

MINE DISPOSAL HANDBOOK

PART V

ITALIAN UNDERWATER ORDNANCE

.

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Contact
Mines

MINE DISPOSAL HANDBOOK

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CHAPTER I

ITALIAN CONTACT MINES

Mine Type	Italian Designation	Laid By	Charge Wt. (lb.)	Firing Methods	Dimensions		Depth Taking	Maximum Depth (ft.)	Total Weight in Air (lb.)	Remarks
					Dia. (in.)	Length (in.)				
II	Torpedine aep 125/1933	S/C	275	Six chemical horns	33	40	Plummet	990	488	
IJ	Torpedine aep 145/1935	S/C	320	Seven chemical horns	38	38	Plummet	191	685	
IK	Torpedine aep 200/1936	S/C	440	Nine chemical horns	40 1/2	40 1/2	Plummet	330 case	851	Known to have been fitted with acoustic unit.
IL	Torpedine aep 150/1935	Sub	260	Seven chemical horns	36	54	Explosive pawl	1650 anchor 330 case	Unknown	
IM	Torpedine A.M. 70/1916 Harle	S/C	170	Hydrostat valve	30	30	Plummet	330	Unknown	
IN	Aircraft Mine 70/1918	A/C	154	Mechanical	Unknown		Suspended from buoy	5	Unknown	Drifter
IO	Torpedine Beta	S/C or A/C	425	Inertia-impact	18	104	Drifter		780	Fitted with PSE and scuttling clock.
IP	Torpedine Tipo V	A/C	739	Antenna (Galvanic action)	18	98	Ground		1101	Fitted with PSE.

Introduction

1. Although more than sixty models and modifications of Italian mines are believed to exist, this chapter discusses only those which have been recovered or concerning which reasonably complete intelligence information is available. It is believed that the other types either are obsolete or never progressed beyond the design stage. It is not considered likely that types other than those treated herein will be encountered by field personnel.
2. Almost no generalizations can be drawn with respect to Italian mine design. Although some of the mine firing devices and accessories incorporate unique features in the field of mine design, it will be noted that the various mine types described herein (i.e., those believed to be in service) reflect British, French and German design techniques for the most part and present but few original features. The mines vary considerably both in appearance and in the depth-taking and firing methods employed.
3. Particular care should be exercised when dealing with the moored contact type of mine which carries horns on its lower hemisphere, provided that the horns are not fitted on brackets. The position of the horn relative to the vertical is such that gravity prevents the electrolyte from running down into a horn battery when the vial is crushed. For this reason, each such horn contains a gas-charged vial in addition to the electrolyte ampoule, the purpose of the vial being to force the electrolyte up into the horn battery. Should one of these horns be broken, danger to personnel exists in that acid may be sprayed in the surrounding area, even though the mine firing mechanism has been rendered safe.
4. P.S.E.'s will be found fitted to the tail cover plates of both the Mines Type IO and IP. These devices, however, provide little difficulty in RMS because, in each case, access to the mine case is readily obtained elsewhere.
5. The following precautions should generally be observed when dealing with Italian contact mines:
 - (a) Be particularly careful not to bend or damage the horns in any way. This is of particular importance since some Italian mines contain mechanical horn firing systems which operate on horn movement.
 - (b) Do not move or jar the mine except from a safe distance.
 - (c) Do not allow metallic objects to contact antennae or electrodes.
 - (d) Note that boosters and detonators are permanently married upon completion of arming.
 - (e) Note that the self-disarming devices depend upon spring tension and cannot be relied upon to operate as designed.

