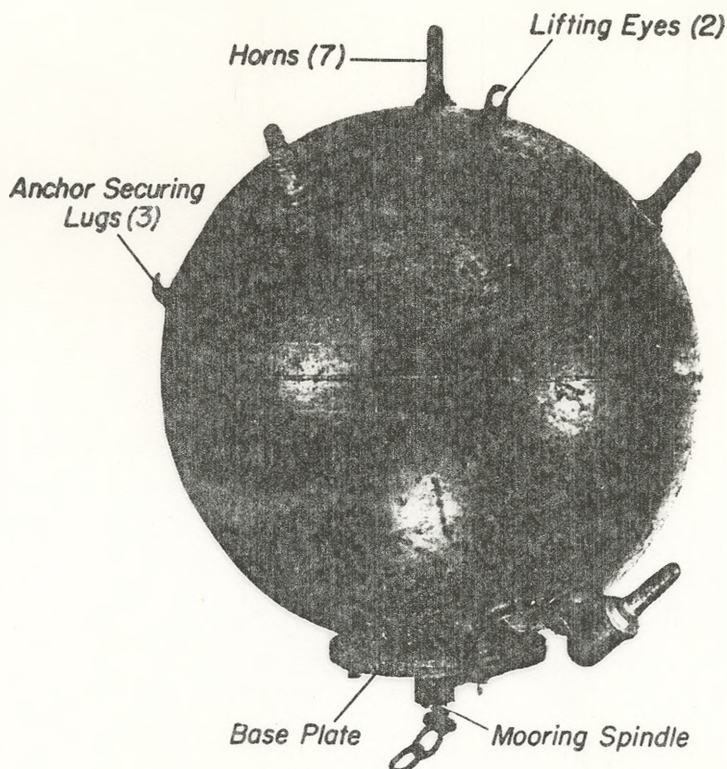


Figure 167—Mine Type IJ

U.S. Designation

IK

1. Moored, contact, chemical horn mine, laid by surface craft. May be fitted with upper antenna.
2. Shape Spherical
Color Black
Diameter 40 7/8
Charge 440 lb. TNT
3. Defensive mine for use in maximum depth of 55 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Nine horns, one in center of upper hemisphere, four equally spaced around upper and lower hemispheres, respectively; four lifting eyes, two on upper and two on lower hemisphere.

Italian Designation

Torpedine aep 200/1936

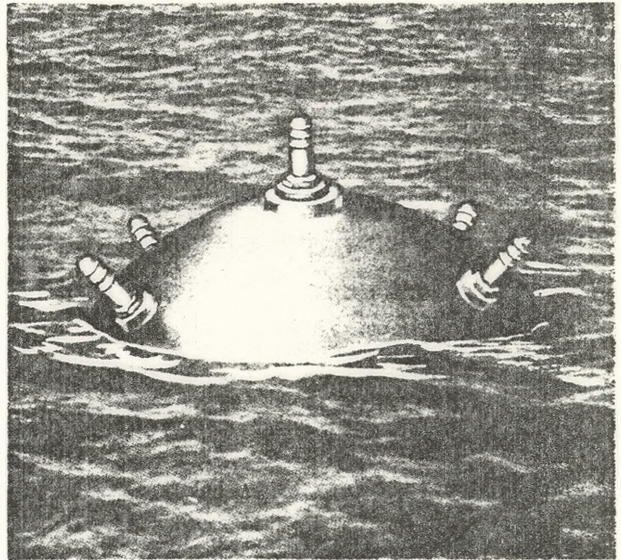


Figure 168—Mine Type IK, adrift

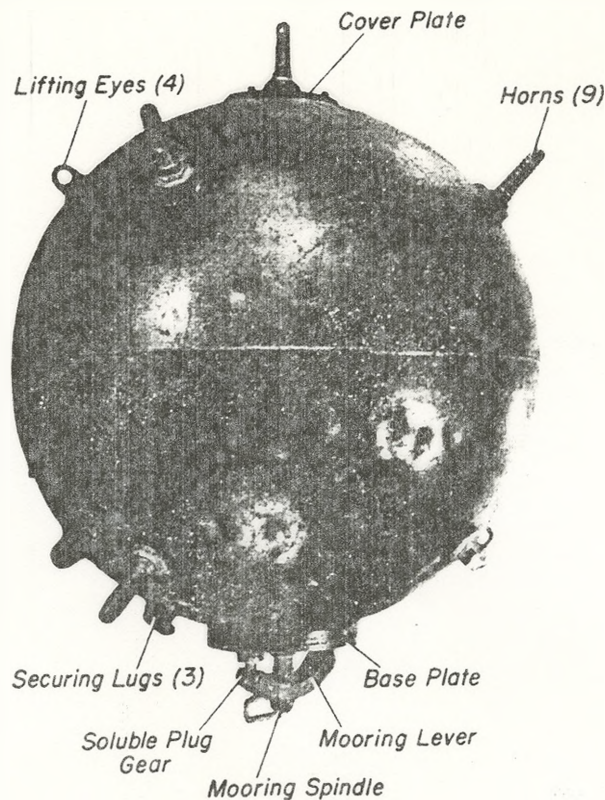


Figure 169—Mine Type IK

U.S. Designation

IL

1. Moored, contact, chemical horn mine, laid by submarine.
2. Shape Two truncated spheres joined by a cylindrical band.
Color Black
Diameter 36"
Length 54"
Charge 260 lb. TNT
3. Defensive mine for use in maximum depth of 275 fathoms against submarines or surface craft. Maximum case depth is 55 fathoms.
4. Identification Features: Shape of case; seven horns, four equally spaced around upper sphere, three on brackets on lower sphere; twelve positioning lugs, three sets of four each with two sets on upper sphere and one set on lower sphere.

