



HIGH-RISK MUNITIONS

IDENTIFICATION GUIDE

PREPARED BY

**THE FOREIGN ORDNANCE SECTION, EOD DIVISION
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY**

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FOREWORD

All ammunition by its nature is dangerous. However some items are inherently more dangerous than others, either by intent or by design, and they require special caution when approaching and handling.

This publication, which is a compilation of "high-risk" munitions, is intended for Army EOD personnel to use as a training and reference guide. You can find more detailed information about the munitions listed in this handbook in various EOD publications.

To increase the usability of the publication, it has been divided into unclassified and classified sections. Use both sections to ensure a complete reference. Do not consider this handbook all inclusive, however, particularly in the area of landmines. Further information about "high-risk" munitions will be disseminated as it becomes available.

User comments are welcomed. Address them to:

Commander, ARDEC
ATTN: SMCAR-FSX (Bldg. 281)
Picatinny Arsenal, NJ 07806-5000

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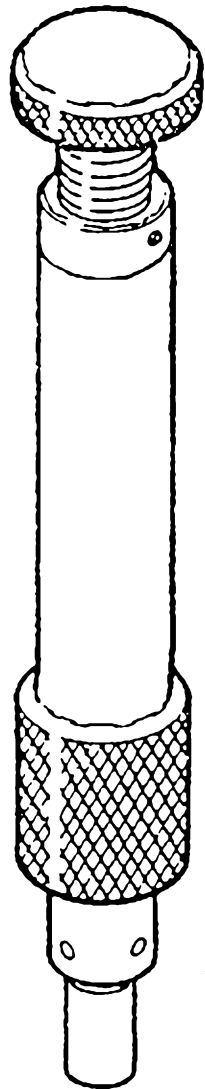
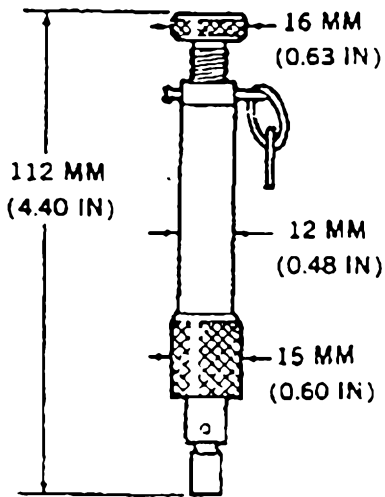
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**DELAY ACTION
FIRING DEVICES**

CHEMICAL AND METAL FATIGUE



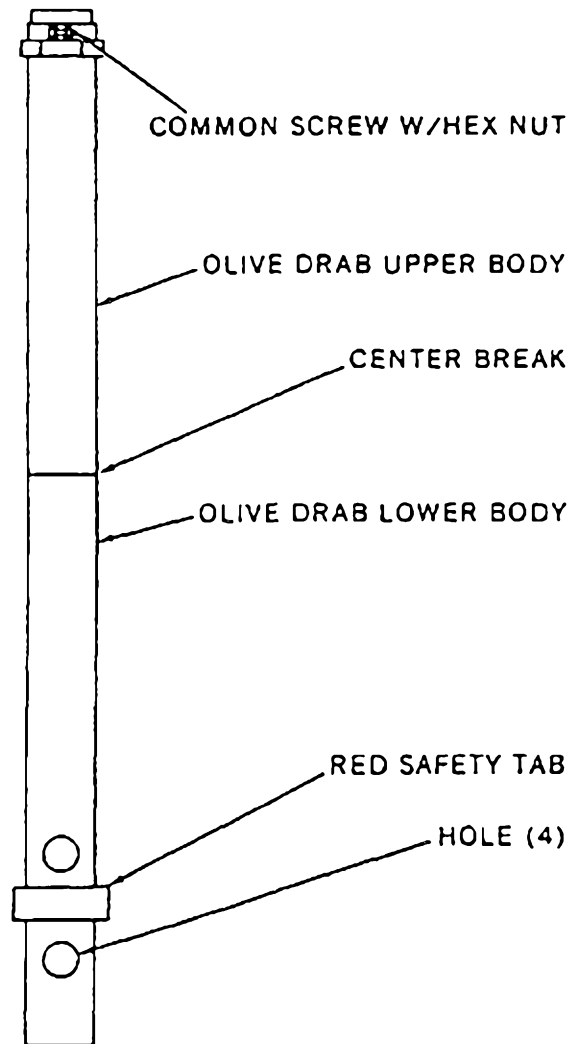
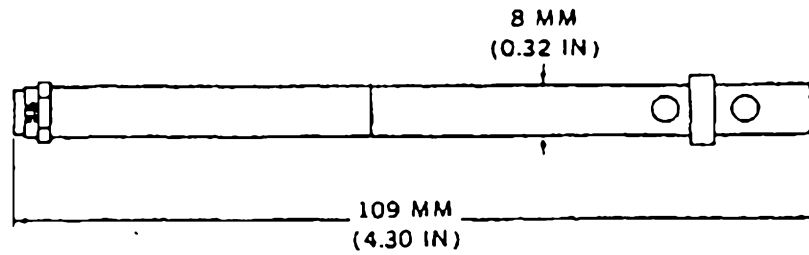
Egyptian Igniter, Chemical Delay, Model Unknown



A-1.

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Spanish Firing Device, Chemical Delay, Model Unknown

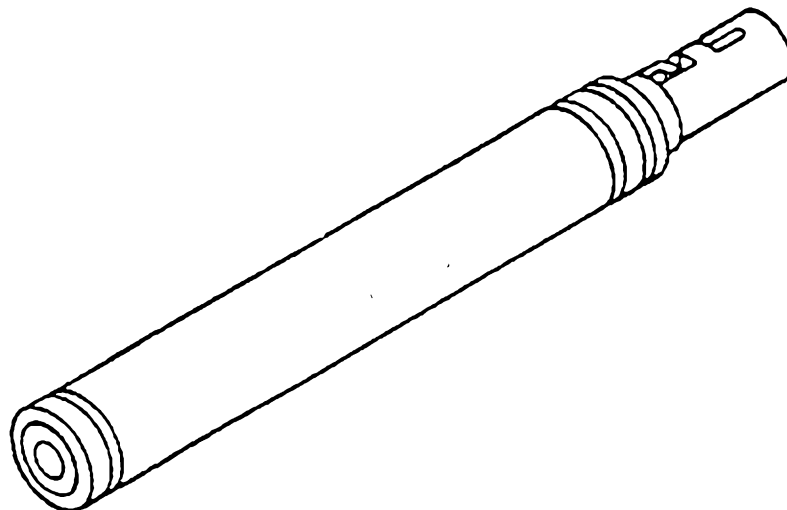
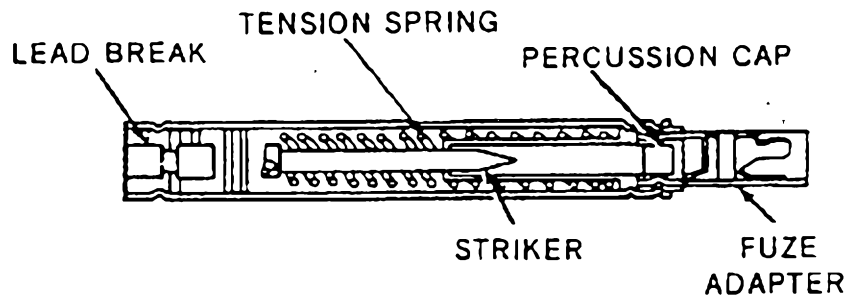
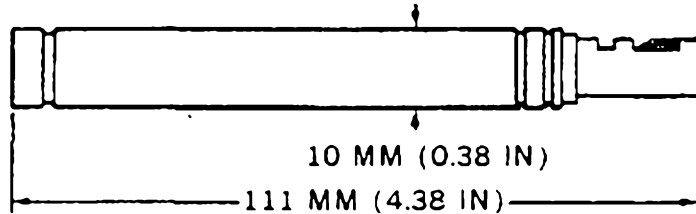


NOTE: DELAY ON THIS DEVICE RANGES FROM
20 MINUTES TO 12 HOURS.

A-2

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U.K. Delay Firing Device, L. Delay Switch, No. 9 Mk 1



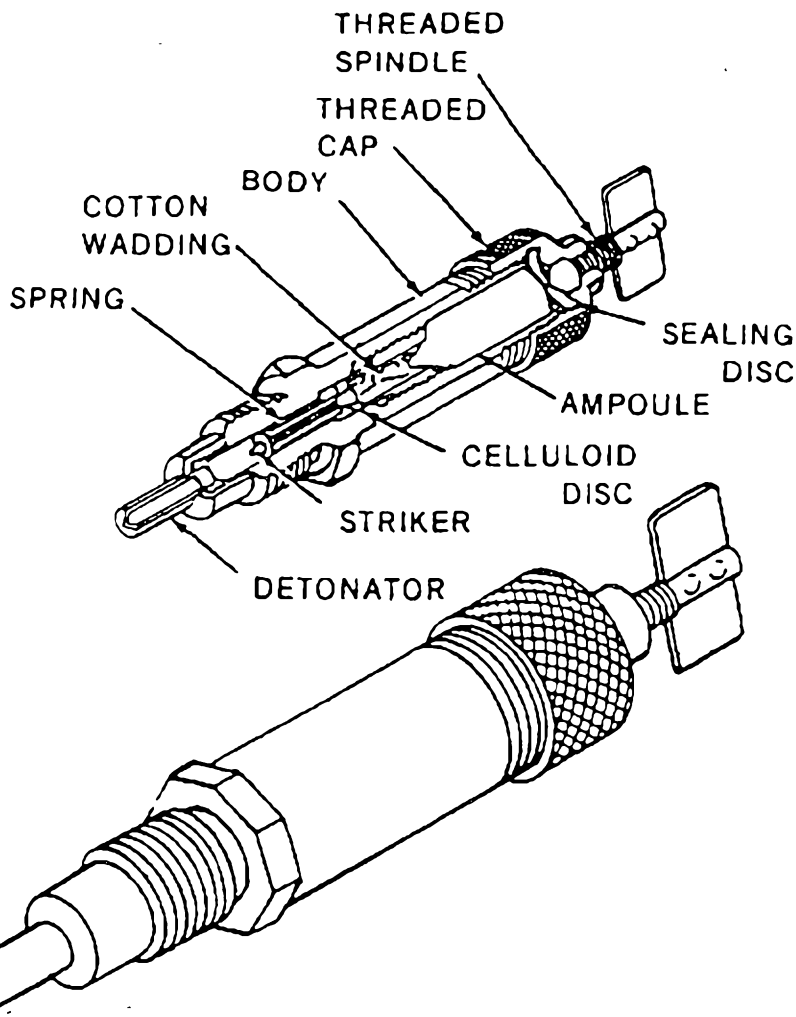
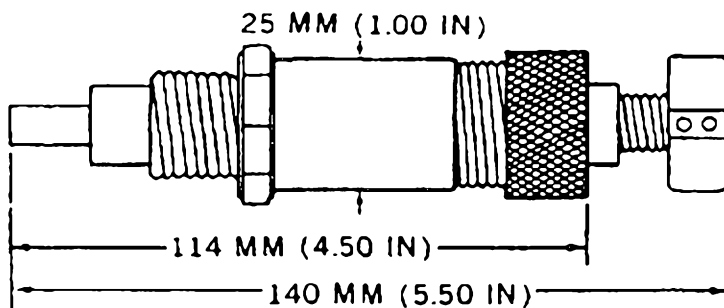
NOTE: THE DELAY SWITCH FUNCTIONS ON THE BASIS OF METAL FATIGUE.

A-3

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U.K. Delay Firing Device, AC Delay Igniter, Mk 1

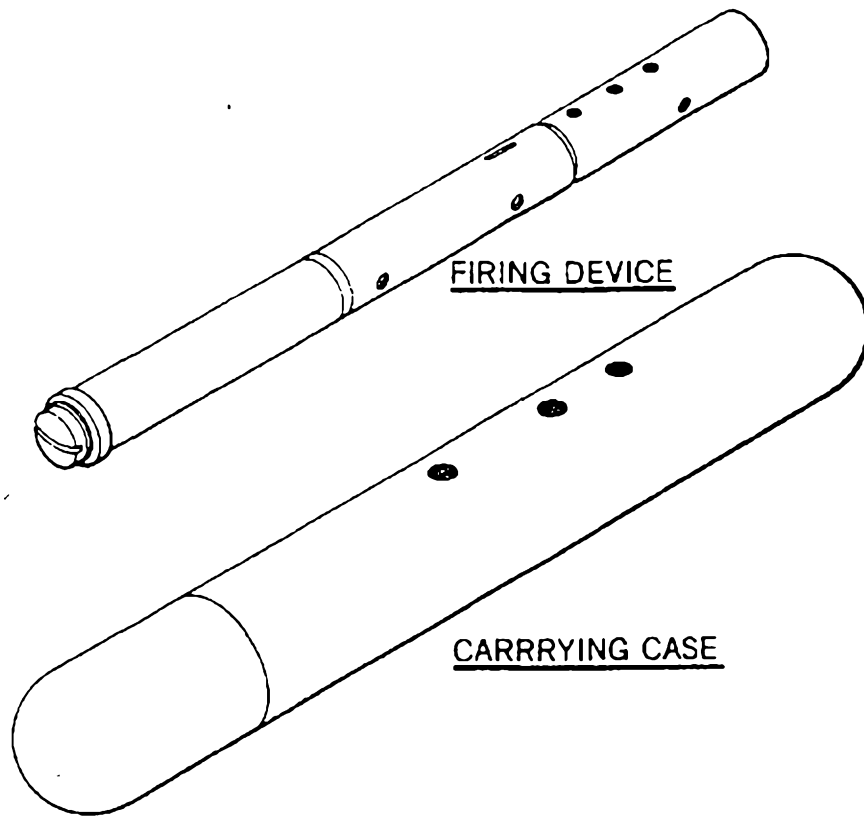
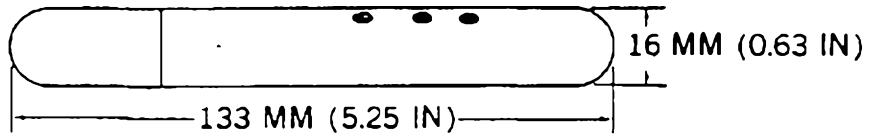
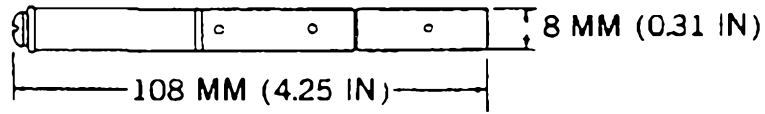
Limpet: Rigid,
Land Use, Model
Unknown



A-4

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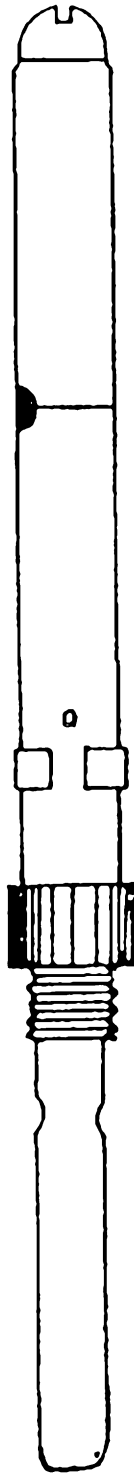
Former U.S.S.R. Firing Device, Chemical Delay, My-8



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Former Yugoslav Firing Device, Chemical Delay, Model UDZK

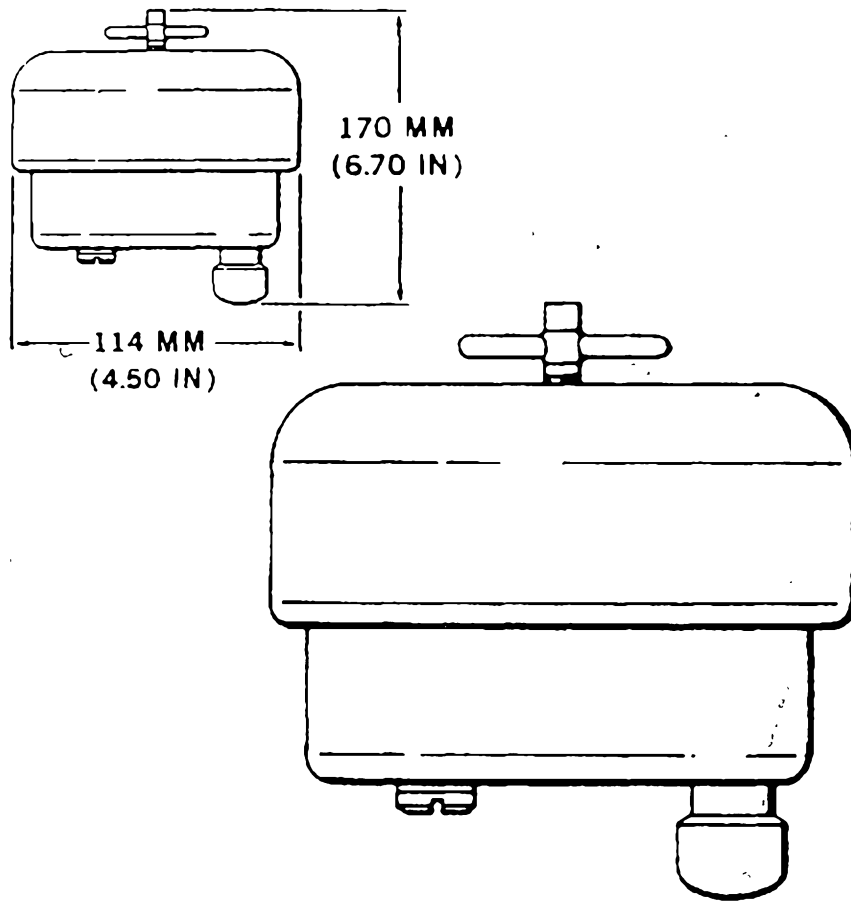


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CLOCKWORK

German Fuze, Clockwork Delay, Tsch MW-60



A-7

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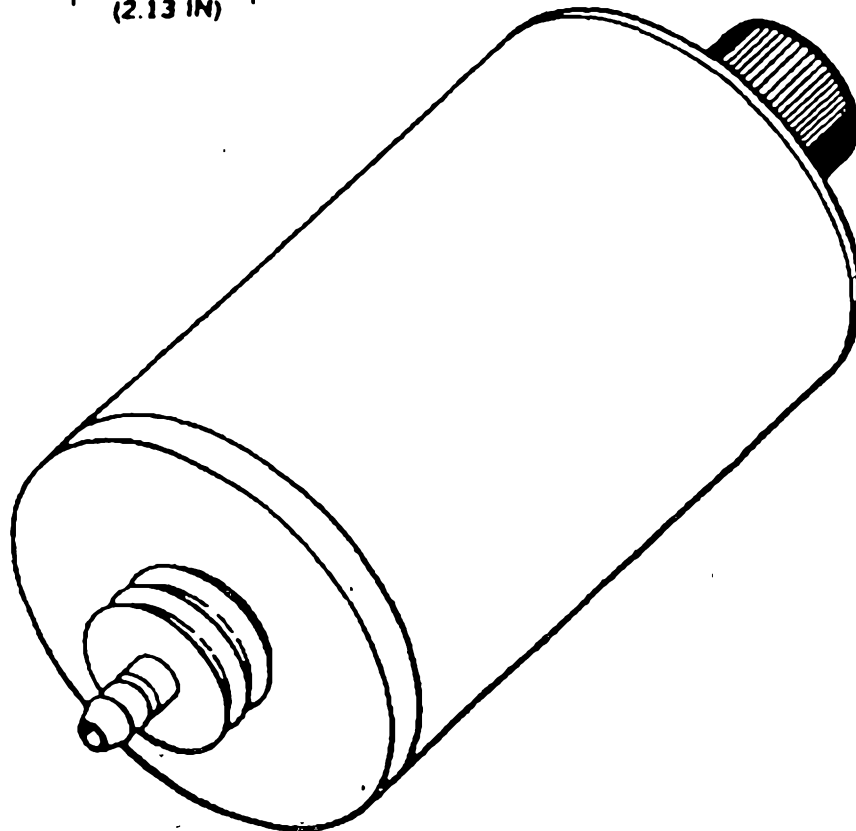
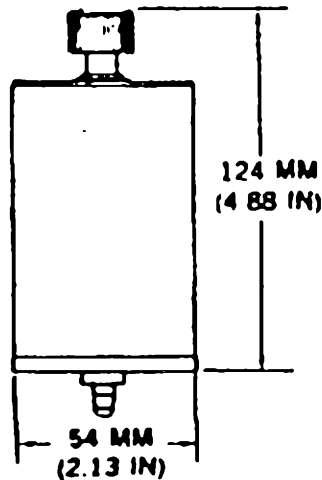
U.S. Demolition Firing Device, Mk 23 Mod 1

Device:
Mk 114 Mod 0

S&A Device:
Mk 39 Mod 0

Limpets:
Mk 1 Mod 2
Mk 2 Mod 1
(Practice)

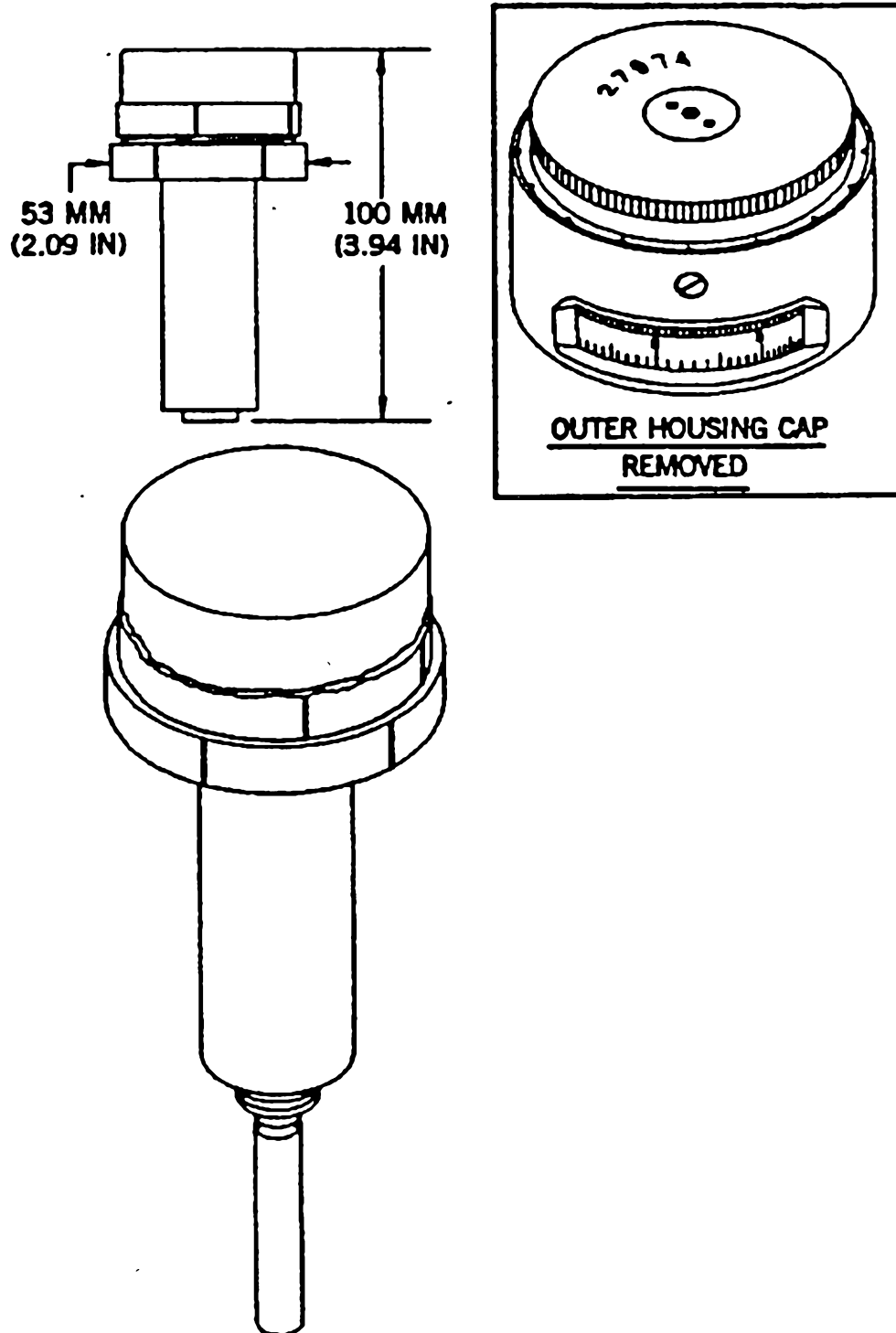
Limpet Assembly,
Modular, Mk 5 Mod 0
& Underwater
Demolition Charge
(UDC)



A-8

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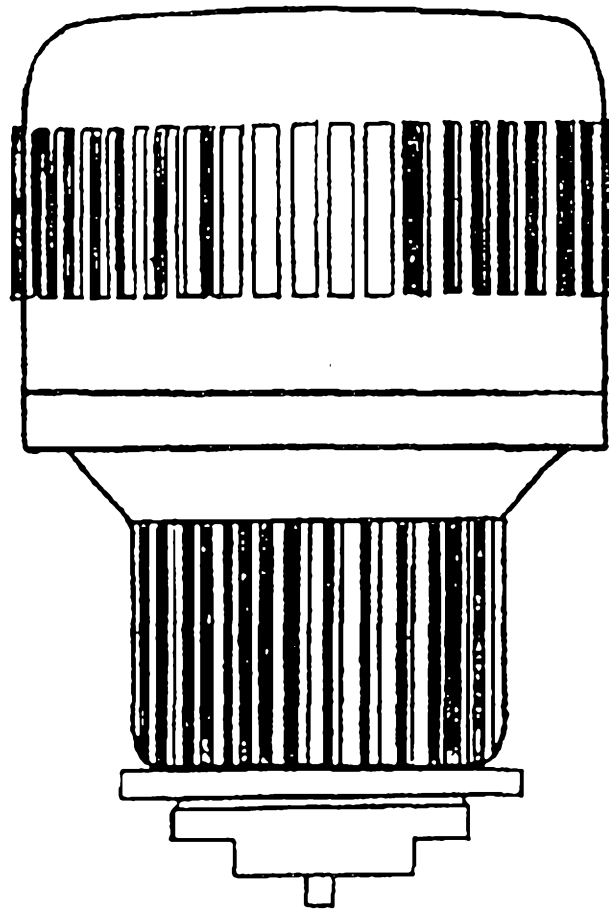
Former U.S.S.R. Fuzes, Clockwork Delay, ChMV-10 & ChMV-16



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**Former Yugoslav Firing Device, Clockwork Delay,
Model SU-10 M66/1**

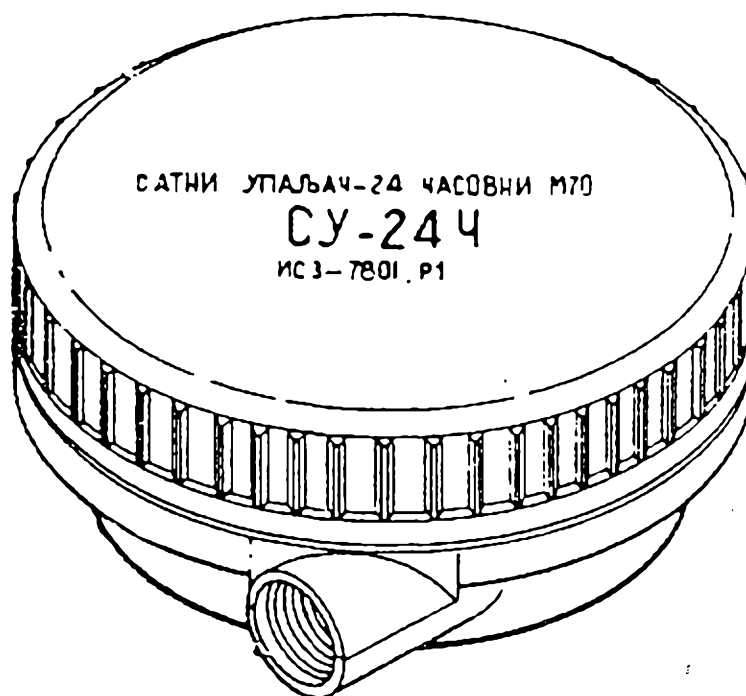
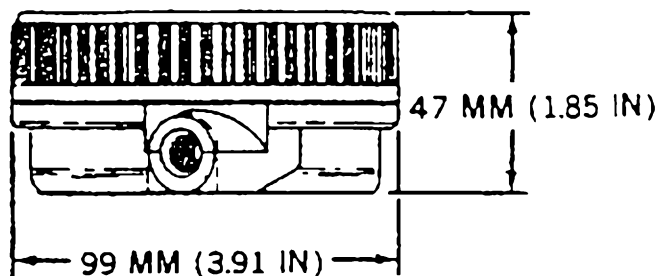


A-10

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Former Yugoslav Firing Device, Clockwork Delay, Model SU24Ch M70



A-11

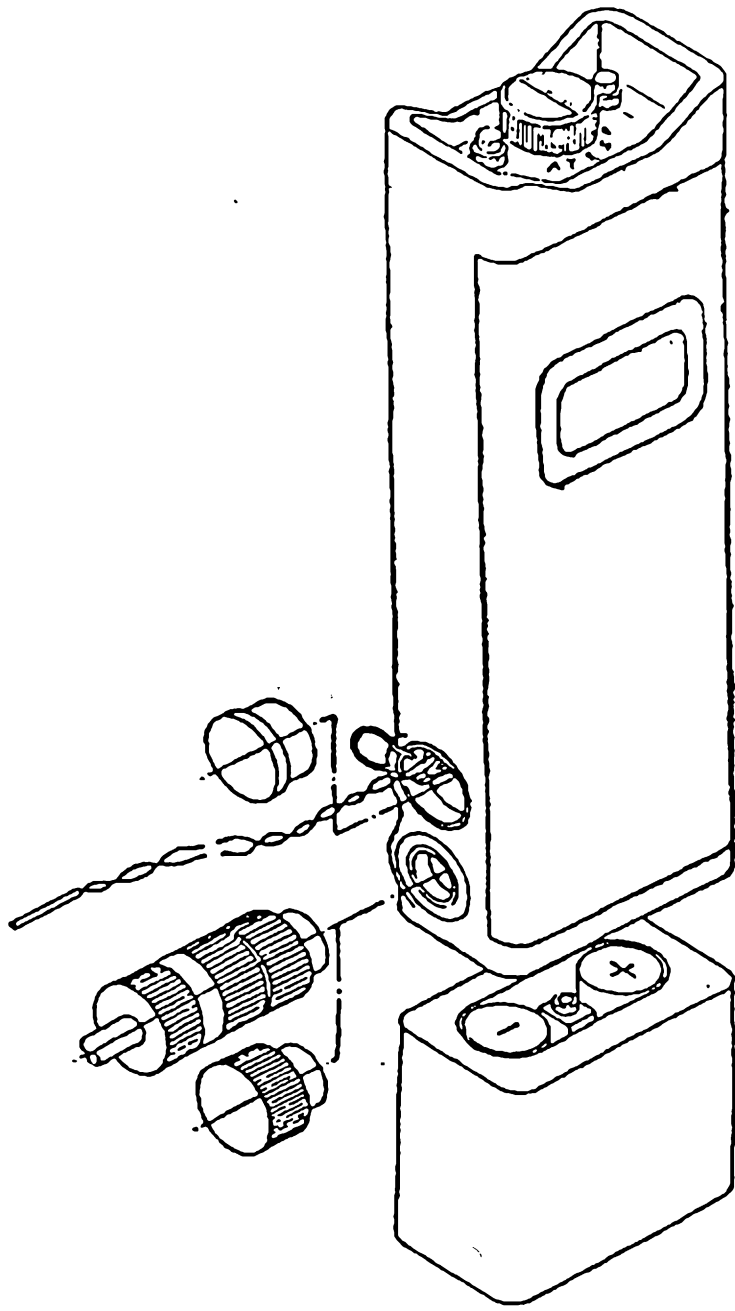
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ELECTRONIC



Australian Timer, Electronic, Model EXDET



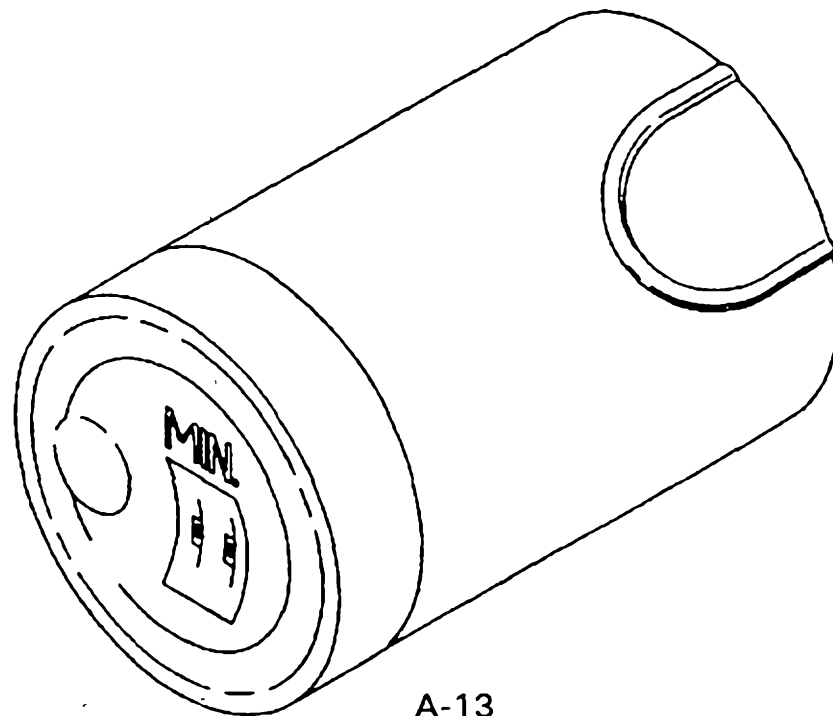
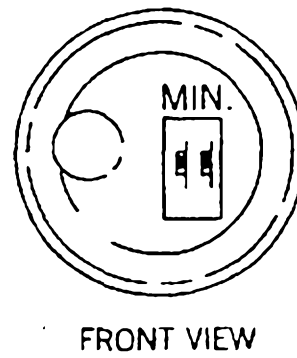
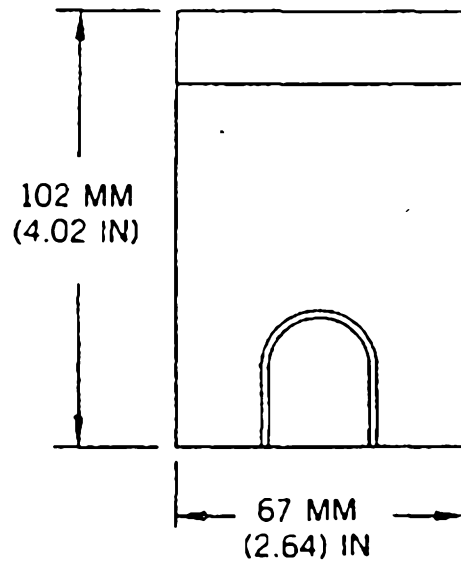
A-12

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Belgian Firing Devices, Electronic, NR 2121, NR 2122, and NR 2438

Landmine, Antitank
NR 141/NR 141A1
NR 201

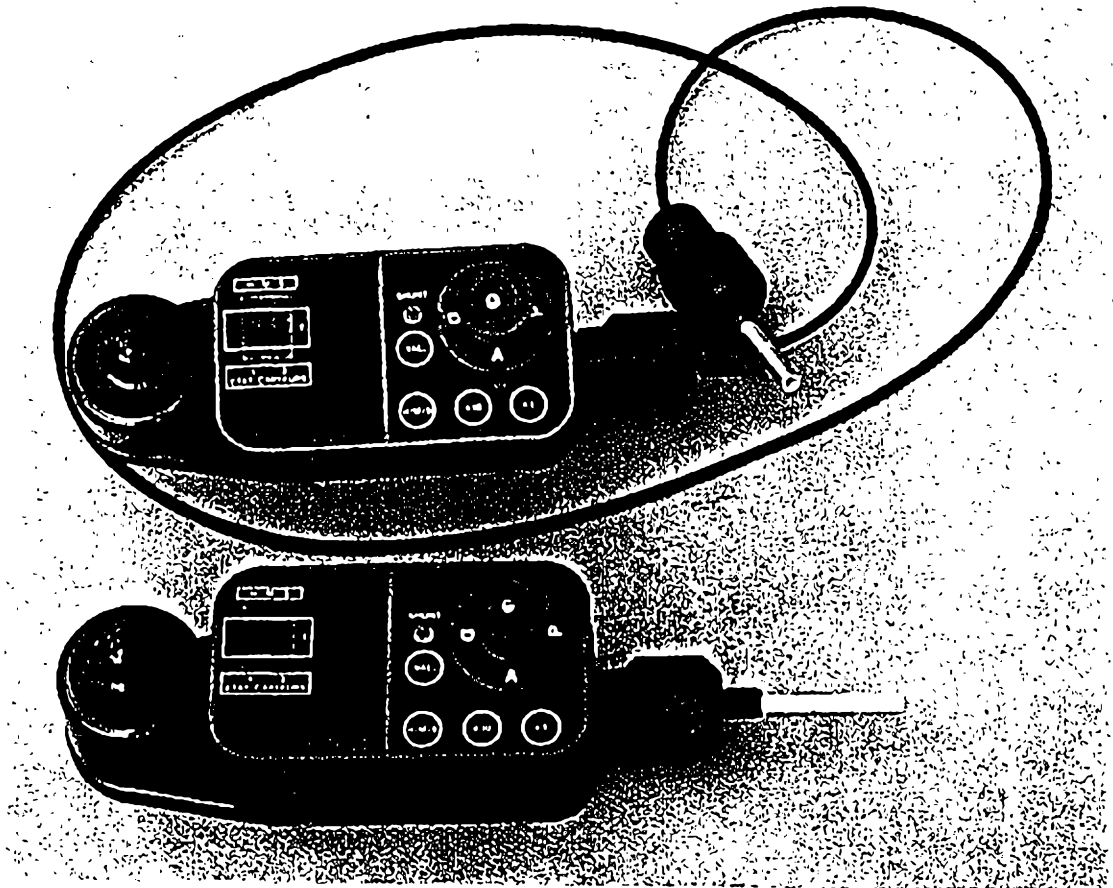
Demolition Charge,
NR 416



A-13

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French Firing Device, Breakwire, Electronic Delay Model ITS-110

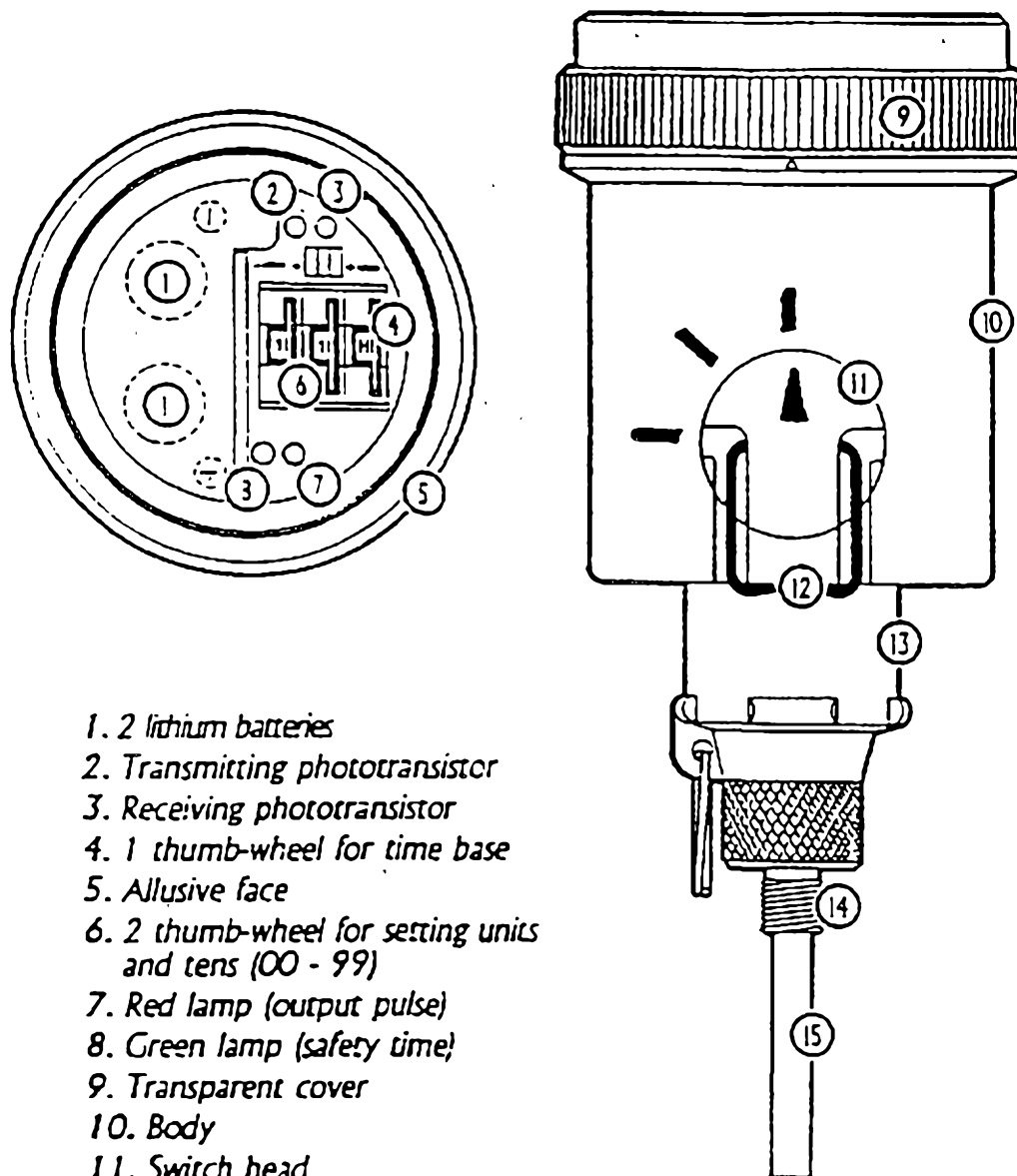


The ITS-110 can be used as both an electronic delay timer and/or as a breakwire-initiated boobytrap device.

A-14

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French Fuze, Electronic Time, Model TEMPO



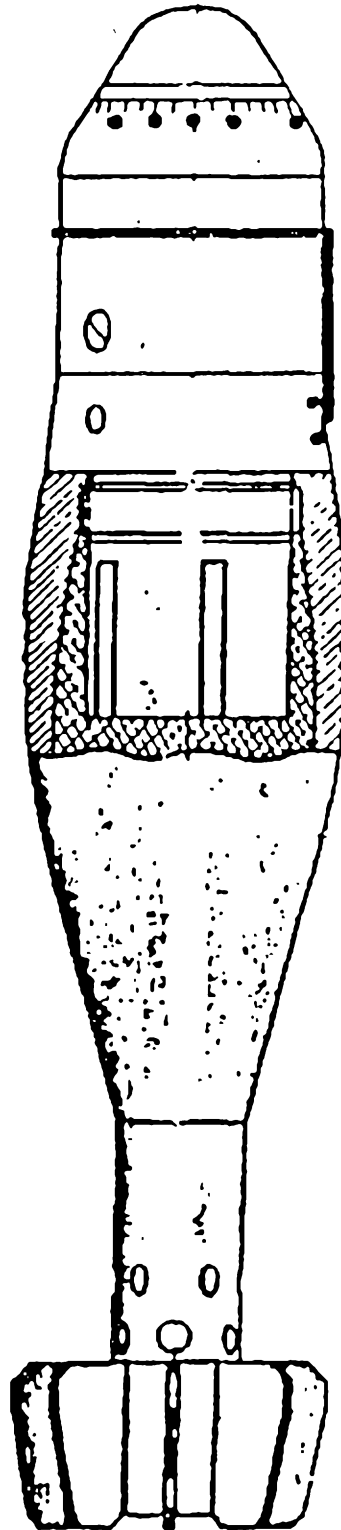
1. 2 lithium batteries
2. Transmitting phototransistor
3. Receiving phototransistor
4. 1 thumb-wheel for time base
5. Allusive face
6. 2 thumb-wheel for setting units and tens (00 - 99)
7. Red lamp (output pulse)
8. Green lamp (safety time)
9. Transparent cover
10. Body
11. Switch head
12. U-shaped arming key
13. Connector - detonator
14. Connector thread M 10 x 1
15. Detonator

A-15

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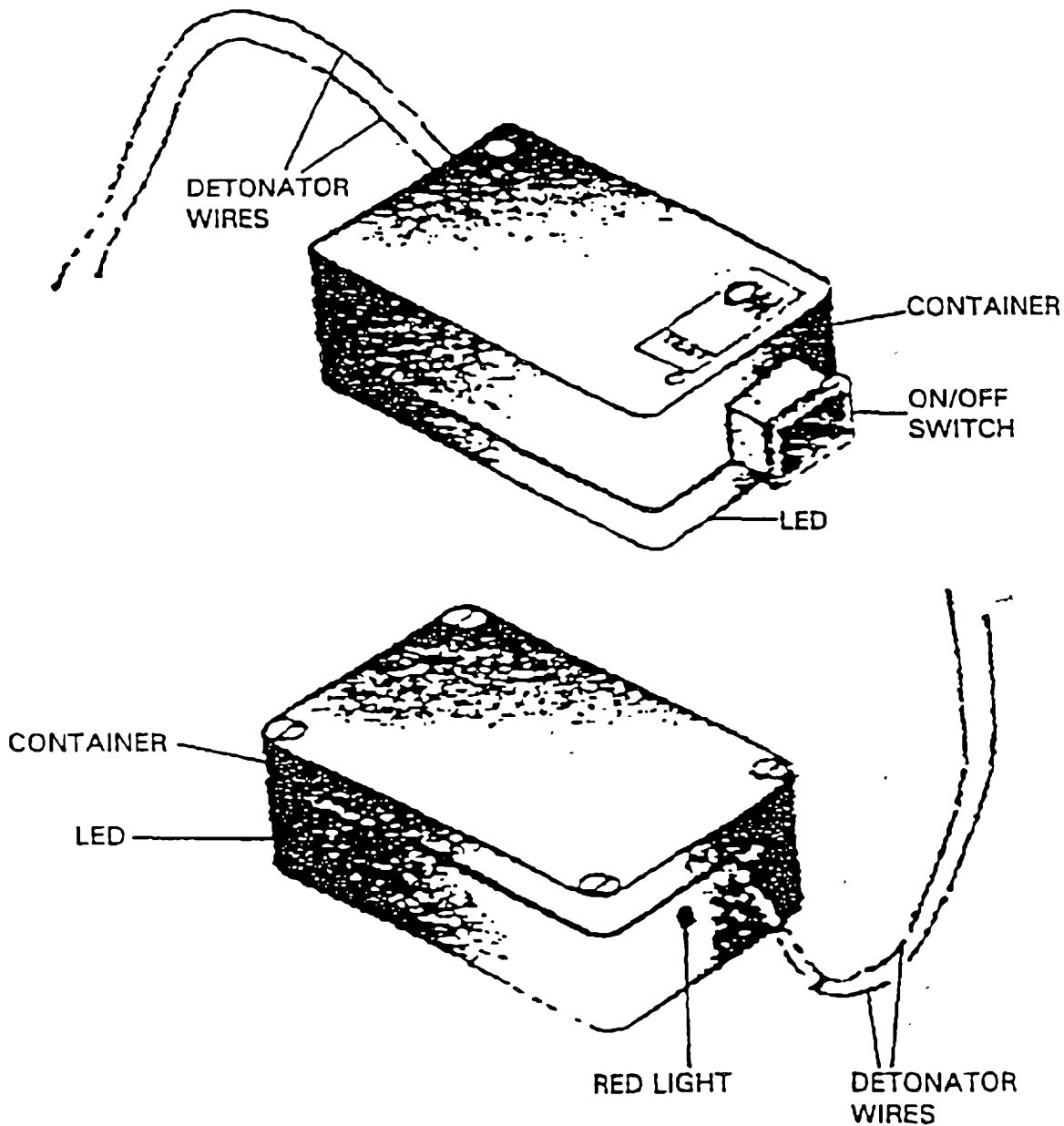
Israeli Fuze, Mortar, Delayed Action, Model Coral



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South African Timer, Electronic, Model Unknown

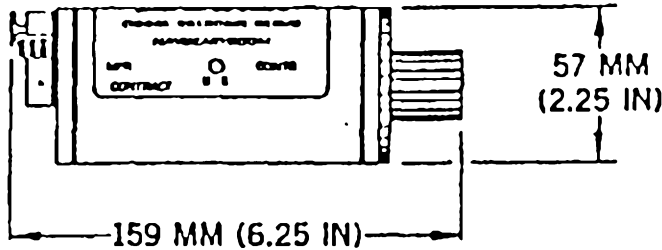


A-17

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U.S. Firing Device, Mk 48 Mod 0

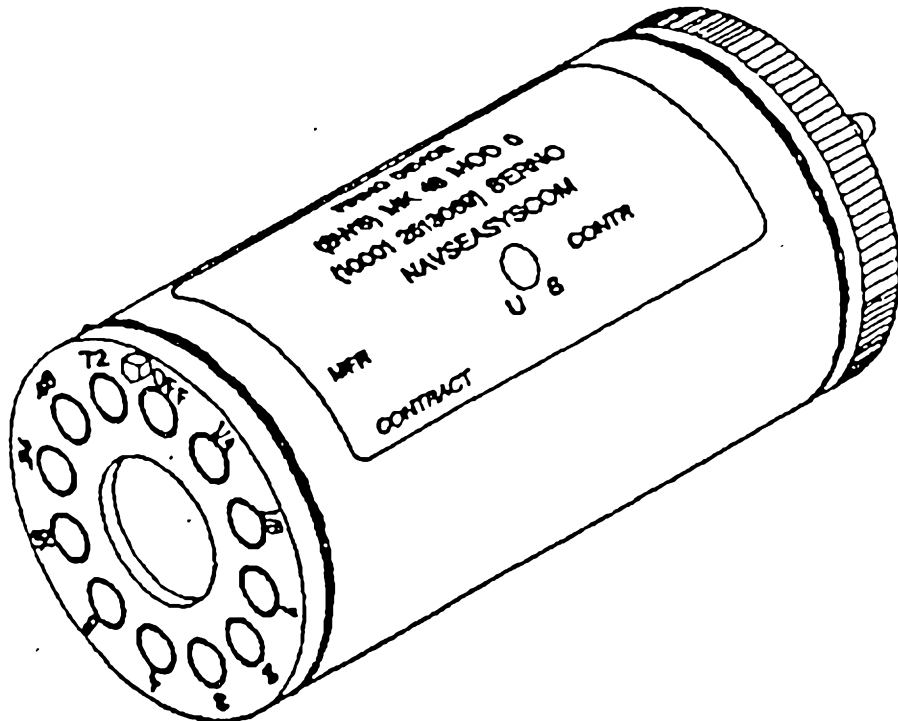


Adapter Firing Device:
Mk 114 Mod 0

S&A Device:
Mk 39 Mod 0

Limpets:
Mk1 Mod2
Mk 2 Mod 1
(Practice)

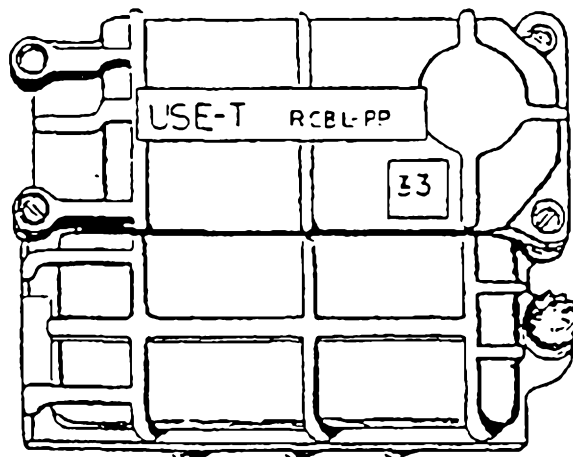
Limpet Assembly,
Modular, Mk5 Mod 0 &
Underwater
Demolition charge
(UDC) Mk 122 Mod 0



A-18

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Former Yugoslav Fuze, Time, Special, Electronic USE-T



Purpose

The fuze is intended for assembly in mines and explosive devices activated within certain time.