ITALIAN CONTACT MINES

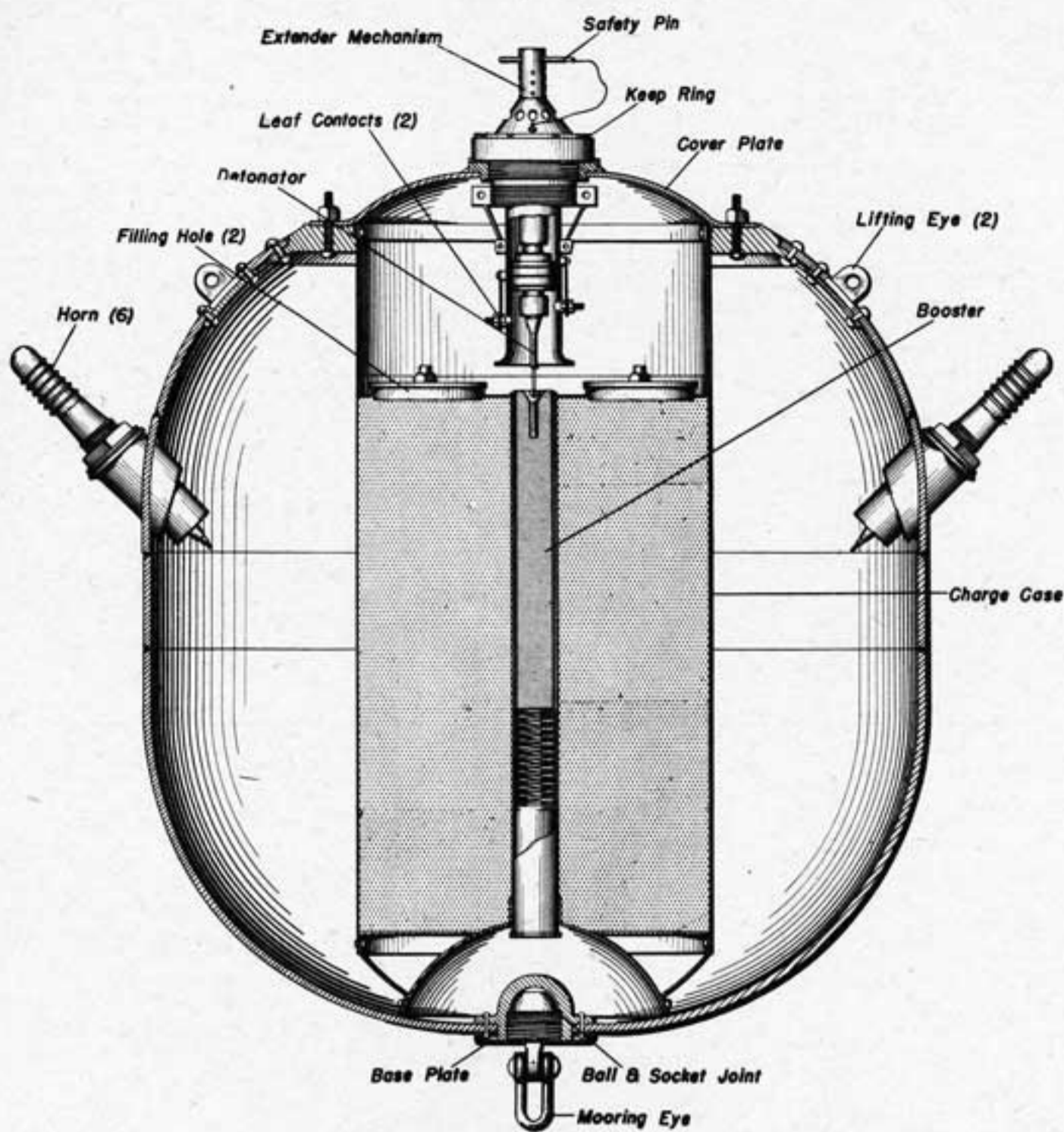


Fig. 1 - Mine Type II, Sectional View



Fig. 1a - Mine Type II, Extender Mechanism

Mine Type IIGeneral

1. Moored, contact, chemical horn mine, laid by surface craft.
2. Italian designation, "Torpedine aep 125/1933 Bollo".
3. Defensive mine, for use in maximum depth of water of 990 ft. against surface craft.

Description

1. Case

Shape	Two hemispheres, joined by a 5" cylindrical mid-section.
Color	Black
Material	Steel
Diameter	33"
Length	40"
Charge	275 lb. cast TNT
Total weight in air	487 lb.

2. External fittings

Horns	Six, equally spaced around upper hemisphere, 24" from center.
Cover plate	19" diam., in center of upper hemisphere, lap-fitted, secured by 18 bolts.
Extender mechanism	5" diam., in center of cover plate, secured by keep ring.
Base plate	5" diam., welded to center of lower hemisphere, fitted with ball and socket joint for securing mooring eye.
Name plate	16" from center of upper hemisphere.