Italian Designation

Torpedine aep 150/1935

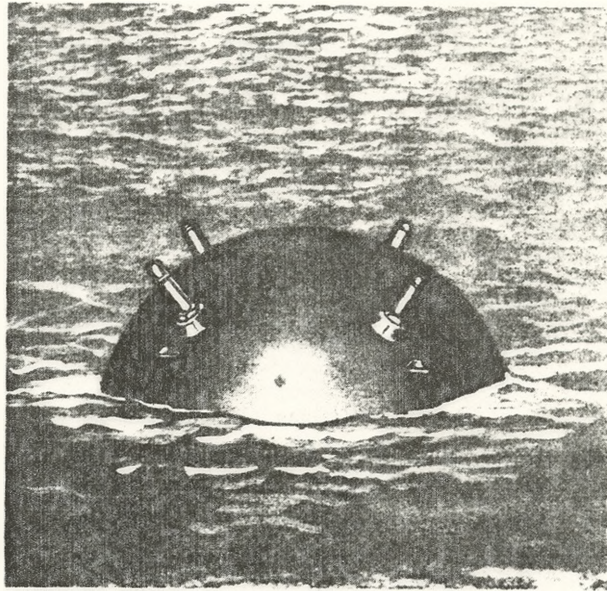


Figure 170—Mine Type IL, adrift

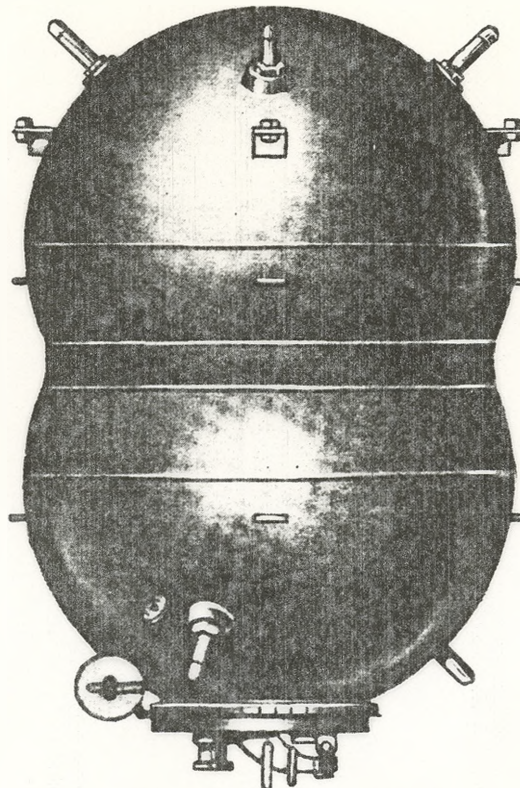


Figure 171—Mine Type IL

U.S. Designation**IM**

1. Moored, contact, hydrostatic horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 30"
Charge 170 lb.
3. Defensive mine for use in maximum depth of 55 fathoms against surface craft. Maximum case depth unknown.
4. Identification Features: Four horns equally spaced around upper hemisphere; safety valve pistol in upper hemisphere between two horns.

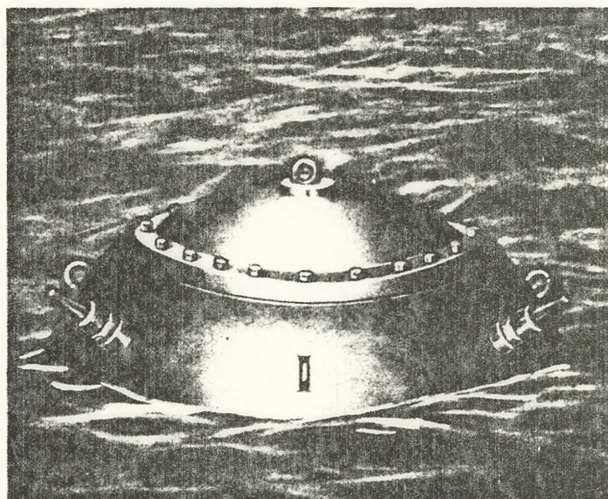
Italian Designation**Torpedine AM 70/1916 Harle**