Technical Data

The fuze time setting ranges from 5 minutes to 9999 minutes at the rate of 1 minute.

The fuze time arming is 300 s.

The fuze is power supplied from a battery.

Maximum power consumption from the battery amounts to 1500 μ Amps.

The fuze operates within the temperature range of 253°K to 323°K (-20°C to +50°C).

The fuze activates one electric detonating primer.

The fuze dimensions are 93 x 73 x 35 mm.

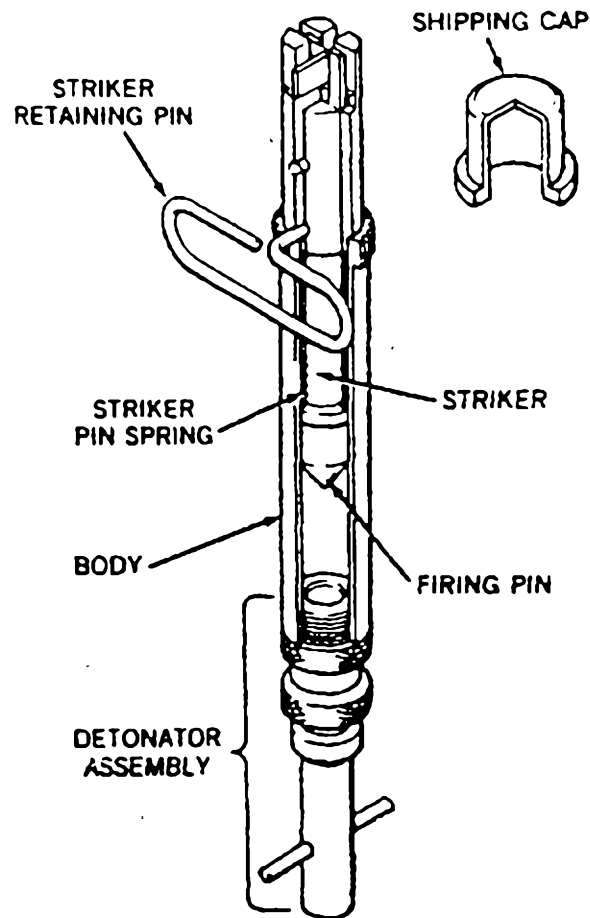
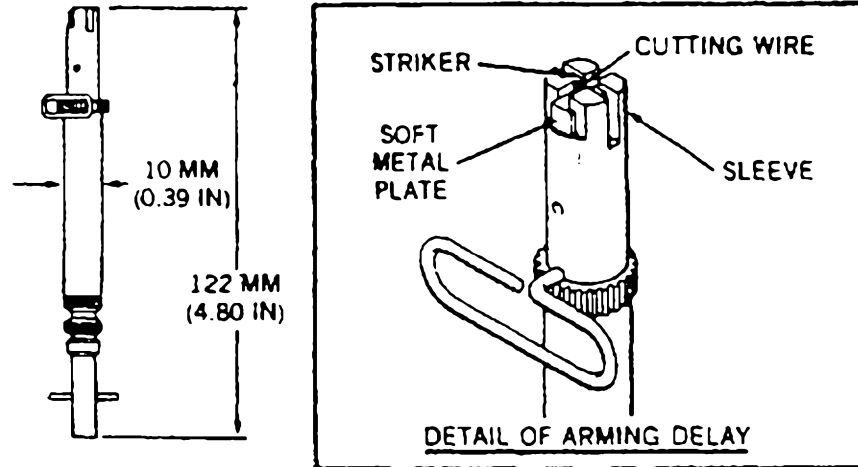
The fuze mass is maximum 250 g.

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LEAD SHEAR

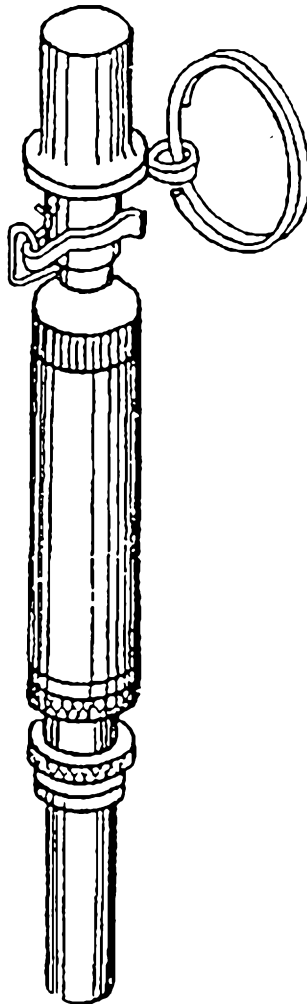
Former U.S.S.R. Mine Fuze, Pull, Delay-Armed/ Fired, MUV-2



A-20

FOR OFFICIAL USE ONLY

Former U.S.S.R. Mine Fuze, Pull, Delay-Armed, MUV-3



Mines:
OZM-72
POMZ-72
OZM-3
OZM-4
SM(Signal)
PMD-6M

This fuze can also be used with boobytraps.

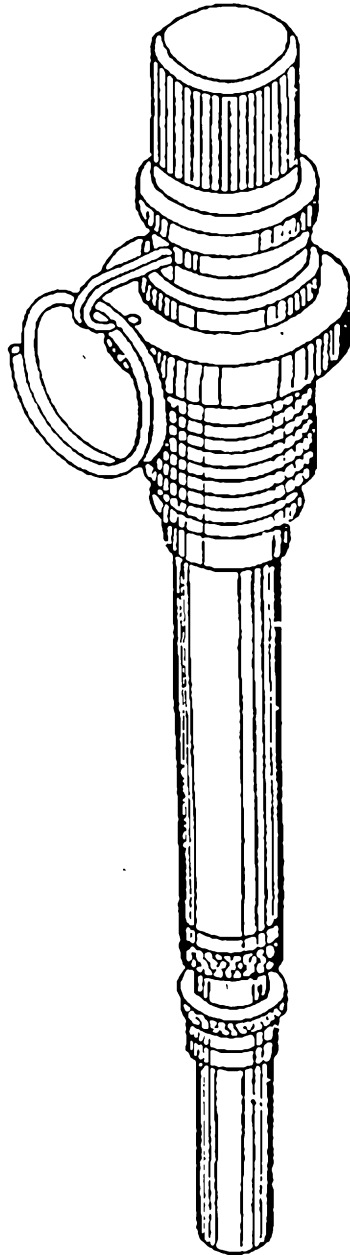
This fuze has a silicone dashpot delay feature.

A-21

FOR OFFICIAL USE ONLY



Former U.S.S.R. Mine Fuze, Pull, Delay-Armed, VZD-1M



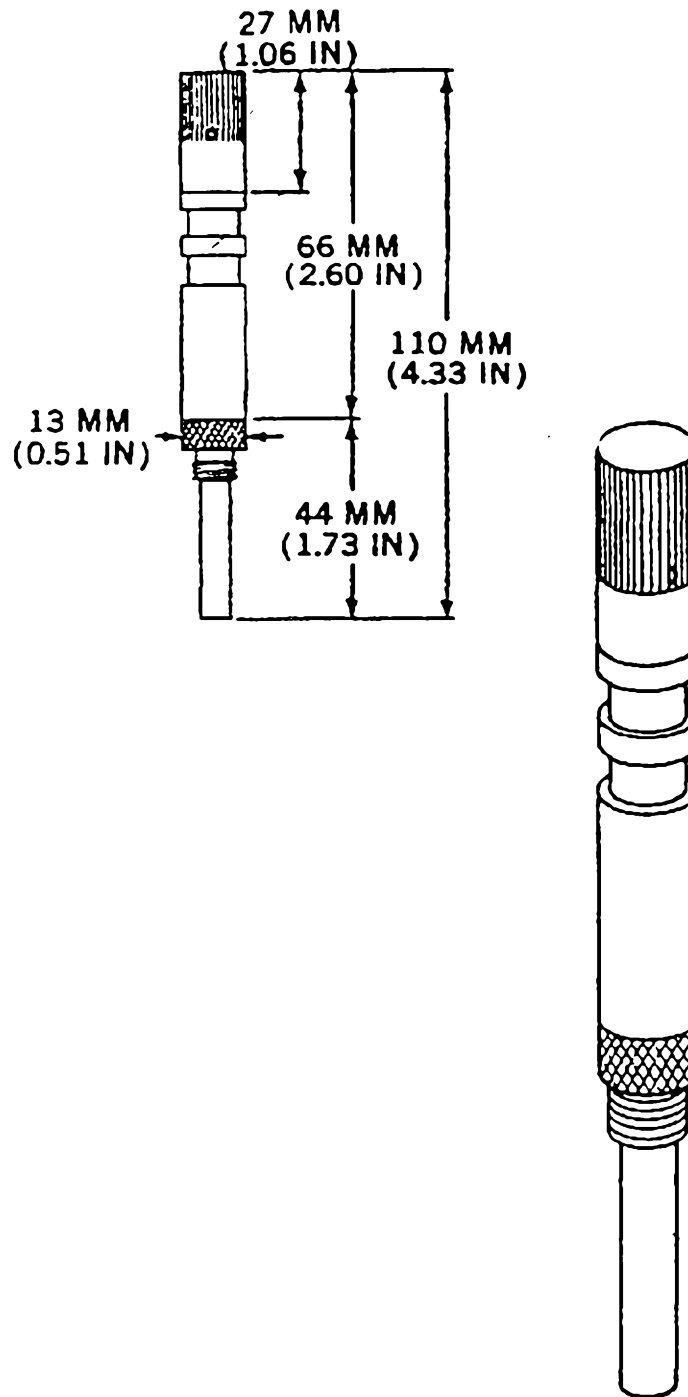
This fuze is used to initiate demolition charges and limpet mines.

Delay elements used with this fuze include 15, 30 min., 1, 3, 6, 12, and 24 hours.

A-22

FOR OFFICIAL USE ONLY

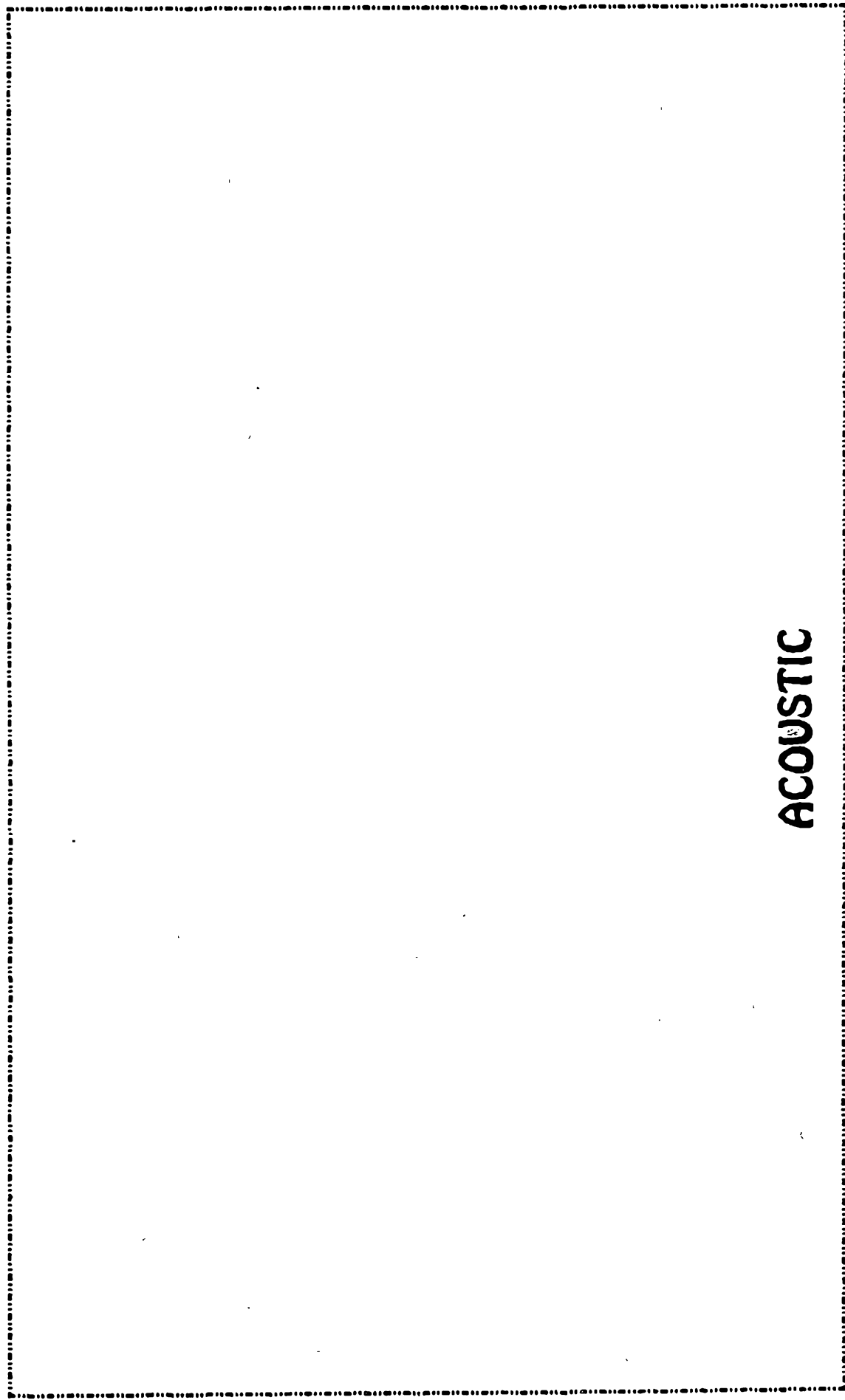
Former U.S.S.R. Mine Fuze, Delay, Model VZD-3M



A-23

FOR OFFICIAL USE ONLY

**ELECTRONIC
ANTIDISTURBANCE
FIRING DEVICES**



ACOUSTIC

Former Yugoslav Fuze, Special, Acoustic, Superquick, Model USA-T

Purpose

The fuze is intended for assembly in mines and explosive devices activated at a definite sound level.

Technical Data

The fuze can select four sound levels as follows: 90 dB, 100 dB, 110 dB and 120 dB.

The fuze time arming ranges from 270 s to 330 s.

The fuze is power supplied from a battery.

Maximum power consumption from the battery is 250 μ Amps.

The fuze operates within the temperature range of 253°K to 323°K (-20°C to $+50^{\circ}\text{C}$).

The fuze activates one electric detonating primer.

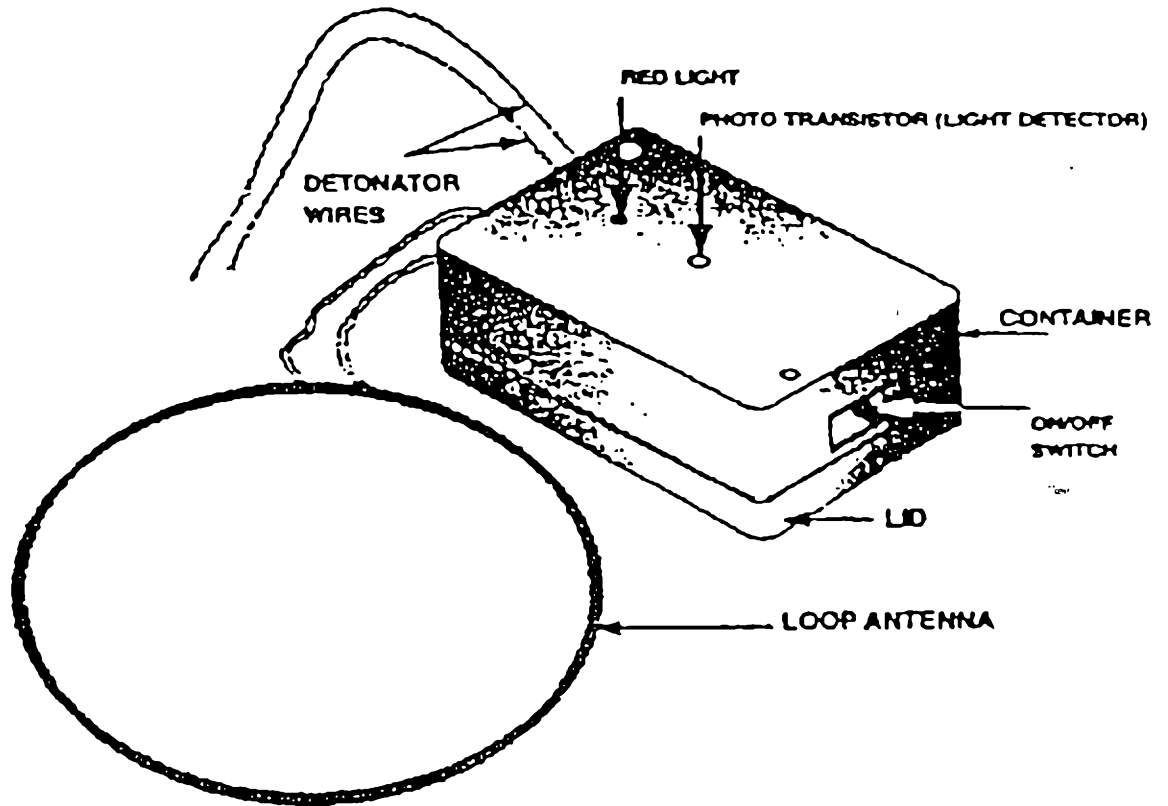
The fuze dimensions are 93 \times 73 \times 35 mm.

The fuze mass is maximum 350 g.

ANTIMINE SWEEPING

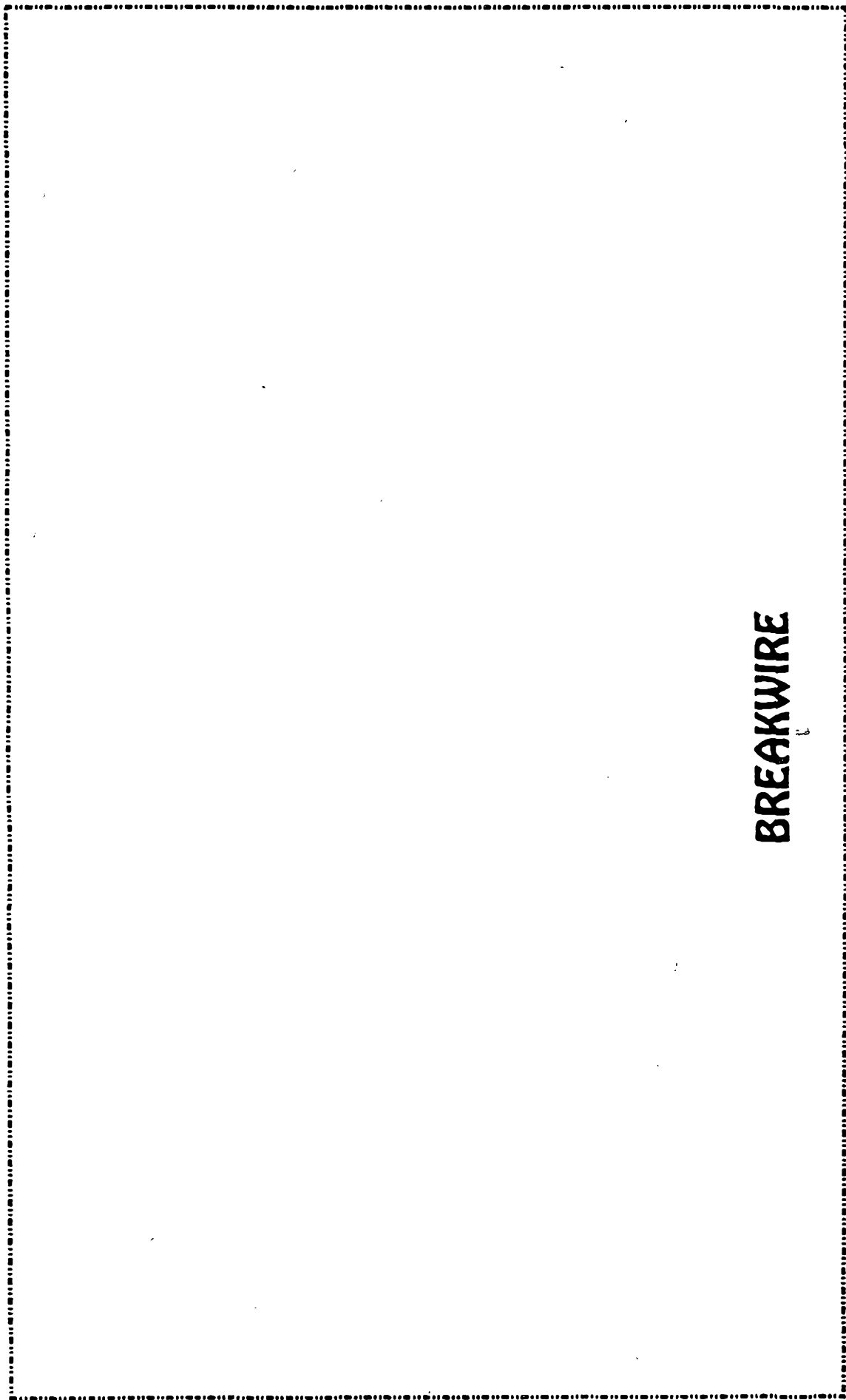


South African Fuze, Mine, Antimine Sweeping/ Photoelectric, Model Unknown



B-2

FOR OFFICIAL USE ONLY



BREAKWIRE

Belgian Firing Device, Electronic, Breakwire, NR 2458

1. DESCRIPTION:

An electronic igniting and firing device for any electrically actuated mechanism: antipersonnel, antitank and other types of mines, demolition charges, and incendiary or illuminating devices. This firing device includes three connection sockets and two check indicator lights.

2. OPERATION:

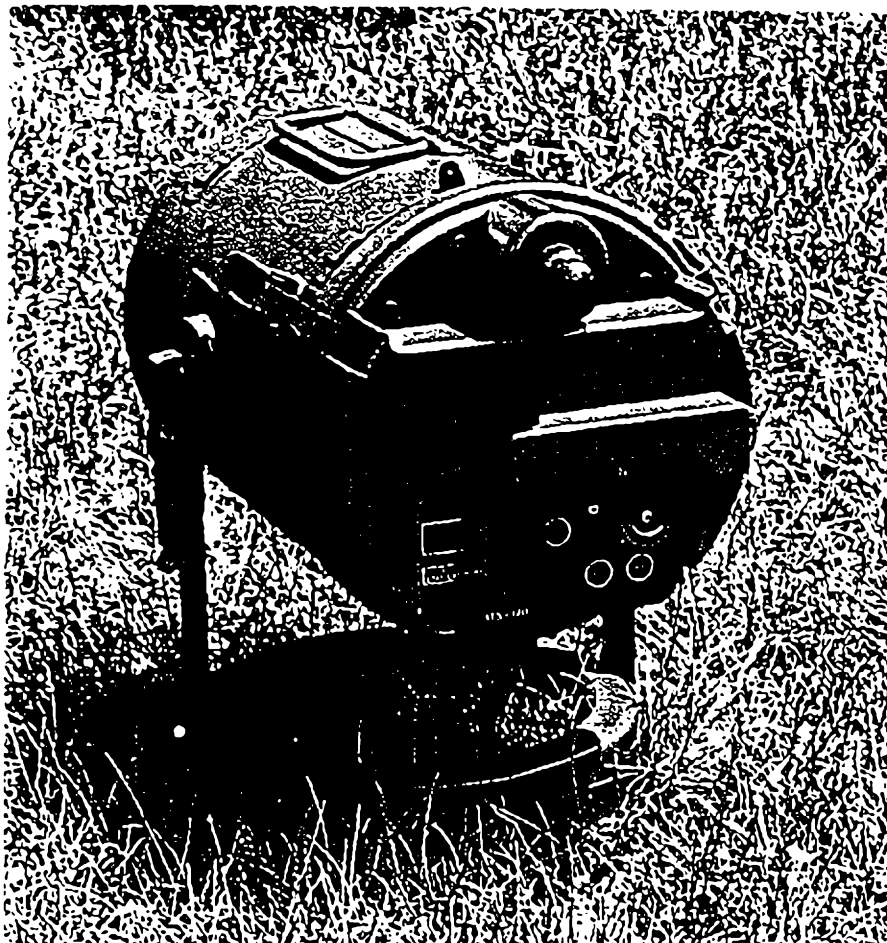
The device is actuated by breaking one of the sensors connected to it (fine wires or any other electrical conductor).

In the case of a fine wire (invisible on the ground):

- 1 connection socket permits a 1,200-meter length of wire to be used
- 2 connection sockets permits two 600-meter lengths of wire to be used
- 3 connection sockets permits three 400-meter lengths of wire to be used

In the case of any other electrical conductor, such as barbed wire, no matter how many sockets are used, there is no length limitation.

French Firing Device, Breakwire, Model ITS-120

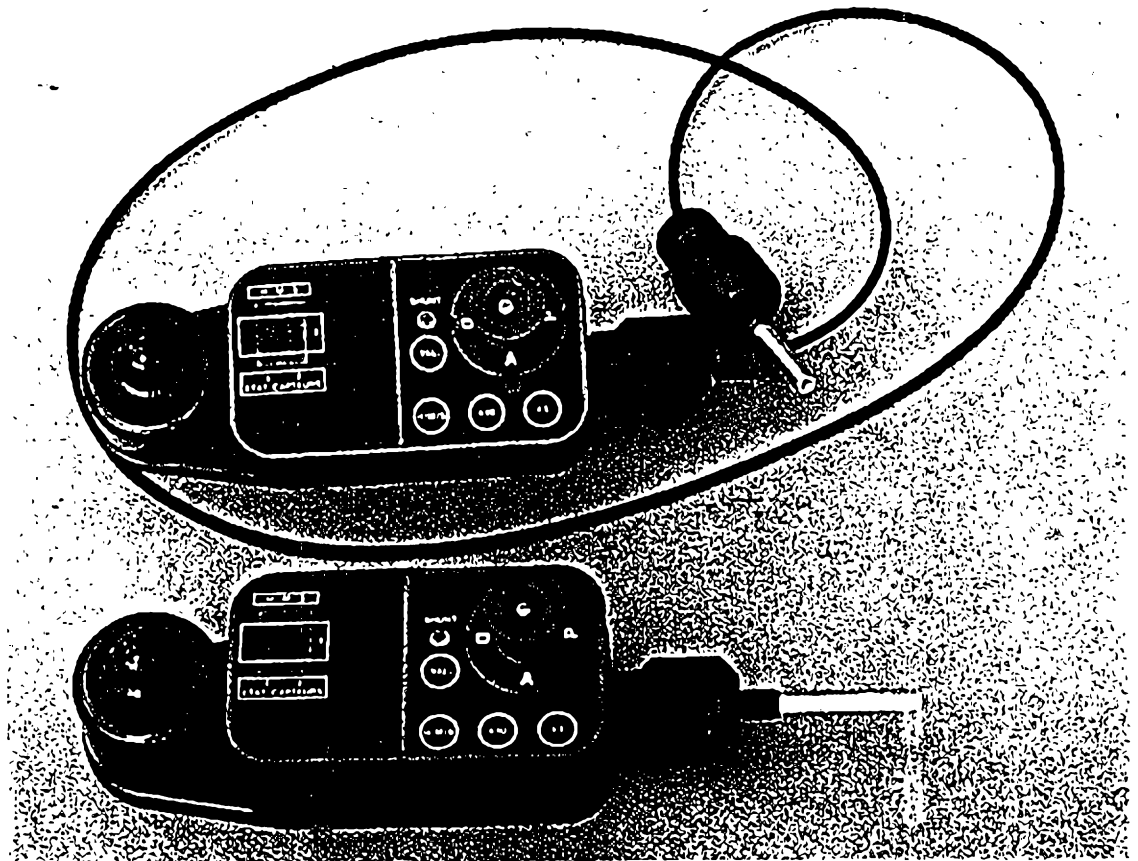


**ITS-120 firing device shown mounted to the
French MIACAH F1 mine.**

B-4

FOR OFFICIAL USE ONLY

French Firing Device, Breakwire, Electronic Delay Model ITS-110

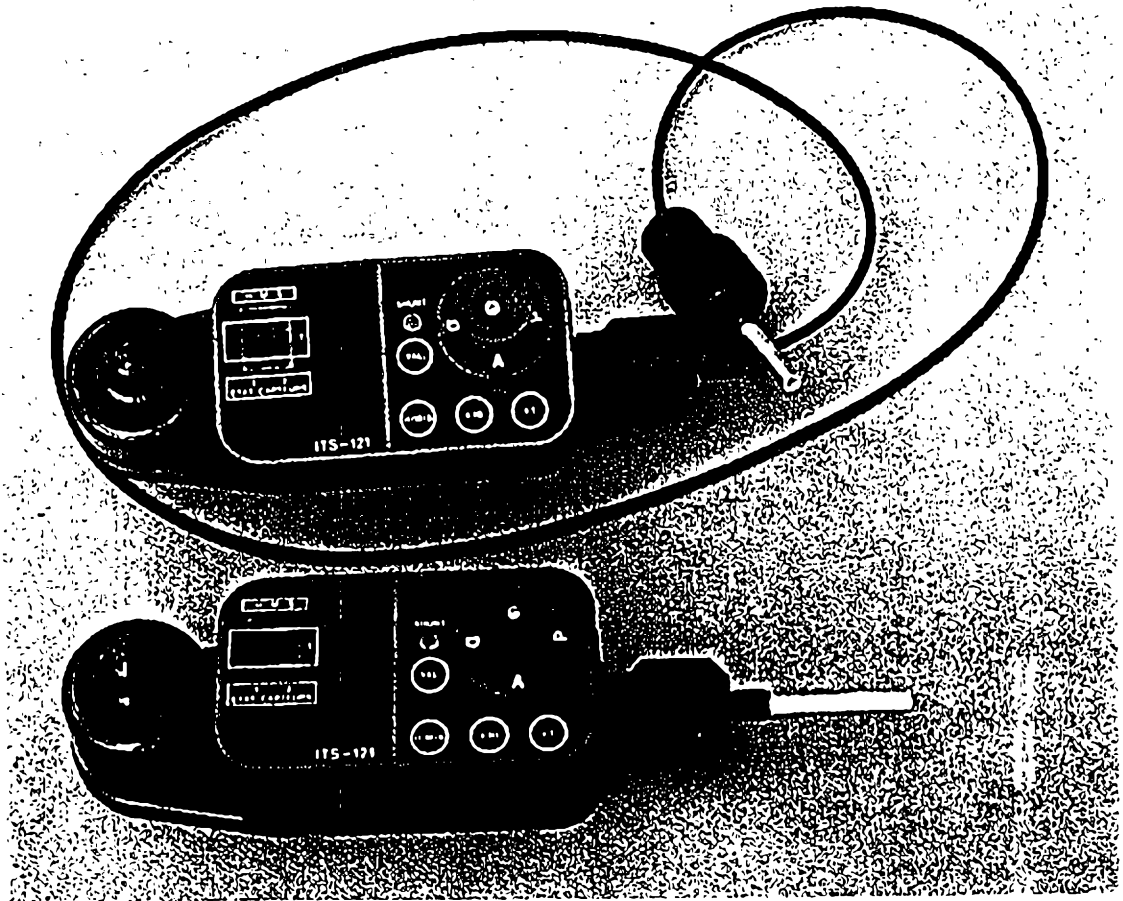


The ITS-110 can be used as both an electronic delay timer and/or as a breakwire-initiated boobytrap device.

B-5

FOR OFFICIAL USE ONLY

French Firing Device, Breakwire, Model ITS-121

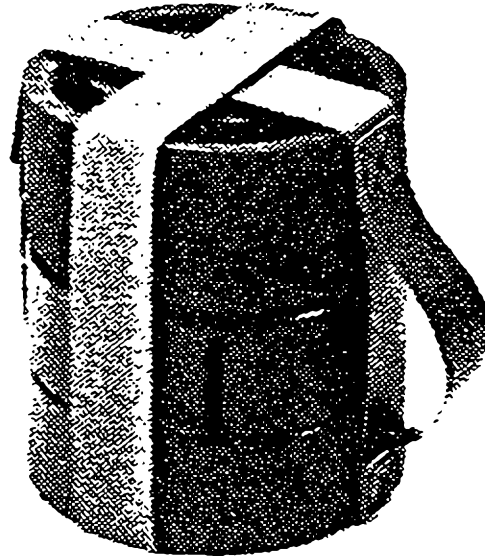


B-6

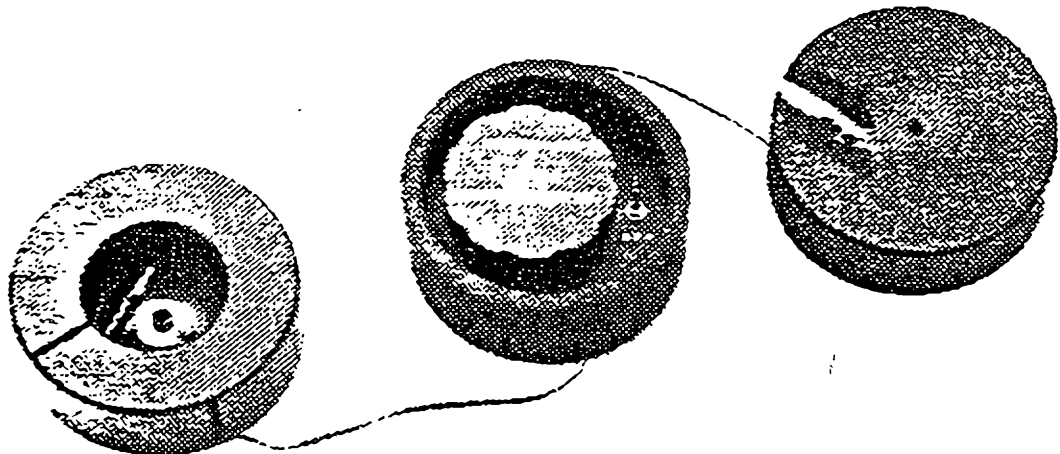
FOR OFFICIAL USE ONLY



French Firing Device, Breakwire, Model PIAF



DIMENSIONS:
Dia. 120 MM
Height 150 MM



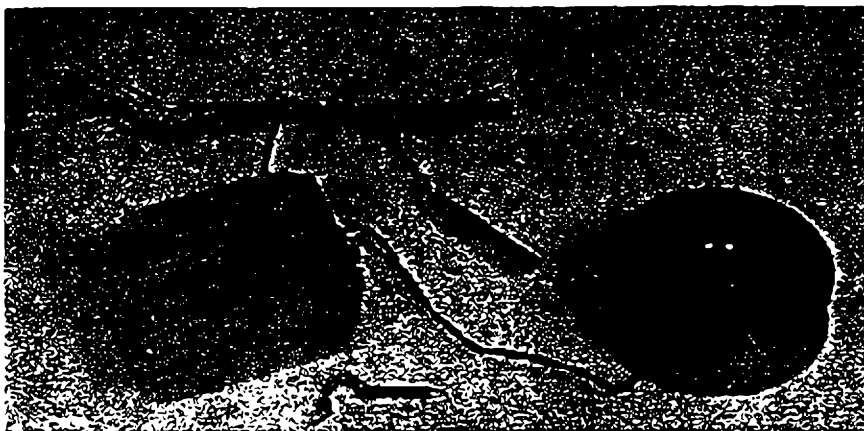
The PIAF is noise activated, having a sensor that enables the system to discriminate targets. The breakwire is an optical fiber. In addition, the device can be programmed to self-neutralize after 3, 6, 12, 24, 48, 72, or 96 hours.

B-7

FOR OFFICIAL USE ONLY

Former Yugoslav Fuze, Electronic, Model UEPž

ELECTRONIC FUZE WITH TRIPWIRE



Applicable as anti- personnel mine or for remote object destroying. The wire of defined tearing- off strength is used as the sensor, and the fuze activation is initiated by its breakage. Wire length can be adjusted to the specific application. Arming is done 20 minutes after pulling the arming key out, and can be also 5 minutes at customer's request.

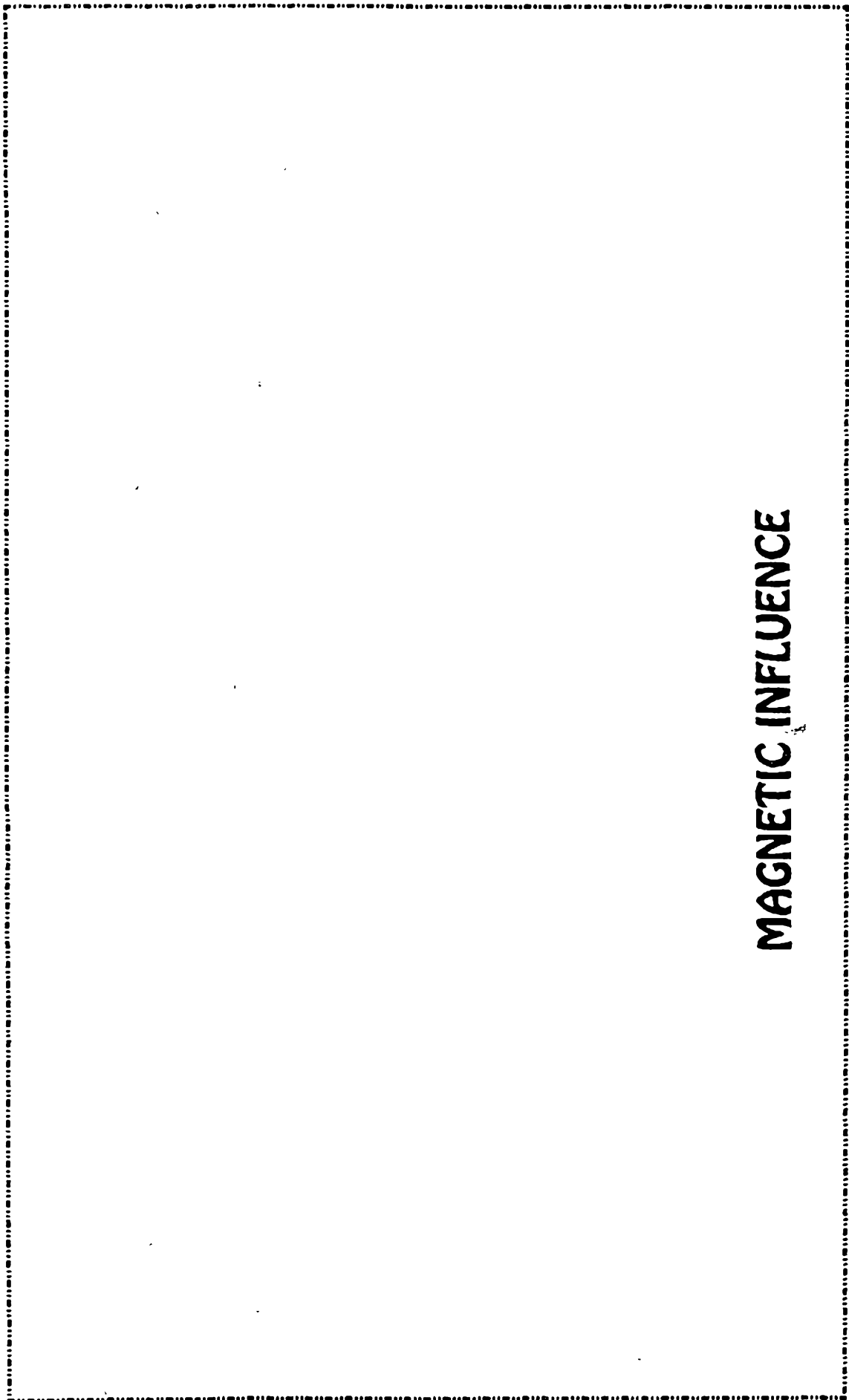
After setting-up procedure functioning is tested by an indicator.