Operation

1. Mine takes depth by plummet. Dissolution of a soluble plug allows the extender to operate upon application of the proper degree of hydrostatic pressure. When the extender operates, it moves the detonator carrier downward within its housing, performing the following arming functions:
 - (a) It bridges two leaf contacts in the housing, thereby arming the firing circuit.
 - (b) It separates two scissors arms, thereby freeing the spring-loaded booster to house over the detonator.
2. Standard chemical horn firing.
3. The only self-disarming device is the extender mechanism which is designed to disarm the mine by opening the firing circuit and separating the detonator and booster upon release of hydrostatic pressure.

Precautions

1. Check the extender spindle. Except in extreme emergency, do not attempt RMS if a safety pin cannot be inserted through the top of the spindle and spindle housing in the hole provided.

RMS

1. Remove the keep ring and extender mechanism.
2. Reach in the case, press back the spring clips and remove the booster.
3. Dispose of detonator, booster and charge.

ITALIAN CONTACT MINES

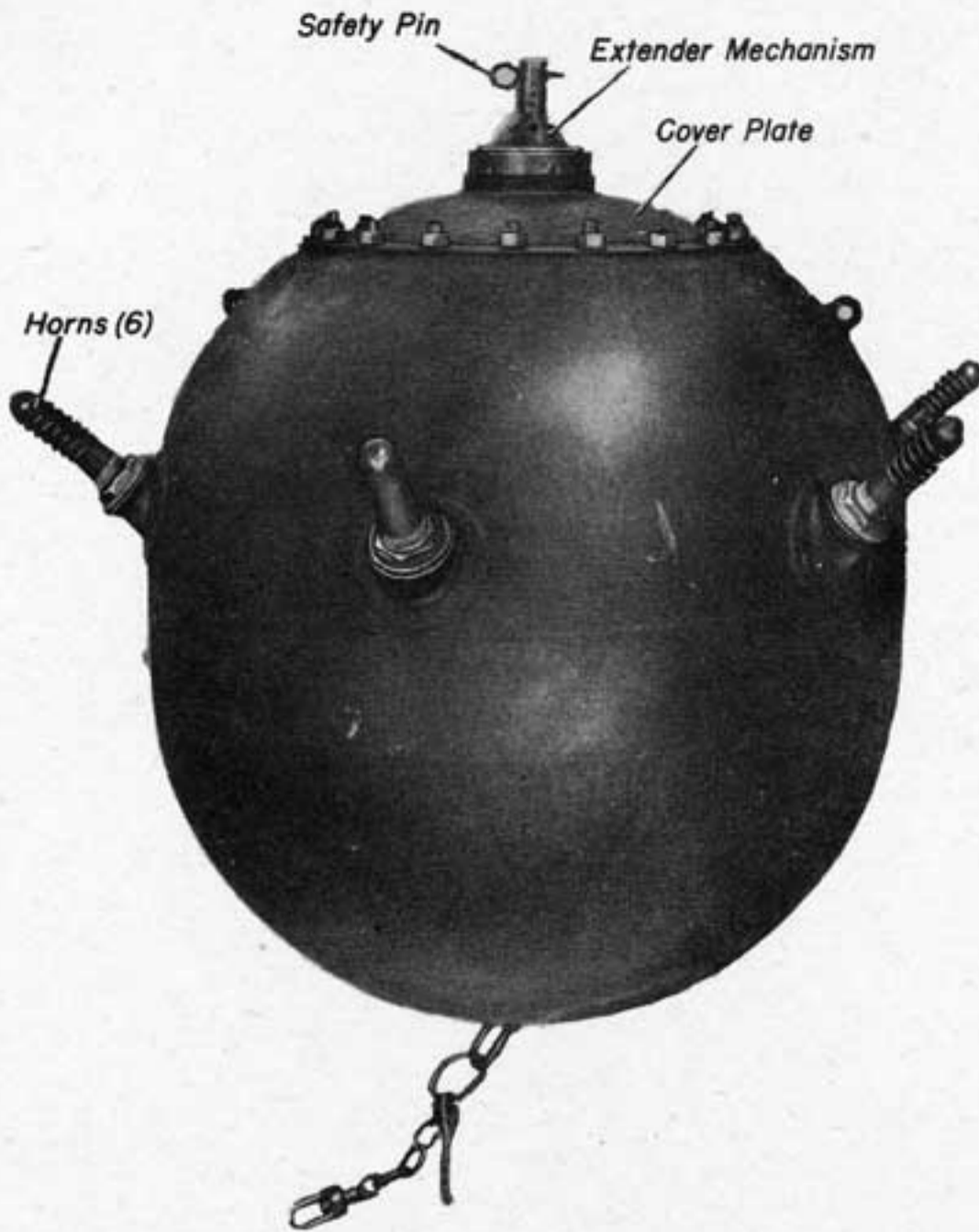


Fig. 2 - Mine Type II

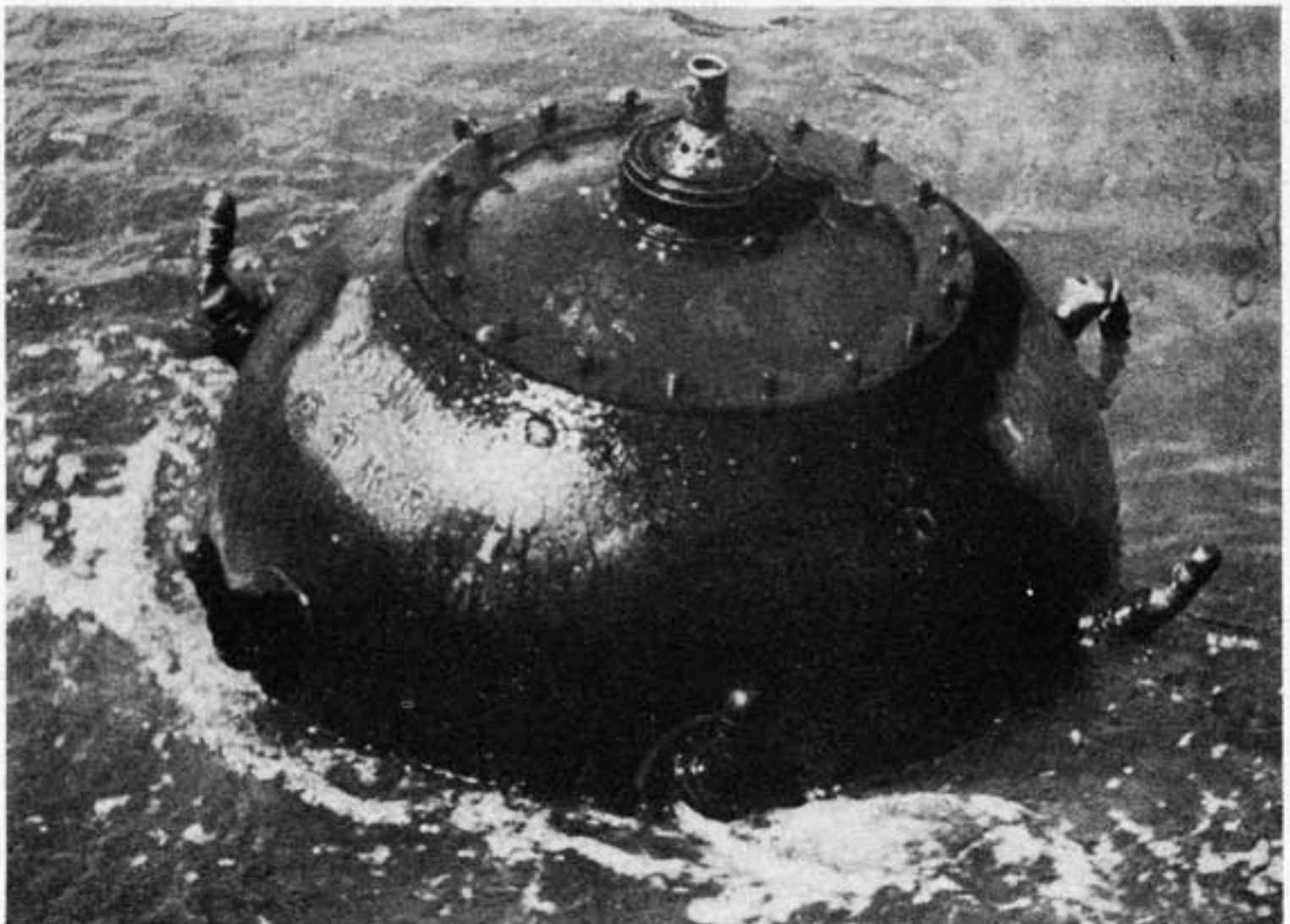


Fig. 3 - Mine Type II, Floating