Figure 172—Mine Type IM, adrift

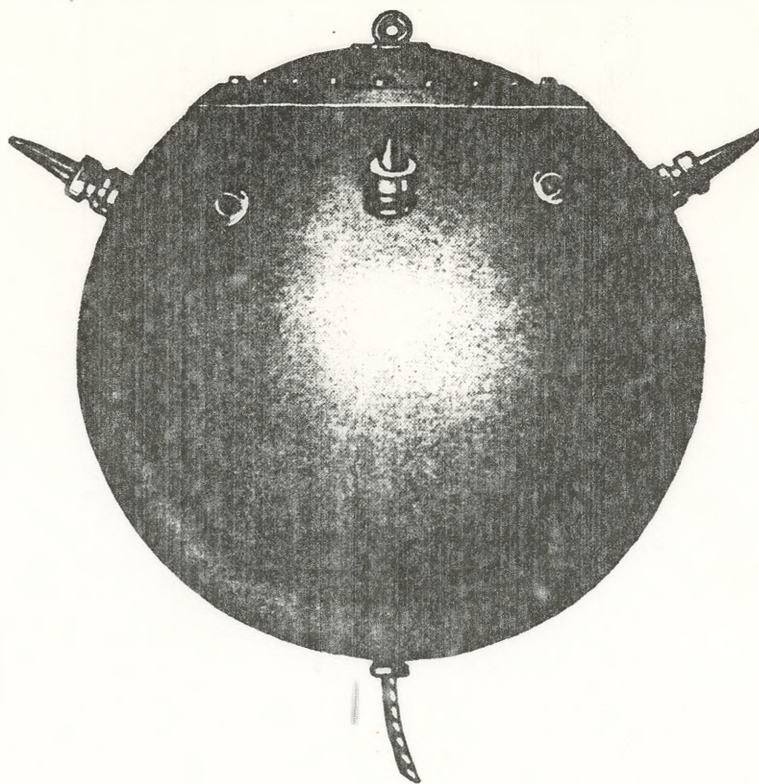


Figure 173—Mine Type IM

U.S. Designation

IN

1. Drifting, contact, mechanical-horn mine, laid by aircraft.
2. Shape Cylindrical with hemispherical ends.
Color Black
Diameter Unknown
Charge 154 lb. TNT

Italian Designation

Aircraft Mine 70/1918

3. Offensive mine for use against surface craft. Depth of drifting case is five feet.
4. Identification Features: Six horns equally spaced around upper end; float secured to upper end by five foot pendant; three spring clips on upper end; three legs on lower end; bucket-shaped sea anchor.

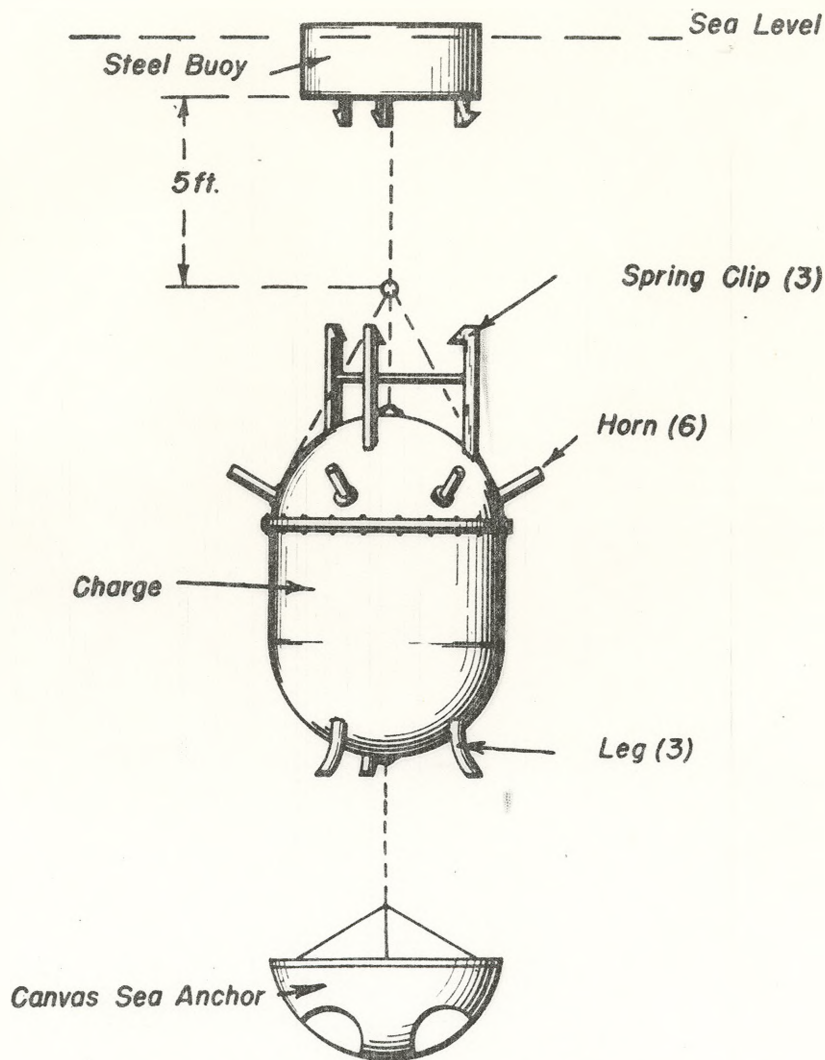


Figure 174—Mine Type IN, armed position, elevation view

*U.S. Designation***IO**

1. Oscillating, contact, impact-inertia fired mine, laid by surface craft or by aircraft with parachute.
2. Shape Cylindrical, with truncated conical nose. Fitted with cylindrical skirt on after end.
- Color Gray
- Diameter 18"

*Italian Designation***Torpedine Beta**

- | | |
|--------|----------------|
| Length | 8'1"5 |
| Charge | 425 lb. Torpex |
3. Offensive mine for use in rivers, harbors and anchorages against shipping, docks, dams, bridges, etc. Set depths unknown.
 4. Identification Features: Shape of case; suspension lug on top center line.