TECHNICAL DATA

- Time until arming : 1.200 s (nominal)
- Length of tripwire : 100 m (nominal)
- Wire interruption force : 3 daN
- Operating autonomy : 3 months

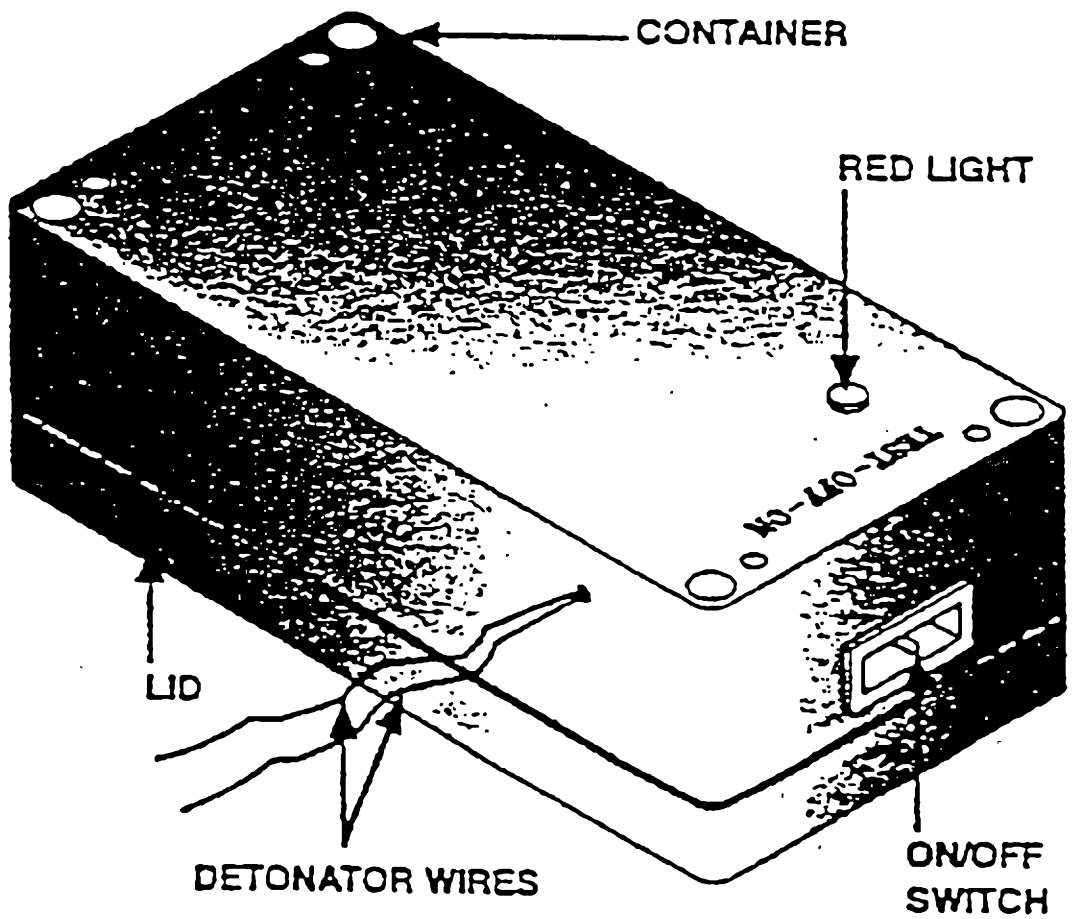
B-8

FOR OFFICIAL USE ONLY



MAGNETIC INFLUENCE

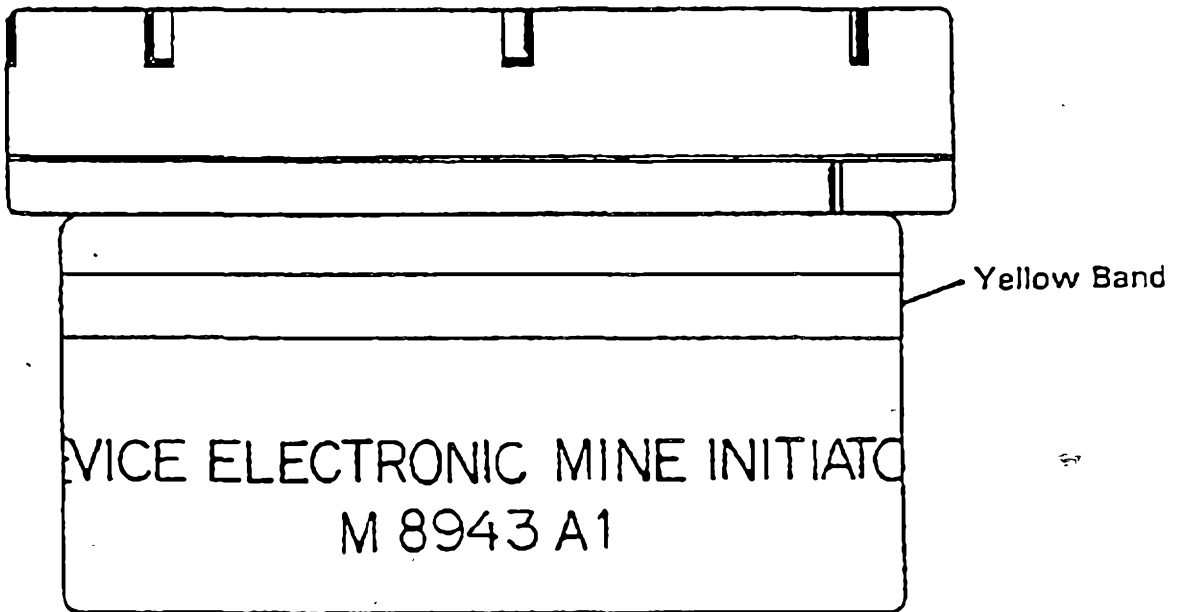
South African Fuze, Mine, Electromagnetic, Model Unknown



B-9

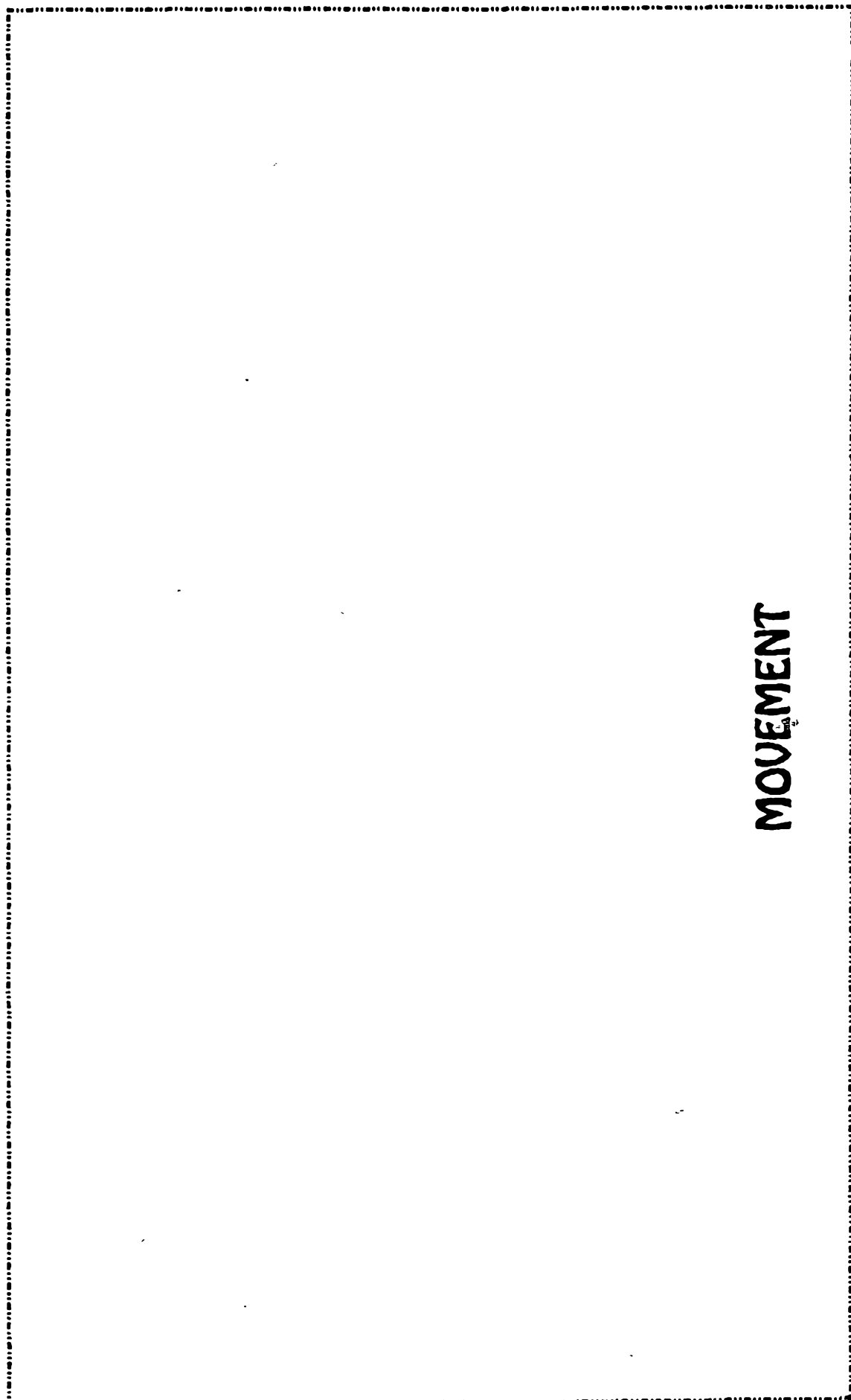
FOR OFFICIAL USE ONLY

**South African Fuze, Mine, Magnetic, Model
M8943A1**



B-10

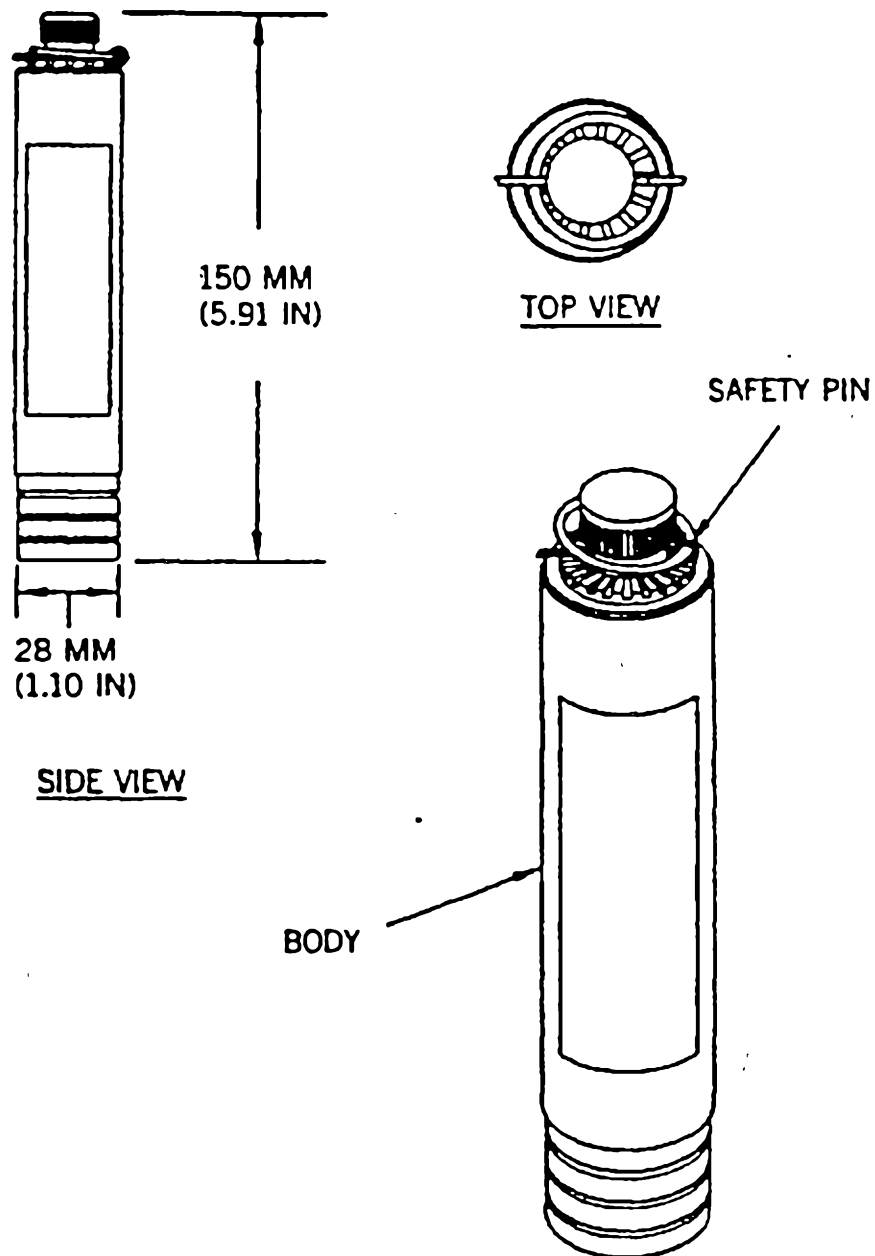
FOR OFFICIAL USE ONLY



MOVEMENT



Chinese Mine, Apers, Electronic, Model Unknown



NOTE:

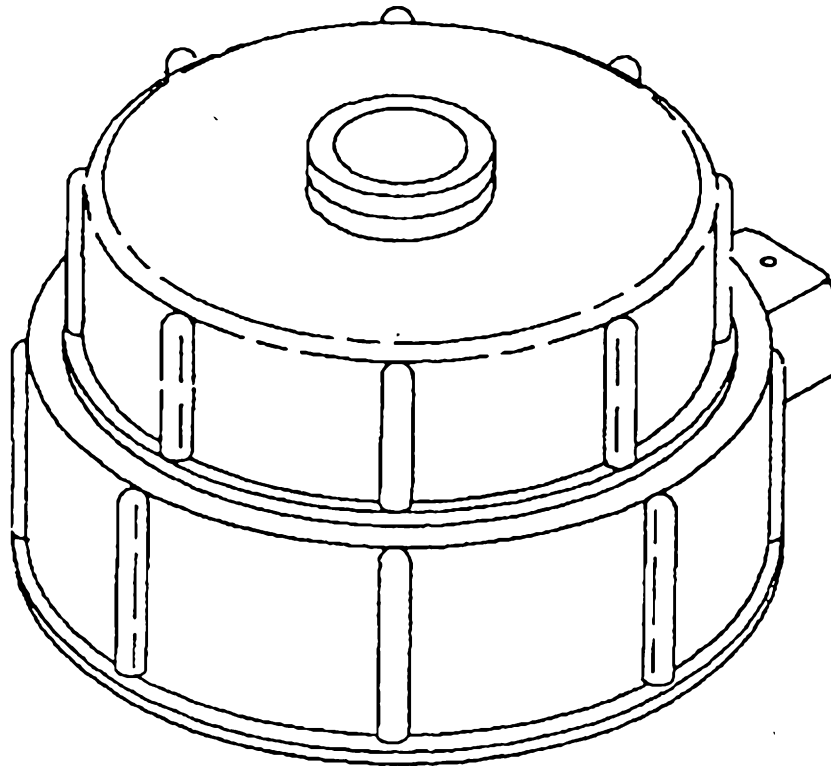
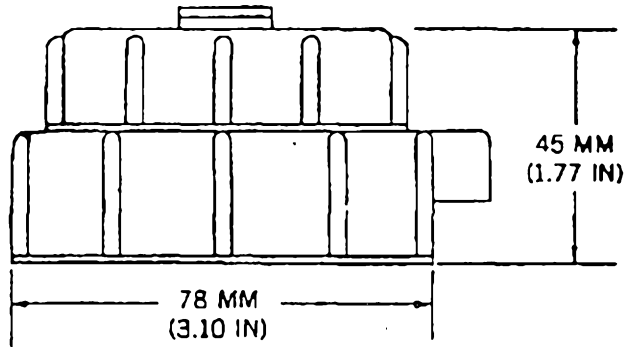
- (1) THIS MINE MAY ALSO BE DEPLOYED AS A BOOBY TRAP.
- (2) THE MINE IS BELIEVED TO BE OLIVE DRAB WITH A TAN BASE AND BLACK MARKINGS.
- (3) THE MINE IS ANTIDISTURBANCE, SELF-DESTRUCT, AND CONTAINS AN ARMING DELAY FROM 3 TO 10 MINUTES.

B-11

FOR OFFICIAL USE ONLY

Italian Antilift Device, VS-AR4

Landmines:
VS-2.2 AT
VS-50 Apers
Valmara Apers
VS-1.6 AT

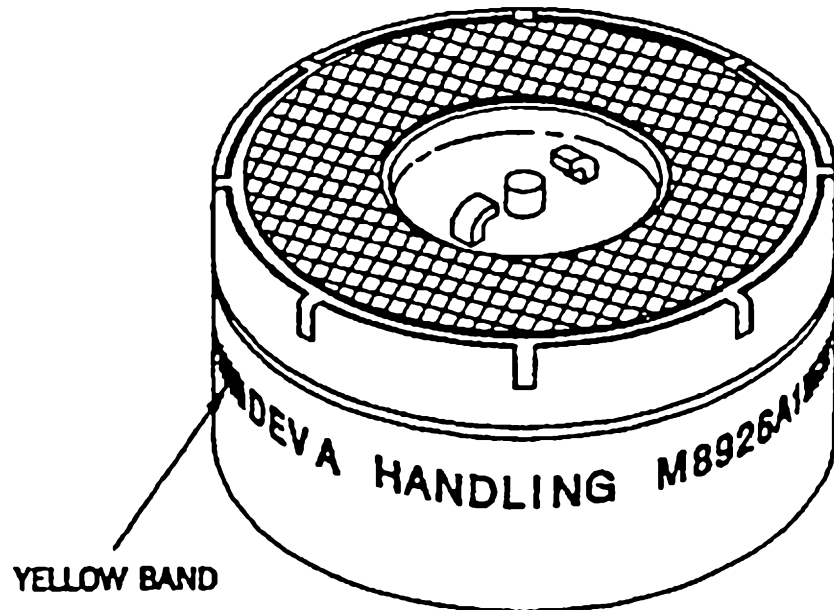
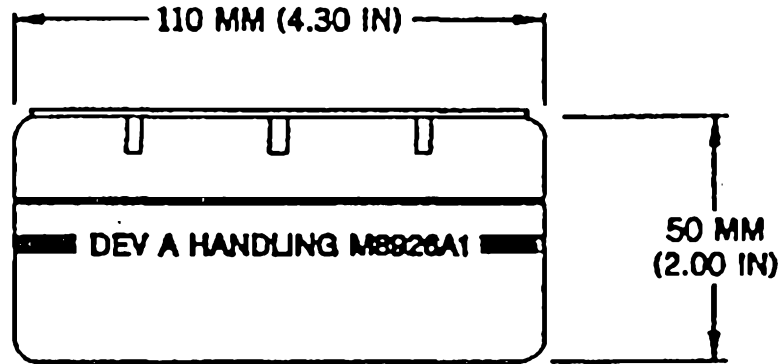


B-12

FOR OFFICIAL USE ONLY



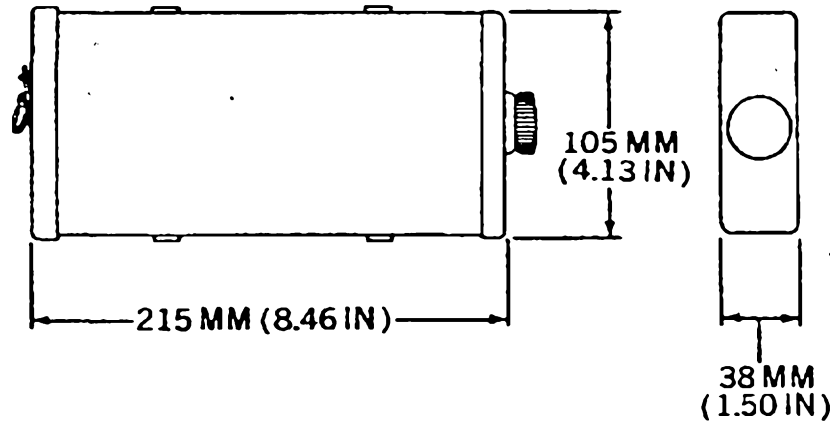
South African Fuze, Mine, Electronic, Antihandling, Model M8926A1



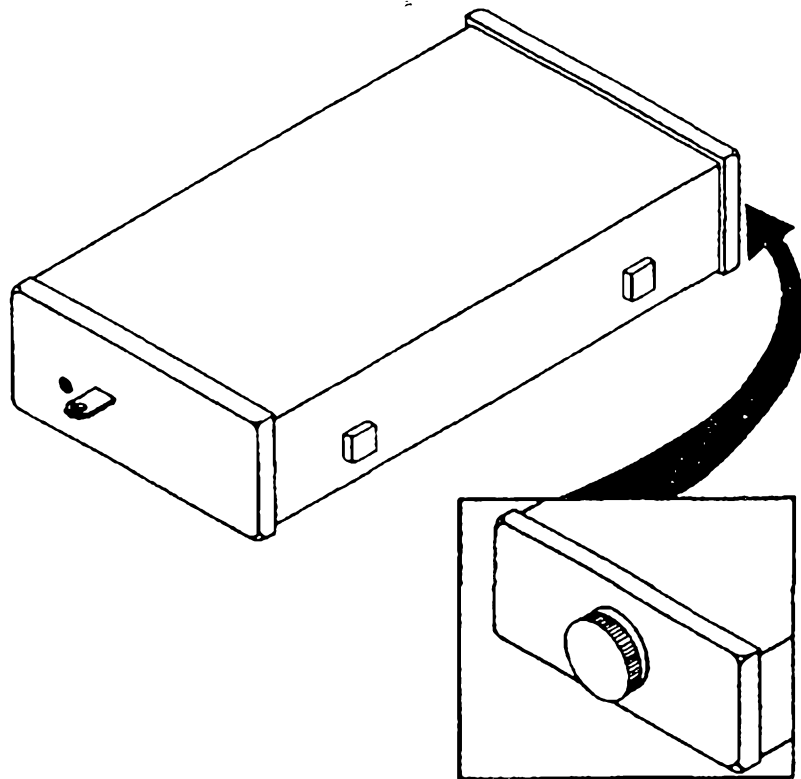
B-13

FOR OFFICIAL USE ONLY

Country Unknown Landmine, Apers, Antidisturbance, Model Unknown



NOTE: DIMENSIONS ARE APPROXIMATE

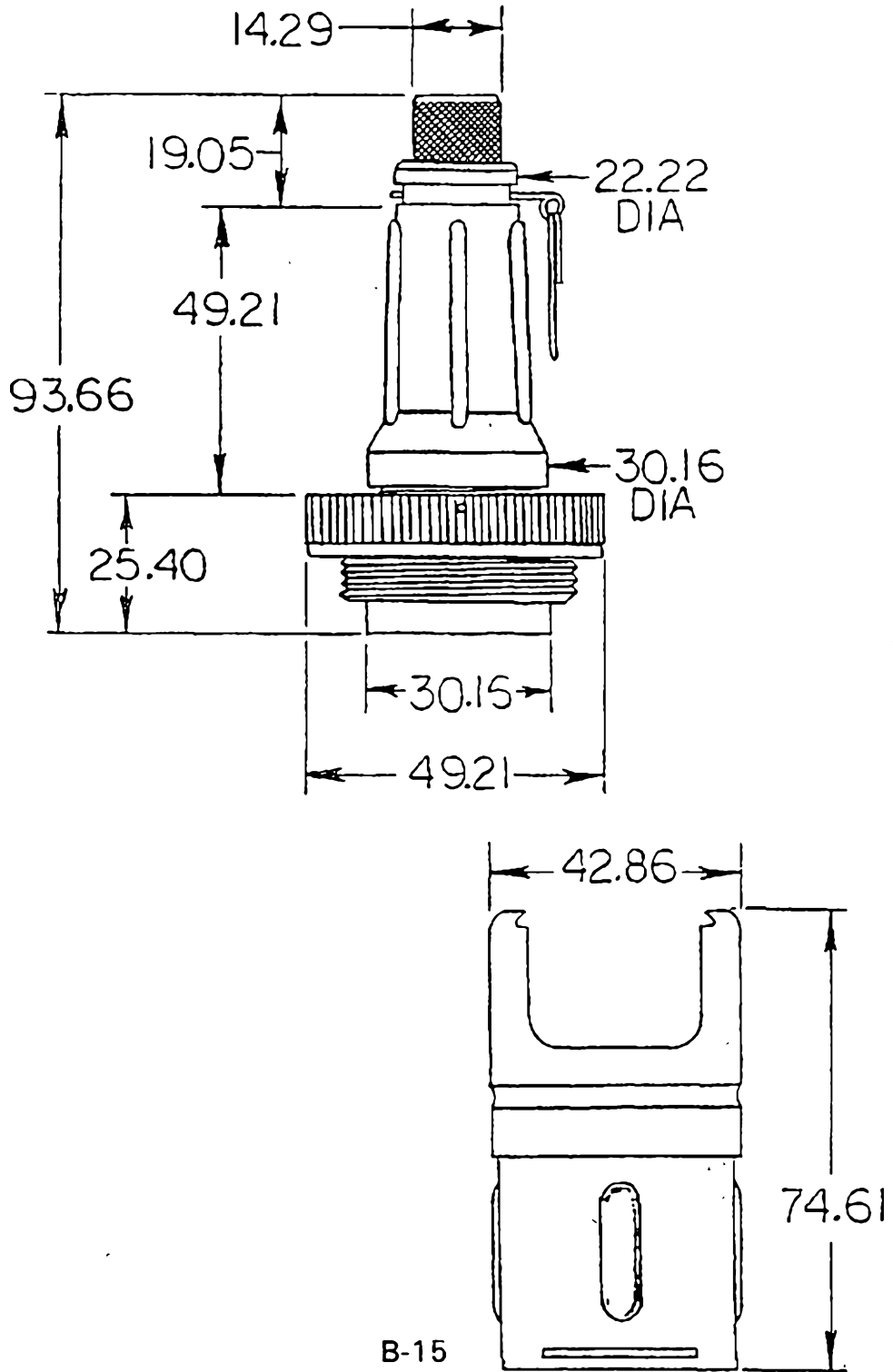


B-14

FOR OFFICIAL USE ONLY

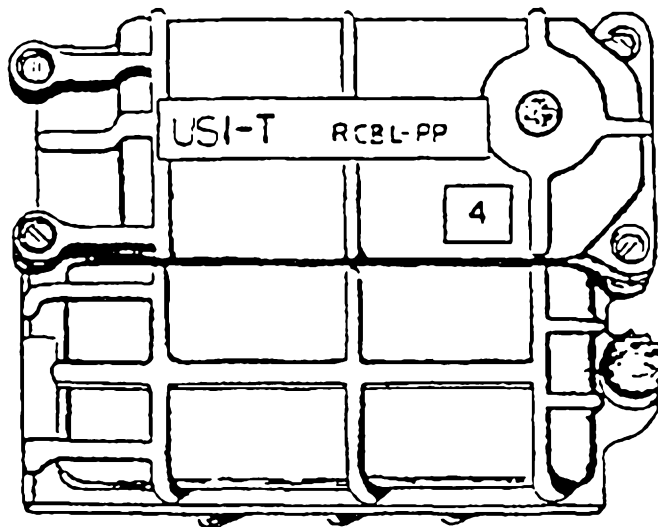


Former U.S.S.R. Mine Fuze, Delay, Model Unknown



FOR OFFICIAL USE ONLY

Former Yugoslav Fuze, Special, Inertia, Superquick, Model USI-T



Purpose

The fuze is intended for assembly in mines and explosive devices activated at certain inertia level.

Technical Data

The fuze is activated at the minimum acceleration ranging from 1 m/s^2 to 5 m/s^2 .

Time arming of the fuze ranges from 270 to 330 s.

Maximum power consumption from the battery amounts to $10 \mu\text{Amps}$.

The fuze operates within the temperature range of 253°K to 323°K (-20°C to -50°C).

The fuze activates one electric detonating primer.

The fuze dimensions are $93 \times 73 \times 35 \text{ mm}$.

The fuze mass is maximum 250 g.

B-16

FOR OFFICIAL USE ONLY



Former Yugoslav Fuze, Special, Vibrating, Superquick, Model USV-T

Fuze, Special, Vibrating, Superquick

Purpose

The fuze is intended for assembly in mines and explosive devices activated at vibrations of definite acceleration.

Technical Data

The fuze can select four acceleration levels appearing during vibrations as follows: 0.001 m/s^2 ; 0.01 m/s^2 ; 0.1 m/s^2 and 1 m/s^2 .

The fuze time arming ranges from 270 s to 330 s.

The fuze is power supplied from a 7 V to 9.5 V battery.

Maximum power consumption from the battery is $250 \mu\text{Amps}$.

The fuze operates within the temperature range of 253°K to 323°K (-20°C to $+50^\circ\text{C}$).

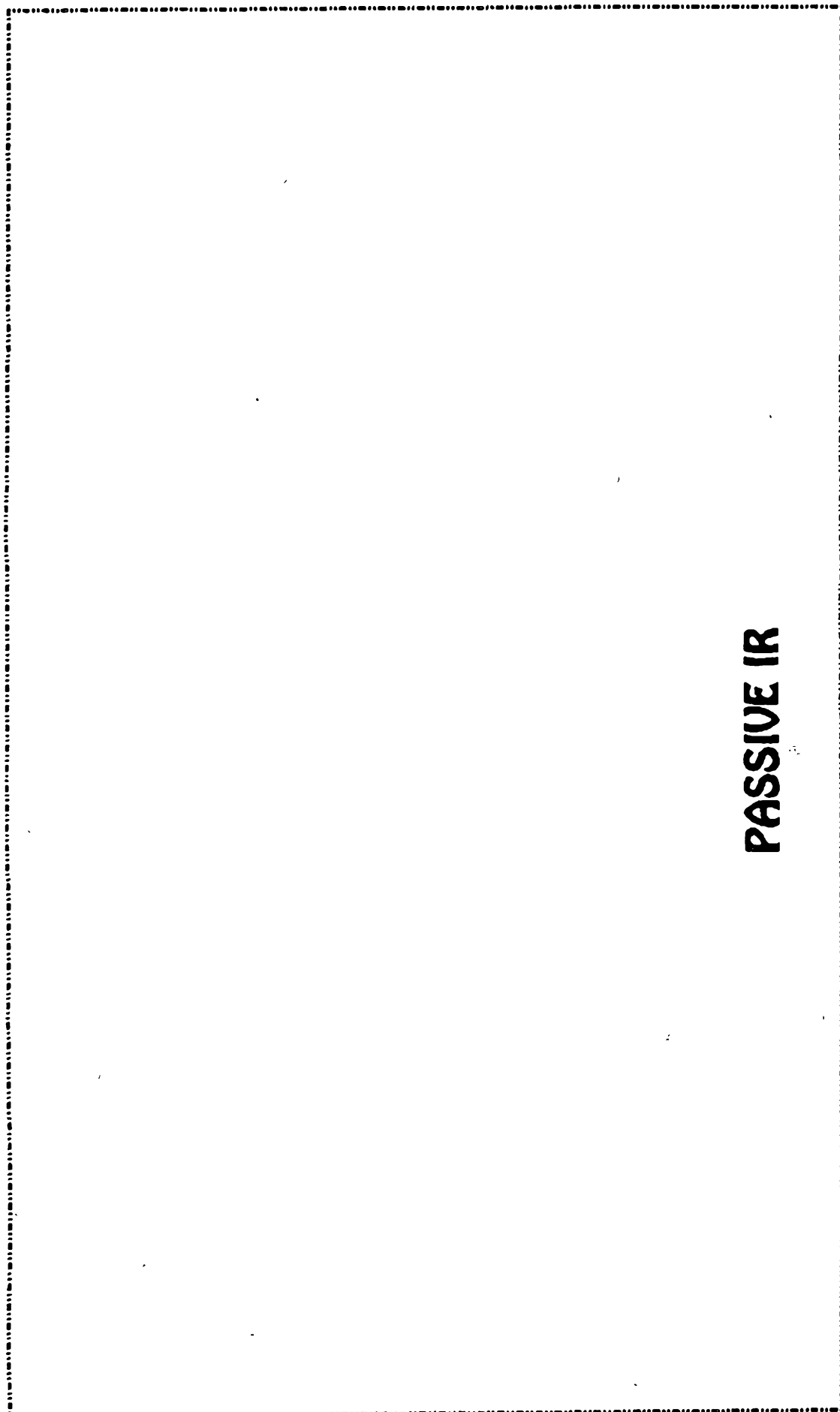
The fuze activates one electric detonating primer.

The fuze dimensions are $93 \times 73 \times 35 \text{ mm}$.

The fuze mass is maximum 350 g.

B-17

FOR OFFICIAL USE ONLY



PASSIVE IR

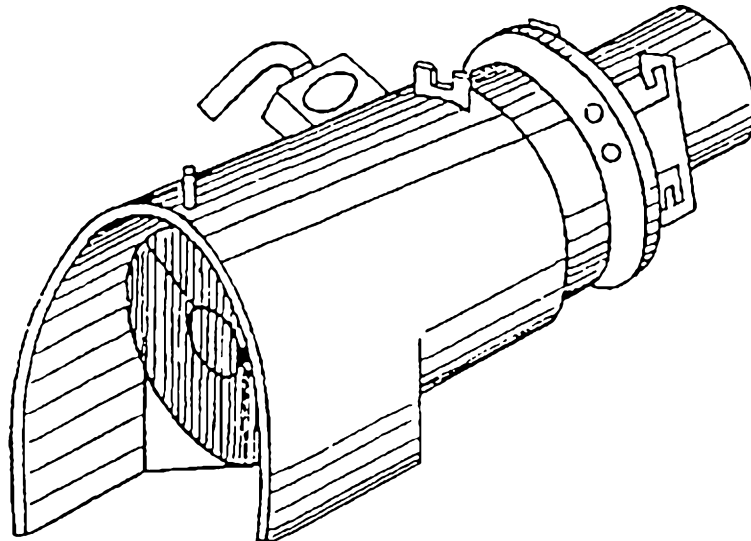


Former U.S.S.R. Sensor, Passive IR, Model Unknown

Dimensions:

Max Dia. 95 MM

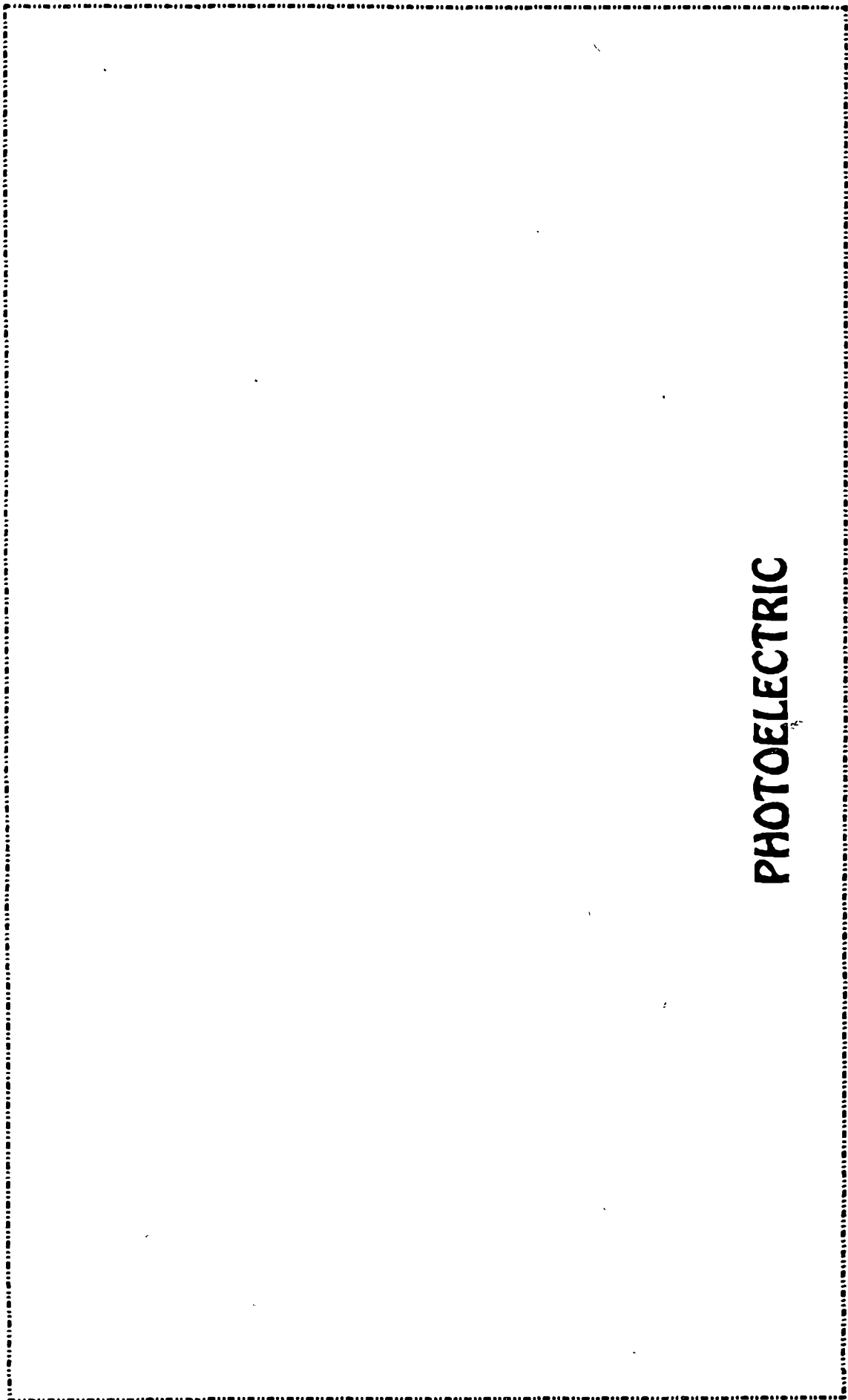
Length 240 MM



This sensor has a detection range of from 2 to 50 meters.

B-18

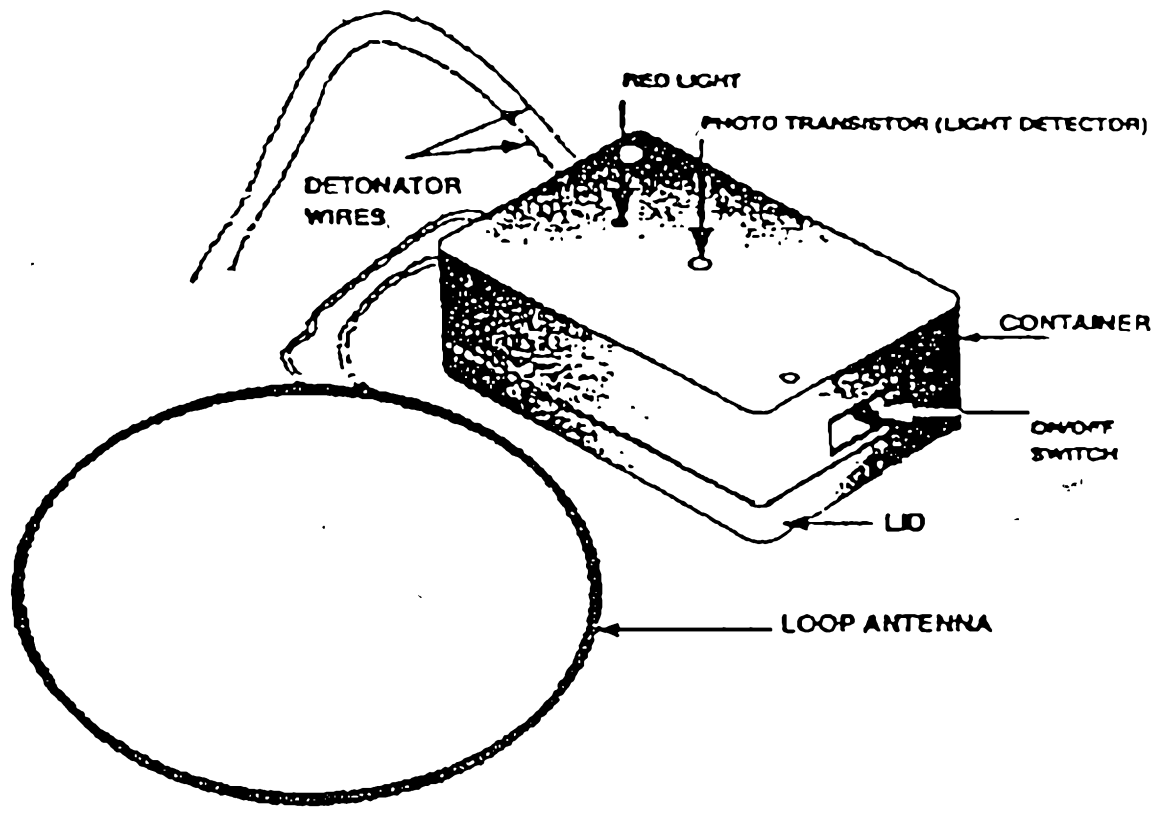
FOR OFFICIAL USE ONLY



PHOTOELECTRIC



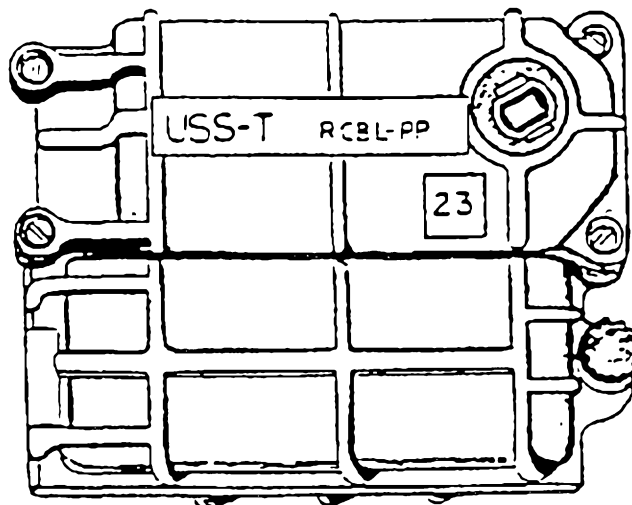
South African Fuze, Mine, Antimine Sweeping/ Photoelectric, Model Unknown



B-19

FOR OFFICIAL USE ONLY

Former Yugoslav Fuze, Instantaneous, Special, Light, Model USS-T



Purpose

The fuze is intended for assembly in mines and explosive devices activated when illuminated to certain level.

Technical Data

The fuze is activated when illuminated by 2Lx to 7Lx, min.

The fuze time arming ranges from 270 s to 330 s.

The fuze is power supplied from a battery.

Maximum power consumption from the battery amounts to 10 μ Amps.

The fuze operates within the temperature range of 253°K to 323°K (-20° C to $+50^{\circ}$ C).

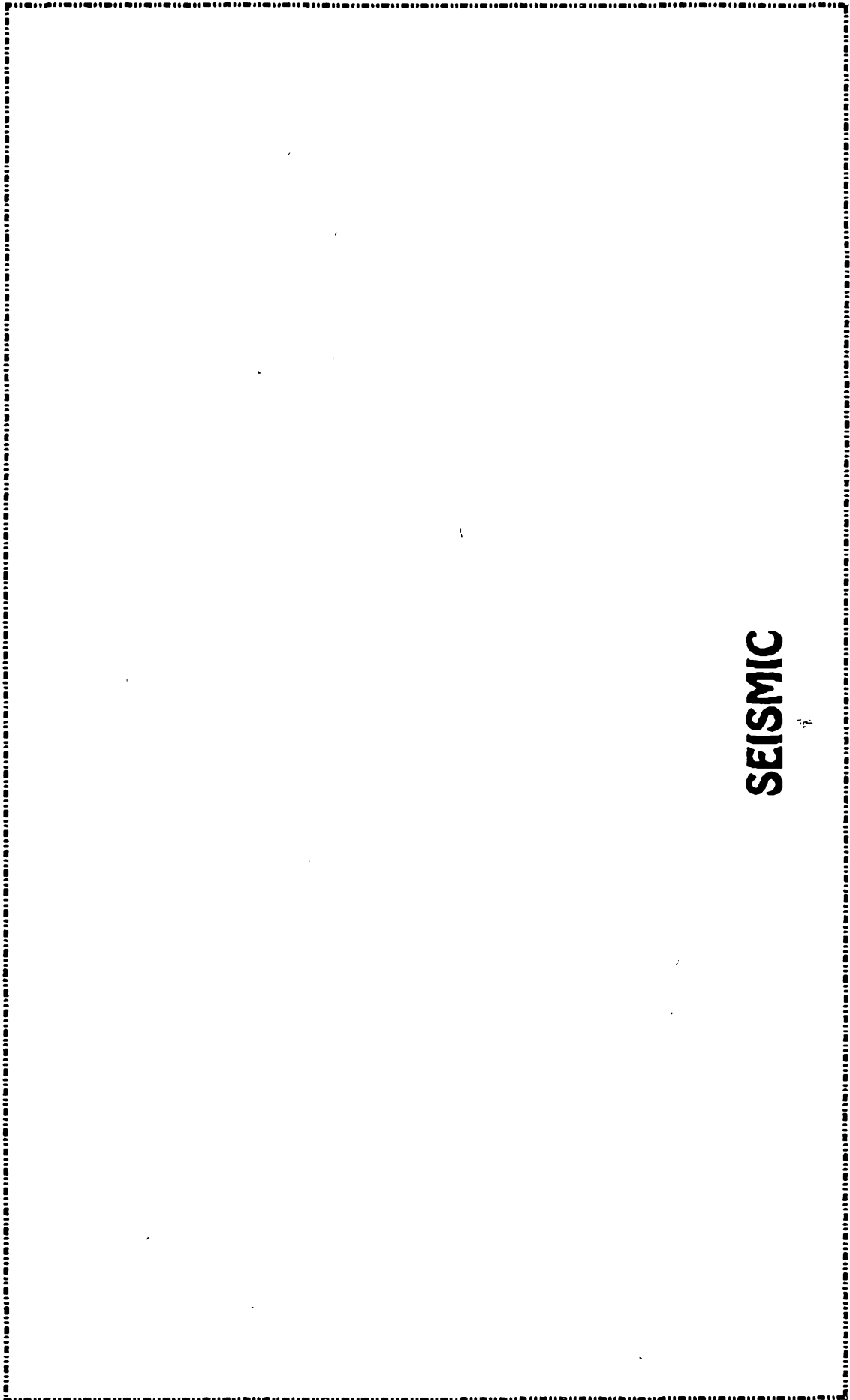
The fuze activates one electric detonating primer.

The fuze dimensions are 93 x 73 x 35 mm.

The fuze mass is maximum 250 g.

B-20

FOR OFFICIAL USE ONLY

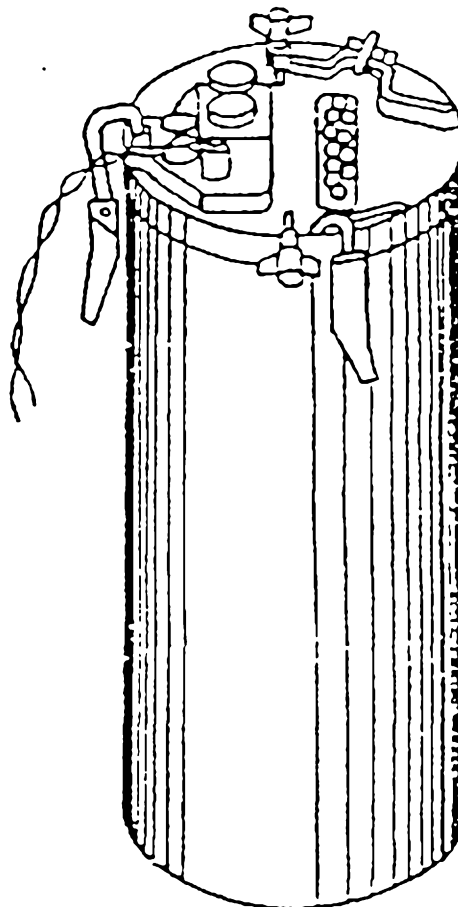


SEISMIC



Former U.S.S.R Mine Control Device, NVU-P

Dimensions:
Dia. 125 MM
Height 270 MM

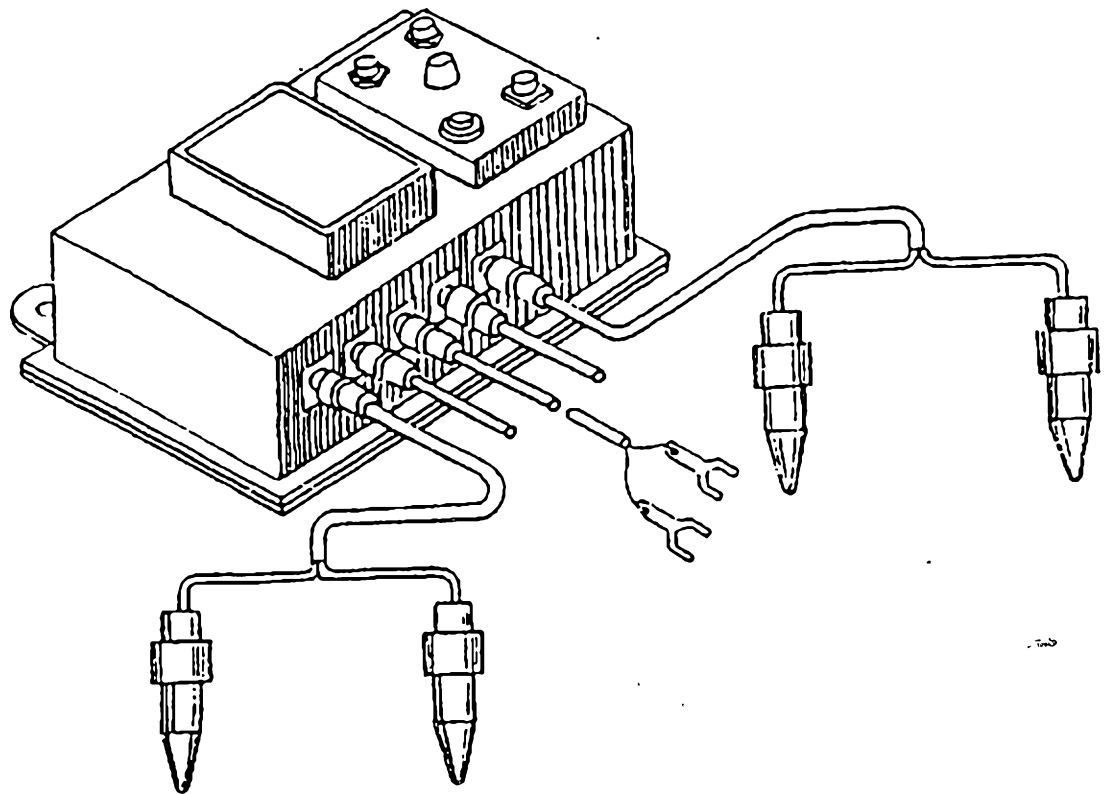


This device is used for the successive detonation of 5 antipersonnel mines, such as the OZM-72 or type MON-50. It uses seismic sensors to detect targets.

B-21

FOR OFFICIAL USE ONLY

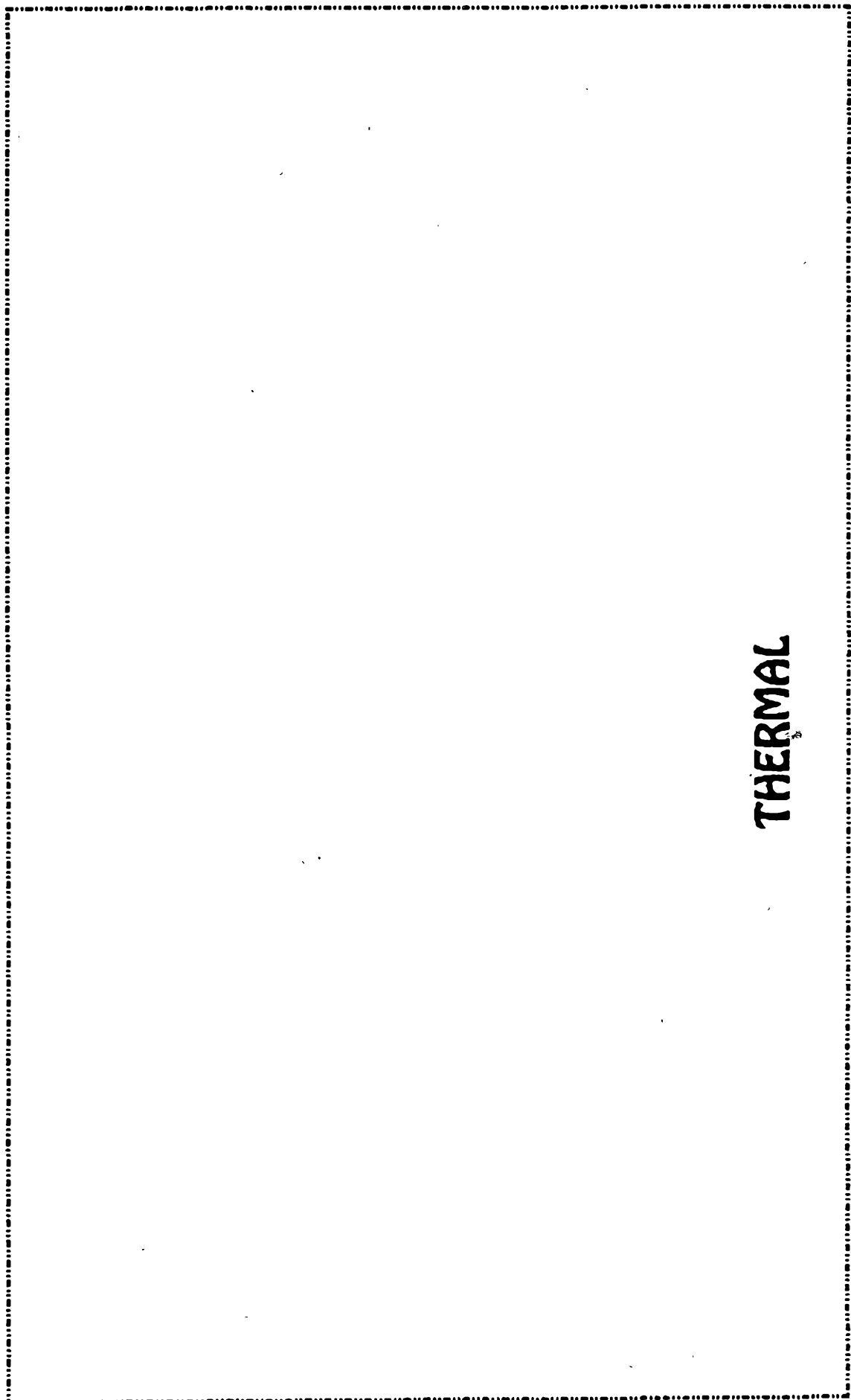
**Former U.S.S.R Seismic Sensor Control Device,
Model Unknown**



This device has a maximum detection range of 200 meters long by 5 meters wide. The false alarm rate is reported to be not more than 1 per 500 hours of operation.

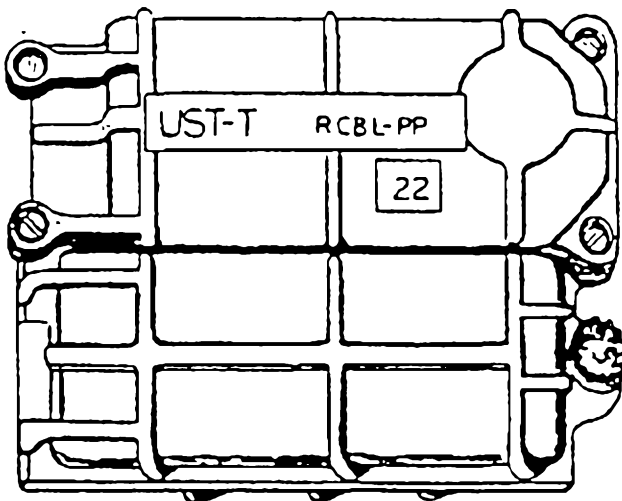
B-22

FOR OFFICIAL USE ONLY



THERMAL

Former Yugoslav Fuze, Instantaneous, Special, Thermal, Model UST-T



Purpose

The fuze is intended for assembly in mines and explosive devices activated at certain temperature.

Technical Data

The fuze is activated at the minimum temperature of 213°K to 343°K (-60°C to +70°C).

The fuze time arming is 270 s to 330 s.

The fuze is power supplied from a battery.

Maximum power consumption from the battery is 30 μ Amps.

The fuze operates within the temperature range 213°K to 343°K (-60°C to +70°C).

The fuze activates ~~one~~ electric detonating primer.

The fuze dimensions are 93 x 73 x 35 mm.

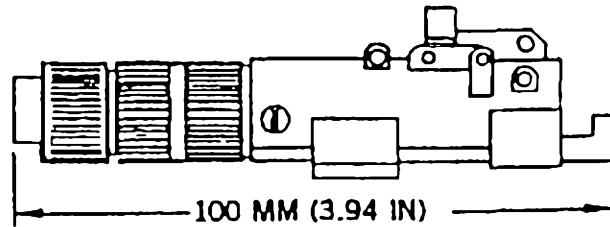
The fuze mass is maximum 250 g.

B-23

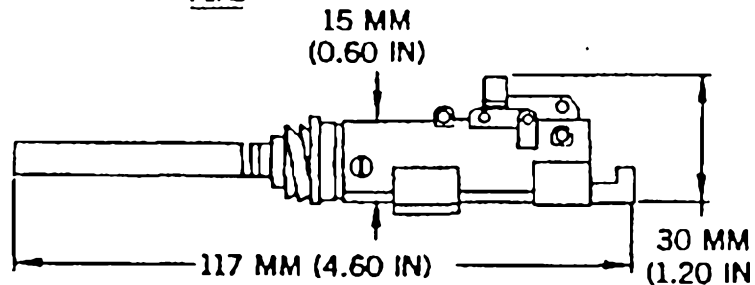
FOR OFFICIAL USE ONLY

**MECHANICAL
ANTILIFT
FIRING DEVICES**

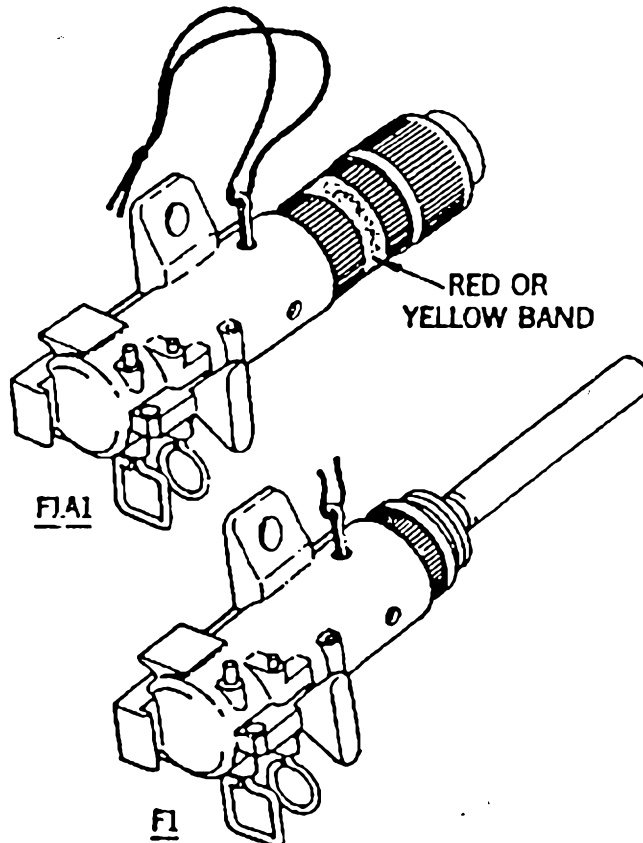
Australian Firing Devices, Combination, F1 & F1A1



F1A1



F1



F1A1

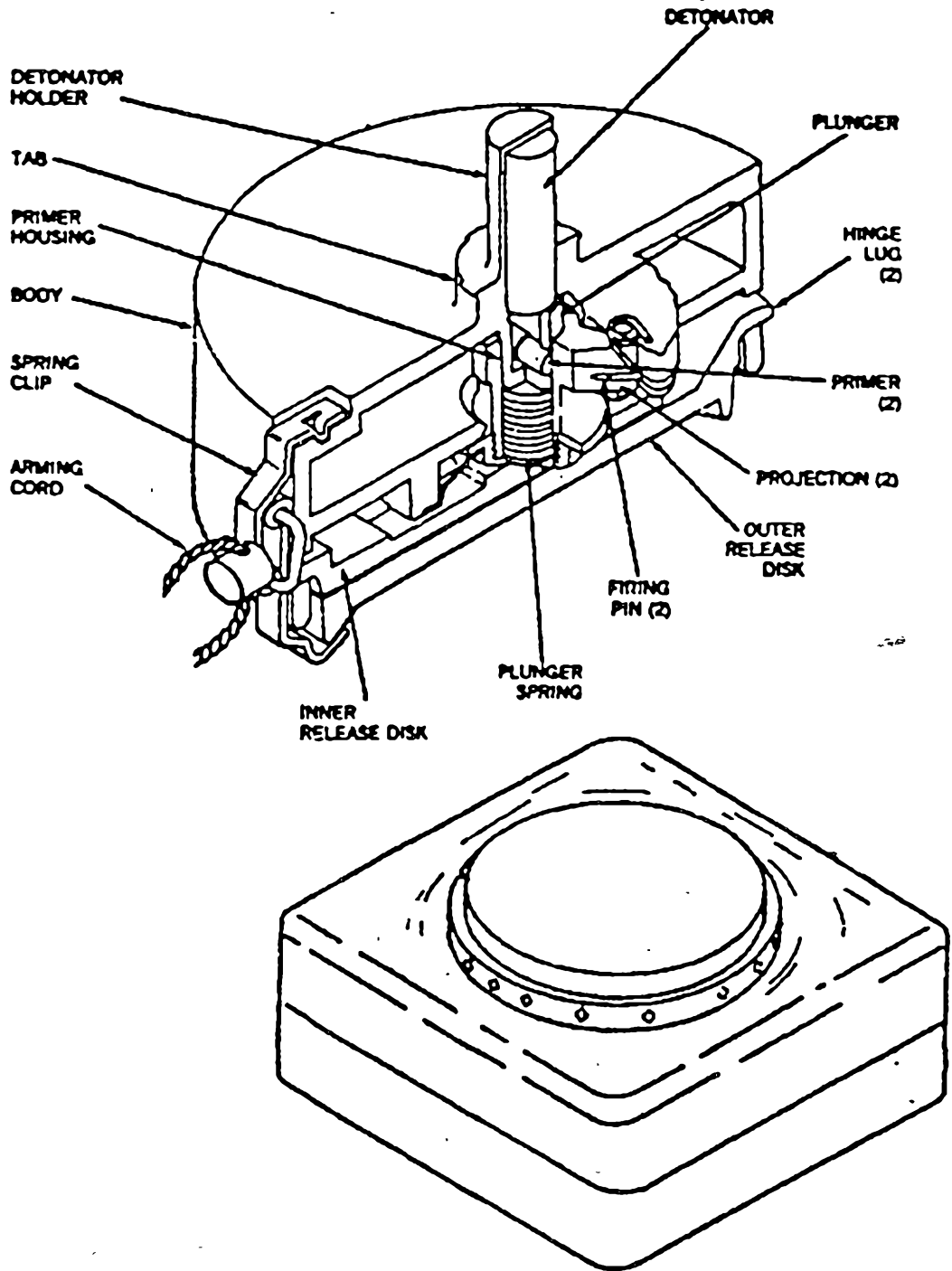
F1

C-1

FOR OFFICIAL USE ONLY

Belgian Antilift Device, Model Unknown

Used With:
PRB III AT
Mine

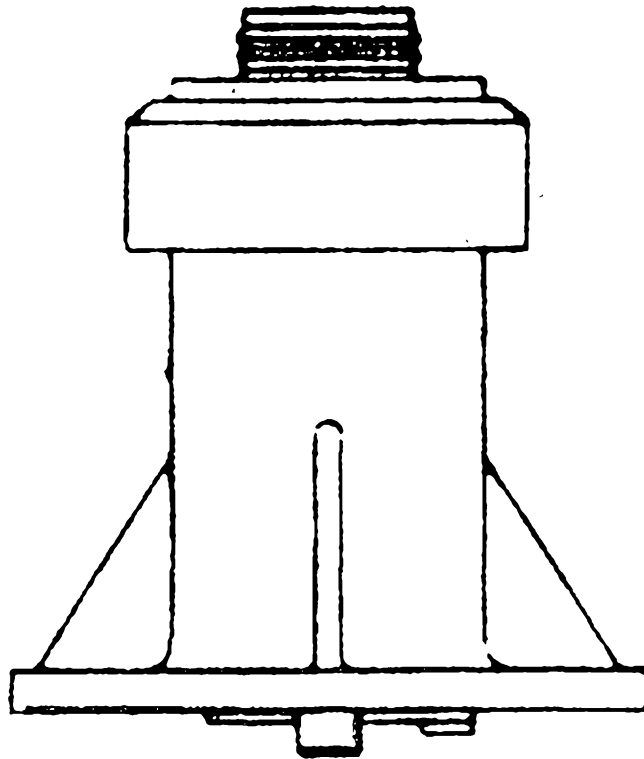


C-2

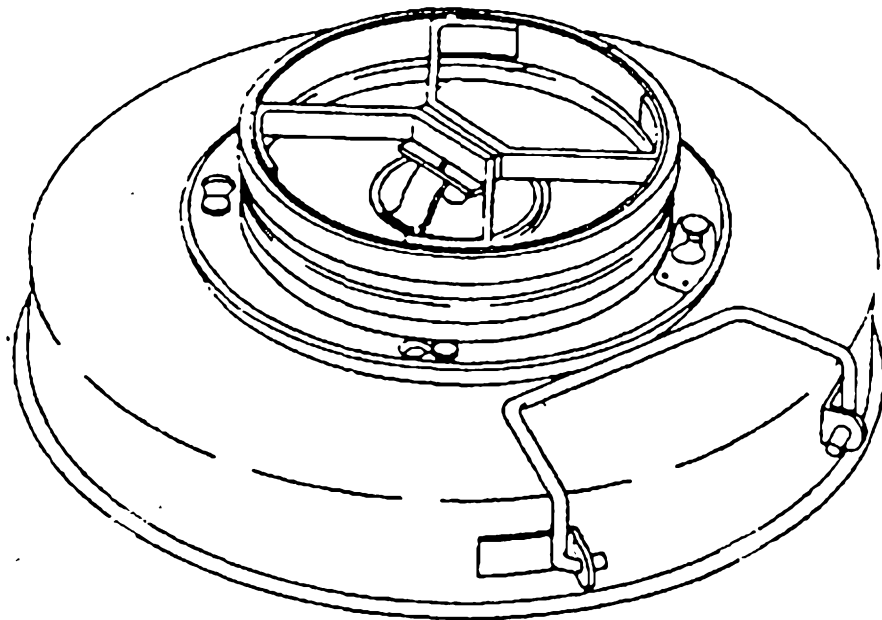
FOR OFFICIAL USE ONLY



Former Czech Firing Device, Antilift, Model RO-3



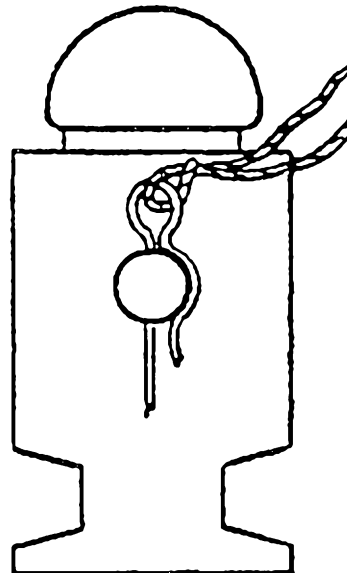
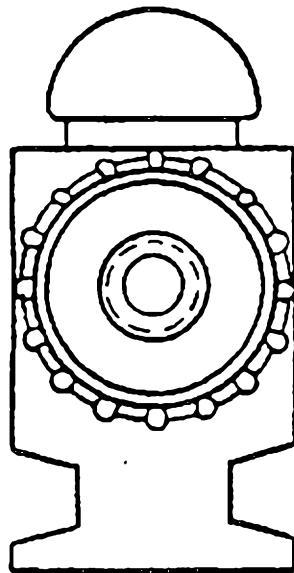
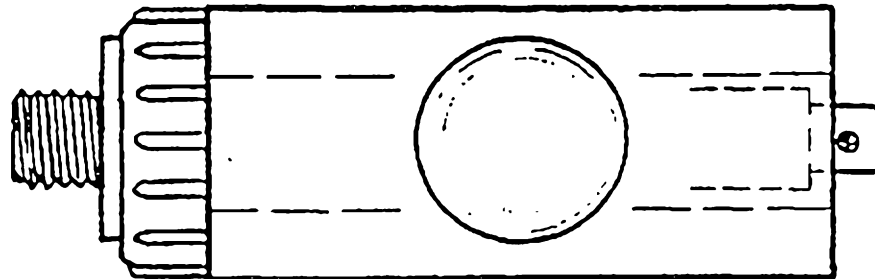
Used With:
PT-Mi-K
AT Mine



C-3

FOR OFFICIAL USE ONLY

Former Czech Firing Device, Antilift, Model RO-4



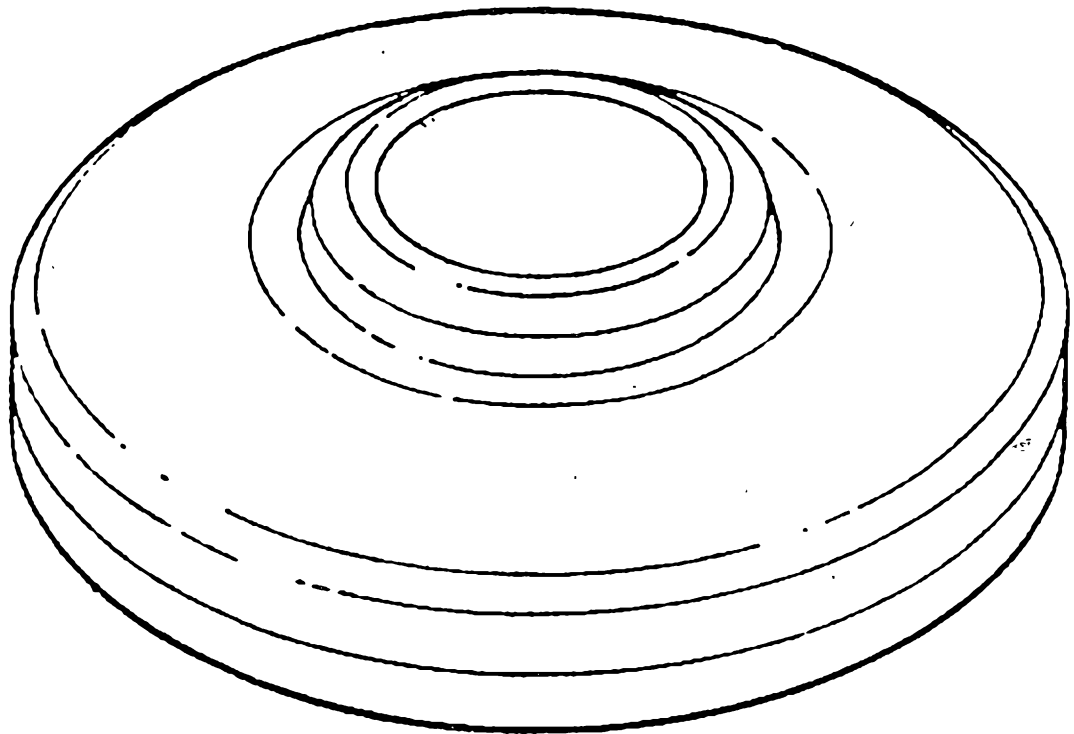
C-4

FOR OFFICIAL USE ONLY



Former Czech Fuze, Antiremoval, Model RO-7 III

Used With:
PT-Mi-Ba
AT Mine

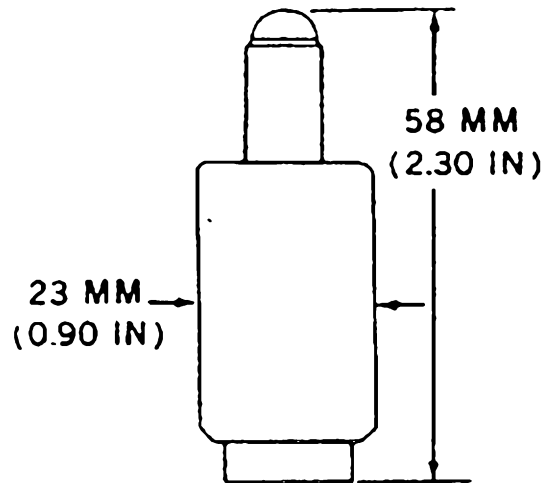


This fuze functions similar to the RO-7 and RO-7 II fuzes. The functioning of the antisturbance feature is unknown.

C-5

FOR OFFICIAL USE ONLY

French Landmine Fuze, Antidisturbance, Model 1952

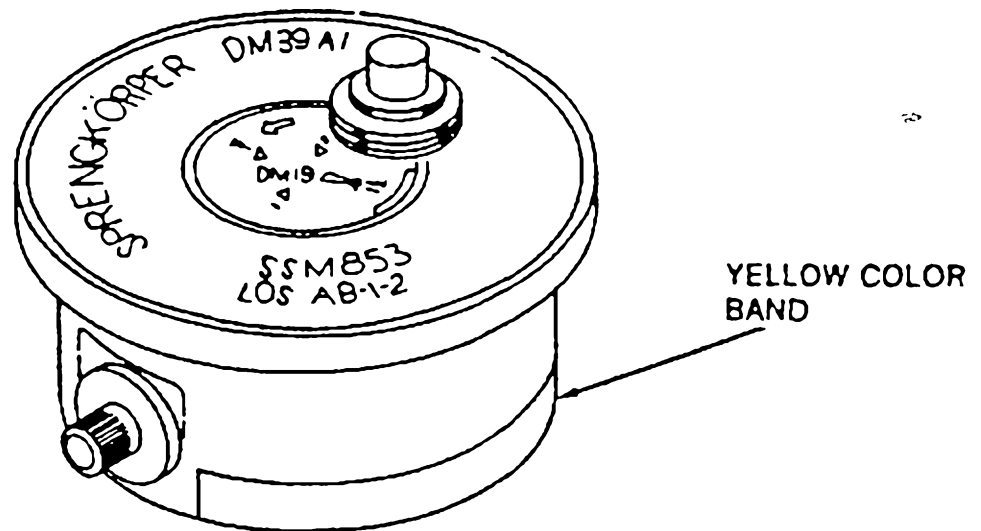
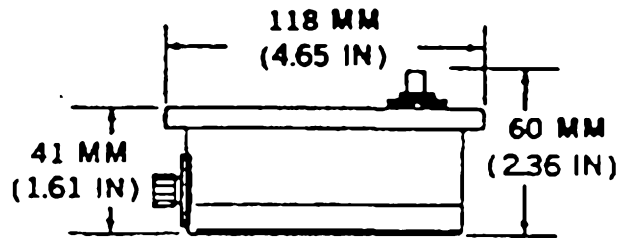


C-6

FOR OFFICIAL USE ONLY



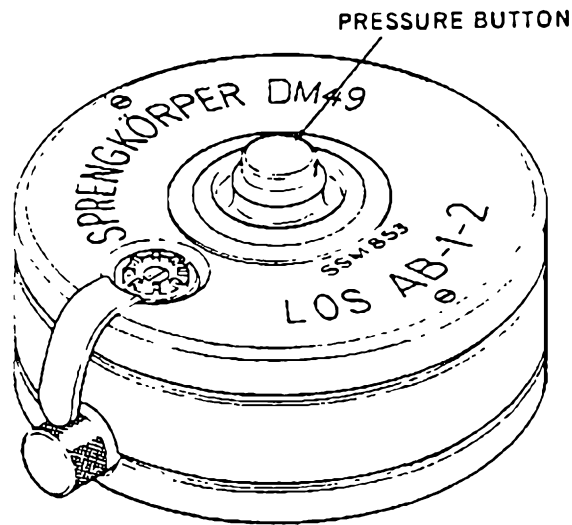
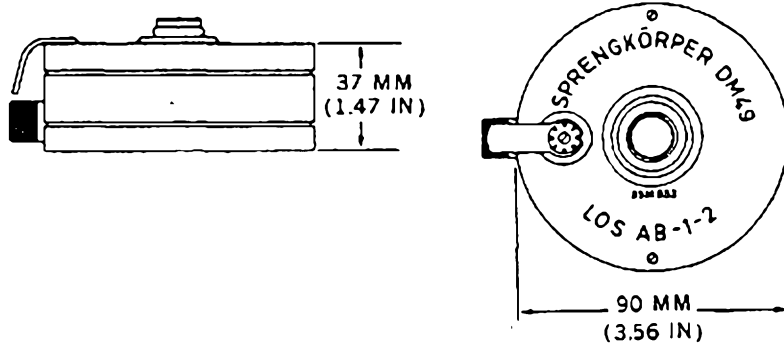
German Landmine Antilift Device, DM39A1



C-7

FOR OFFICIAL USE ONLY

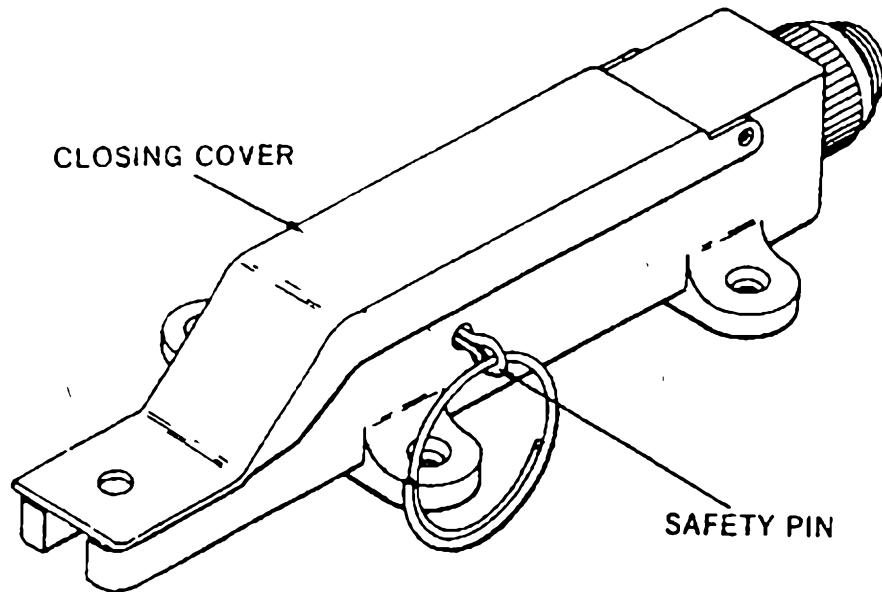
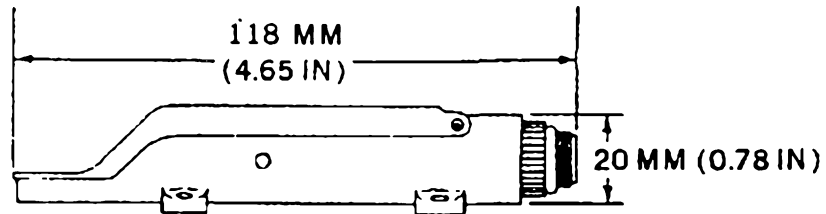
German Landmine Antilift Device, DM49



C-8

FOR OFFICIAL USE ONLY

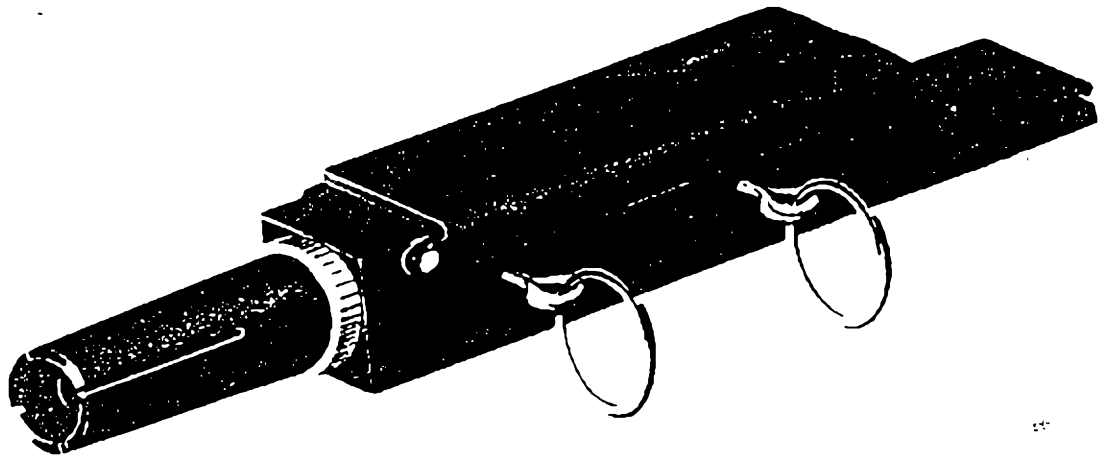
Israeli Firing Device, Demolition, Pressure Release, No. 9



C-9

FOR OFFICIAL USE ONLY

**Netherlands Firing Device, Pressure Release,
No. 18C1/2C1**

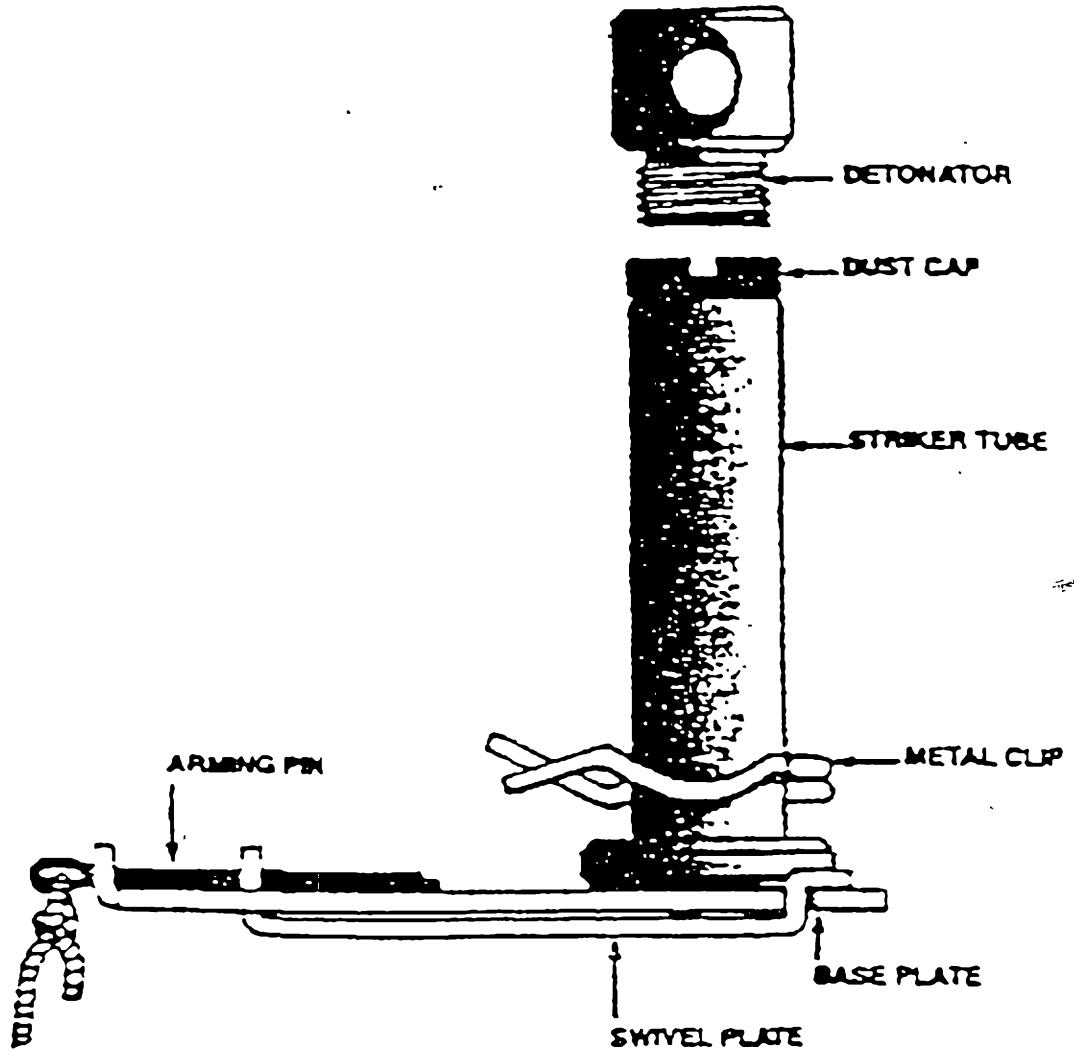


C-10

FOR OFFICIAL USE ONLY



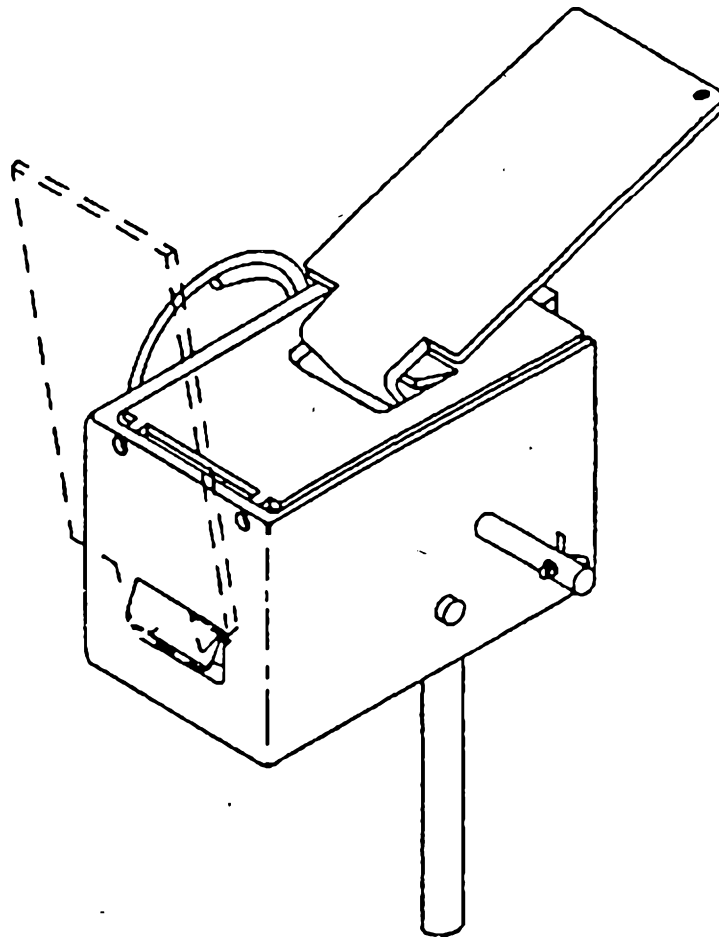
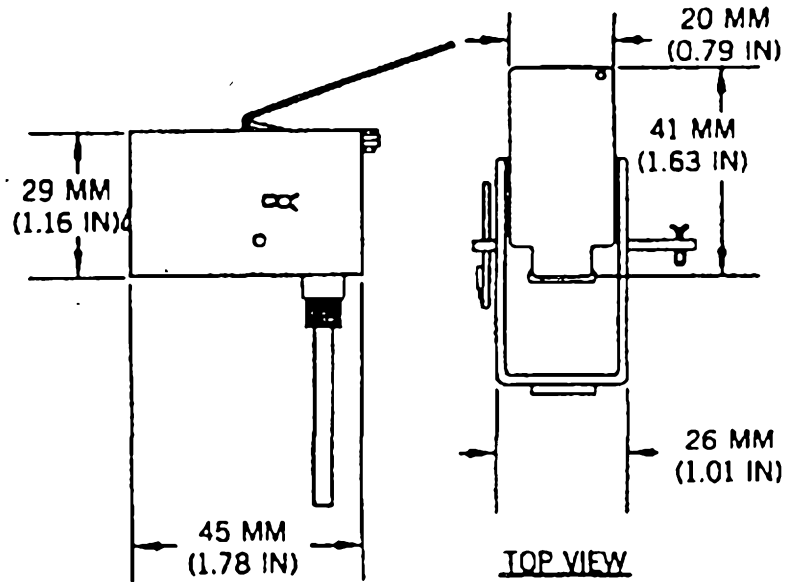
South African Fuze, Mine, Pressure Release, Model Unknown



C-11

FOR OFFICIAL USE ONLY

Spanish Firing Device, Pressure Release, Model Unknown

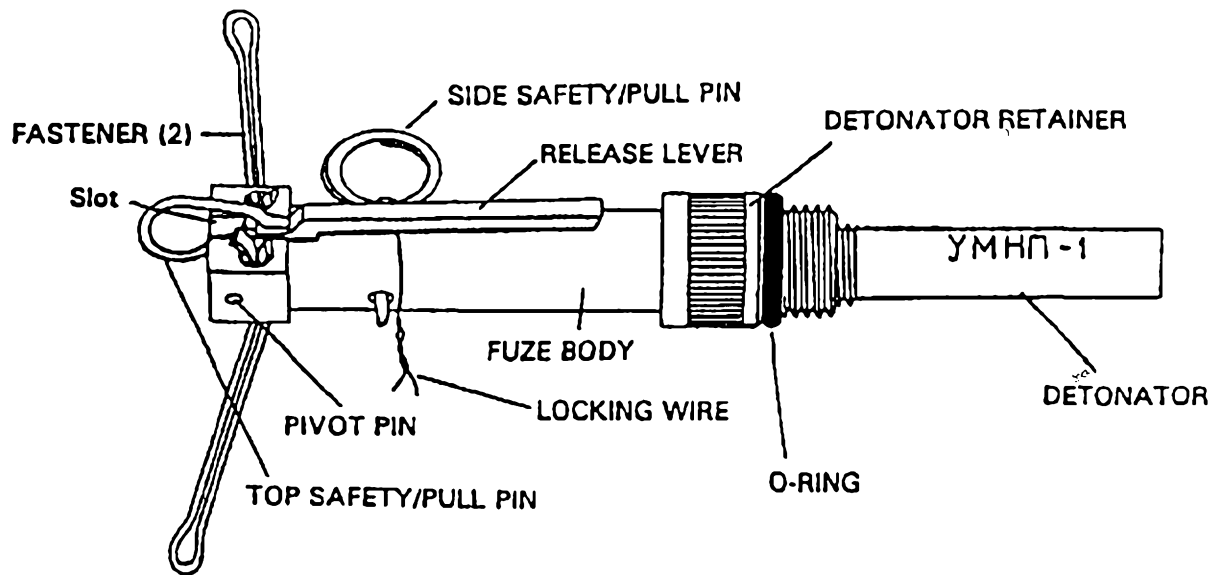


C-12

FOR OFFICIAL USE ONLY



Former Yugoslav Firing Device, Multipurpose, Model UMNOP-1

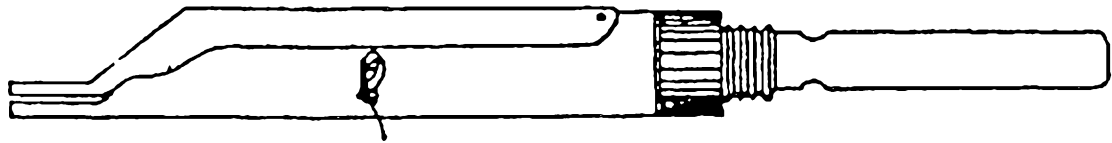


This firing device functions under the forces of pressure, pressure release, axial pull and radial pull.

C-13

FOR OFFICIAL USE ONLY

**Former Yugoslav Firing Device, Pressure Release,
Pull, Model UDOP-1**

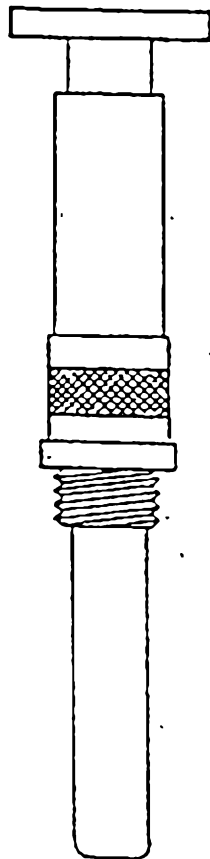


C-14

FOR OFFICIAL USE ONLY

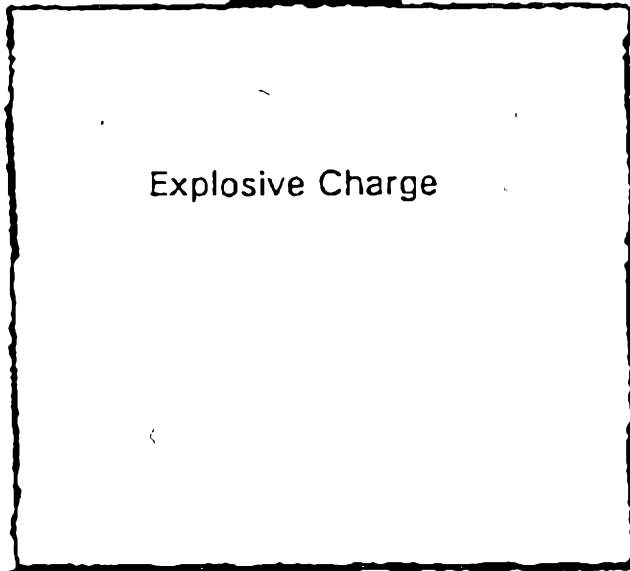


Former Yugoslav Firing Device, Pressure Release, Pull, Model UMOP-1



3 to 15 Kg
Restraining Weight

UMOP-1 Setup in the
Pressure Release Mode



C-15

FOR OFFICIAL USE ONLY

REMOTE CONTROL FIRING DEVICES



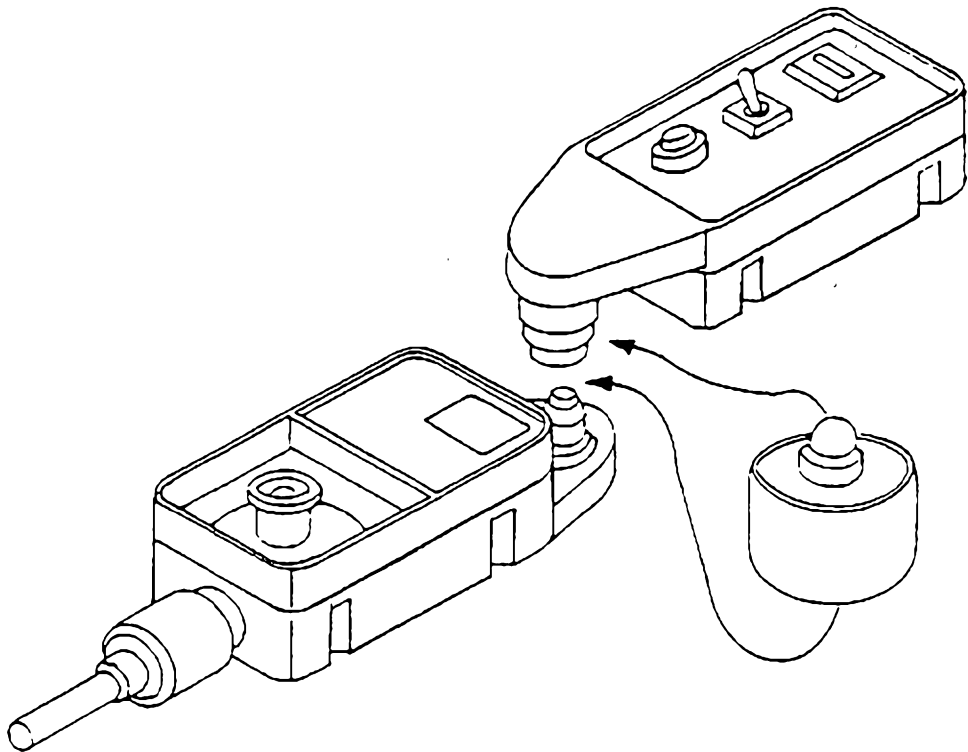
Chinese Radio Control System, Type 82

Remote Control Transmitter Type 82

1. Transmitting power: Pulse power more than 15 watts
2. Power supply: DC, 25 volts (storage battery can be recharged)
3. Antenna type: 2.7-meter whip antenna (at top)
4. Weight: 9 kg
5. Dimensions: 235 mm x 290 mm x 115 mm

Remote Control Receiver, Type 82

1. Sensitivity: not worse than $50\mu\text{v/M}$ ($S/N \geq 3$)
 2. Medium frequency resistant ratio: not less than 80 dB
 3. Image frequency resistant ratio: not less than 80 dB
 4. Power: DC, 6 volts (model LR20 high energy battery)
 5. Power supply type: intermittence
 6. Weight: 2.5 kg
 7. Dimensions: 230 mm x 95 mm x 100 mm
- With power in the unit, it is possible to operate normally for 10 days.
 - Connected with 100 meters of engineer wire, it is possible to explode the #8 electric detonator, 20 in series or 2 in parallel at the same time.

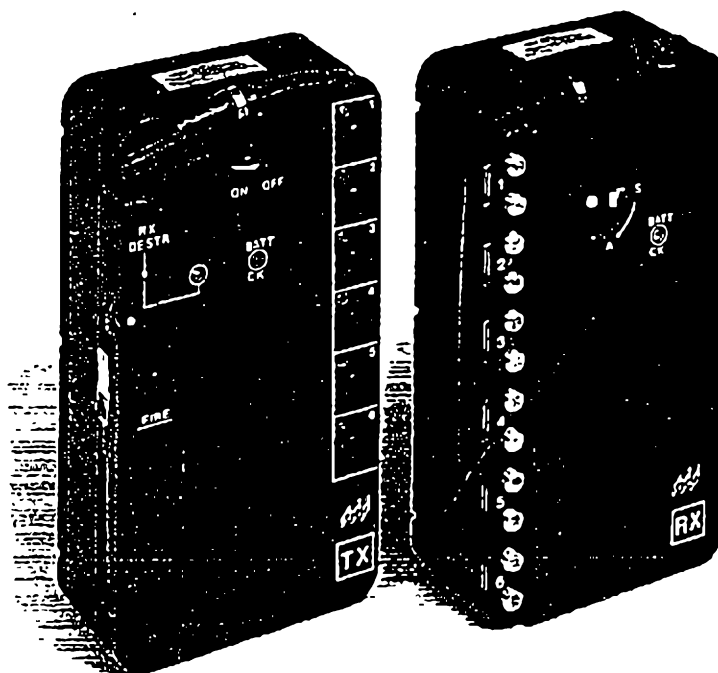


D-2

FOR OFFICIAL USE ONLY



Italian Firing Device, Radio Control, Model VS-TE-R82



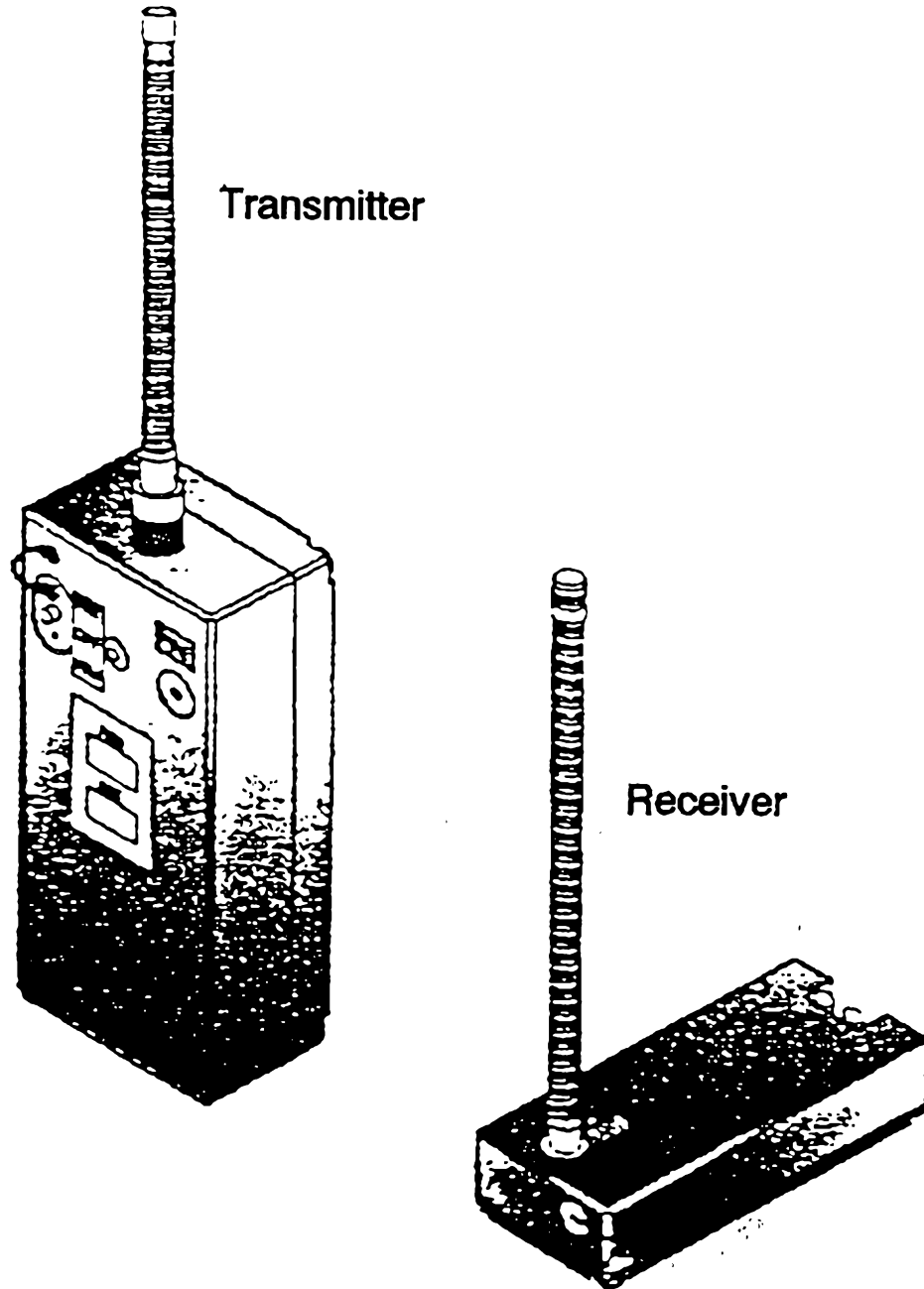
TECHNICAL DATA

Reference code:	VS-TE-R82
Carrier Frequency:	factory-selectable between 65 and 88 MHz.
Modulation:	Tone-code FM modulation
Possible Code Combinations:	10 ⁶
Power Supply:	Lithium or rechargeable Ni-Cd power pack.
Operational life: (with lithium batteries)	transmitter - 3600 firings receiver - 3600 firings or, alternatively, one firing after 15 days of permanent switching "ON".
Arming Delay:	The receiver is provided with a mechanical safety device which powers the firing circuits 10 minutes after committing to arm
Fire Voltage:	12 VDC
Max Fire Current:	3.5 A
Dimensions (each unit):	245 x 135 x 75 mm.
Weight (with lithium power pack):	Each unit: 3.3 kg
Temperature limits:	for firing: -32°C to +60°C for storage: -40°C to +70°C

D-3

FOR OFFICIAL USE ONLY

South African Firing Device, Radio Control, Model Unknown

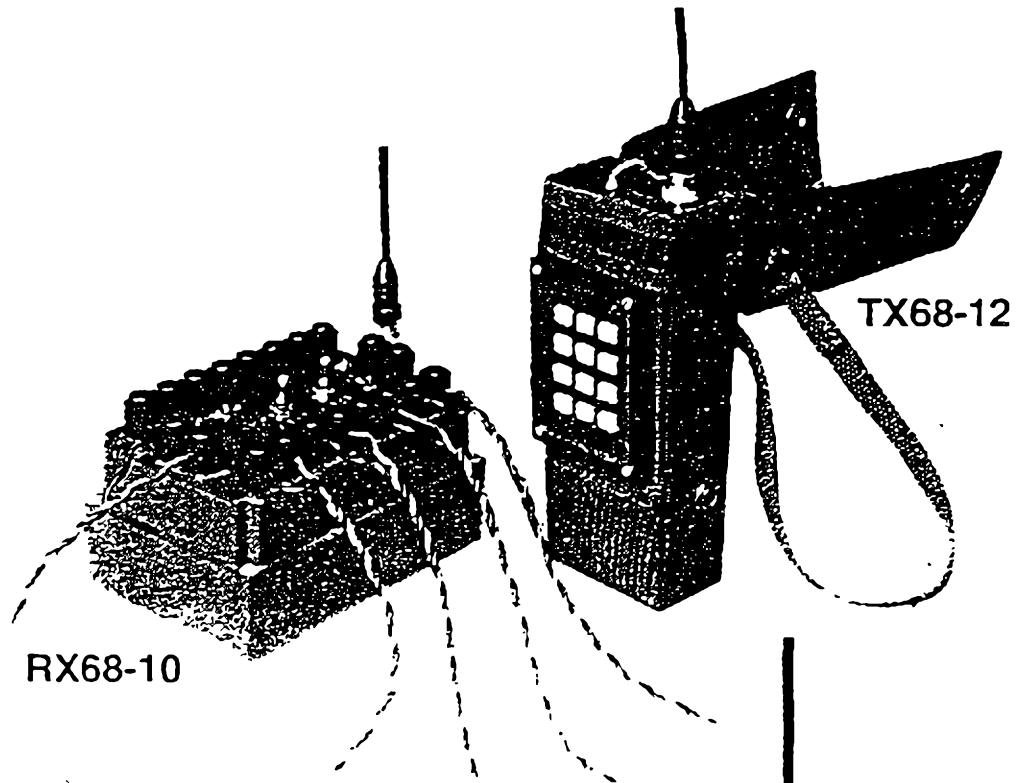


D-4

FOR OFFICIAL USE ONLY



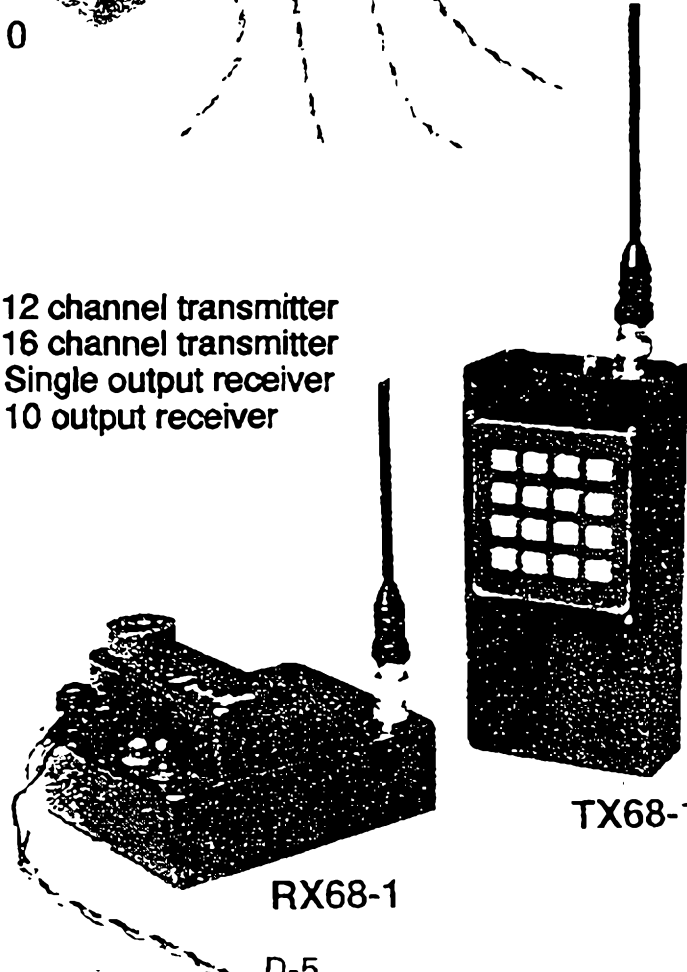
U.K. Radio Control Device, Type 68



RX68-10

TX68-12

- TX68-12 12 channel transmitter
- TX68-16 16 channel transmitter
- RX68-1 Single output receiver
- RX68-10 10 output receiver