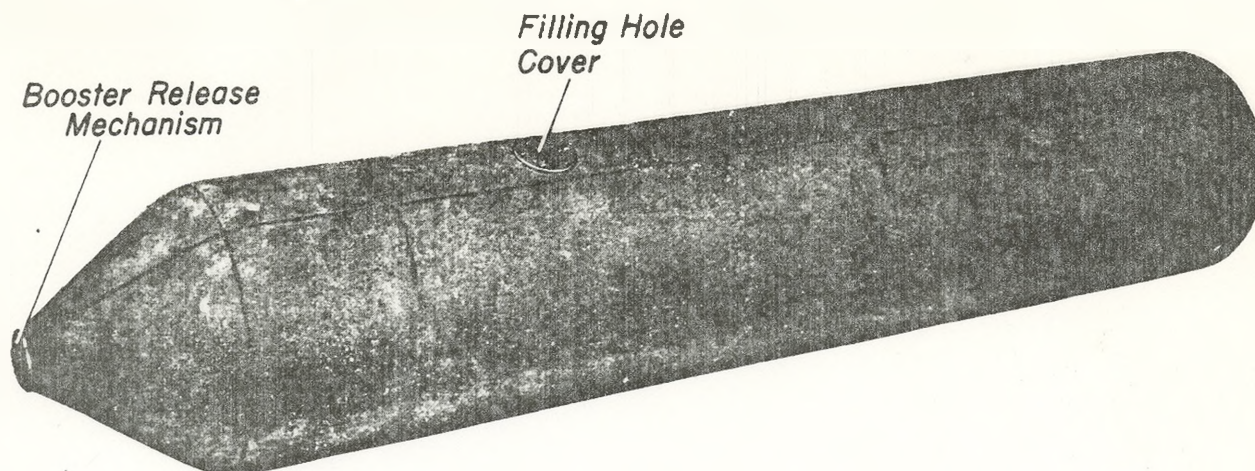


Figure 175—Mine Type IO

ITALIAN GROUND MINES

U.S. Designation

IP

1. Ground, contact, galvanic mine, laid by aircraft with parachute. Fitted with antenna.
2. Shape Cylindrical with rounded nose. Fitted with cylindrical skirt on after end.
- Color Brown or gray-green
- Diameter 18"

Italian Designation

Torpedine Tipo V

- Length 8'2"
- Charge 739 lb. (type unknown)
3. Offensive mine for use in maximum depth of 19 fathoms against surface craft.
4. Identification Features: Shape of case; float release bail; lifting eye in nose.

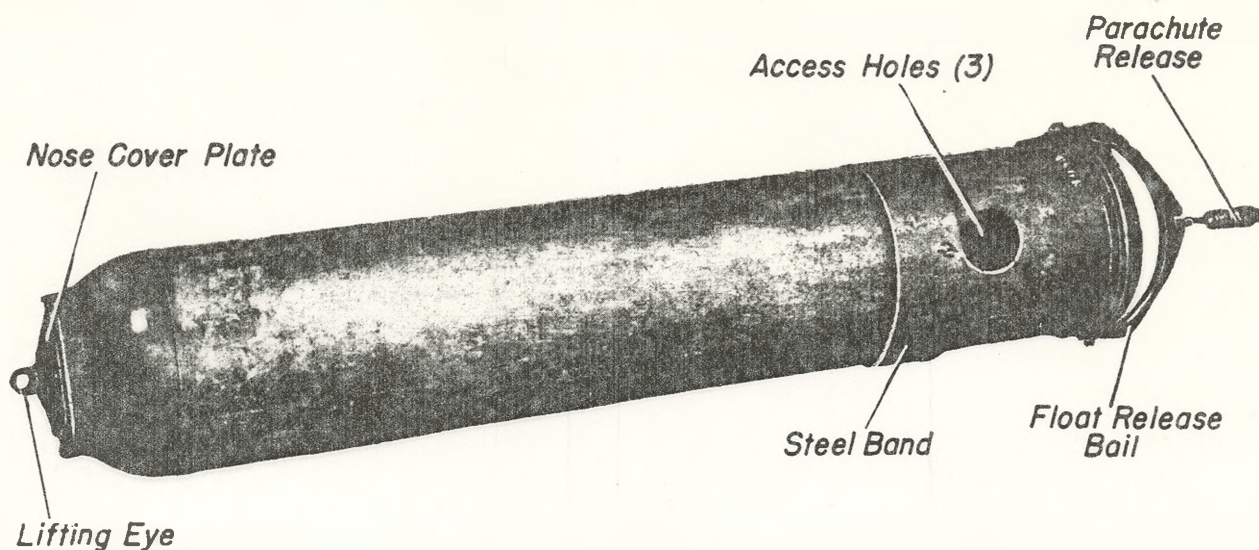


Figure 176—Mine Type IP

Chapter 8

DUTCH AND FRENCH MINES

Dutch Vickers Mine	98
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Dutch Percussion Mine	100
French Sautter Harle	101
French Breguet (Bridle Type)	102
French Breguet (Shear Horn Type)	103

U.S. Designation

Dutch Designation

Vickers Mine

(unknown)

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Two hemispheres joined by a cylindrical mid-section.
Color Black over red lead
Diameter 36"
Length Unknown
Charge Unknown
3. Defensive mine. Expected laying depths and intended targets unknown.
4. Identification Features: Six horns, four equally spaced around upper hemisphere, two on lower hemisphere; large dome-shaped cover plate.

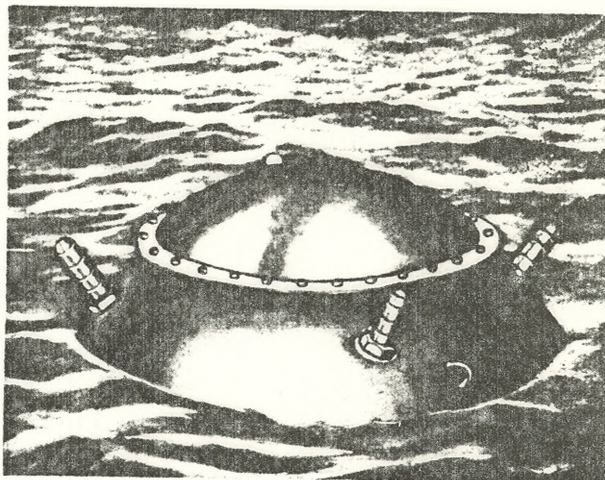


Figure 177—Dutch Vickers Mine, adrift

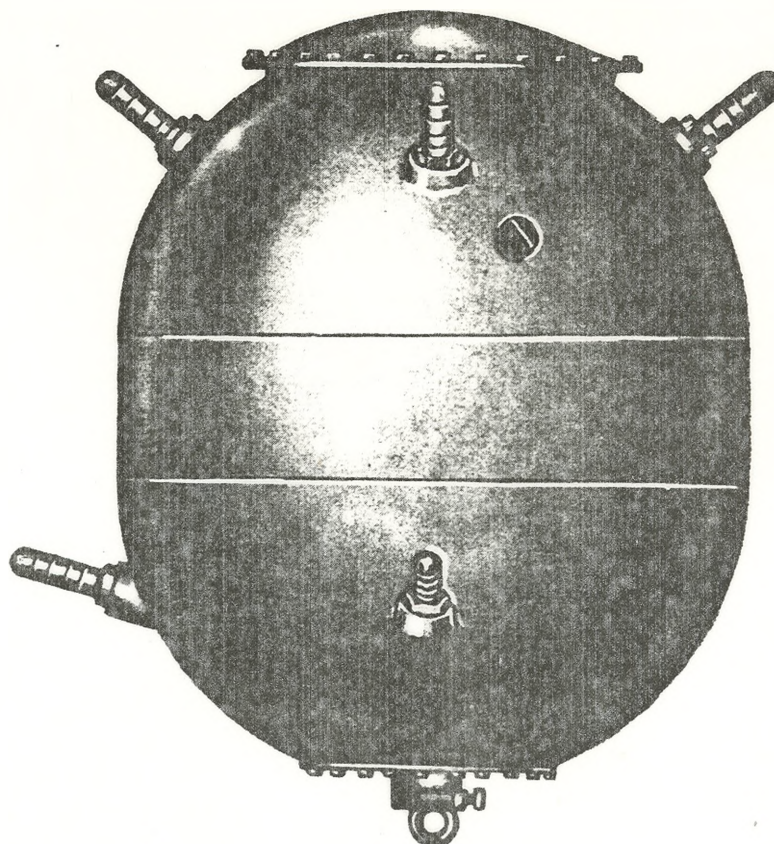


Figure 178—Dutch Vickers Mine

U.S. Designation

Seven Horn Mine

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 39" (approx.)
Charge 300 lb.
3. Defensive mine. Expected laying depths and intended targets unknown.
4. Identification Features: Seven horns, one in center of cover plate, four equally spaced around upper hemisphere, two on lower hemisphere mounted on bosses.

Dutch Designation

(unknown)