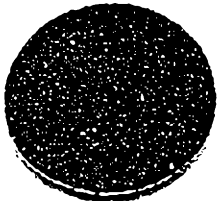
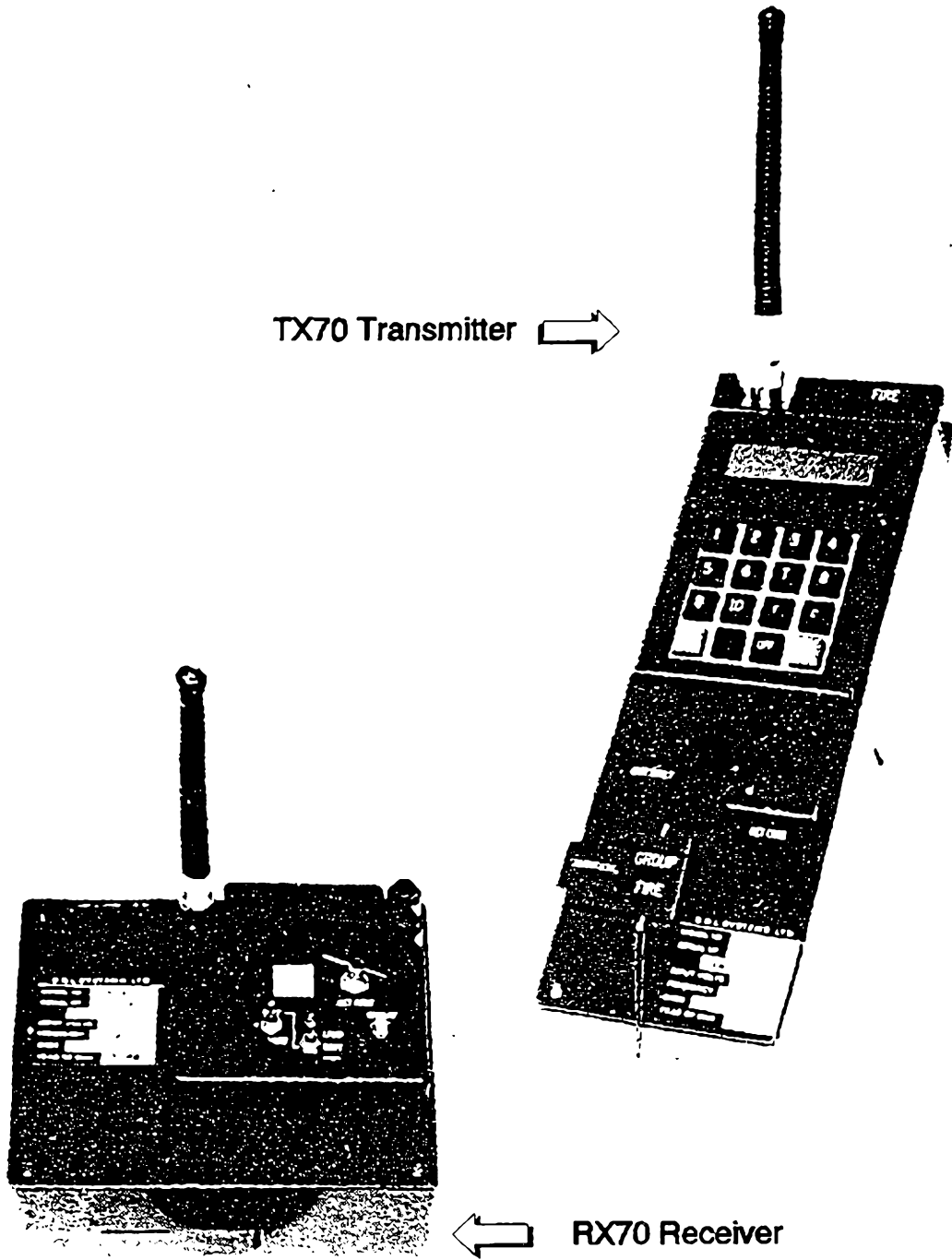


RX68-1

TX68-16

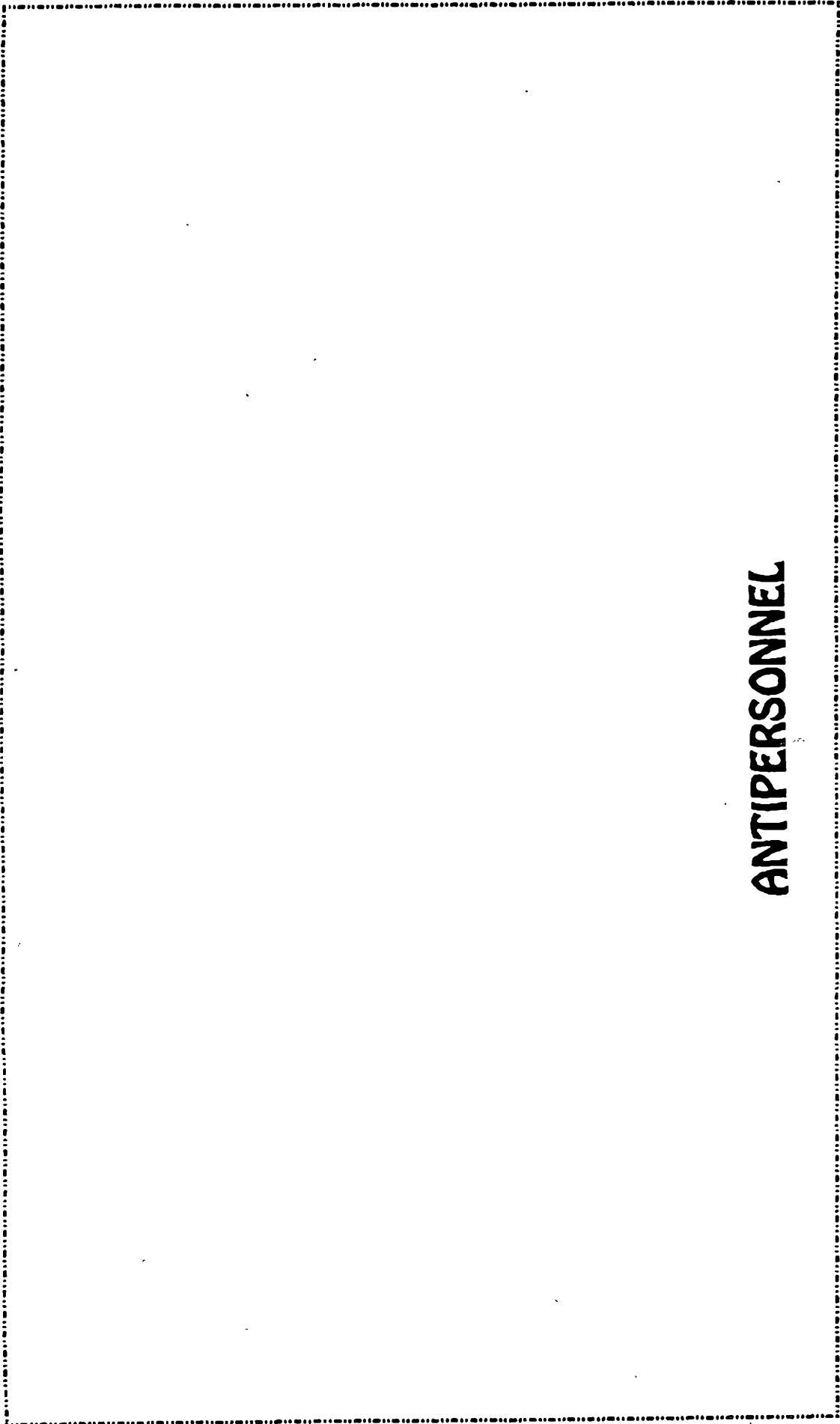
D-5

FOR OFFICIAL USE ONLY



D-6
FOR OFFICIAL USE ONLY

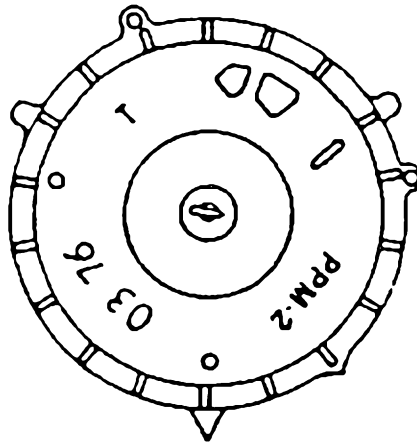
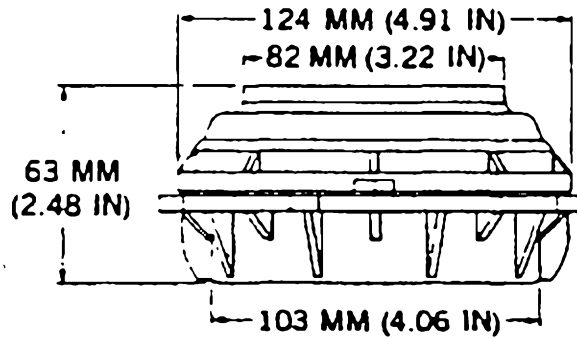
MINES



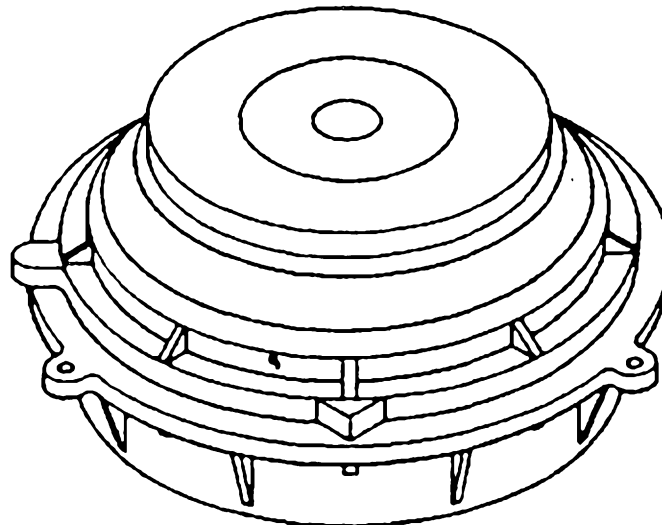
ANTIPERSONNEL



Chinese Landmine, Apers, Boobytrap, Model Unknown (Copy of German PPM-2)



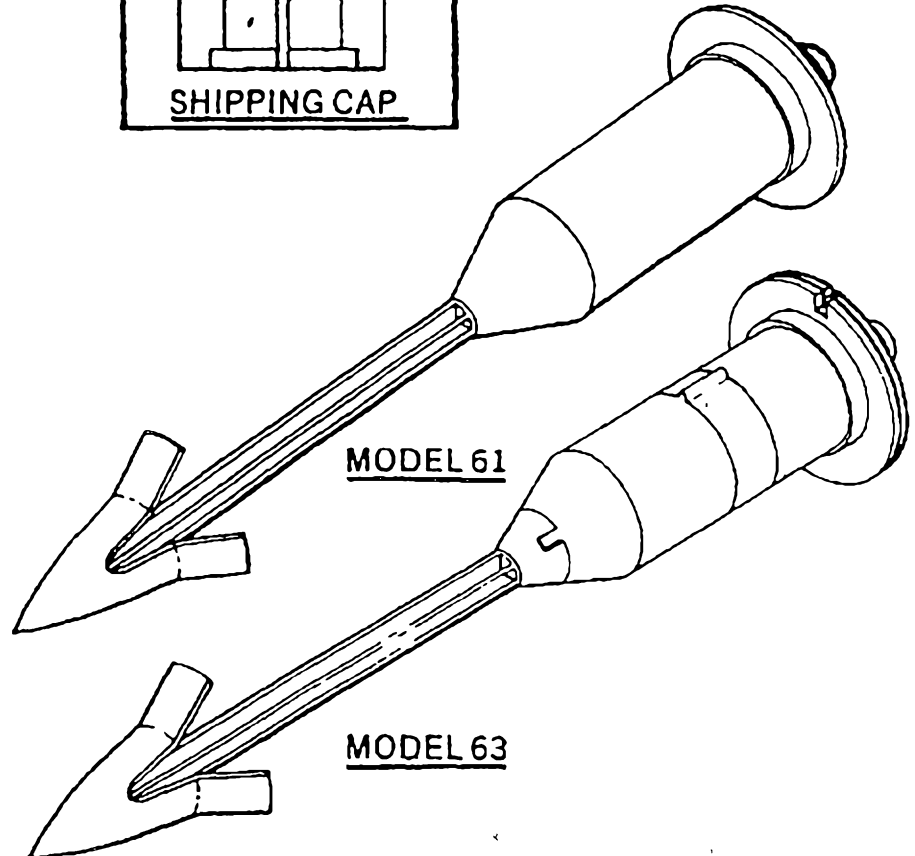
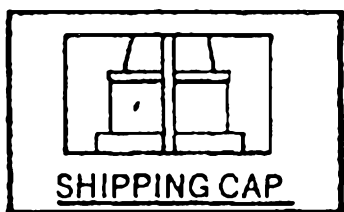
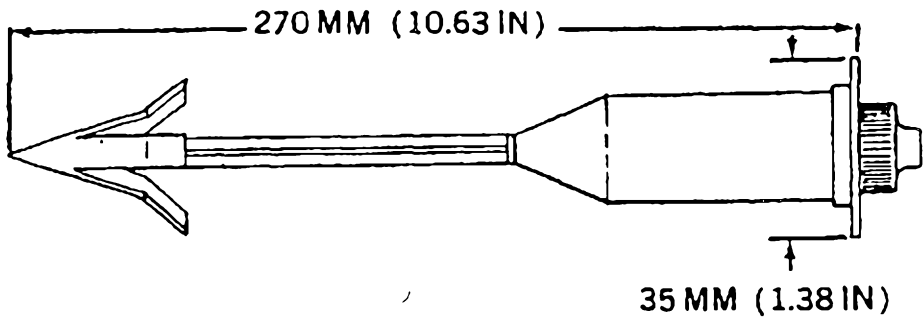
**BOTTOM VIEW
WITH MARKINGS**



E-1

FOR OFFICIAL USE ONLY

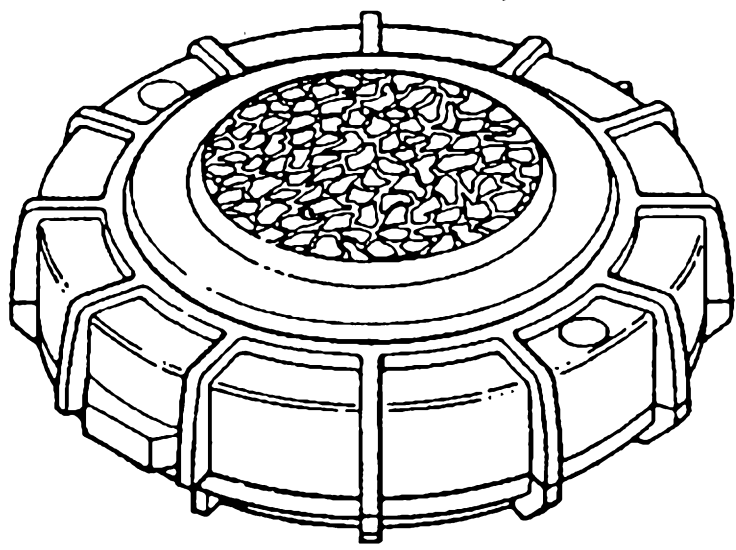
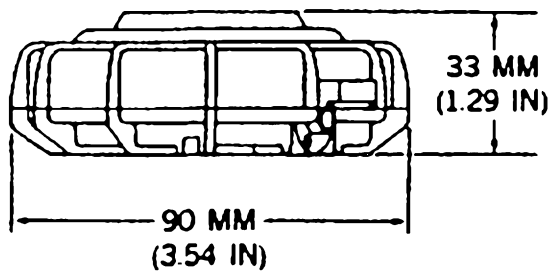
French Landmines, Apers, Models 61 and 63 "Picket"



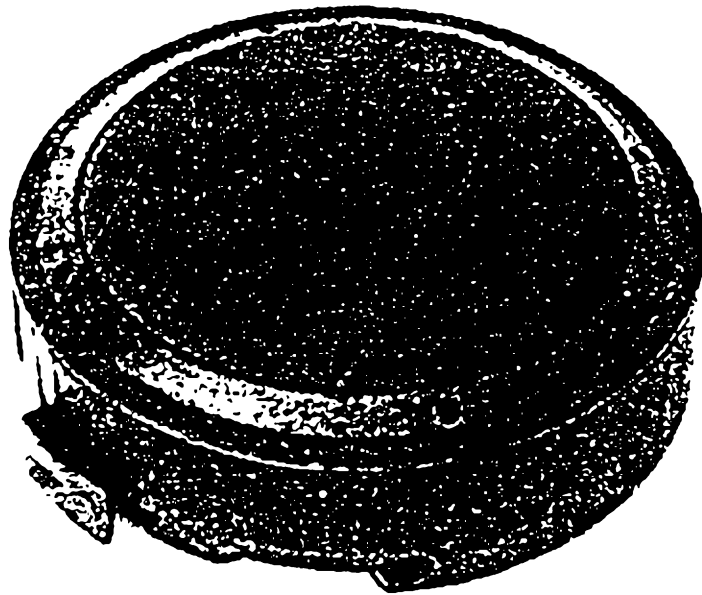
E-2
FOR OFFICIAL USE ONLY



Italian Landmines, Apers, Models VS-MK2 and VS-MK2 AR-AN



Italian Landmine, Apers, Model VS-MK2-EL

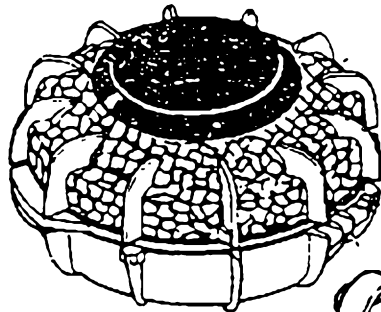
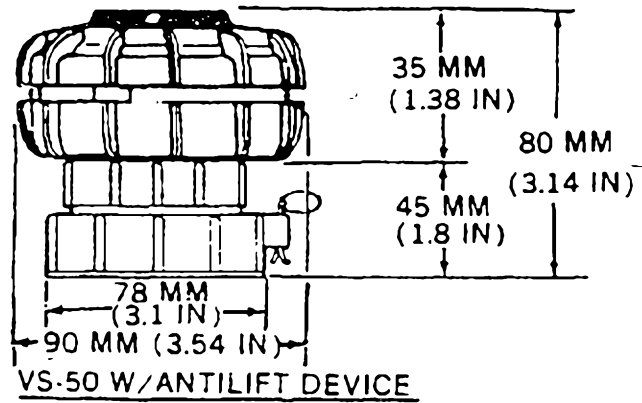
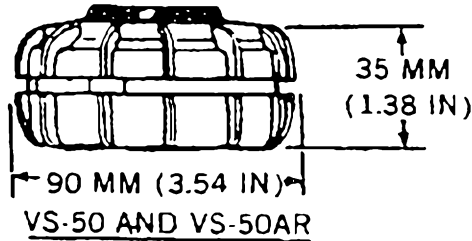


E-4

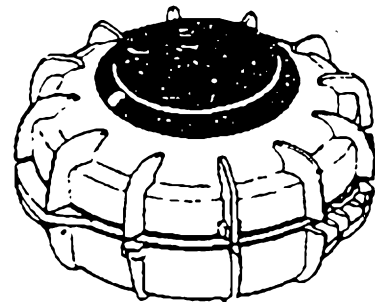
FOR OFFICIAL USE ONLY



Italian Landmines, Apers, VS 50 and VS 50 AR

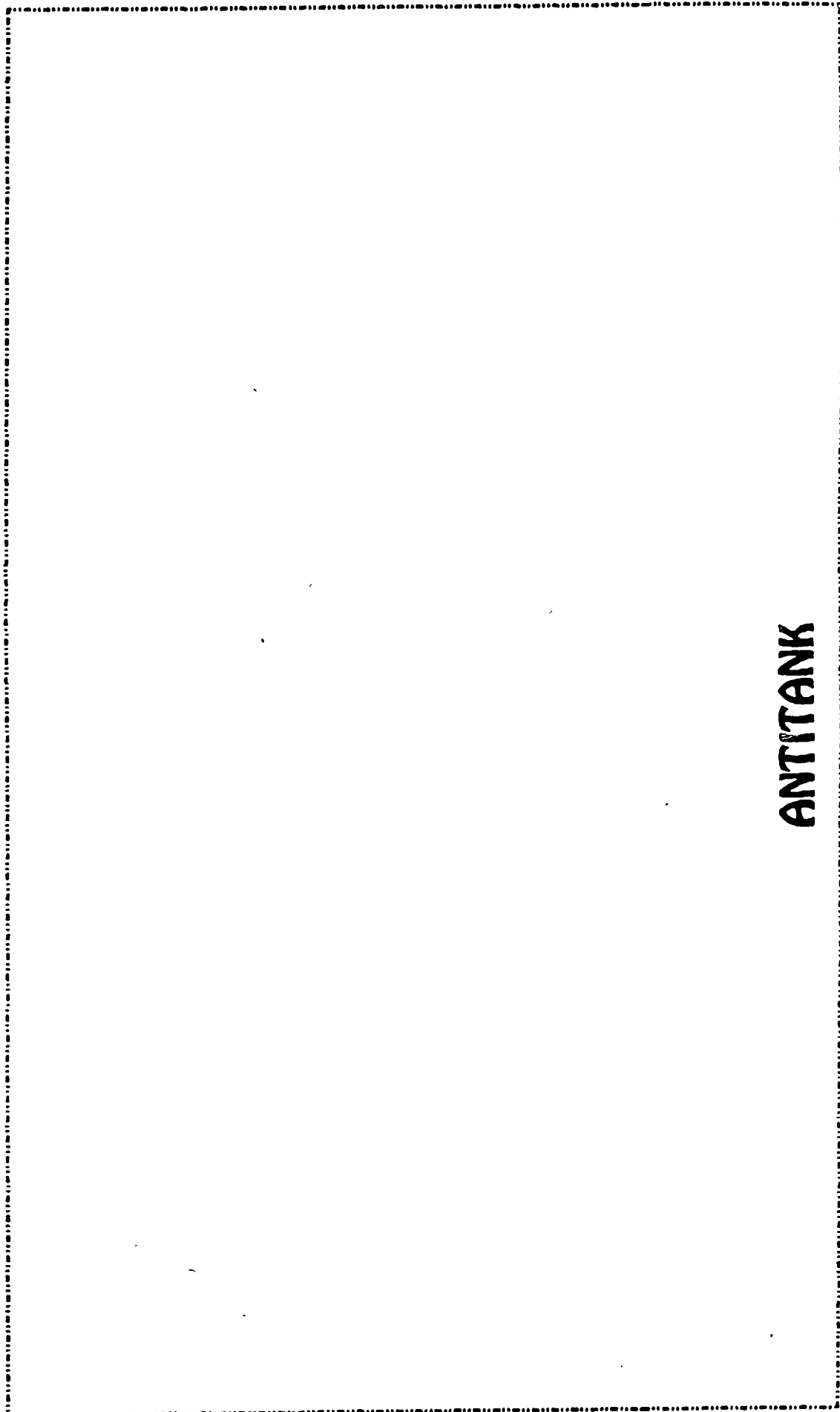


VS 50AR



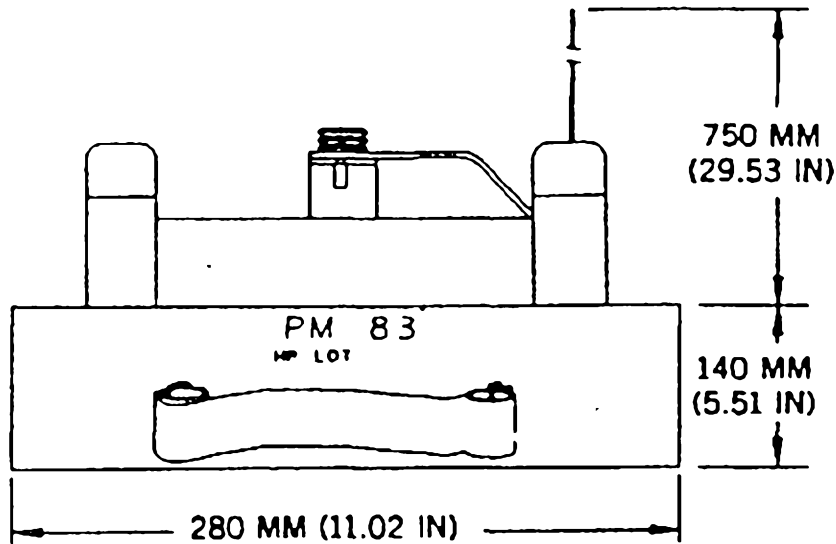
VS50



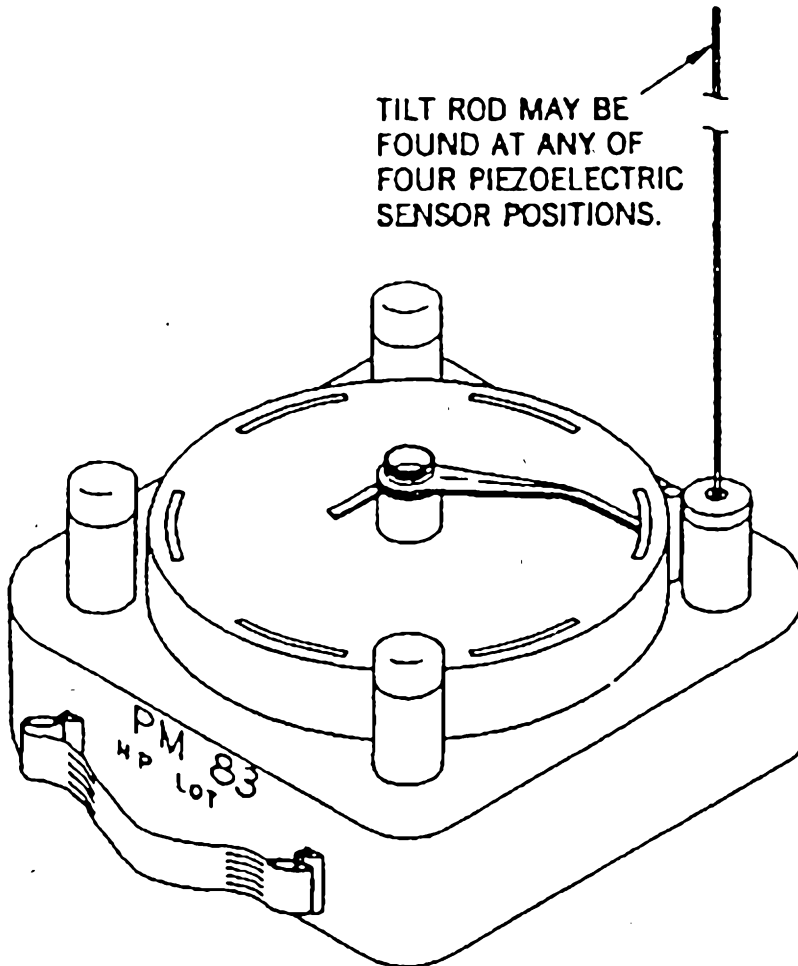


ANTITANK

Austrian Landmine, AT, PM 83



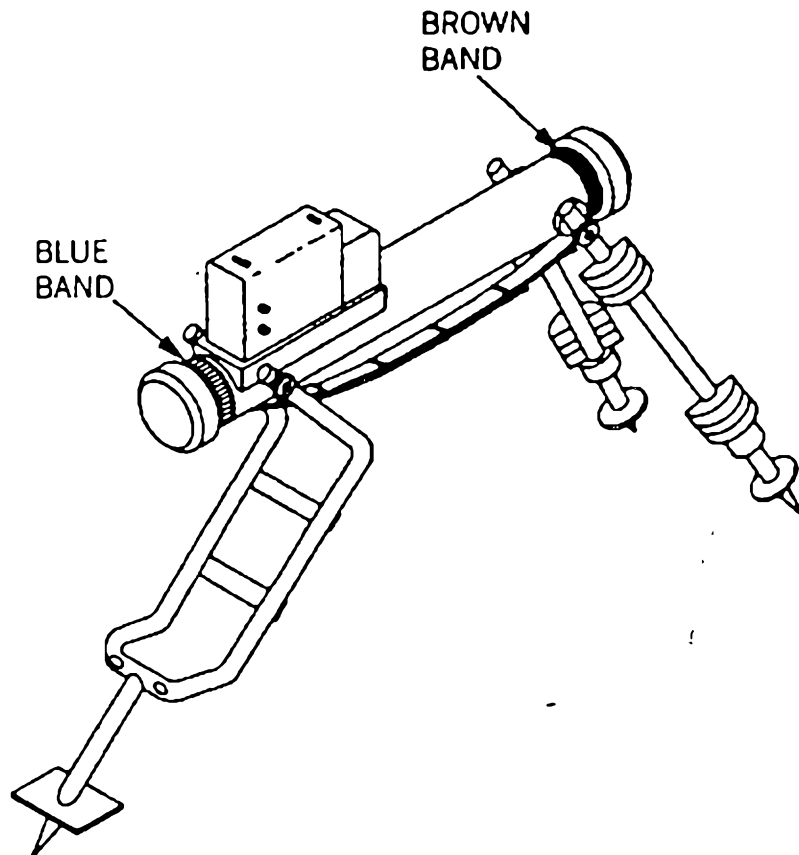
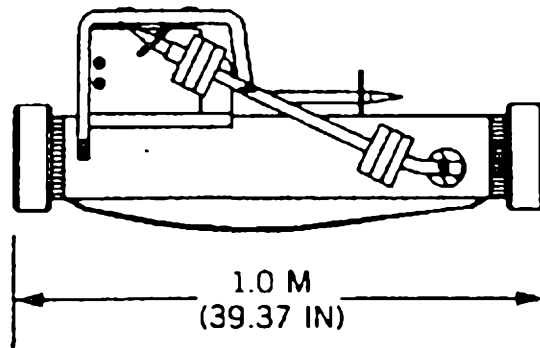
TILT ROD MAY BE FOUND AT ANY OF FOUR PIEZOELECTRIC SENSOR POSITIONS.



E-6

FOR OFFICIAL USE ONLY

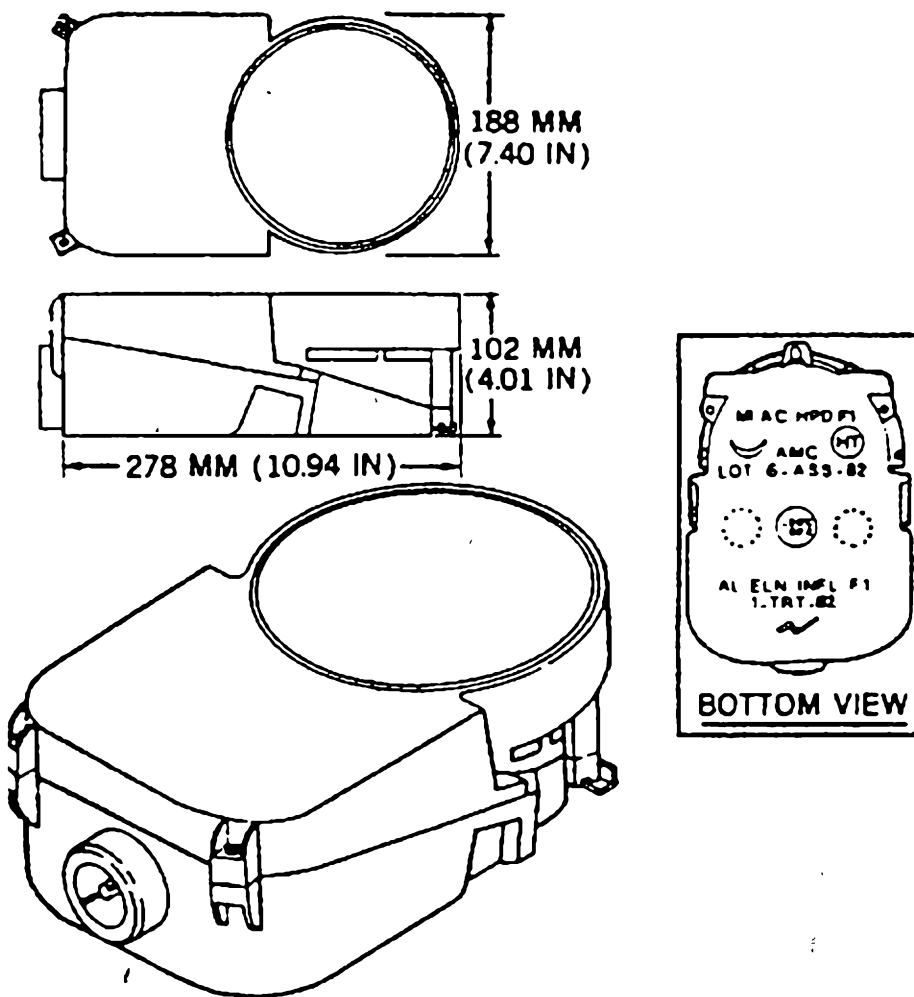
French Landmine, AT, APILAS-Mine



E-7

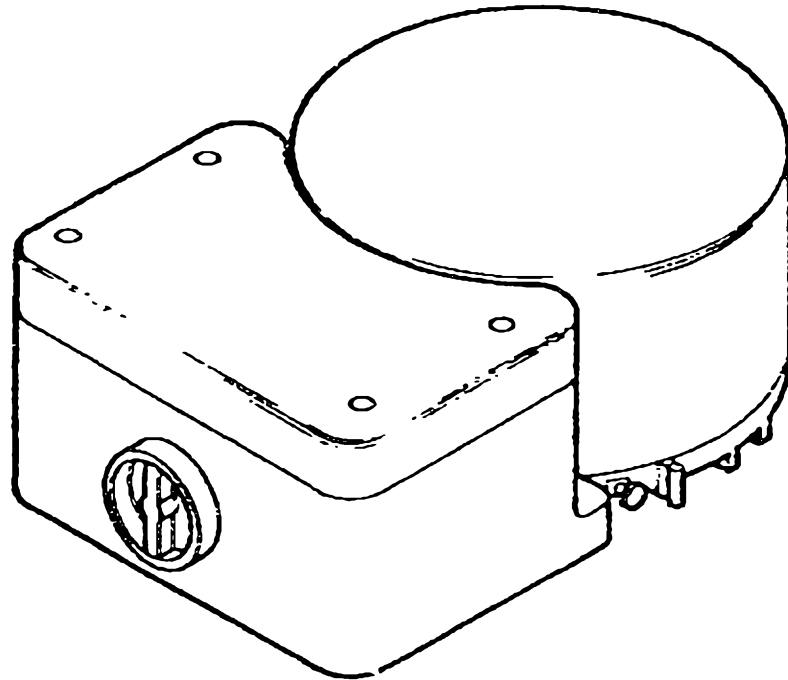
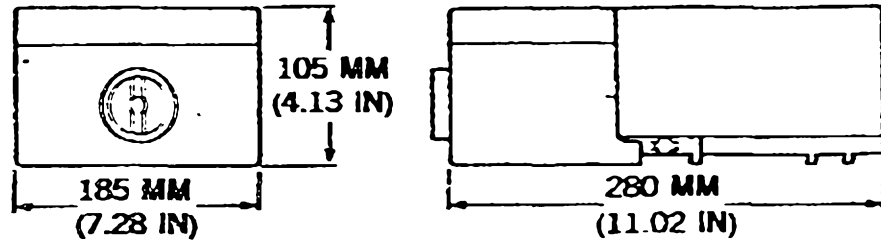
FOR OFFICIAL USE ONLY

French Landmine, AT, HPD-F1



UNCLASSIFIED

French Landmine, AT, HPD-F2



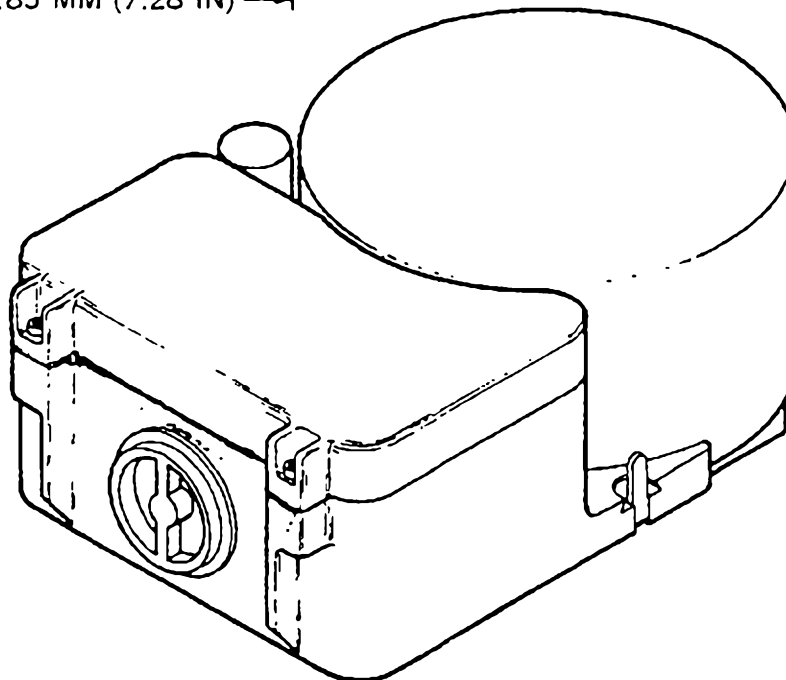
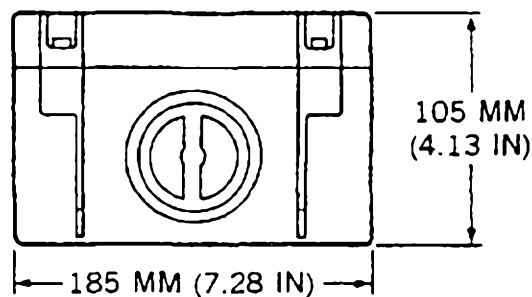
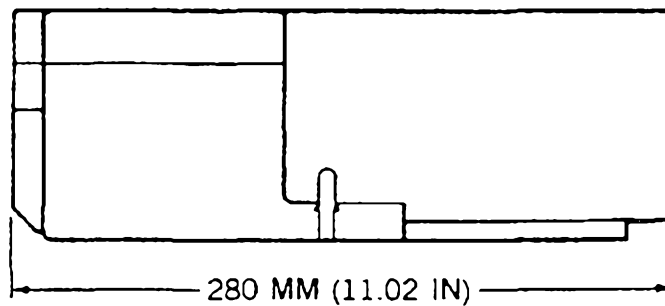
**NOTE: THE MINE IS SELF-NEUTRALIZING AND
ANTIDISTURBANCE.**

E-9

FOR OFFICIAL USE ONLY



French Landmine, AT, HPD-1A

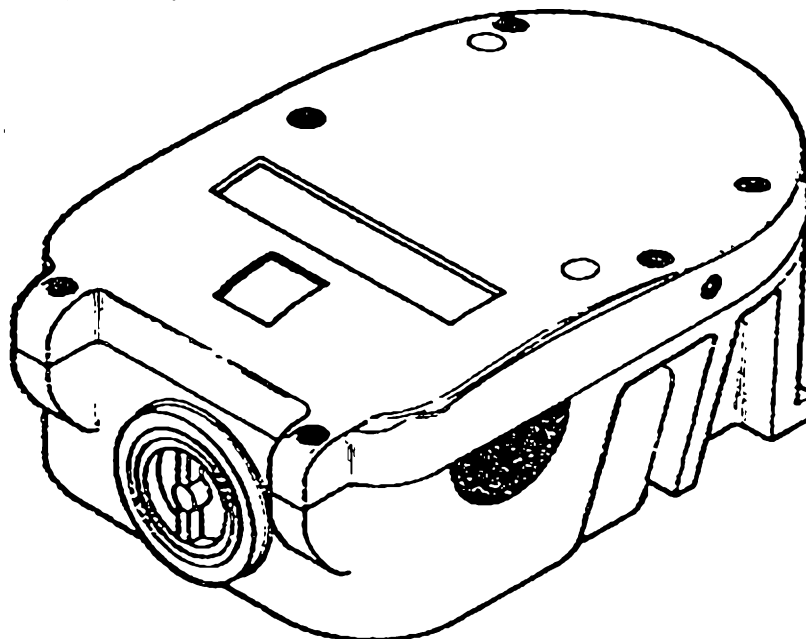
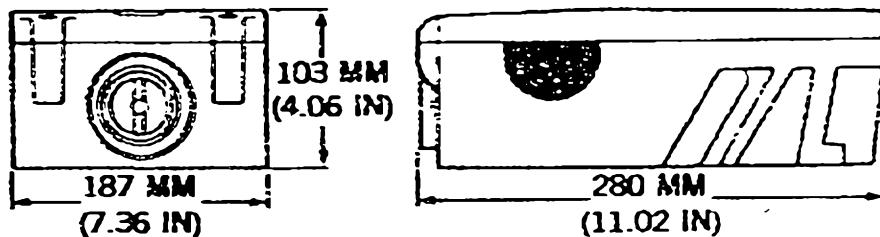


- NOTES: (1) THE MINE IS SELF-NEUTRALIZING AND ANTI-DISTURBANCE.
(2) THE MINE HAS A MAGNETIC SENSOR.

E-10

FOR OFFICIAL USE ONLY

French Landmine, AT, HPD-3



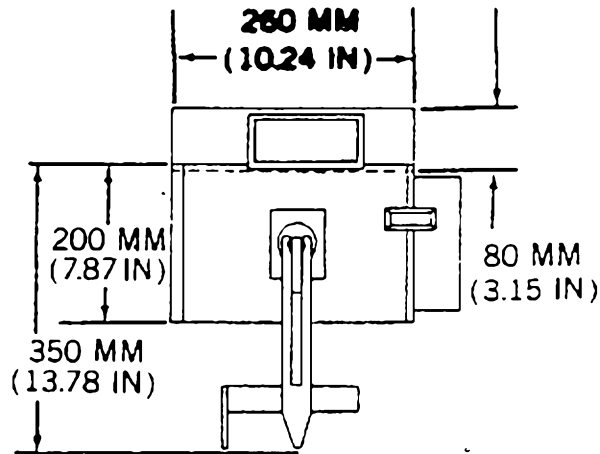
- NOTES:** (1) THERE ARE TWO MODELS OF THIS MINE. ONE CONTAINS 2.4 KILOGRAMS (5.3 POUNDS) OF UNKNOWN EXPLOSIVE, AND THE OTHER CONTAINS 1.4 KILOGRAMS (3.1 POUNDS) OF UNKNOWN EXPLOSIVE.
- (2) THE MINES ARE SELF-NEUTRALIZING AND ANTI-DISTURBANCE. BOTH MINES HAVE SEISMIC AND MAGNETIC SENSORS.

E-11

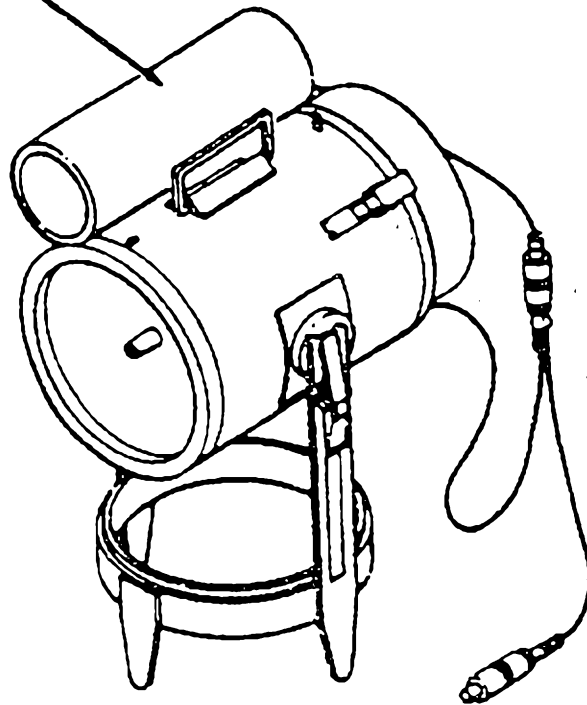
FOR OFFICIAL USE ONLY



French Landmine, AT, Off-Route, IRMAH Type F1



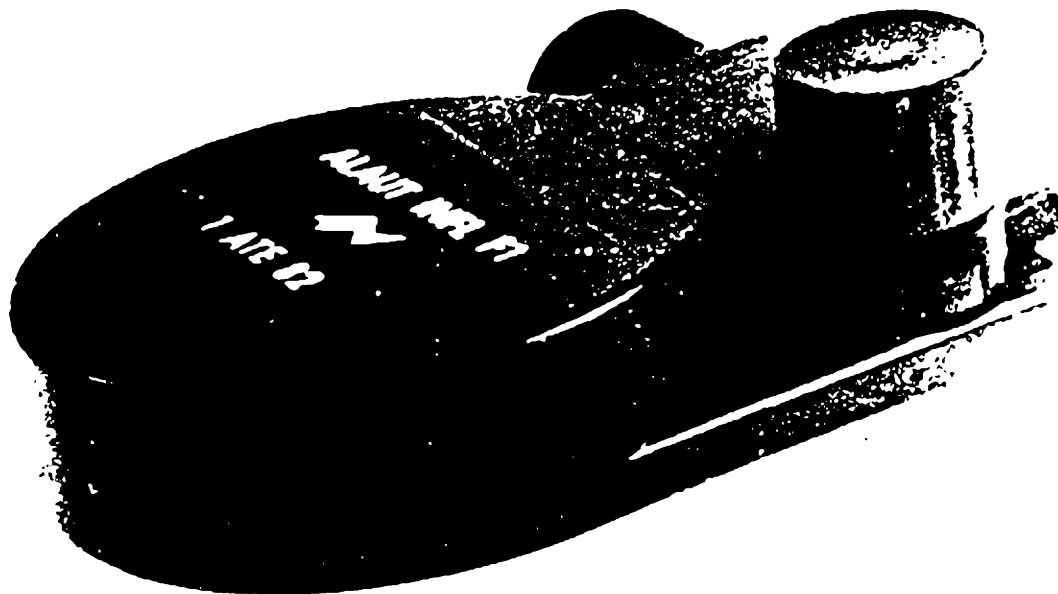
INFRARED
BARRIER SENSOR



E-12

FOR OFFICIAL USE ONLY

**French Mine Fuze, Seismic, Magnetic-Influence,
ALAUT INFL F1**



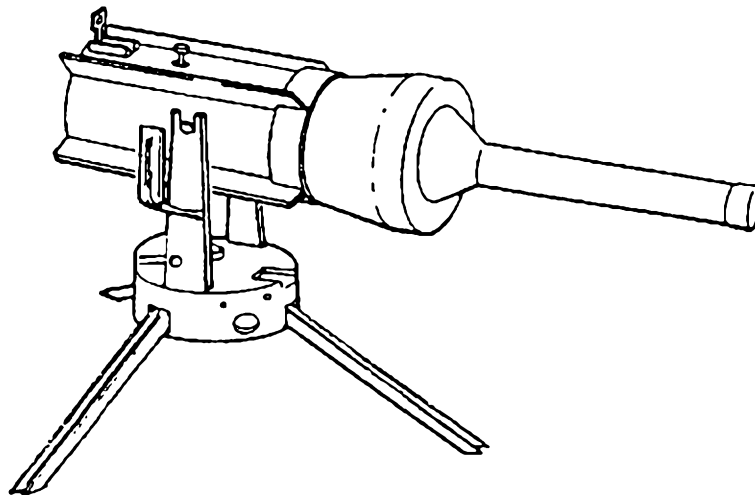
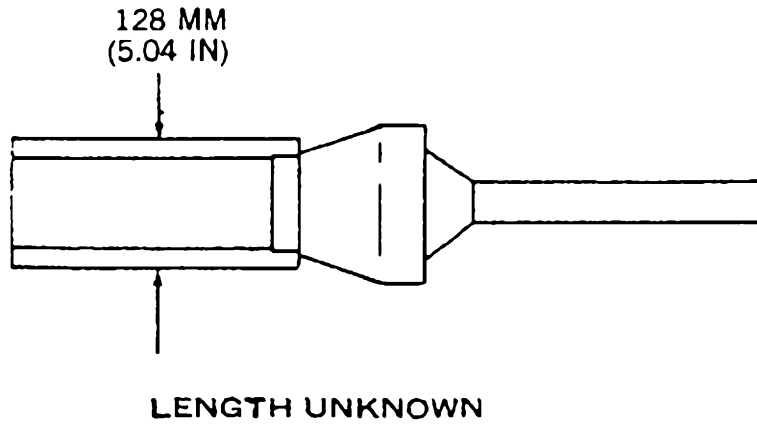
This mine becomes active upon receiving a seismic signature.
It is magnetic-influence fired.