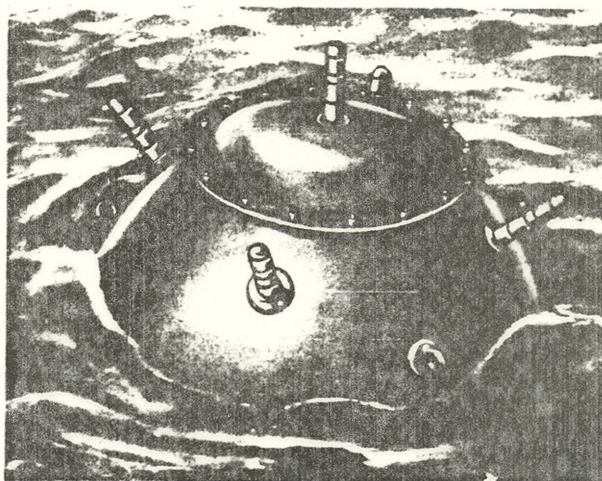


Figure 179—Dutch Seven Horn Mine, adrift

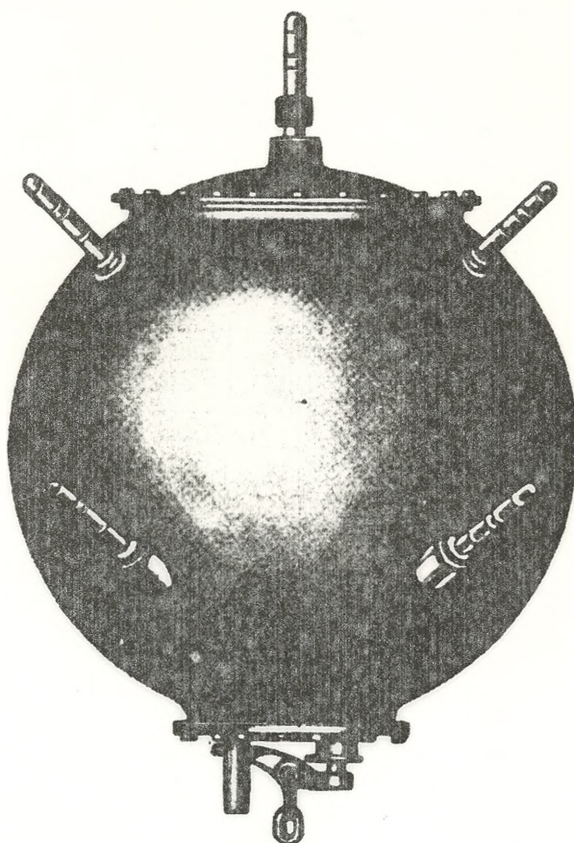
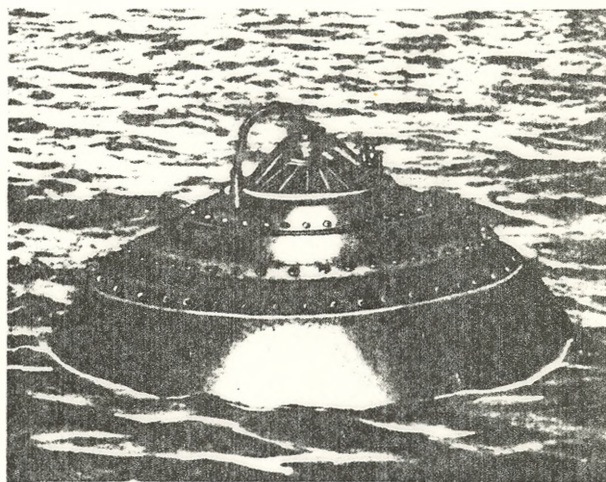
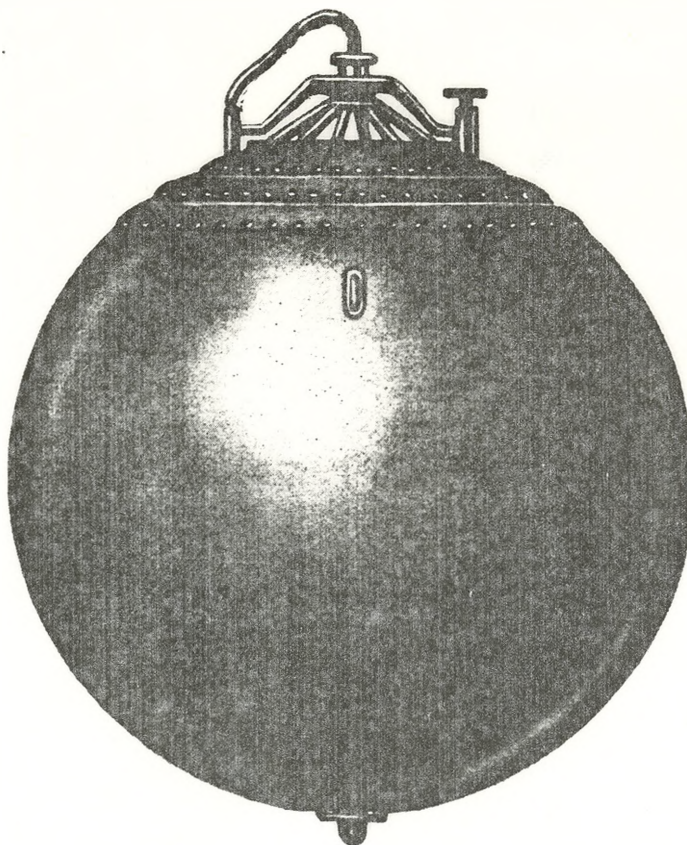


Figure 180—Dutch Seven Horn Mine

U.S. Designation**Percussion Mine**

1. Moored, contact, impact-inertia fired mine, laid by surface craft.
2. Shape Spherical
Color Black
Diameter 35"
Charge 200 lb.
3. Defensive mine for use against surface craft. Maximum depth of case when moored is 6½ fathoms.
4. Identification Features: Arming hydrostat cupola in center of cover plate and secured with a strongback; mooring cable swivel at center of lower hemisphere.

Dutch Designation**(unknown)****Figure 181—Dutch Percussion Mine, adrift****Figure 182—Dutch Percussion Mine**

DUTCH AND FRENCH BUOYANT MINES

U.S. Designation

Sautter Harle

1. Moored, contact, hydrostatic horn mine, laid by submarine.
2. Shape Spherical
Color Black
Diameter 40"5
Charge 480 lb. TNT
3. Offensive mine for use in maximum depth of 110 fathoms.
4. Identification Features: Four horns on upper hemisphere; cover plate fitted with cross-shaped horn release; bowden windlass located off-center in lower hemisphere; elliptical anchor securing device welded to case.