E-13

FOR OFFICIAL USE ONLY



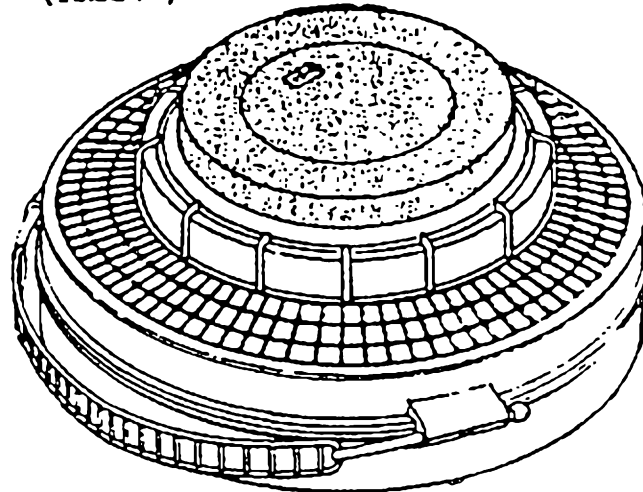
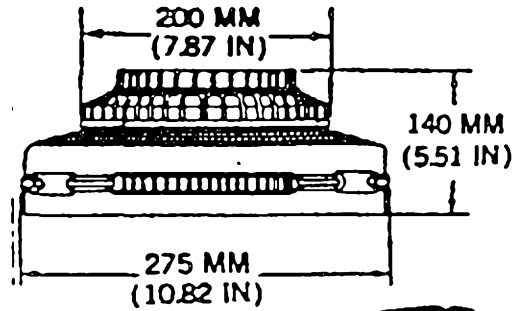
German Landmine, AT, Off-Route, PARM 1



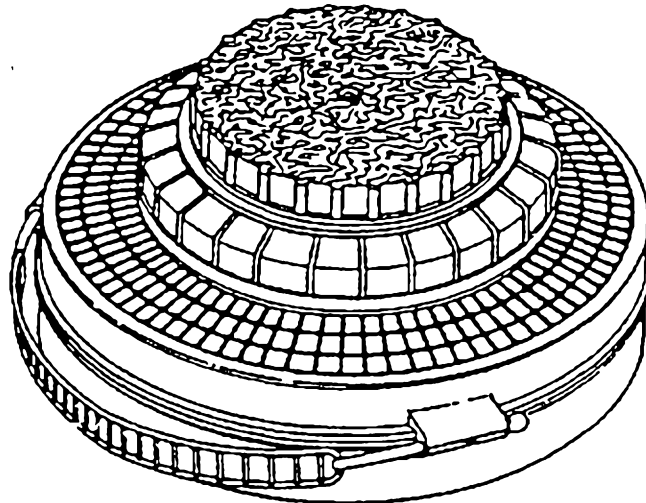
E-14.

FOR OFFICIAL USE ONLY

Italian Landmines, AT, Models FD and SH-55



FD MINE WITH VS-N FUZE

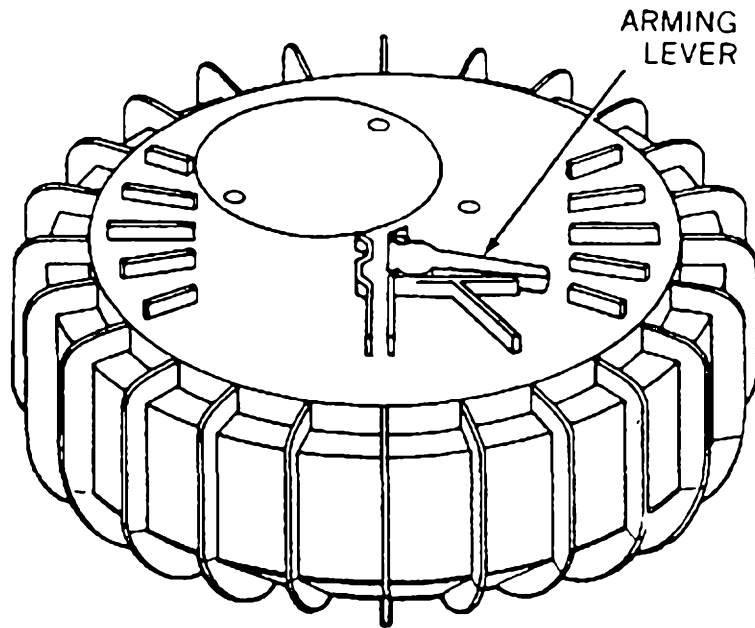
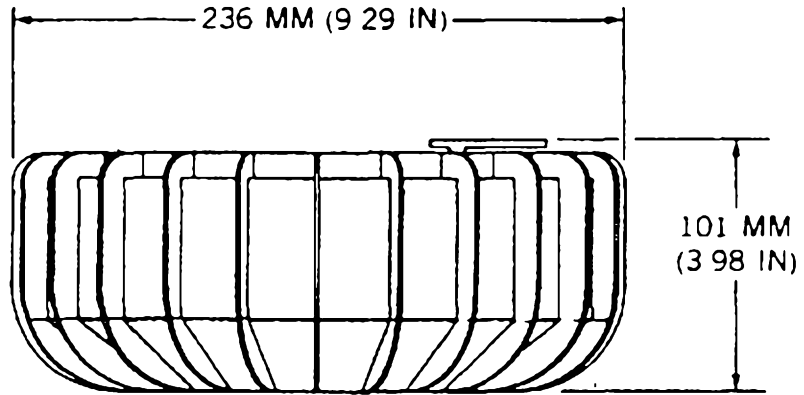


FD MINE WITH FD-64 OR SH-160 FUZE

E-15

FOR OFFICIAL USE ONLY

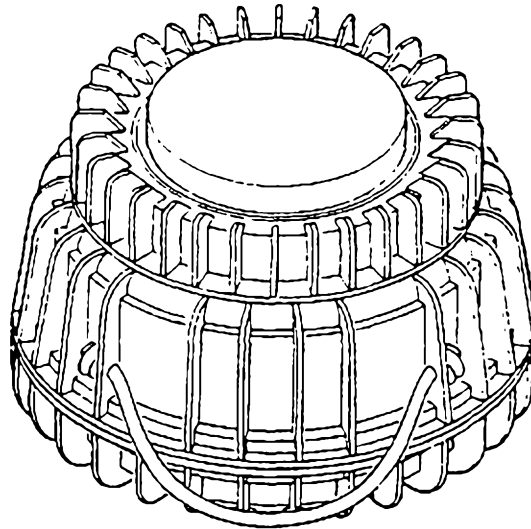
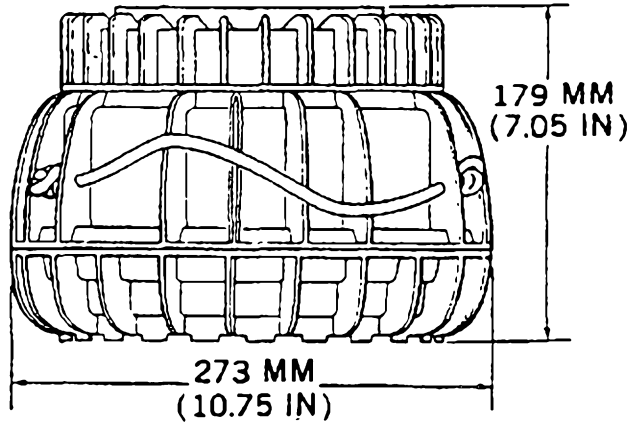
Italian Landmines, AT, SB-MV and SB-MV/AR



E-16

FOR OFFICIAL USE ONLY

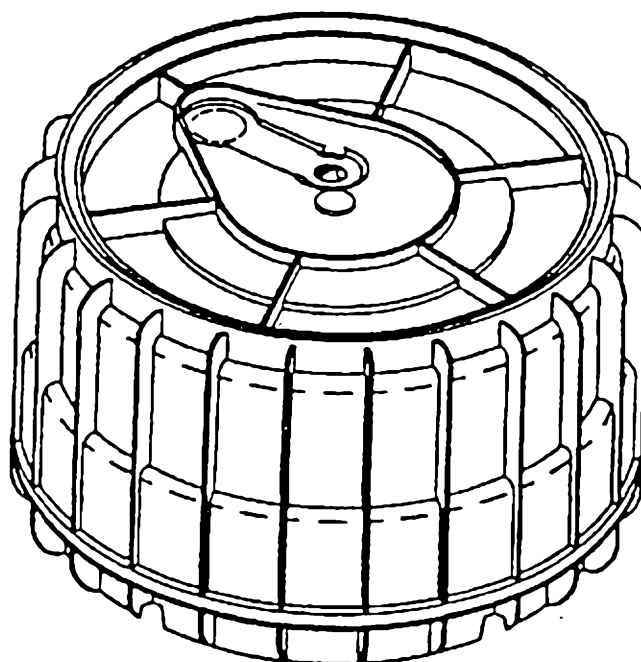
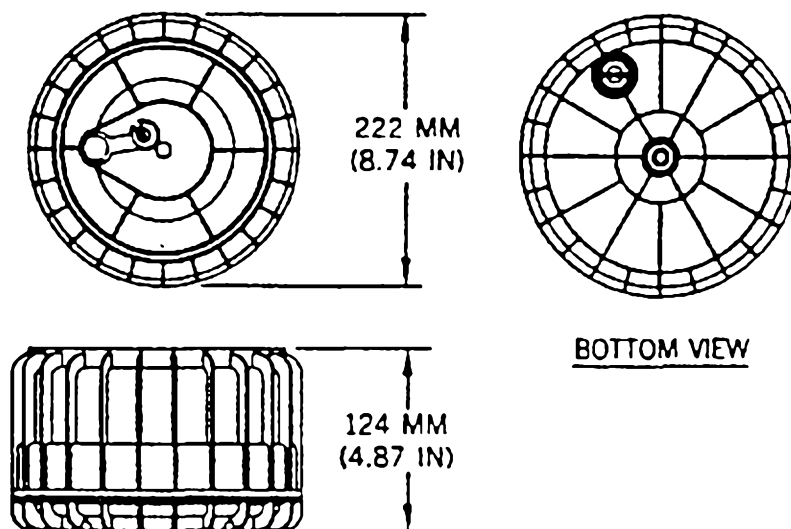
Italian Landmine, AT, TCE-6



E-17

FOR OFFICIAL USE ONLY

Italian Landmine, AT, VS-HCT

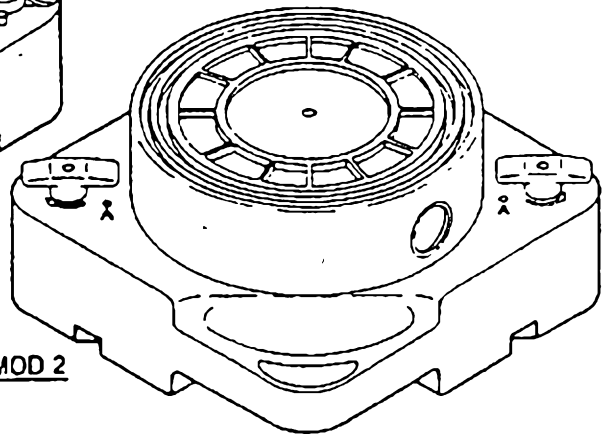
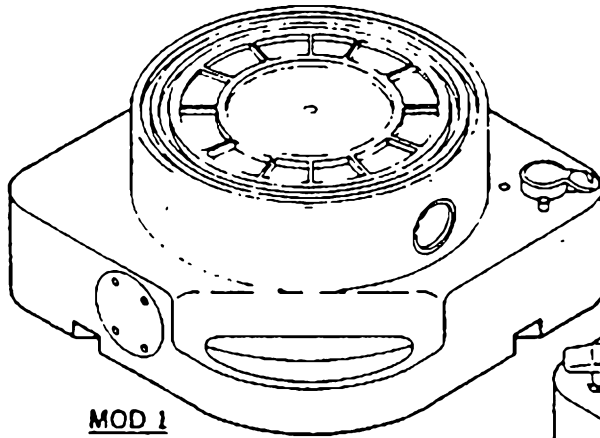
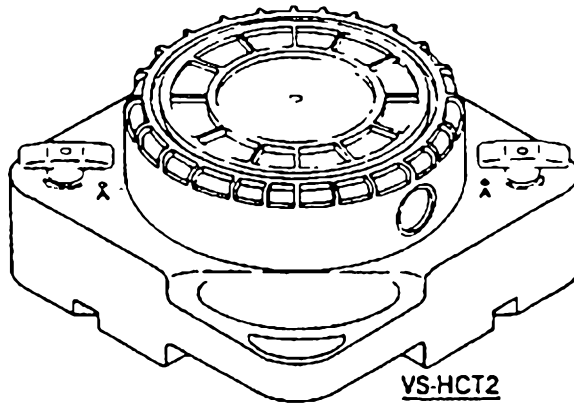
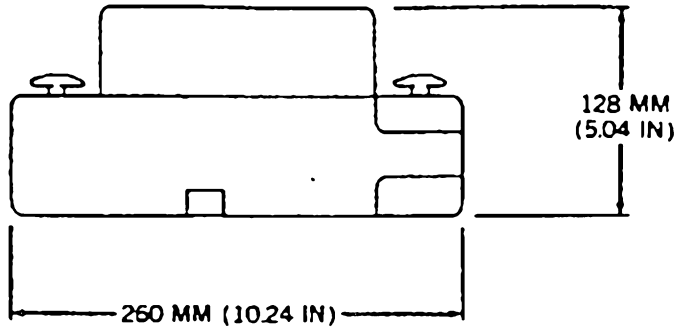


**Wait 192 days to approach; do not approach
with ferrous metal; do not disturb .**

E-18

FOR OFFICIAL USE ONLY

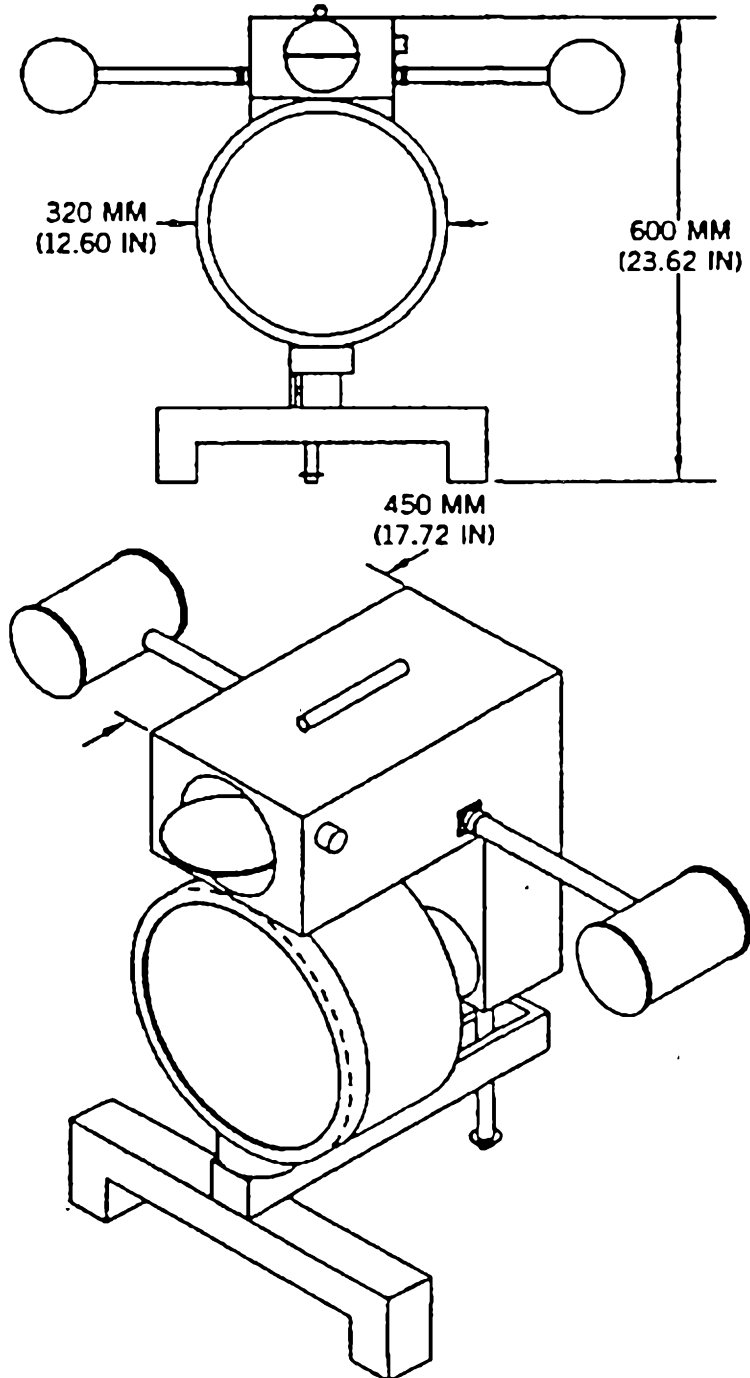
Italian Landmine, AT, VS-HCT2



E-19

FOR OFFICIAL USE ONLY

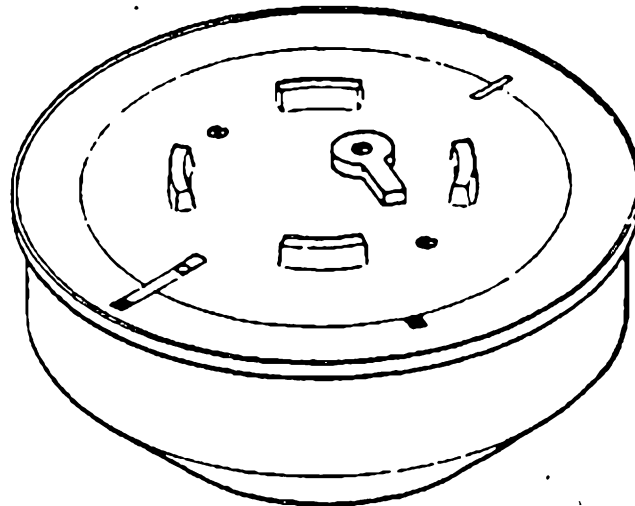
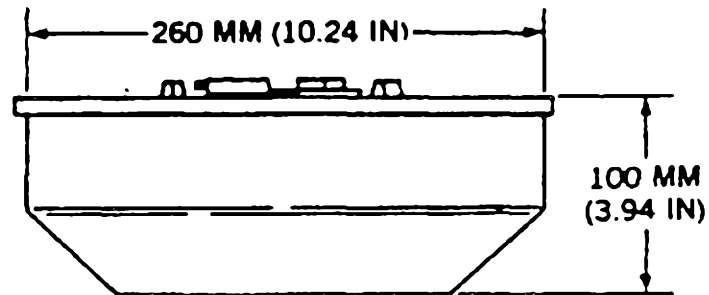
South African Landmine, AT, Off-Route, Model Unknown



NOTE: LANDMINE MAY CONTAIN AN ANTIDISTURBANCE MECHANISM. E-20

FOR OFFICIAL USE ONLY

Swedish Landmines, AT, FFV 028, FFV 028 RU, and FFV 028 SD



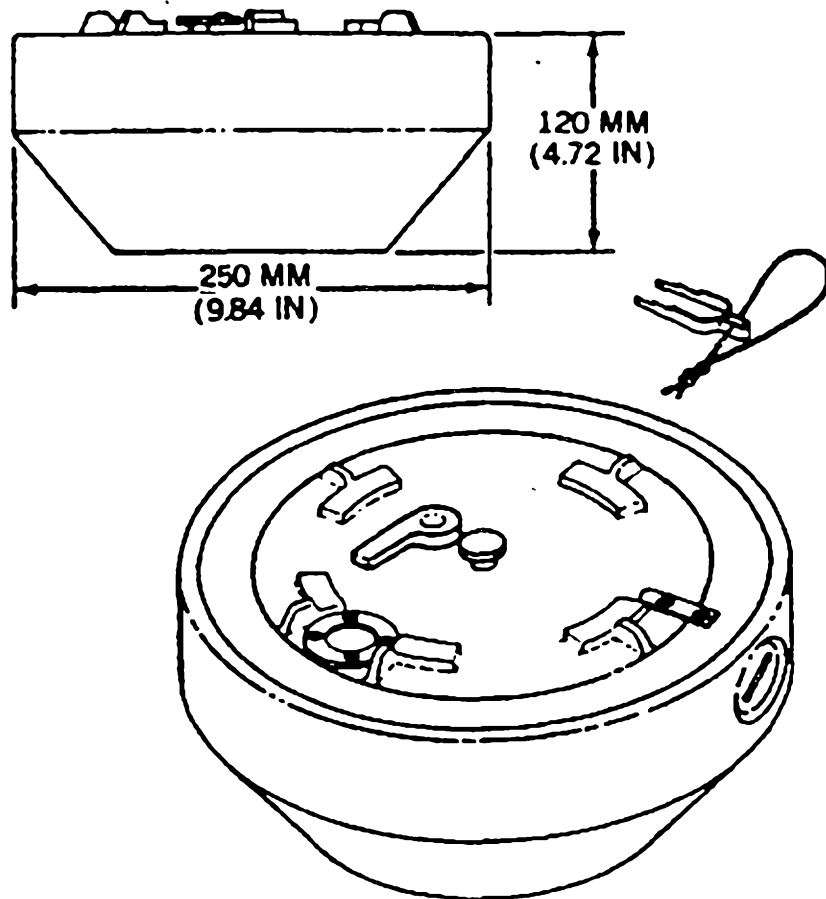
**Wait 45 days to approach; do not approach
with ferrous metal; do not disturb.**

E-21

FOR OFFICIAL USE ONLY



Swedish Landmine, AT, FFV 028 SN

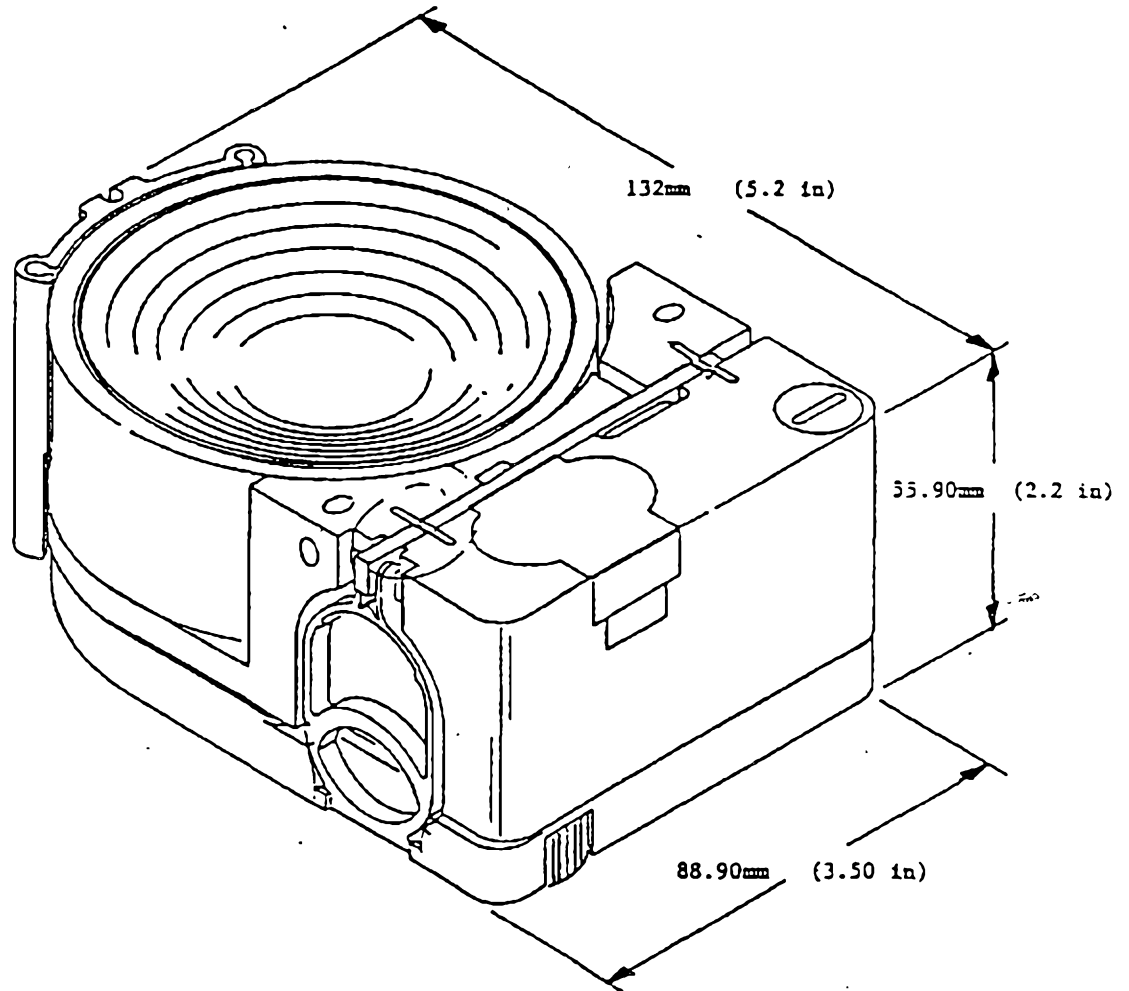


Wait 225 days to approach; do not approach
with ferrous metal; do not disturb.

E-22

FOR OFFICIAL USE ONLY

U.S. Landmine, AT/AV, Selectable, Lightweight, Model XM2



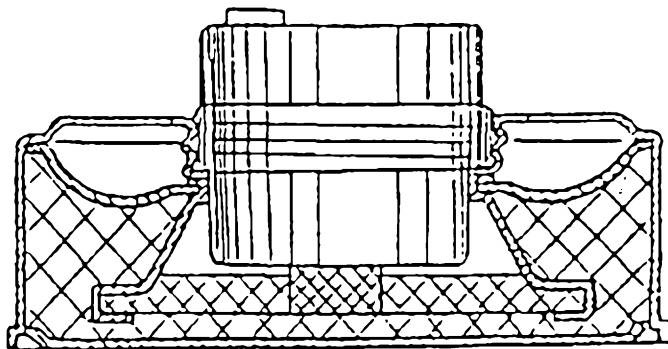
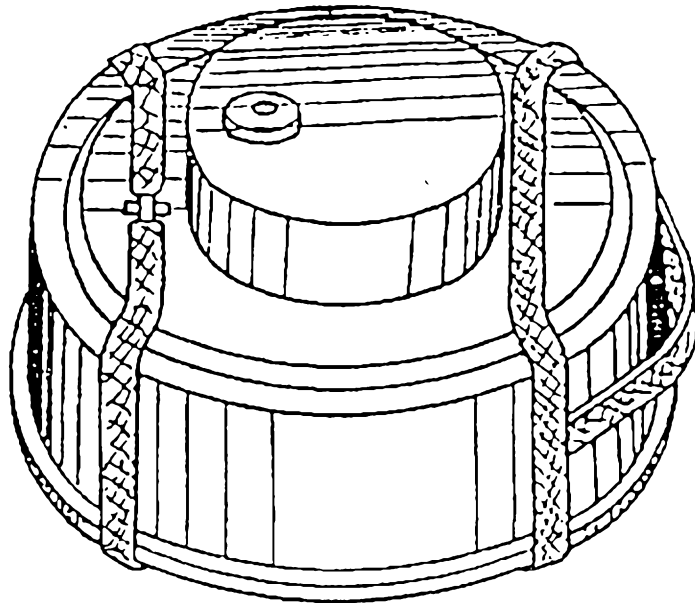
E-23

FOR OFFICIAL USE ONLY



Former U.S.S.R. Landmine, AT, Magnetic-influence, TM-72

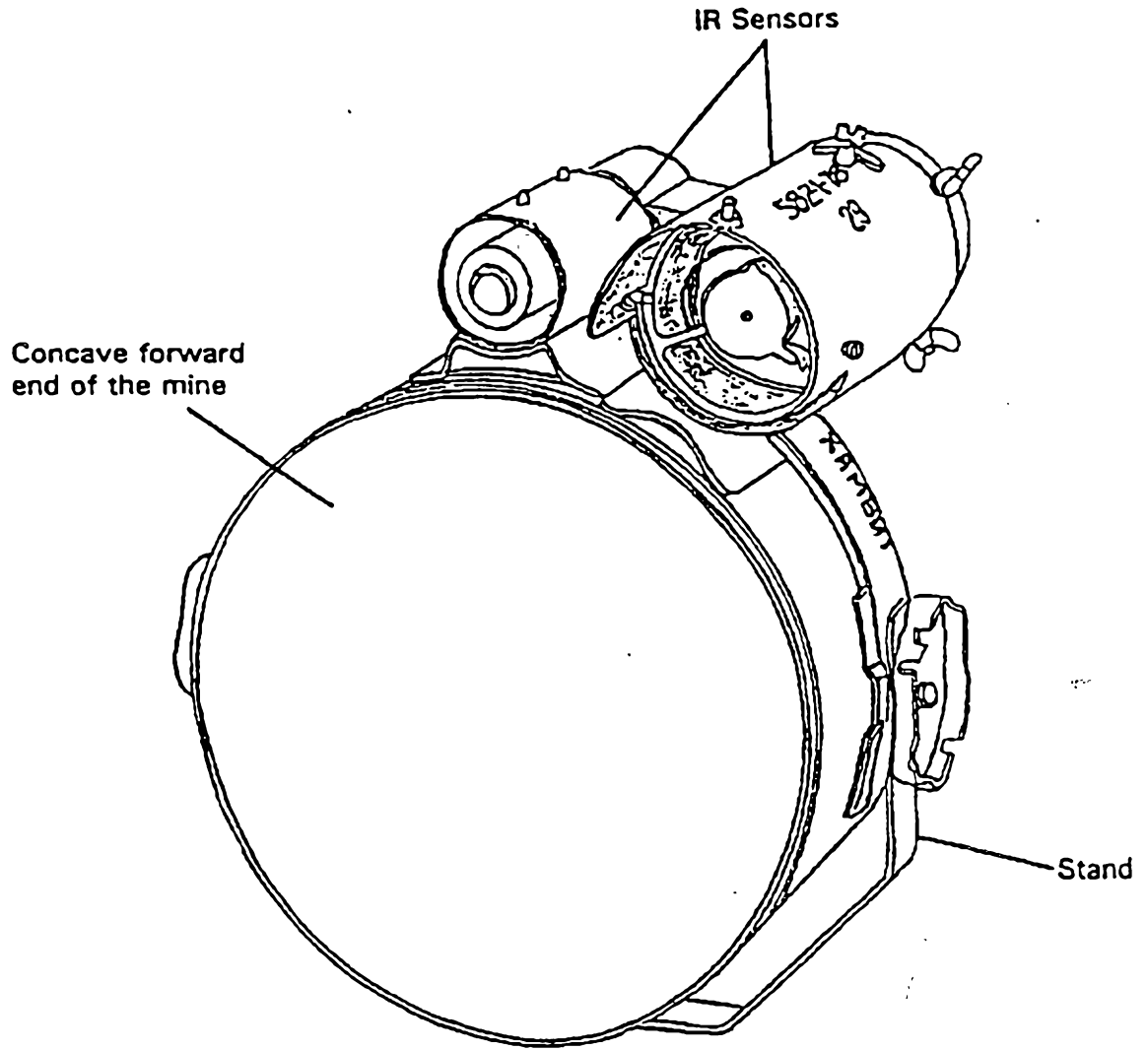
DIMENSIONS:
Dia. 250 MM
Height 128 MM



E-24

FOR OFFICIAL USE ONLY

Former U.S.S.R. Landmine, AT, Off-Route, Model TM-83



E-25

FOR OFFICIAL USE ONLY

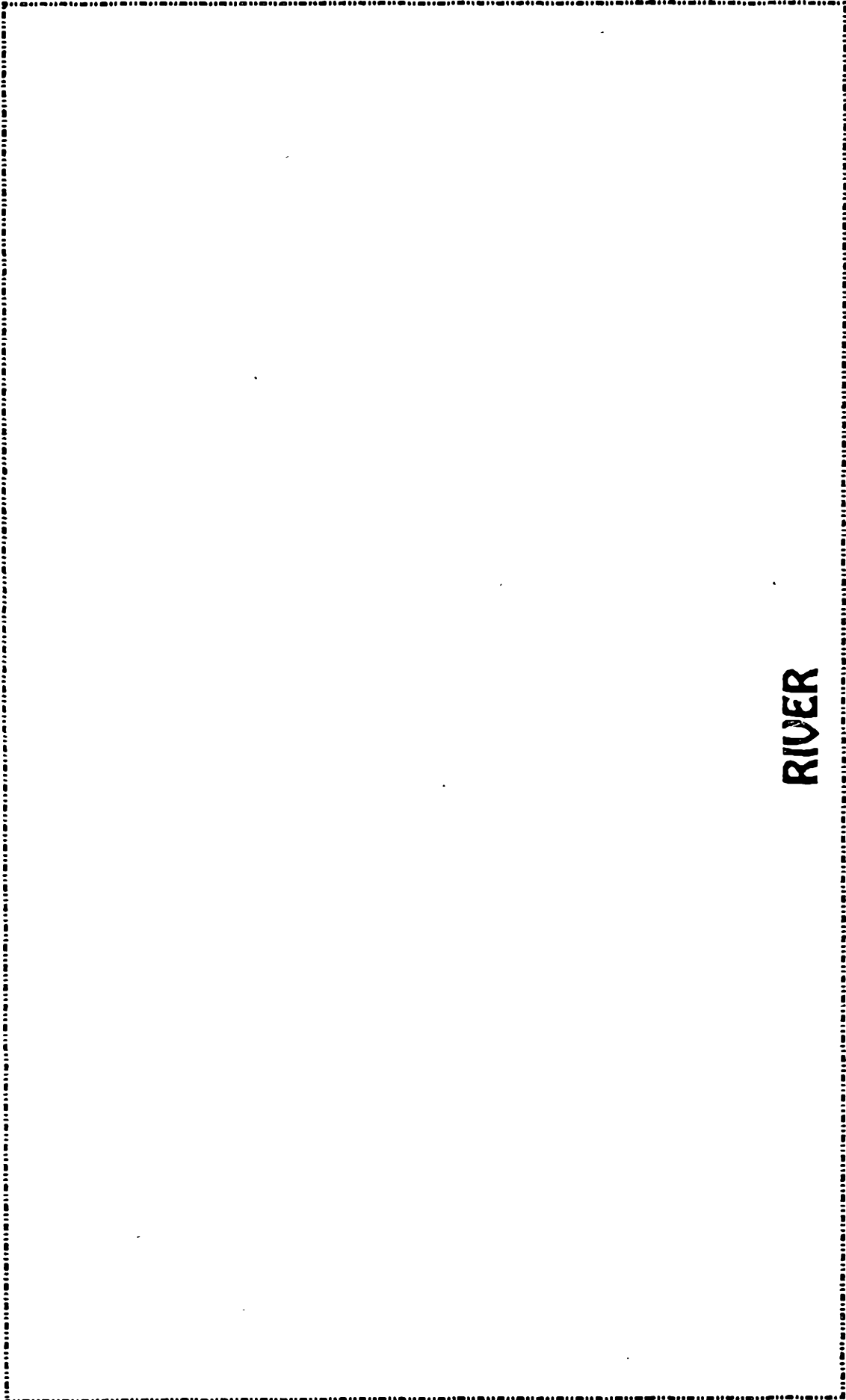
Former U.S.S.R. Mine Fuzes, AT, Models MVP-62M, MVCh-62, and MVN-80

Mines Used With: TM-62 Series

Designation	"MBП-62M"	"MBЧ-62"	"MBH-80"
Type	Mechanical, pressure-action, with time-delay element (pneumatic)	Mechanical, pressure-action, with time-delay mechanism (clockwork)	Electronic, proximity-contact fuze with time-delay element (hydraulic)
Weight, kg	0.45	0.9	1.3
Dimensions, mm:			
- diameter	125	145	125
- height	90	90	90
Fuze Seat Thread	KP 125 x 5	KP 125 x 5	KP 125 x 5
Pressure/Throw-away Force on the Actuation Button, N	Pressure Action, 30 to 200	Pressure Action, 30 to 150	Pressure Action, 1100
Actuating Force, N	1500 to 6000	1500 to 5500	It responds to Tank Magnetic Signature
Operational Temperature Range, ° C	-50 to +50	-50 to +50	-30 to +50
Off-the-Shelf Item	Each packing contains 24 fuzes		
Shelf Life, years	10	10	10
Features	It is not detected by induction mine detector	It is fully resistant to both mine clearing line charge explosion and the detonation of a neighbouring mine	It allows remote target detection, and besides it can be switched over to the "safe" position using a control device. The fuze is resistant to both mine clearing line charge explosion and the detonation of a neighbouring mine.
<p>The explosive trains of the fuze is interrupted in the transporting position. The fuze can be used with either buried or surface-laid AT mines which are laid manually or mechanically. The fuze can be switched over from the "live" position to the transporting position without removing it from the mine, to be reused later on.</p>			

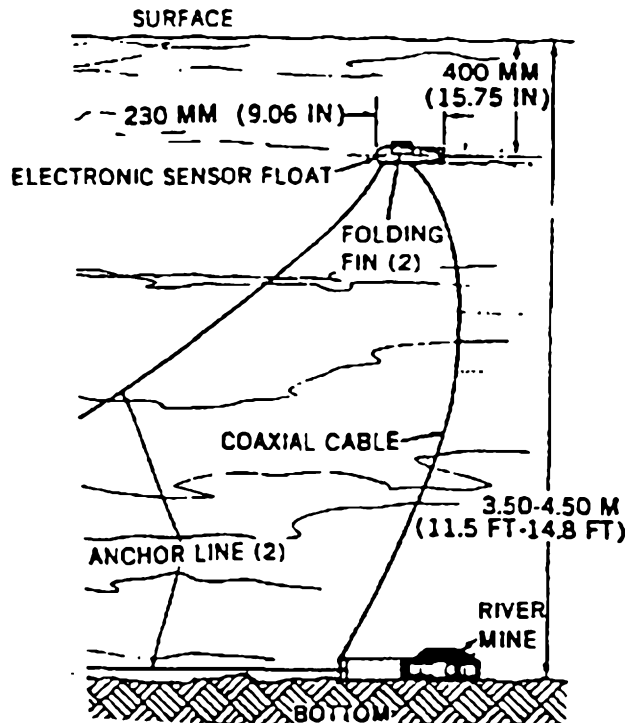
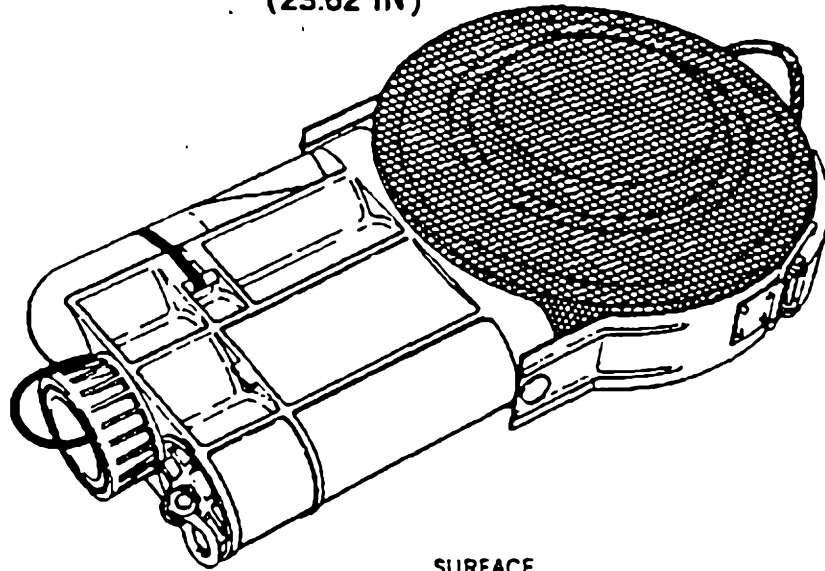
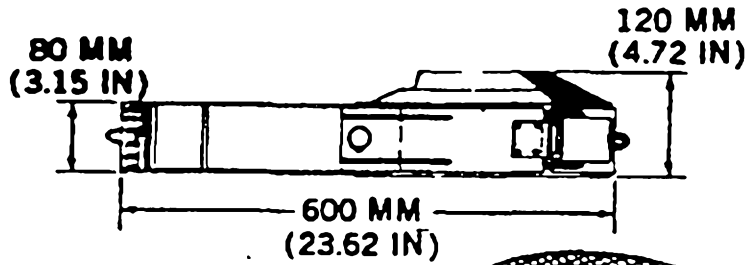
E-26

FOR OFFICIAL USE ONLY



RIVER

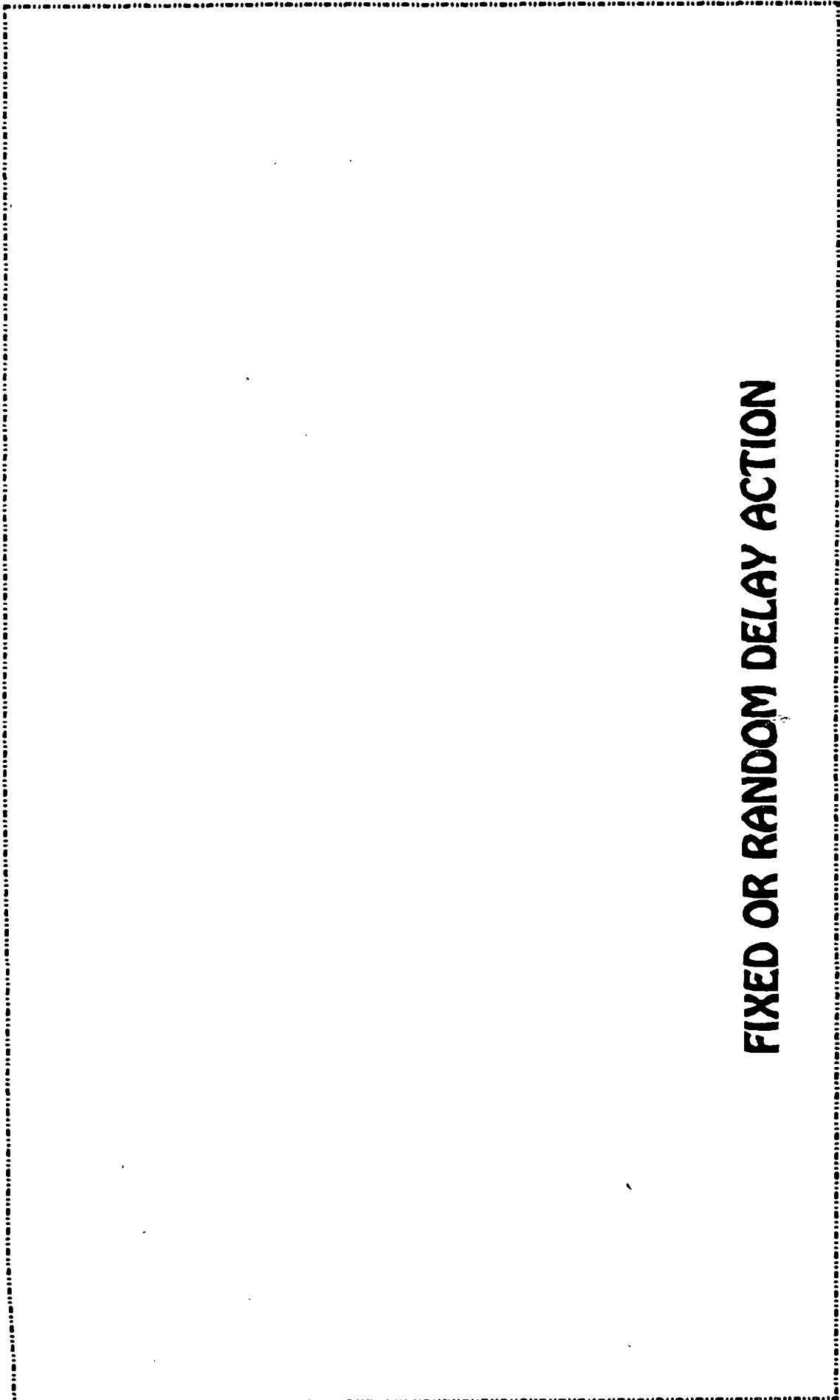
Netherlands Landmine, River, Influence, MIRJAM



E-27

FOR OFFICIAL USE ONLY

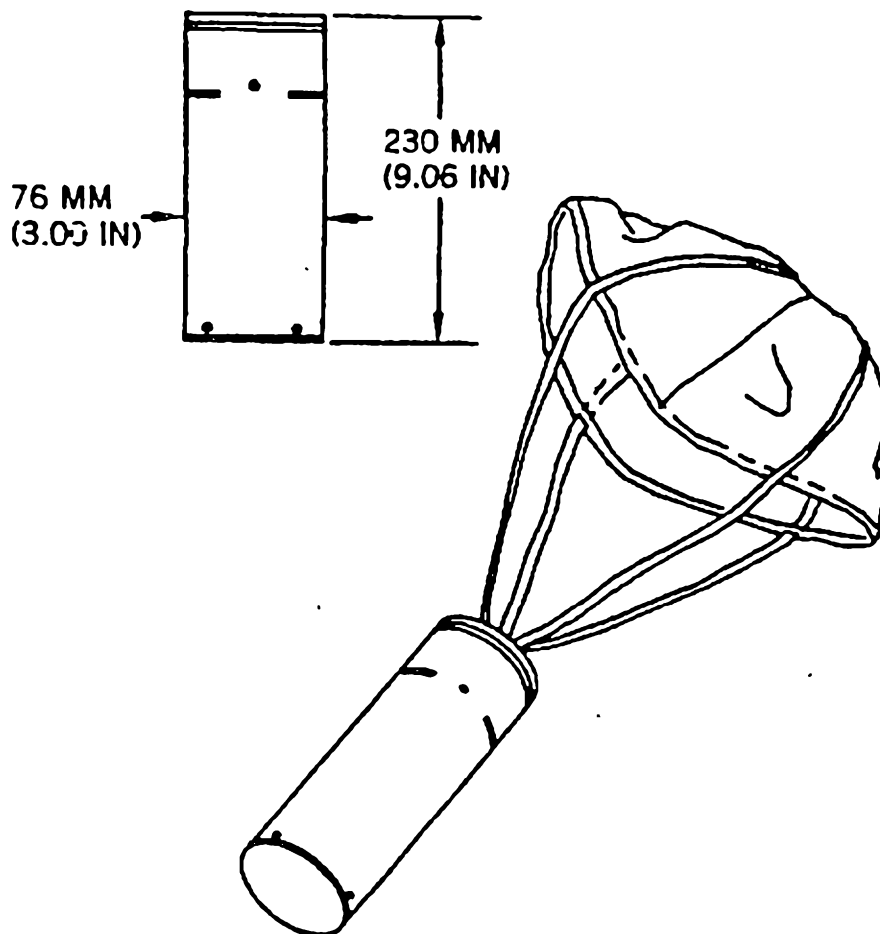
**SCATTERABLE
ANTIPERSONNEL
MUNITIONS**



FIXED OR RANDOM DELAY ACTION



Chilean Bomblet, Area Denial, Frag, Incendiary, PM-3



NOTES:

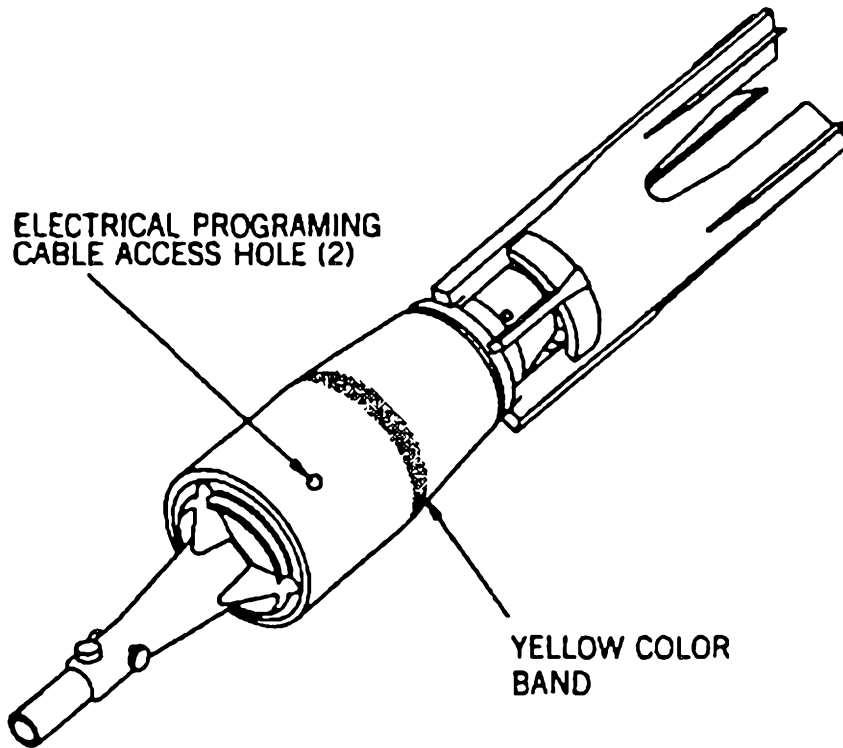
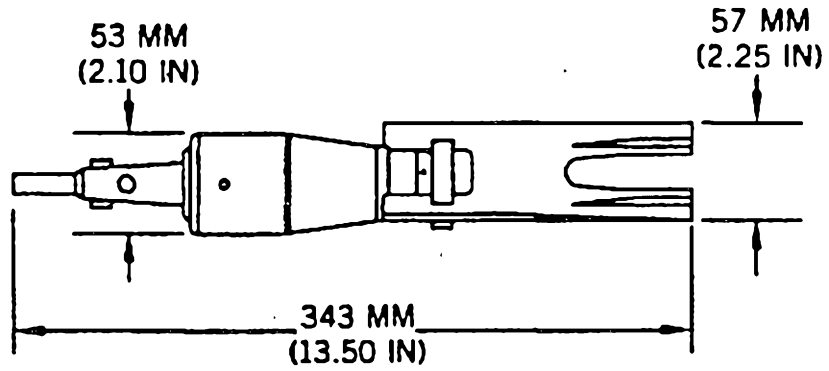
- (1) THE BOMBLET CONTAINS AN INTERNAL DELAYED ACTION FUZE THAT IS FACTORY SET TO DETONATE FROM 30 SECONDS TO 72 HOURS. THE FUZE IS ELECTRONIC, CONTAINS A BATTERY, AND IS ACTIVATED UPON RELEASE FROM THE CLUSTER.
- (2) THE TOTAL WEIGHT OF THE BOMBLET IS 2.2 KILOGRAMS (4.9 LBS). IT CONTAINS 588 GRAMS (1.3 LBS) OF RDX OF WHICH 144 GRAMS (5.1 OZ) IS AN INCENDIARY COMPOUND.
- (3) THE COLOR OF THE BOMBLET IS UNKNOWN.
- (4) THERE ARE 970 BALL BEARINGS IN EACH BOMBLET. ANY BOMBLET FOUND OUTSIDE OF A DISPENSER SHOULD BE CONSIDERED ARMED AND FUNCTIONING. A CB-770 DISPENSER CONTAINS 121 BOMBLETS.

F-1

FOR OFFICIAL USE ONLY

United Arab Emirates Bomb, Frag, B-1

Dispenser:
B-1



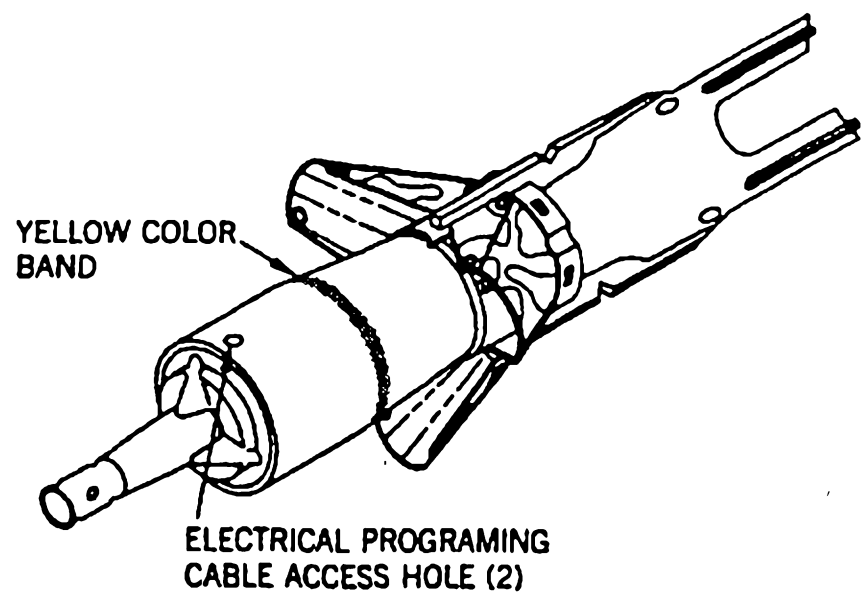
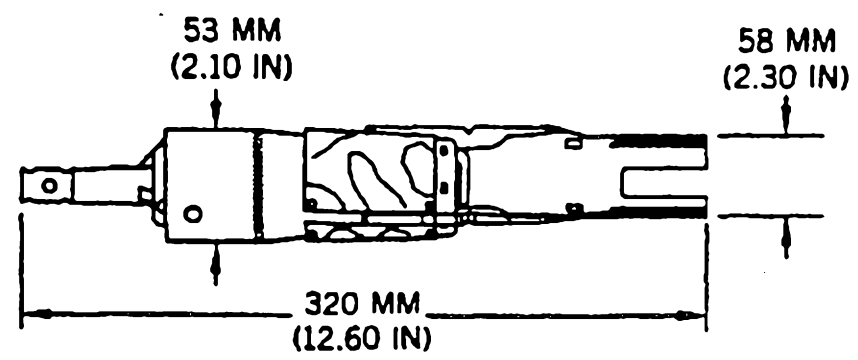
F-2

FOR OFFICIAL USE ONLY



United Arab Emirates Bomb, Frag, B-1ET

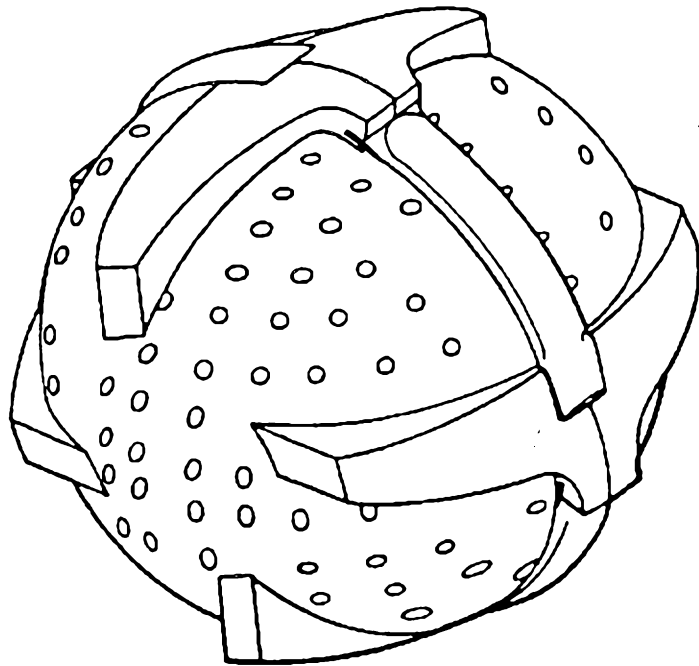
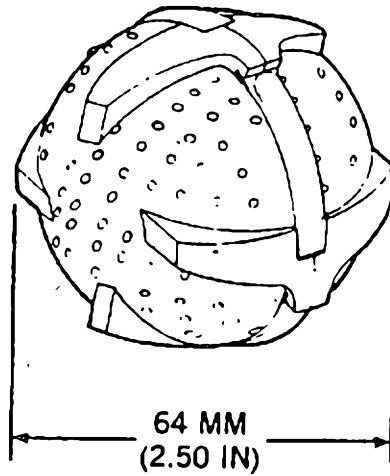
Dispenser:
B-1 (Modified)



FOR OFFICIAL USE ONLY

U.S. Bomb Units, Frag, BLU-26/B, BLU-36/B, BLU-59/B

Dispensers:
SUU-24/A
SUU-30/B, 30A/B,
30B/B, 30C/B
SUU-30E/B
(BLU 26/B only)

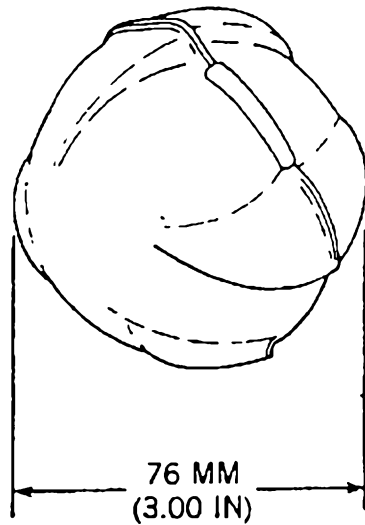


F-4

FOR OFFICIAL USE ONLY



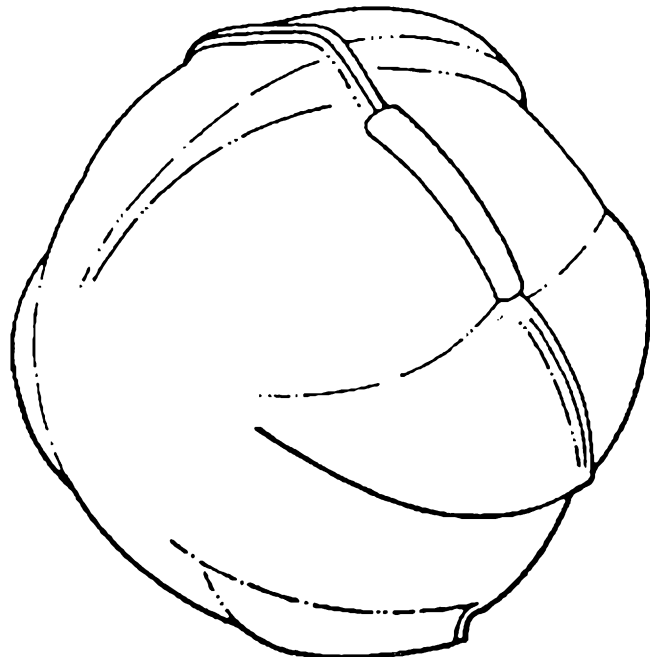
U.S. Bomb Units, BLU-63/B, BLU-63A/B, BLU-86/B, BLU-86A/B



Dispensers:
SUU-30H/B
SUU-54A/B
SUU-51B/B
(BLU-63/B Only)

Missile:
MGM-52C

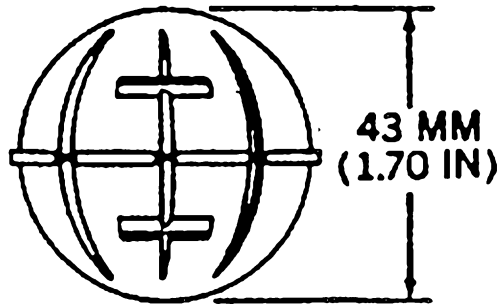
Guided Bomb System:
GBU-2A/B



F-5

FOR OFFICIAL USE ONLY

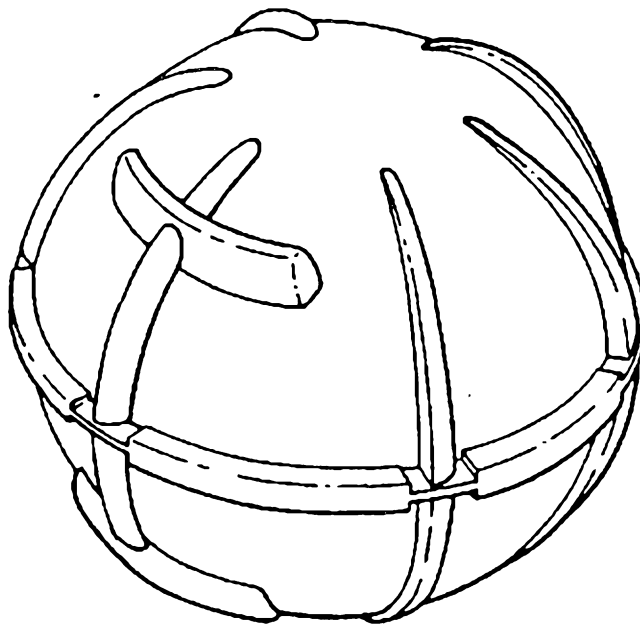
U.S. Grenades, Frag, M38 and M40



Dispensers:
SUU-24/A
(M40 only)
SUU-30C/B
Mk5 Mod 0

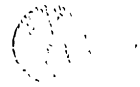
Rocket:
762-MM
(Honest John)

Adapter Unit:
ADU-256A
(M40 only)



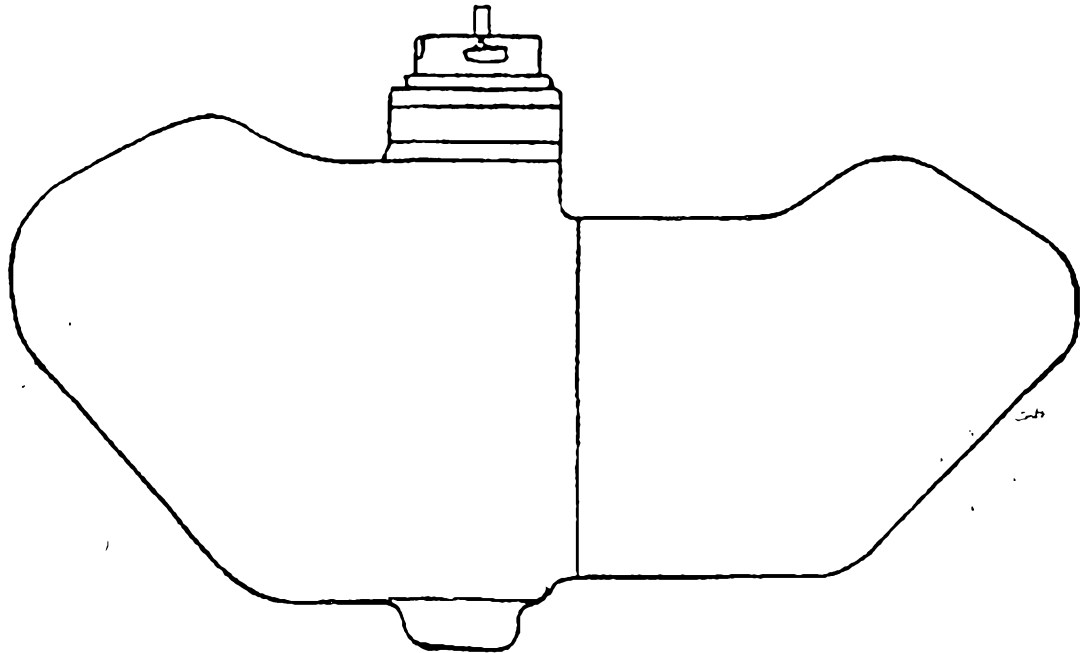
F-6

FOR OFFICIAL USE ONLY



Former U.S.S.R. Landmine, Apers, PFM-1

Dispenser:
RBK-Series

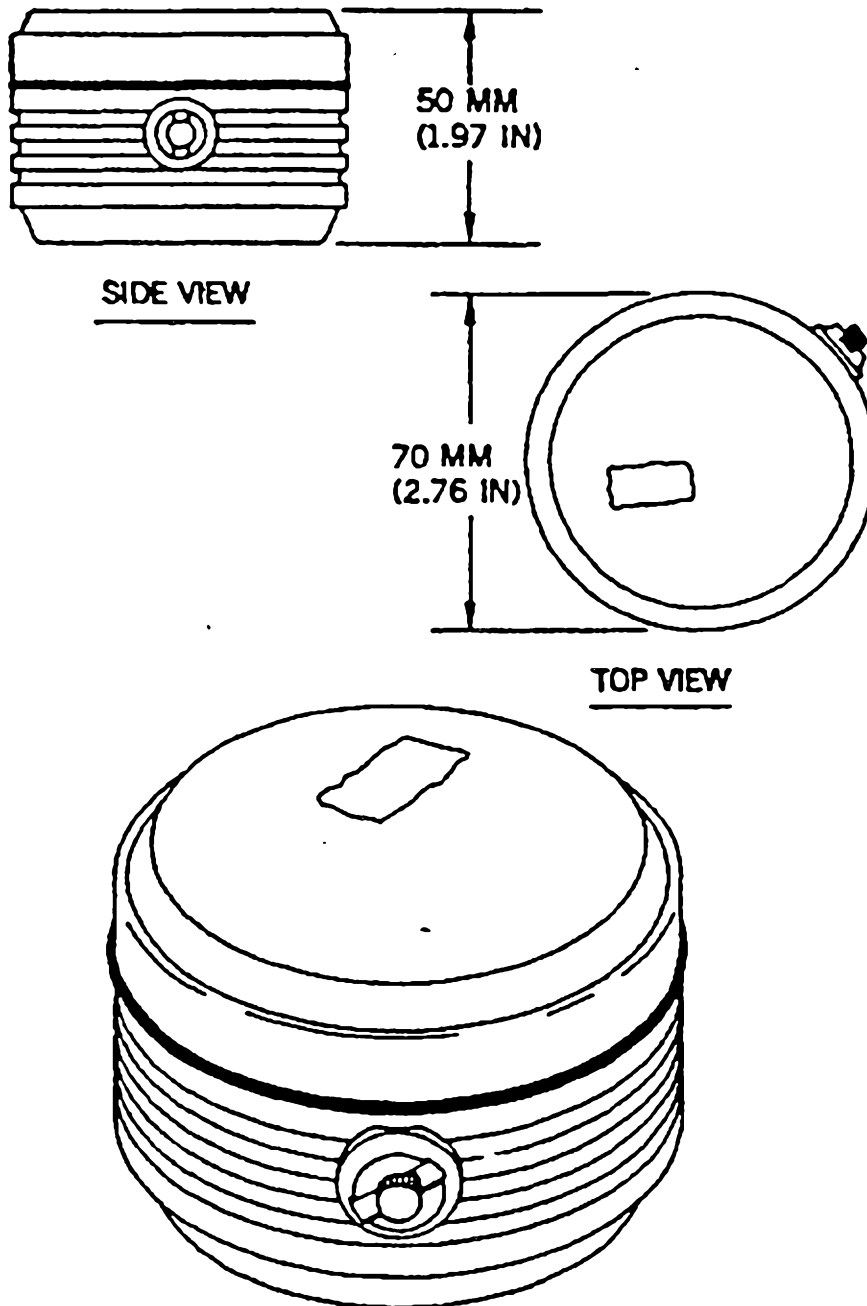


F-7

FOR OFFICIAL USE ONLY

FIXED OR RANDOM DELAY ACTION - ANTIDISTURBANCE

Chinese Landmine, APERS, Scatterable, Electronic, Model Unknown



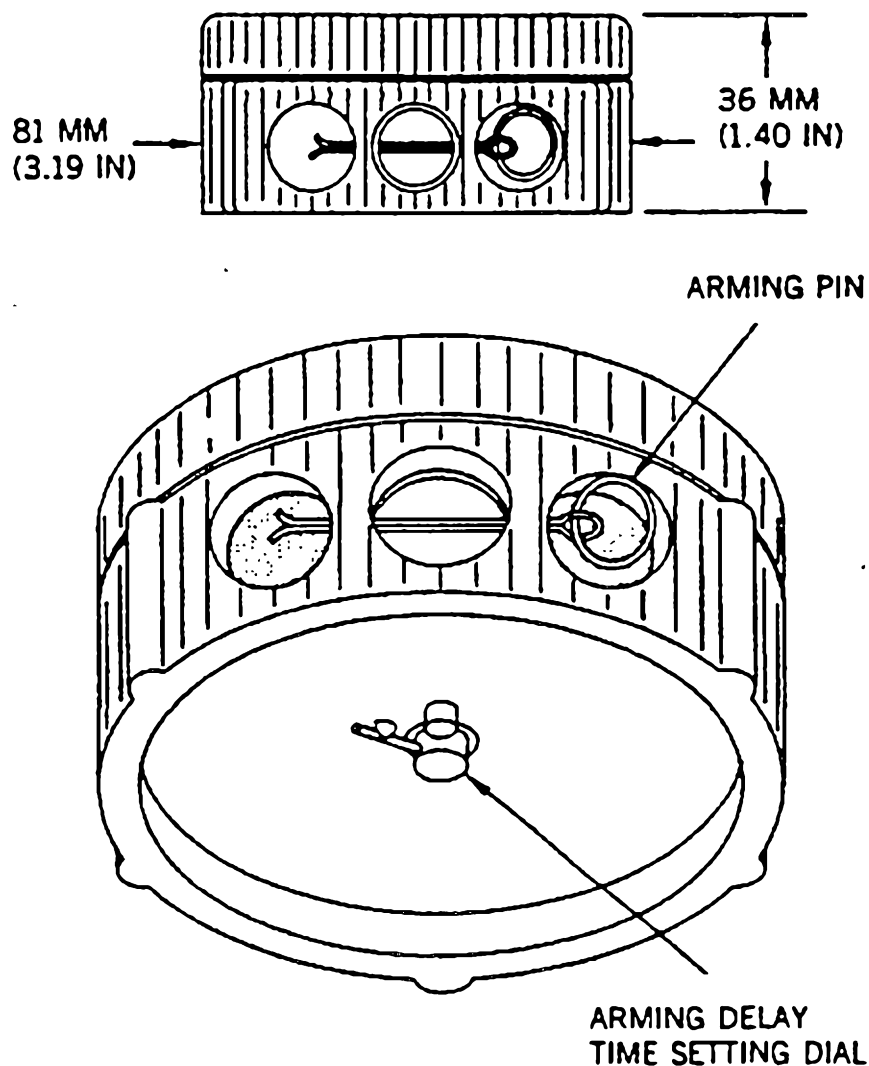
NOTES:

- (1) THE MINE CAN BE EMPLACED MANUALLY OR BY ROCKET.
- (2) THE ARMING DELAY TIME VARIES FROM 2.5 TO 3.0 MIN.
- (3) THE SELF-DESTRUCT TIMES ARE 1-3, 4-6, 7-9, 10-12, OR 13-15 DAYS.
- (4) THE MINE IS GREEN OR GRAY.
- (5) THE MINE MAY CONTAIN AN ANTIDISTURBANCE FEATURE.

F-8

FOR OFFICIAL USE ONLY

Chinese Landmine, APERS, Scatterable, Electronic, Model Unknown



NOTES:

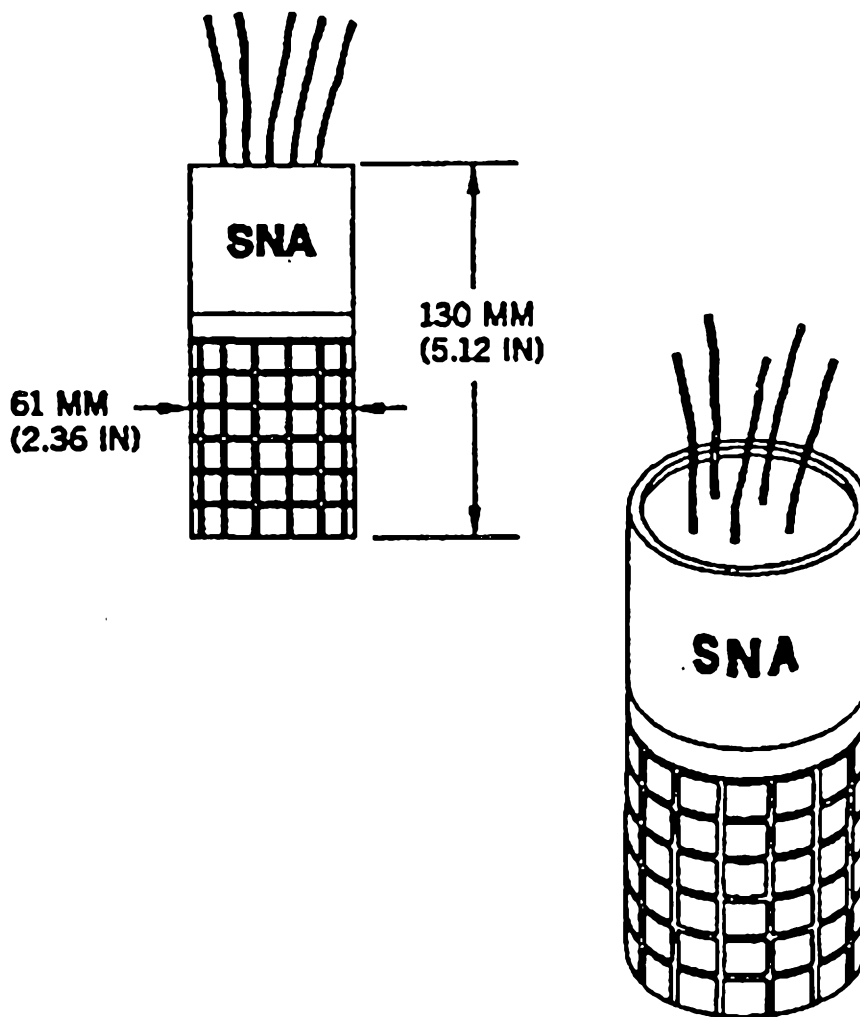
- (1) THE MINE IS GREEN.
- (2) PRESSURE REQUIRED TO FUNCTION THE MINE IS 5.00 TO 20.00 KILOGRAMS (11.02 TO 44.09 LBS).
- (3) THE MINE IS ANTIDISTURBANCE AND SELF-DESTRUCT.
- (4) THE SELF-DESTRUCT TIMES ARE:
 - 2 DAYS, 18 HOURS TO 2 DAYS, 21 HOURS
 - 4 DAYS, 14 HOURS TO 4 DAYS, 19 HOURS
 - 7 DAYS, 8 HOURS TO 7 DAYS, 16 HOURS
 - 14 DAYS, 17 HOURS TO 15 DAYS, 7 HOURS.
- (5) THE MINE WEIGHS 206 GRAMS (7.3 OUNCES).

F-9

FOR OFFICIAL USE ONLY



Spanish Bomblet, Area Denial, Model SNA



NOTES:

- (1) THE BOMBLET WEIGHS 820 GRAMS (28.9 OUNCES). IT HAS AN HE CHARGE WITH INCENDIARY FEATURES.
- (2) THE BOMBLET IS USED IN INTERDICTION (AREA DENIAL) OPERATIONS. THE FRAGMENTARY SHELL IS EFFICIENT AGAINST LIGHT VEHICLES, LIGHT ARMORED VEHICLES, AND AIRCRAFT ON RUNWAYS.
- (3) WHEN THE BOMBLET IS EJECTED FROM THE DISPENSER THE PARACHUTE DEPLOYS, AFTER 0.6 SECOND DELAY FUZE IS ARMED, AND ON IMPACT THE PREPROGRAMMED DELAY BEGINS. ANY ATTEMPT TO MOVE THE BOMBLET WILL RESULT IN A DETONATION. OTHERWISE IT WILL DETONATE AT THE END OF A PRESET DELAY THAT MAY BE PROGRAMMED RANDOMLY FROM 1 MINUTE TO 24 HOURS.

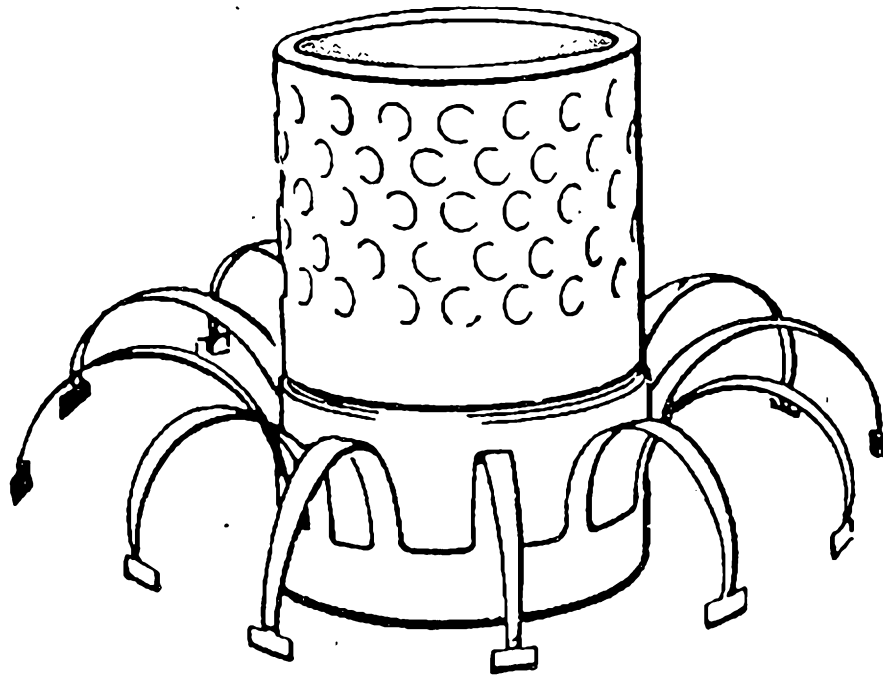
F-10

FOR OFFICIAL USE ONLY

U.K. Landmine, Area Denial, HB876

**Diameter:
100 MM**

**Length:
150 MM**



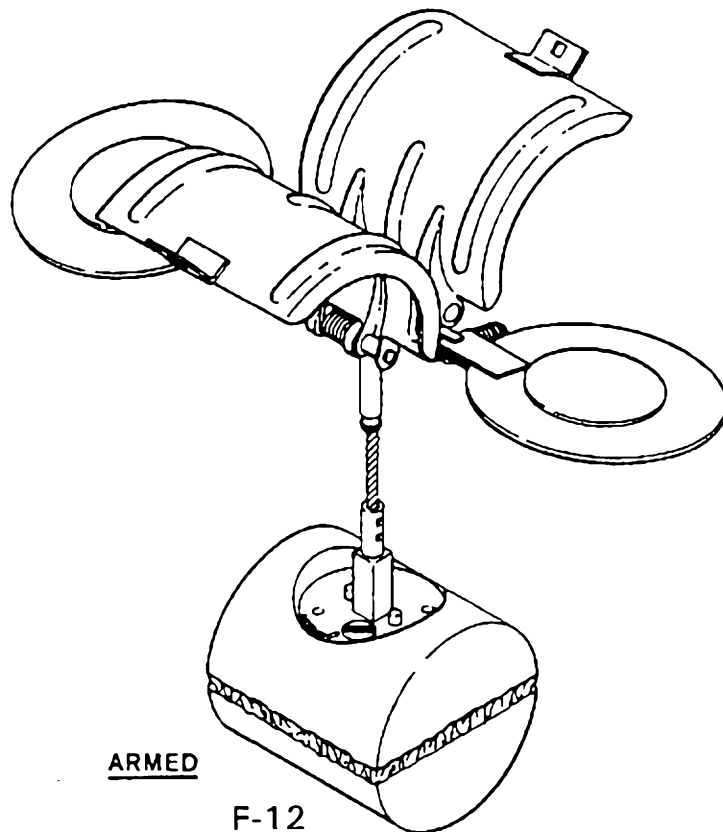
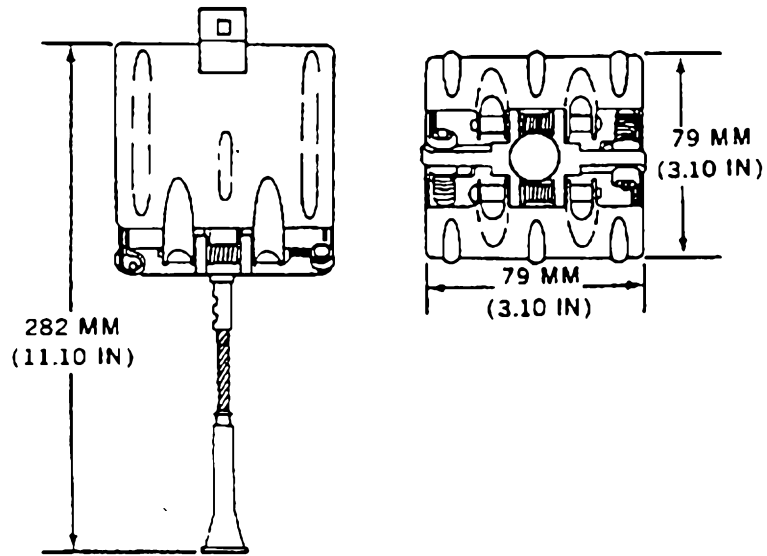
F-11

FOR OFFICIAL USE ONLY



U.S. Bomb, Frag, 4-lb, M83 (Butterfly) (Obsolete)

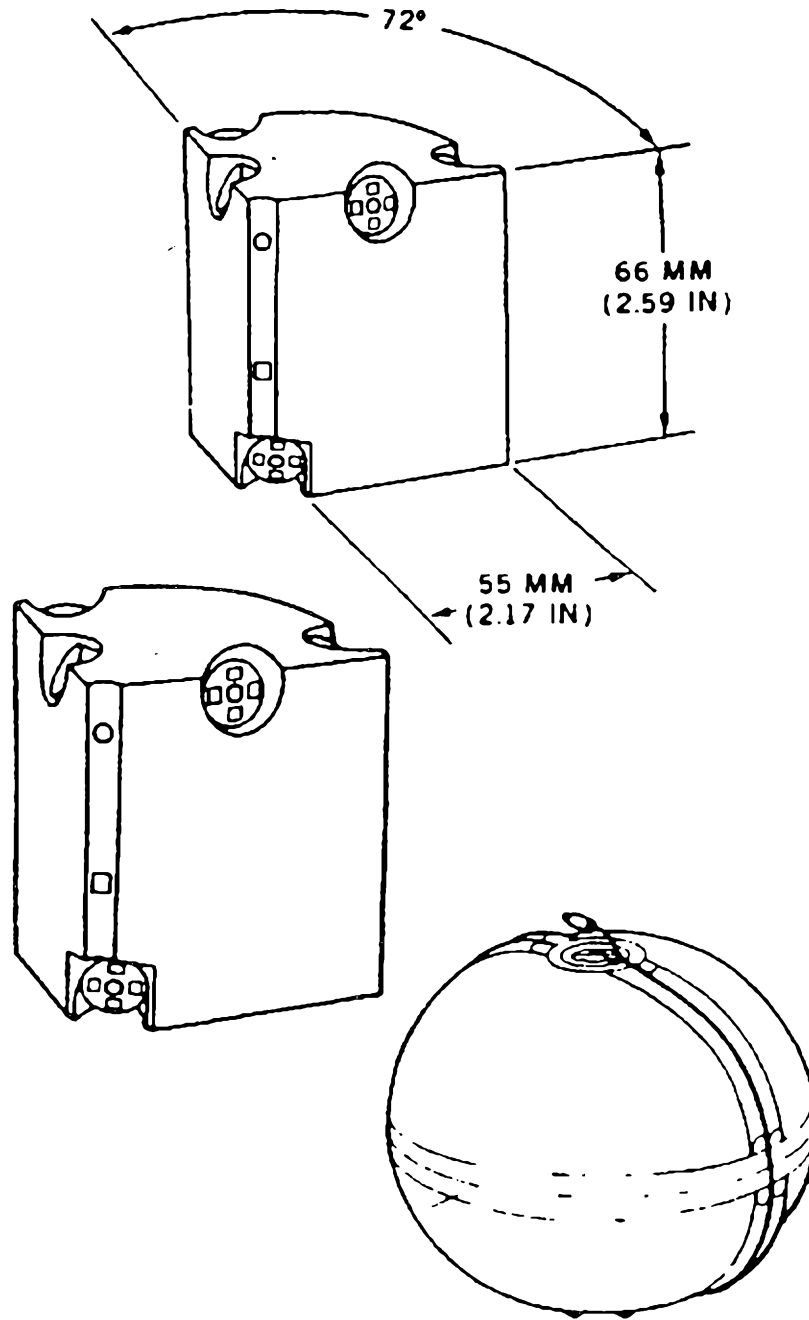
Cluster Bombs:
M15, 15A1, 15A2,
M16, 16A1, 16A2



FOR OFFICIAL USE ONLY

U.S. Landmine, Apers, Area Denial Artillery Munition (ADAM)

Projectiles:
155-MM, HE, M692
155-MM, HE, M731



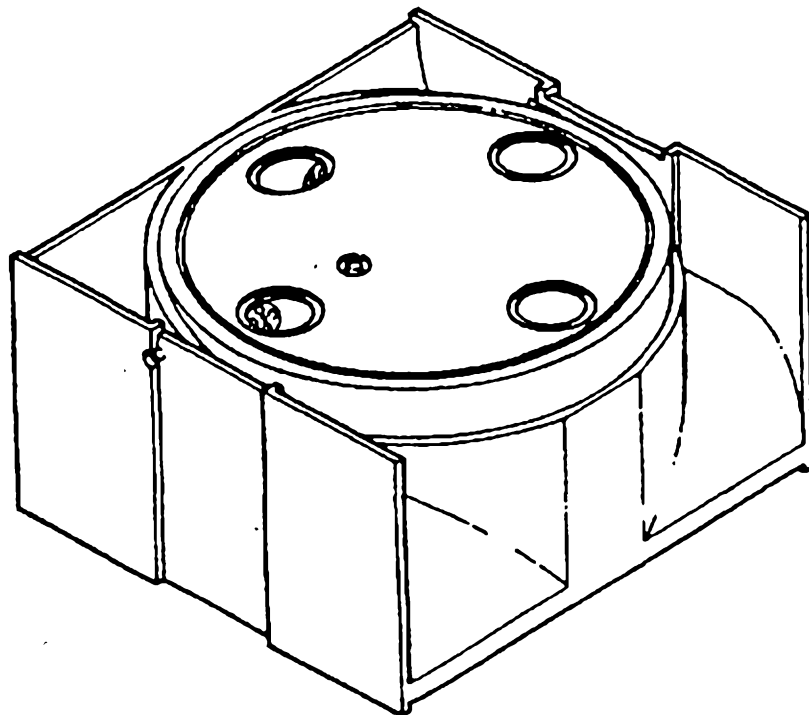
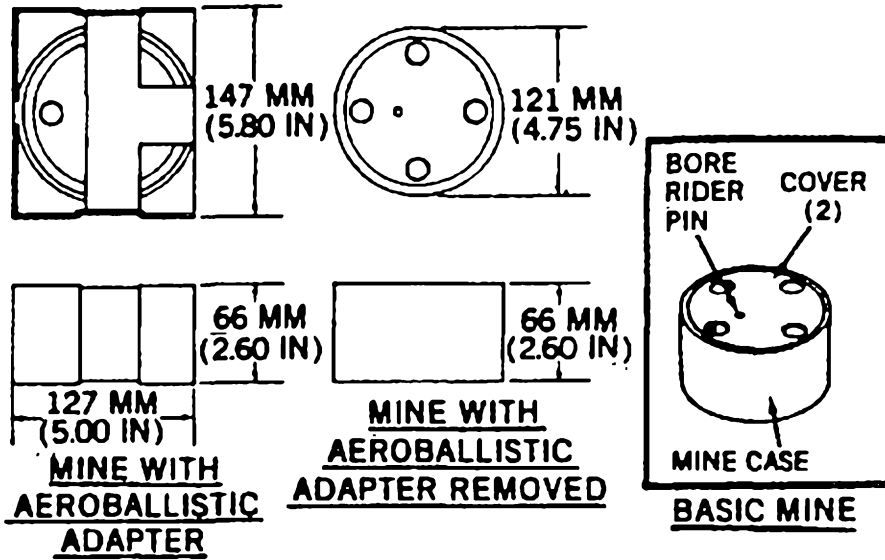
KILL
MECHANISM

F-13

FOR OFFICIAL USE ONLY

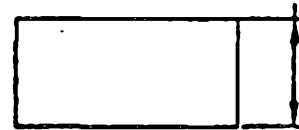
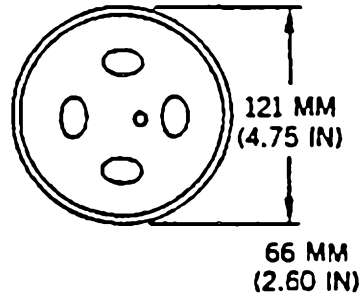
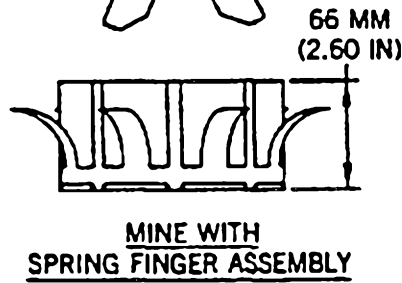
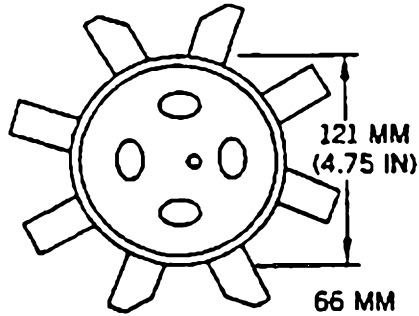
U.S. Landmine, Apers, BLU-92/B (Gator)

Dispensers:
SUU-58/B
SUU-64/B

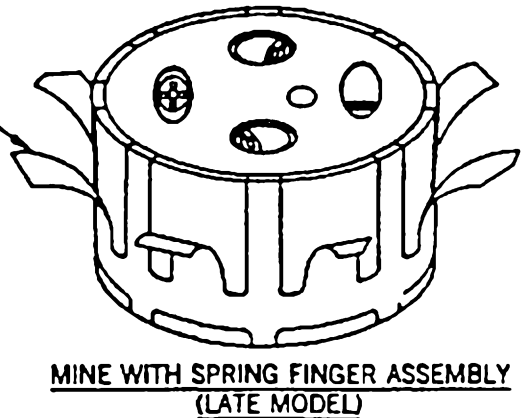
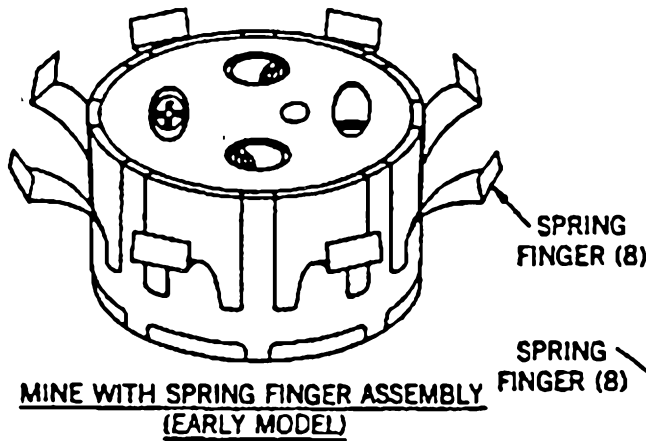


U.S. Landmine, Apers, For M131 Modular Pack Mine System (MOPMS)

Dispensers:
M131 Modular Pack
Mine System
(MOPMS)



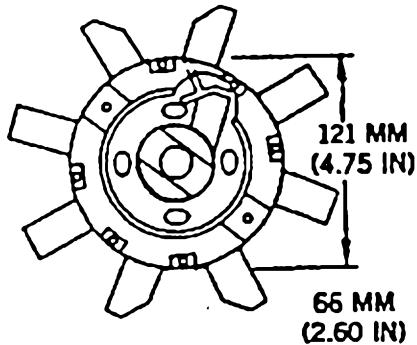
MINE WITH SPRING FINGER
AND BORERIDER TIMER
ASSEMBLIES REMOVED



F-15

FOR OFFICIAL USE ONLY

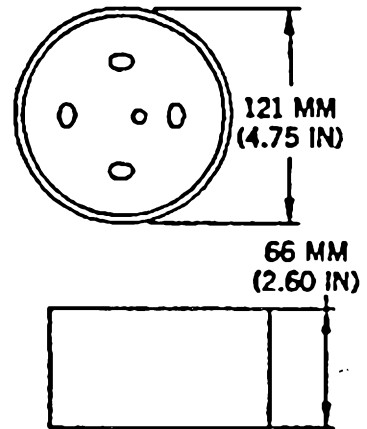
U.S. Landmine, Apers, For M139 Multiple Mine Delivery System (Volcano)



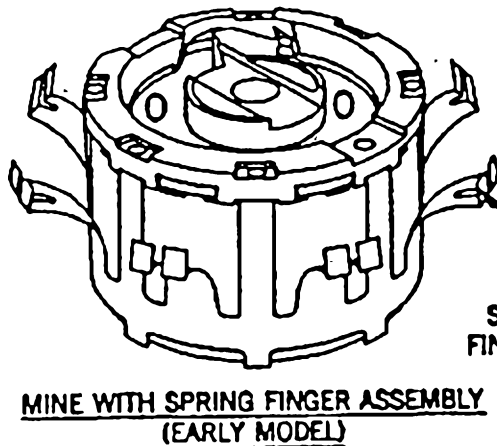
MINE WITH SPRING FINGER ASSEMBLY

Dispenser:
M139 Multiple Delivery Mine system (Volcano)

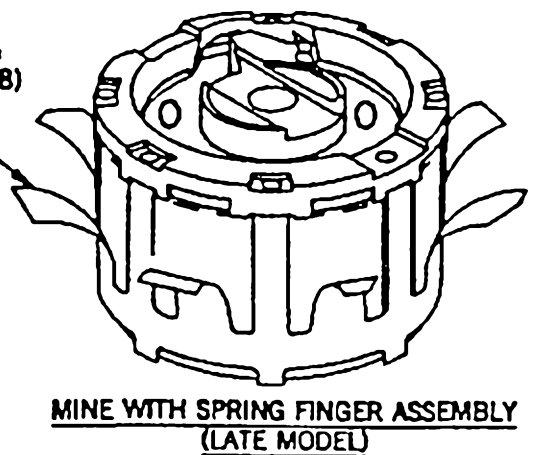
Mine Canister:
M87 (Tactical)
M88 (Practice)



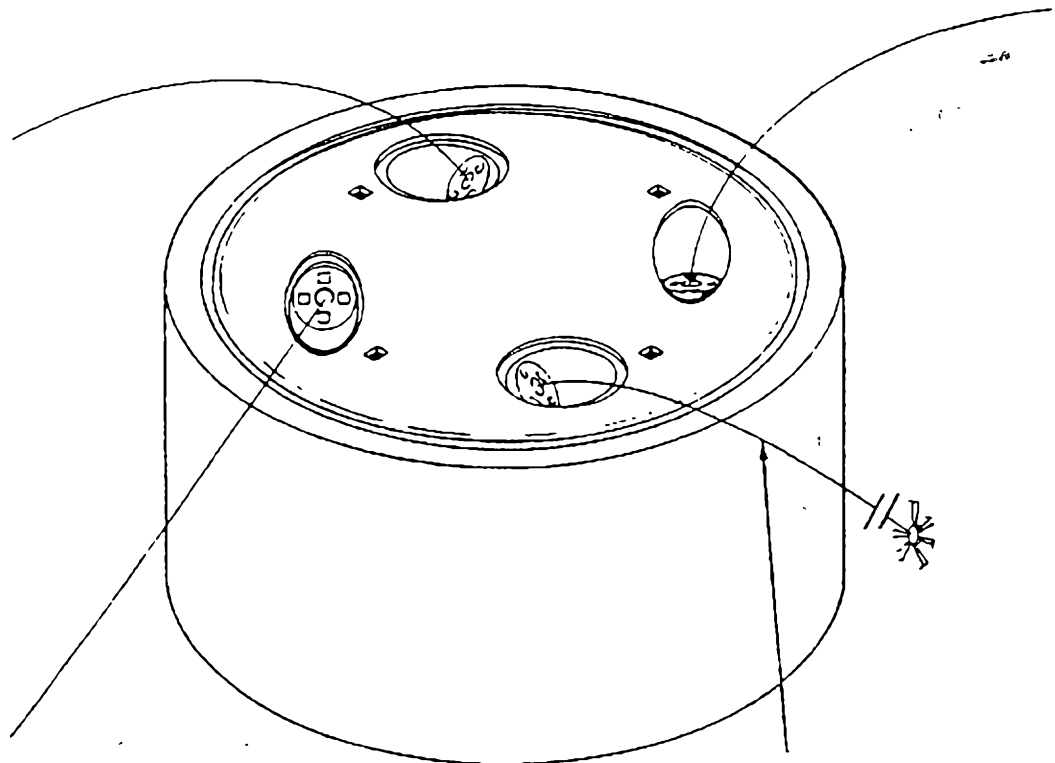
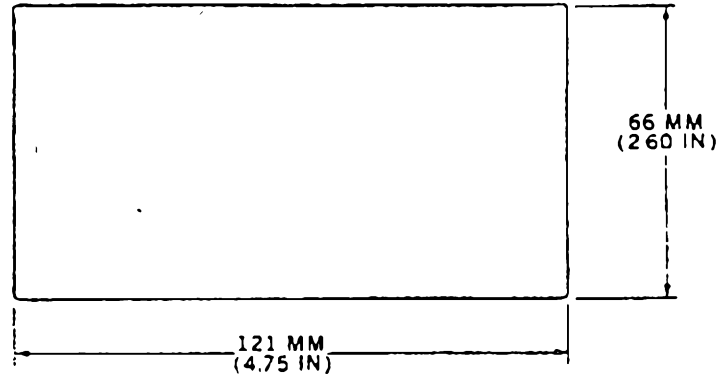
MINE WITH SPRING FINGER AND BORERIDER TIMER ASSEMBLIES REMOVED



SPRING FINGER (8)
SPRING FINGER (8)