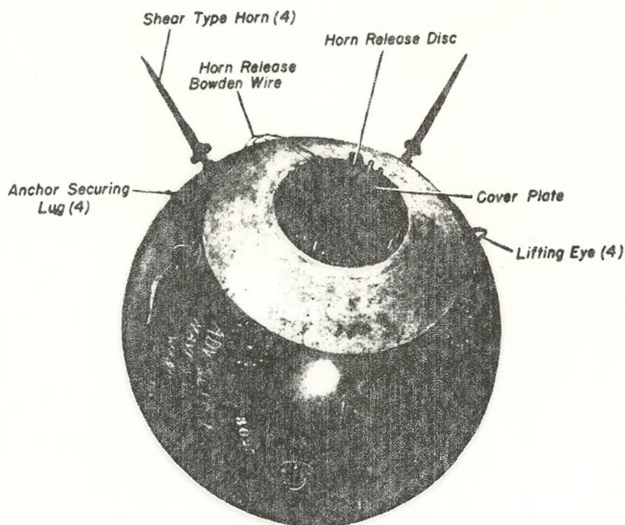


Figure 184—Sautter Harle Mine, top view

French Designation

HS4

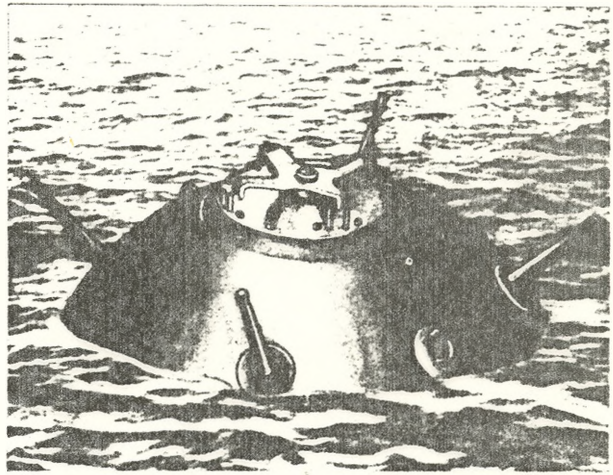


Figure 183—Sautter Harle Mine, adrift

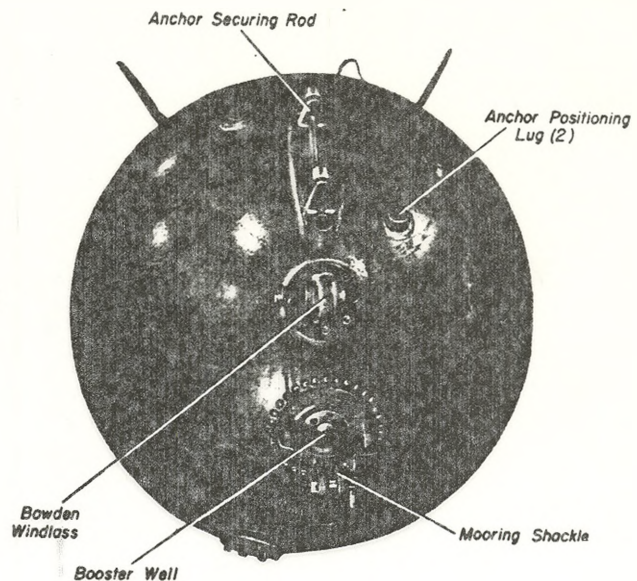
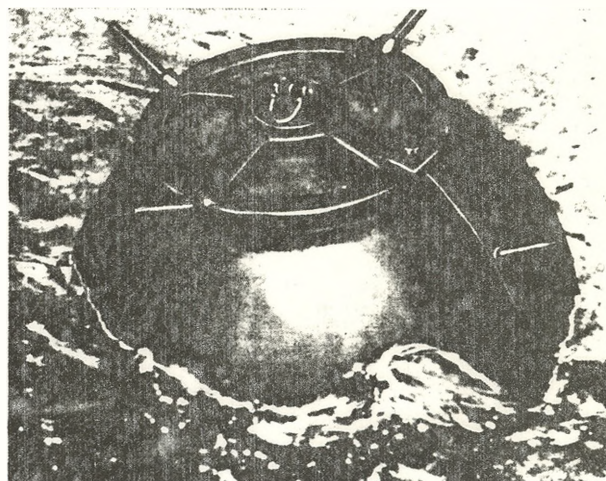
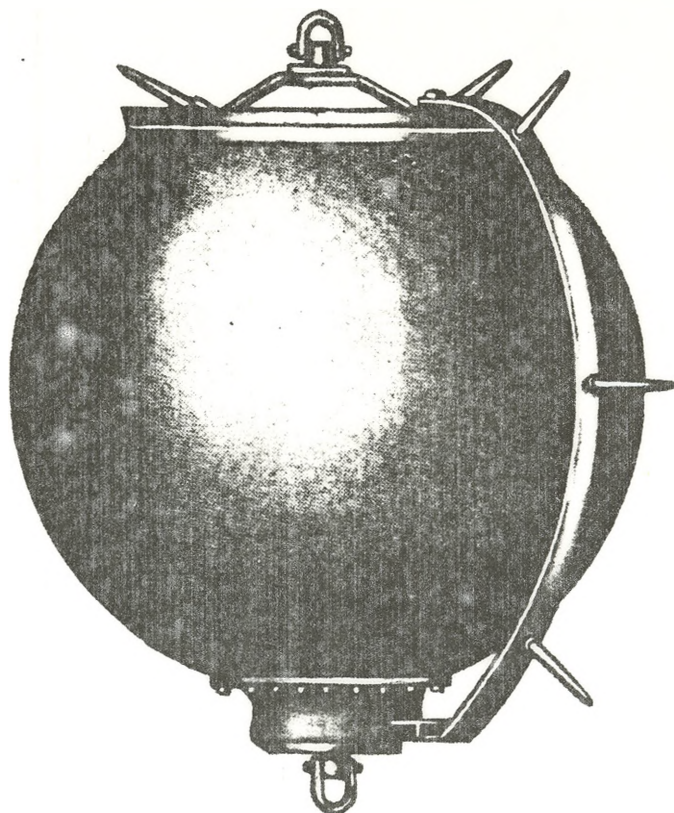


Figure 185—Sautter Harle Mine, bottom view

U.S. Designation**French Designation****B-1****Breguet (bridle type)**

1. Moored, contact, mechanical horn mine, laid by surface craft.
2. Shape Spherical
Color Black or galvanized metal
Diameter 30"
Charge 92 lb. gun cotton
3. Defensive mine for use in maximum depth of 55 fathoms against surface craft.
4. Identification Feature: Semi-circular firing bridle, pivoted at center of upper and lower hemisphere and fitted with six steel spike horns.

**Figure 186—Breguet Mine (Bridle Type), adrift****Figure 187—Breguet Mine (Bridle Type)**

DUTCH AND FRENCH BUOYANT MINES

U.S. Designation

Breguet (shear horn type)

1. Moored, contact, hydrostatic horn mine, laid by surface craft.
2. Shape Spherical
Color Black or galvanized metal
Diameter Unknown
Charge 176 lb. cast TNT
3. Defensive mine for use in maximum depth of 84 fathoms against surface craft and sub-

French Designation

B4M

marines. Maximum case depth is 49 fathoms.

4. Identification Features: Six horns, four on upper hemisphere and two on lower hemisphere; two mooring shackle-securing eyes on lower hemisphere; three anchor securing lugs, one on upper and two on lower hemisphere.

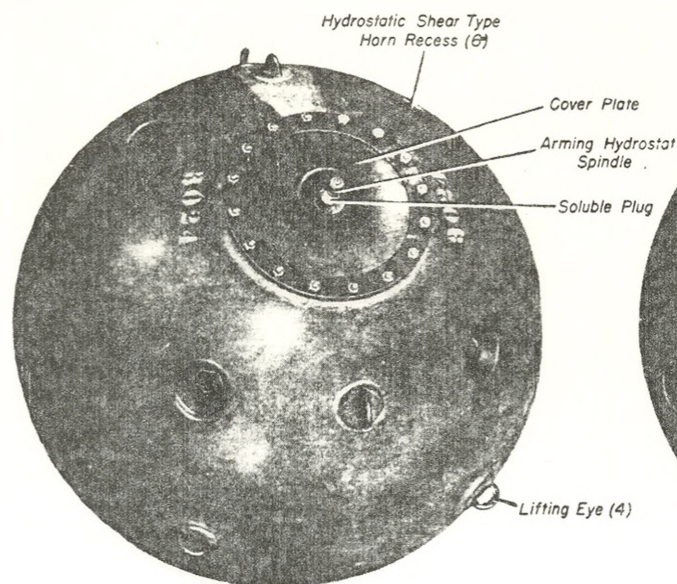


Figure 188—Breguet Mine (Shear Horn Type), top view

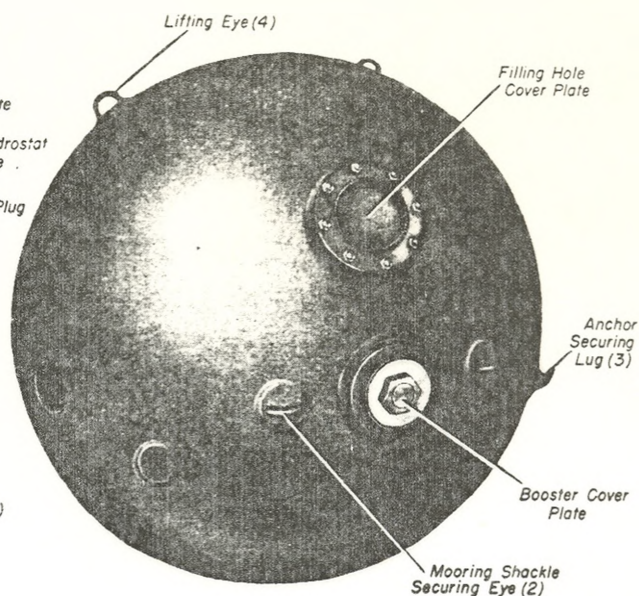


Figure 189—Breguet Mine (Shear Horn Type), bottom view

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