U.S. Landmine, Apers, M74

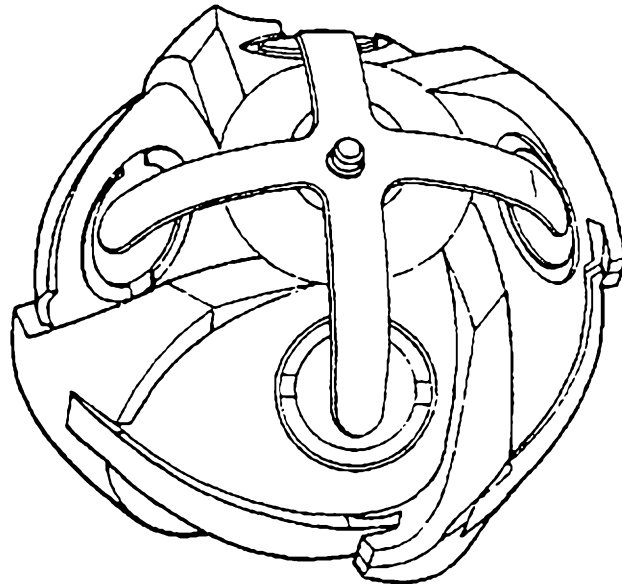
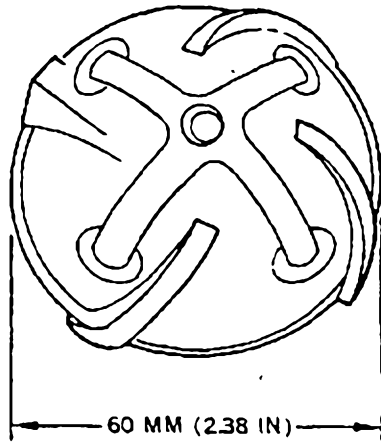


F-17
FOR OFFICIAL USE ONLY



**U.S. Mine Units, Apers, BLU-42/B, BLU-42A/B and
BLU-54/B (Obsolete)**

**Cluster Bombs:
SUU-38/A**



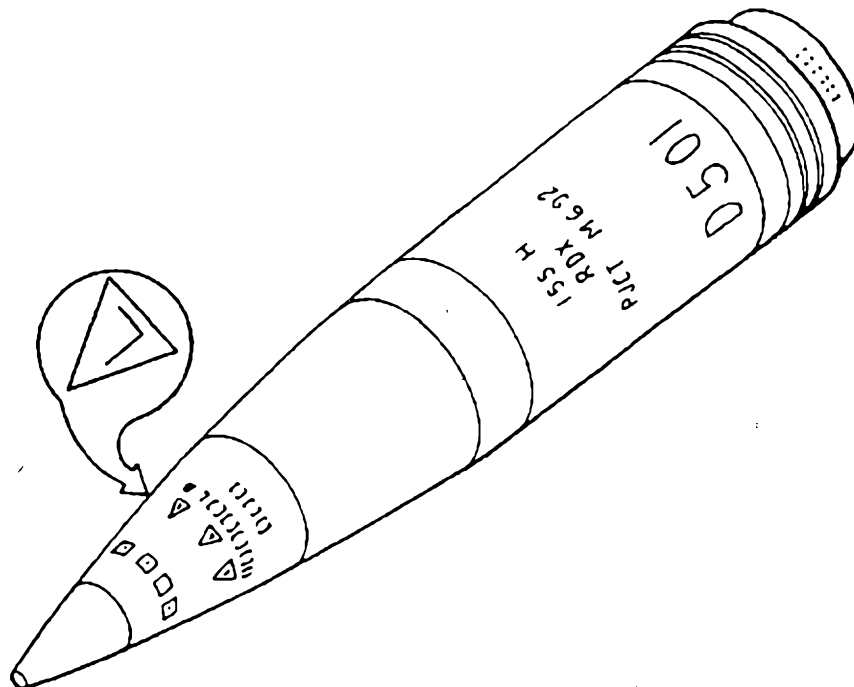
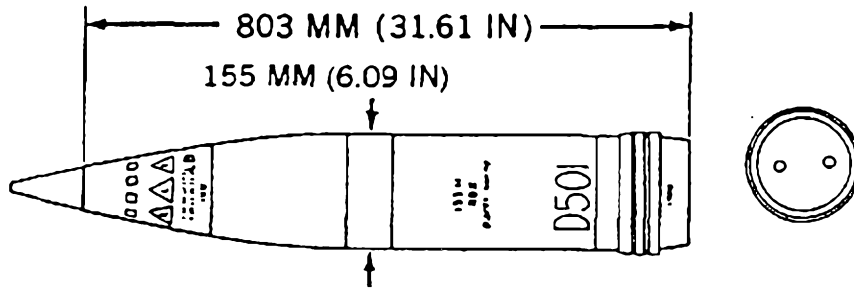
F-18

FOR OFFICIAL USE ONLY

U.S. Projectiles, 155-MM, HE, Howitzer, ADAM, M692 and M731

Fuzes:
M577, MTSQ
M577A1, MTSQ

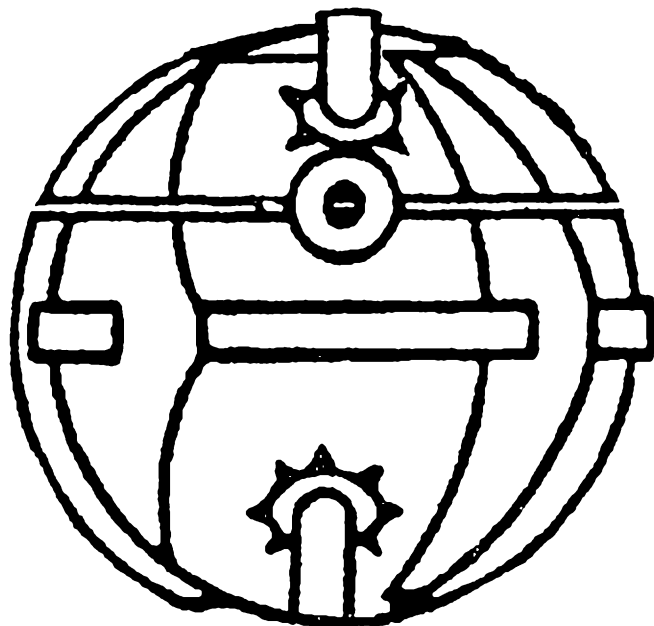
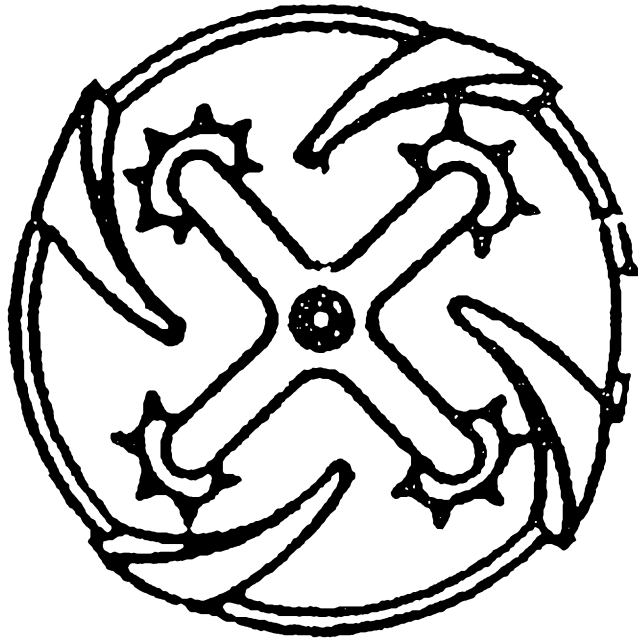
Mine:
M67, AP (M692)
M72, AP (M731)



F-19

FOR OFFICIAL USE ONLY

Former U.S.S.R. Mine, Apers, Scatterable,
Model POM-1S



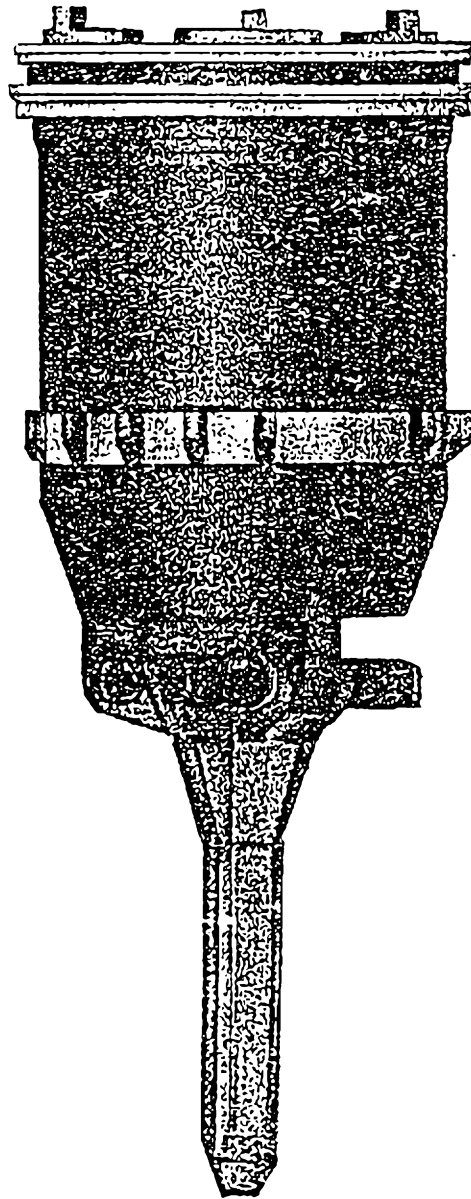
F-20

FOR OFFICIAL USE ONLY

**SCATTERABLE
ANTITANK
MUNITIONS**



Chinese Landmine, AT, Type 84A

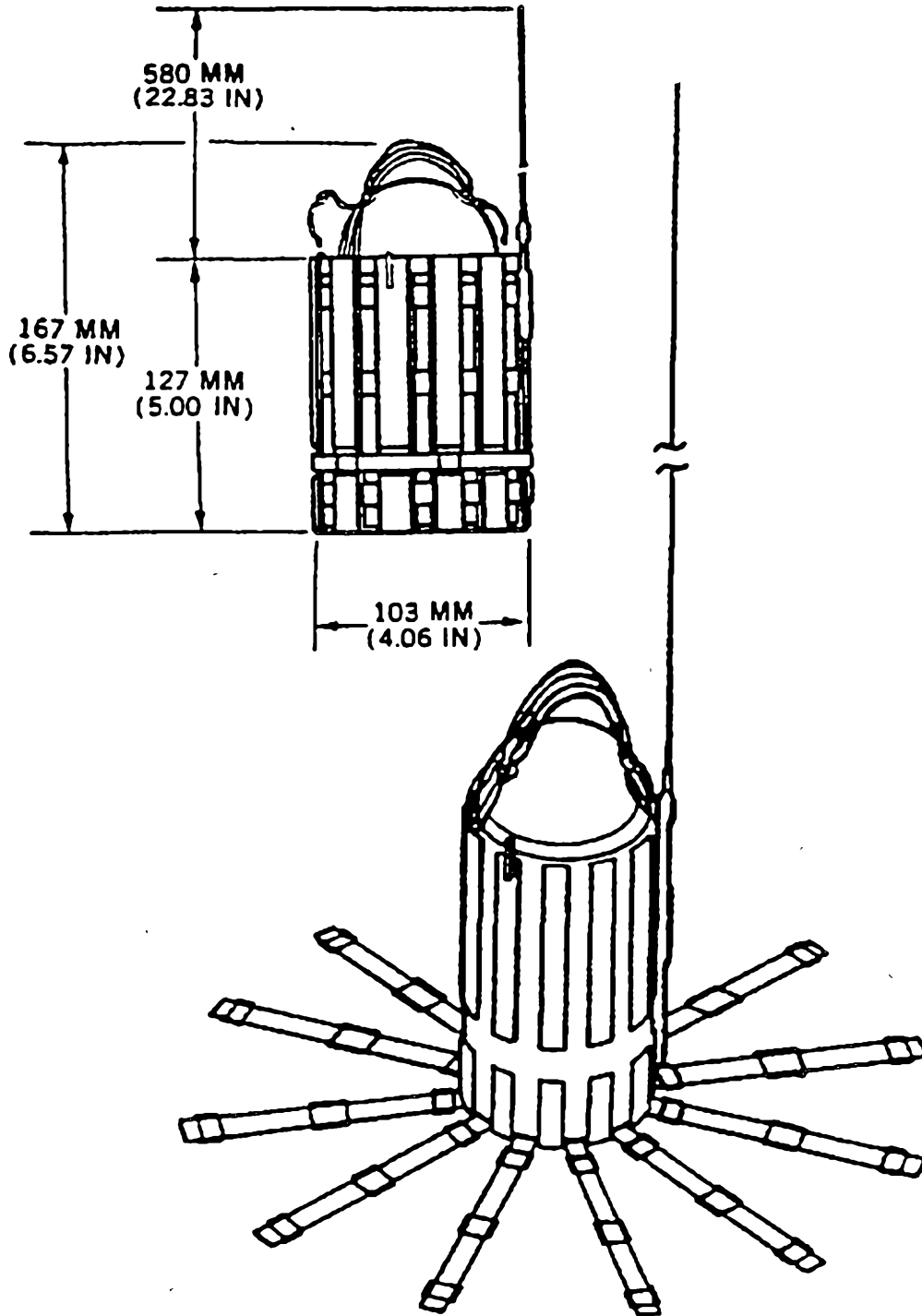


G-1

FOR OFFICIAL USE ONLY

German Landmine, AT, Model AT-II

Rocket:
110-MM LARS

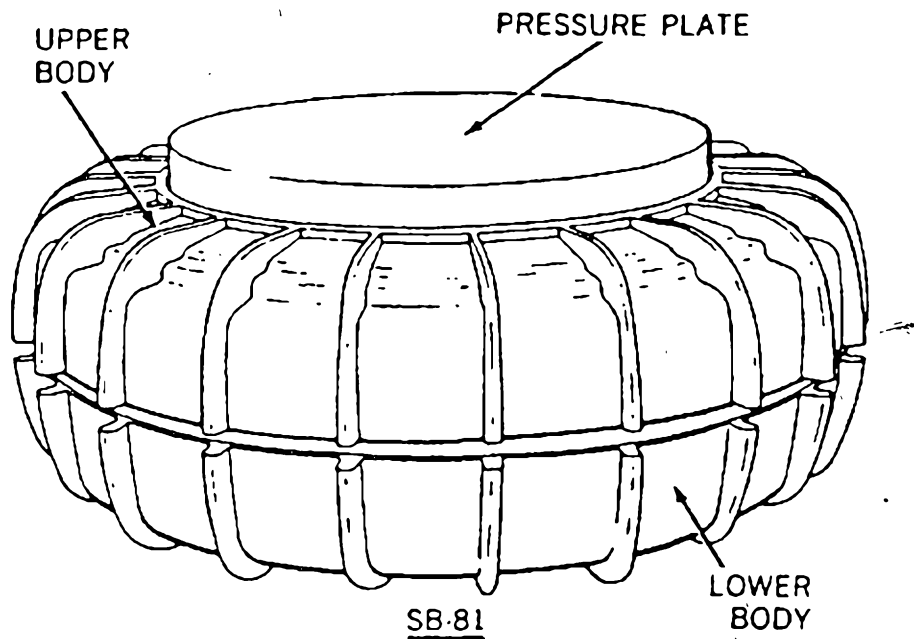
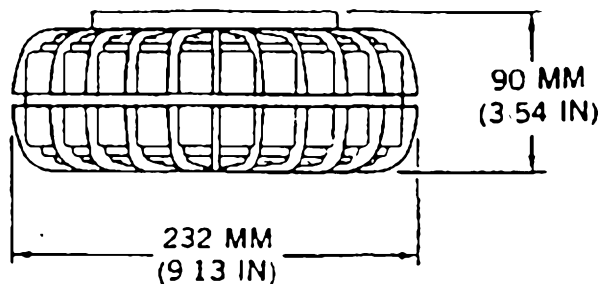


G-2

FOR OFFICIAL USE ONLY



Italian Landmines, AT, (Scatterable), SB-81 and SB-81/AR-AN



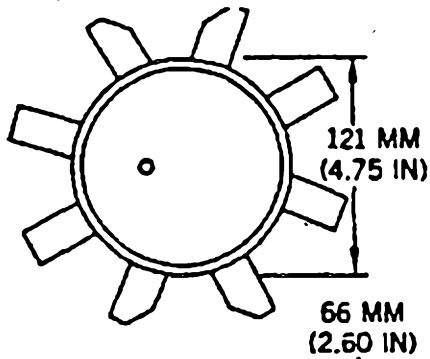
- NOTES. (1) THE COLOR OF THE LANDMINE VARIES ACCORDING TO USER COUNTRY.
- (2) THE LANDMINE CONTAINS 2.0 KILOGRAMS (4.4 POUNDS) OF TNT/RDX/HMX MIX. THE BOOSTER CONTAINS 137 GRAMS (4.8 OUNCES) OF A RDX/WAX/HMX MIX.
- (3) THE MODEL SB-81 PRESSURE FUZE REQUIRES 150 TO 310 KILOGRAMS (331 TO 683 POUNDS) TO FIRE. THE SB-81/AR-AN CAN HAVE A PRESSURE, ANTIREMOVAL, SELF-NEUTRALIZING TYPE FUZE, OR A PRESSURE, ANTIREMOVAL SELF DESTROYING FUZE.

G-3

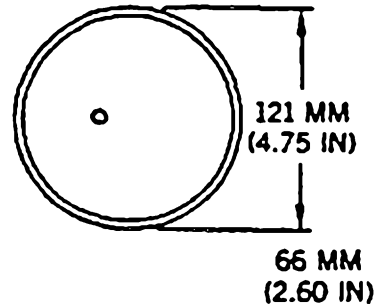
FOR OFFICIAL USE ONLY

U.S. Landmine, AT, For M131 Modular Pack Mine System (MOPMS)

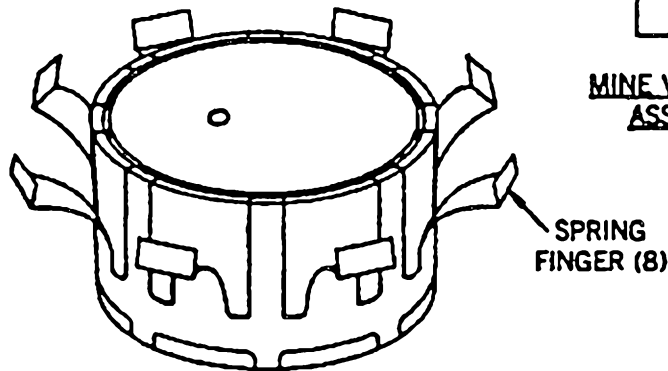
Dispenser:
M131 Modular
Pack Mine
System
(MOPMS)



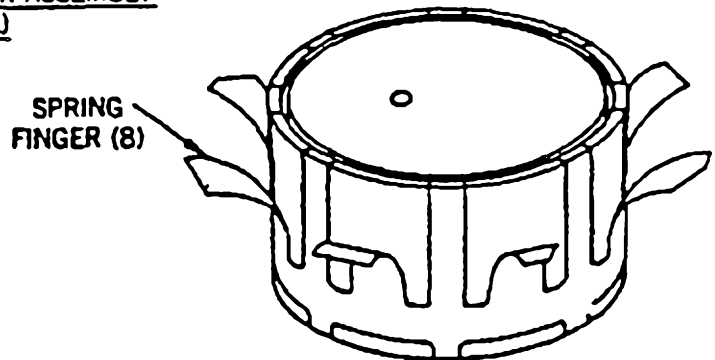
MINE WITH
SPRING FINGER ASSEMBLY



MINE WITH SPRING FINGER
ASSEMBLY REMOVED



MINE WITH SPRING FINGER ASSEMBLY
(EARLY MODEL)



MINE WITH SPRING FINGER ASSEMBLY
(LATE MODEL)

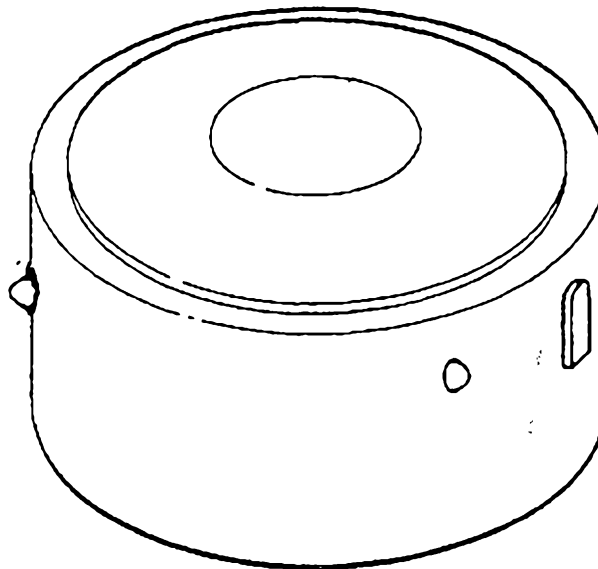
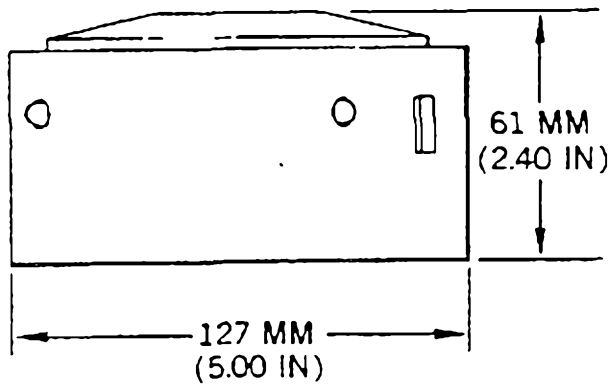
G-4

FOR OFFICIAL USE ONLY



U.S. Landmine, AT, M70 and M73

Projectiles:
155-MM, M718
(RAAMS)
155-MM, M741
(RAAMS)

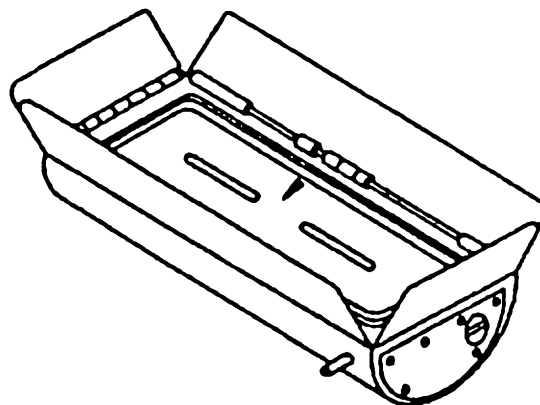
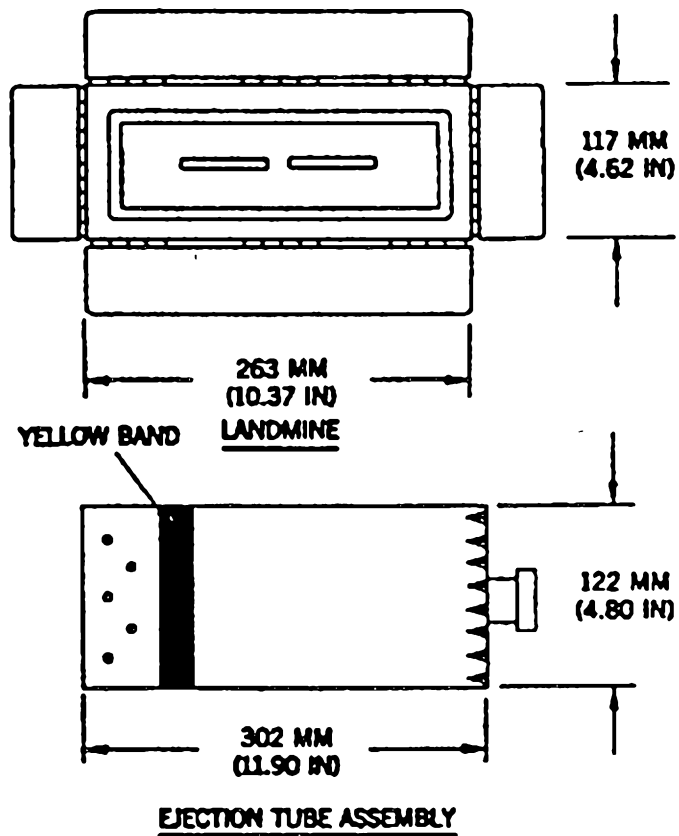


G-5

FOR OFFICIAL USE ONLY

U.S. Landmine, AT/AV, and Ejection Tube Assembly Used in the M56 Mine Dispersing Subsystem

Dispenser:
SUU-13D/A



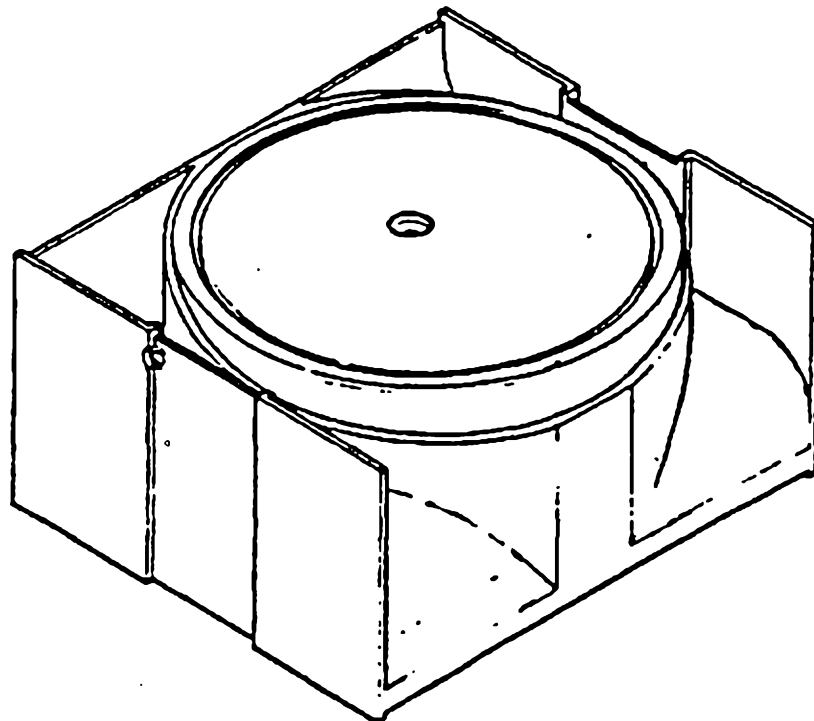
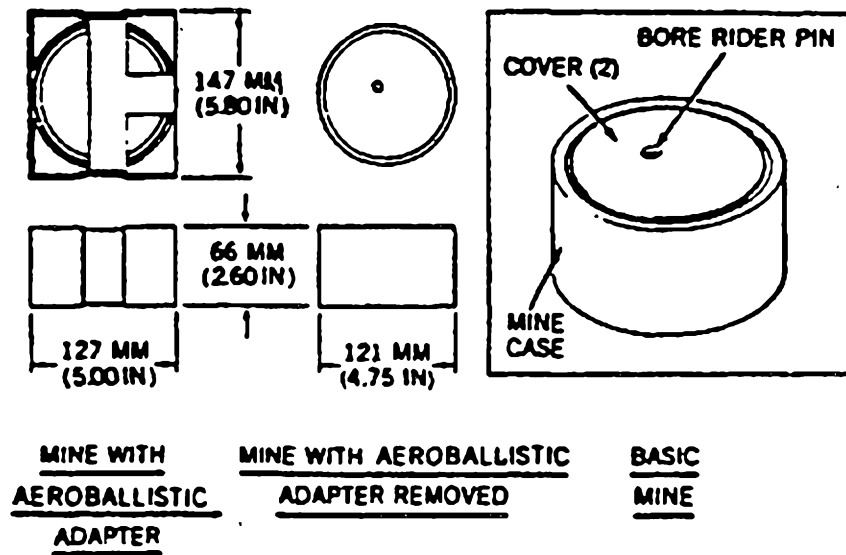
G-6

FOR OFFICIAL USE ONLY



U.S. Landmine, AT/AV, BLU-91/B (Gator)

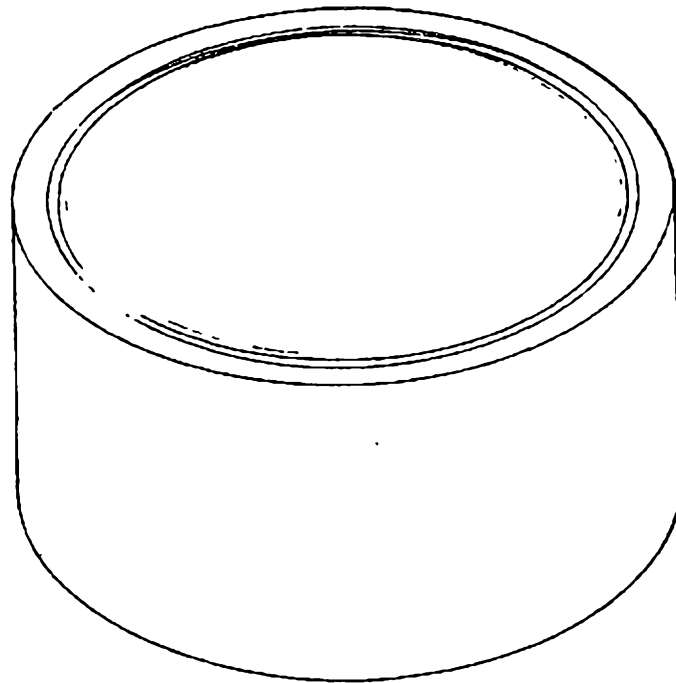
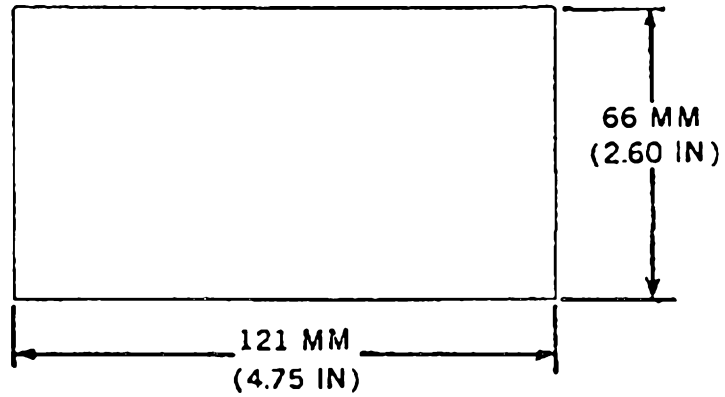
Dispenser:
SUU-58
SUU-64/B



G-7

FOR OFFICIAL USE ONLY

U.S. Landmine AT/AV, M75



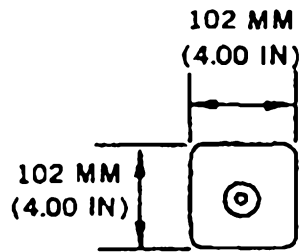
G-8

FOR OFFICIAL USE ONLY

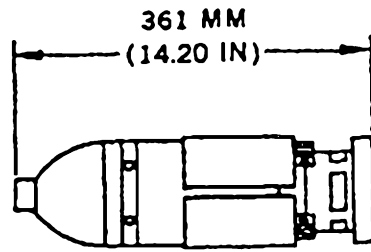


U.S. Landmine Units, AV, BLU-45/B

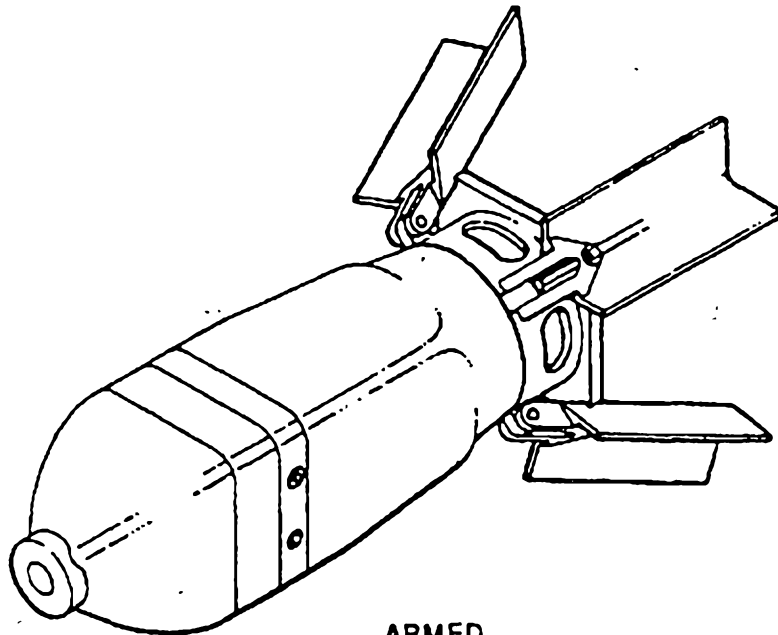
Dispenser:
SUU-36/A



FRONT VIEW



FINS FOLDED



ARMED

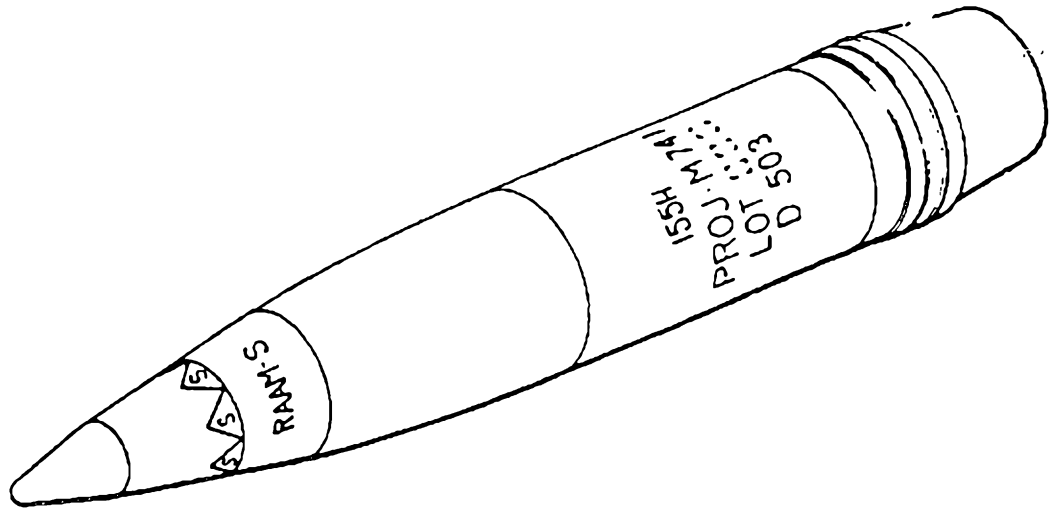
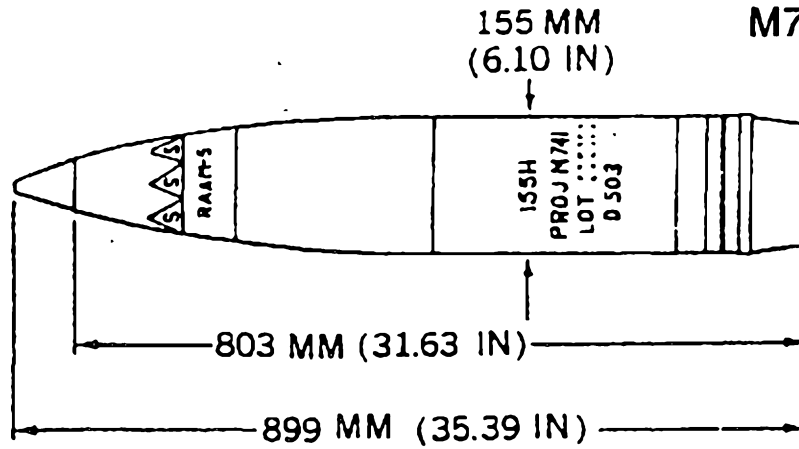
G-9

FOR OFFICIAL USE ONLY

U.S. Projectiles, 155-MM, AT, M718, M718A1, and M741, and M741A1 (RAAMS)

Fuze:
M577, MTSQ

Landmine:
M70, AT
M73, AT

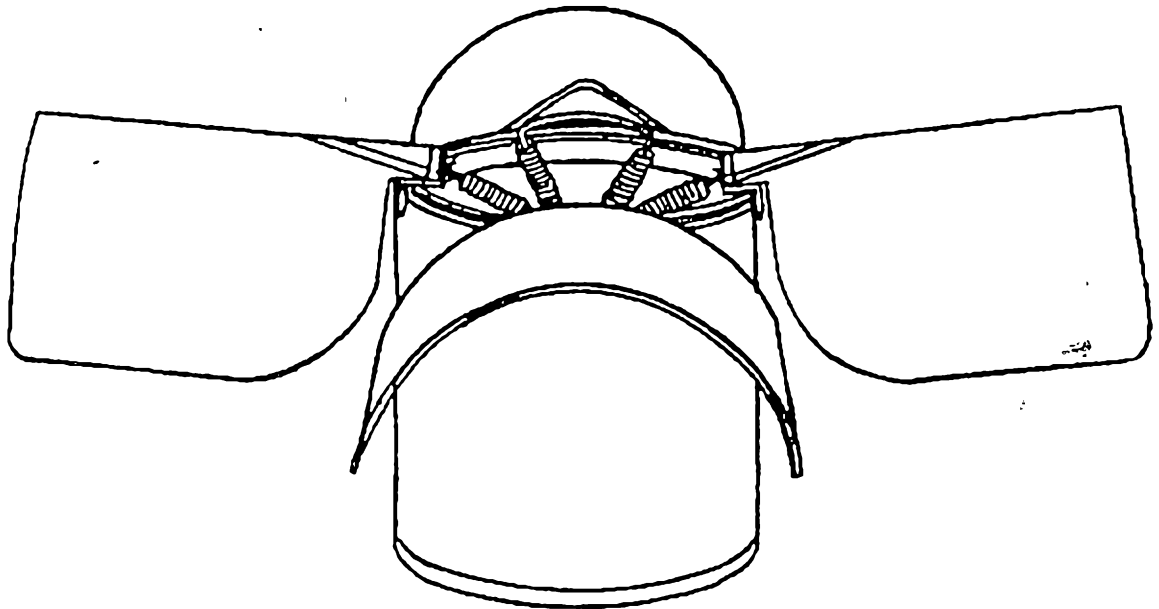


G-10

FOR OFFICIAL USE ONLY



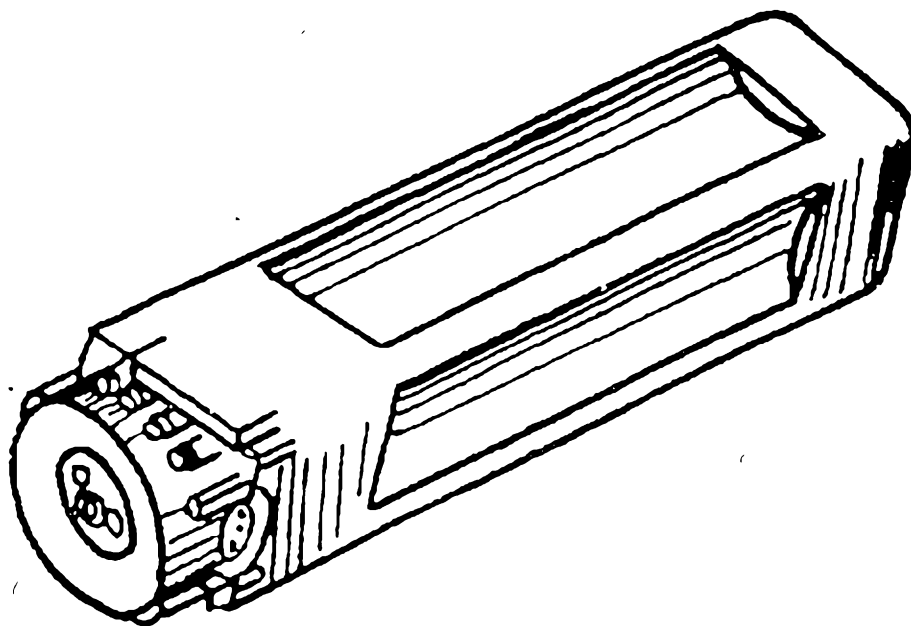
Former Yugoslav Landmine, AT, Scatterable, Influence-fuzed, Model Unknown



G-11

FOR OFFICIAL USE ONLY

Former U.S.S.R. Landmine, AT, Scatterable, Model PTM-3



Type: Anti-Tank, Shaped-Charge, Dispenser-Scatterable-Type	
Weight, kg	— 5.0
Explosive Charge Weight, kg	— 1.85
Mine Size, mm	
- Length	— 330
- Width	— 84
Mine Body Material	— Steel
Fuze Type	— Influence, Magnetic
Power Supply	— single battery, type "PL53Y" (replaceable)
Safe-arming Delay Mechanism Type	— two-stage: pyrotechnic and electronic
Remote Arming Time, sec	— 60
Self-Destruction Device Type	— Electronic
Self-Destruct Time, hours	— from 16 to 24

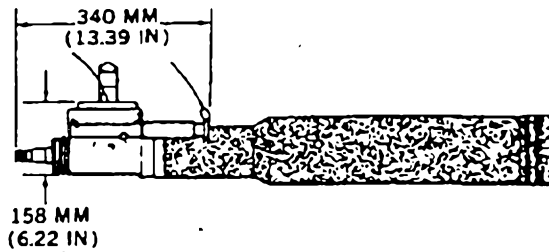
G-12

FOR OFFICIAL USE ONLY

BOMBS

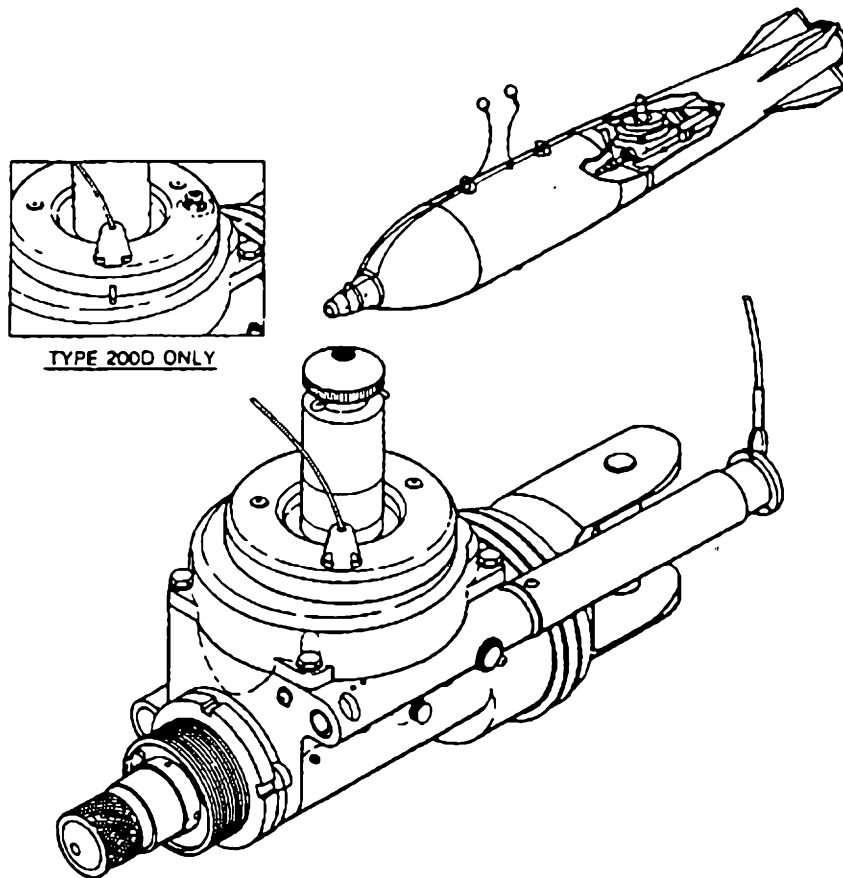


French Bomb Combined Systems, Types 200B and 200D (Matra)



Bombs:
SAMP 250 Kg Type
25FE
STA 400 Kg Type 200
500 Lb AN-M64C1 (US)

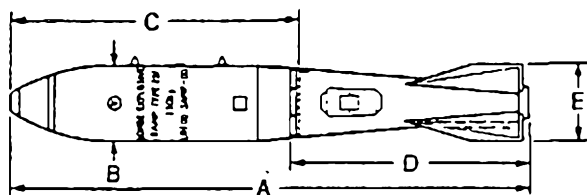
Fuzes:
Nose:
Matra 19
Matra 19 SR



H-1

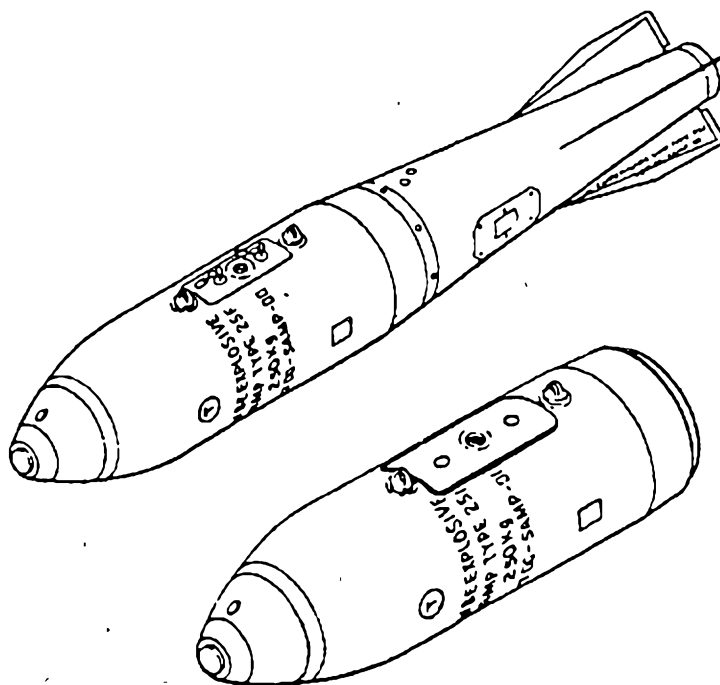
FOR OFFICIAL USE ONLY

French Bombs, GP, HE/Frag, 250-KG, SAMP, Types 25 FE, 25 CDI, BL 25 FE and BL 25 GE



Fuzes:
Nose:
 M904E2
 19 CR
Tail:
 M905
 M906
 200F Assembly w/
 Type 20B/E
 200F Assembly w/
 Type 21

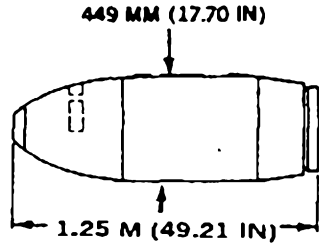
TYPES	DIMENSIONS				
	A	B	C	D	E
25 FE	2.10 M (6.8 FT)	324 MM (12.76 IN)	1.20 M (46.77 IN)	978 MM (38.50 IN)	456 MM (17.95 IN)
BL 25 FE	1.90 M (6.2 FT)	350 MM (13.78 IN)	UNKNOWN	UNKNOWN	400 MM (15.75 IN)
25 CDI	2.08 M (6.8 FT)	305 MM (12.00 IN)	UNKNOWN	UNKNOWN	UNKNOWN
BL 25 GE	1.90 M (6.2 FT)	350 MM (13.78 IN)	UNKNOWN	UNKNOWN	400 MM (15.75 IN)



H-2

FOR OFFICIAL USE ONLY

French Bomb, GP, 400-KG, STRIM Type 21



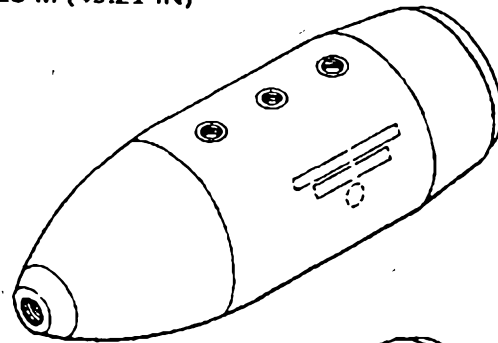
Fuzes:

Nose:

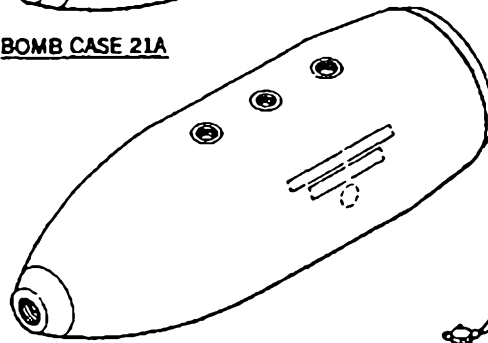
- STA Type 11A
- MATRA Type 19
- M904E2

Tail:

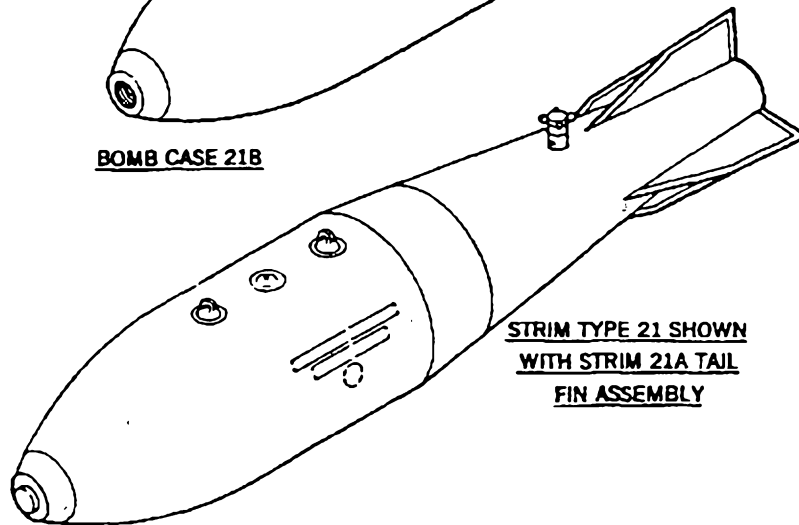
- EB Type 28
- EM Type 30
- MATRA Type 20
- MATRA Type 200 Assembly



BOMB CASE 21A



BOMB CASE 21B

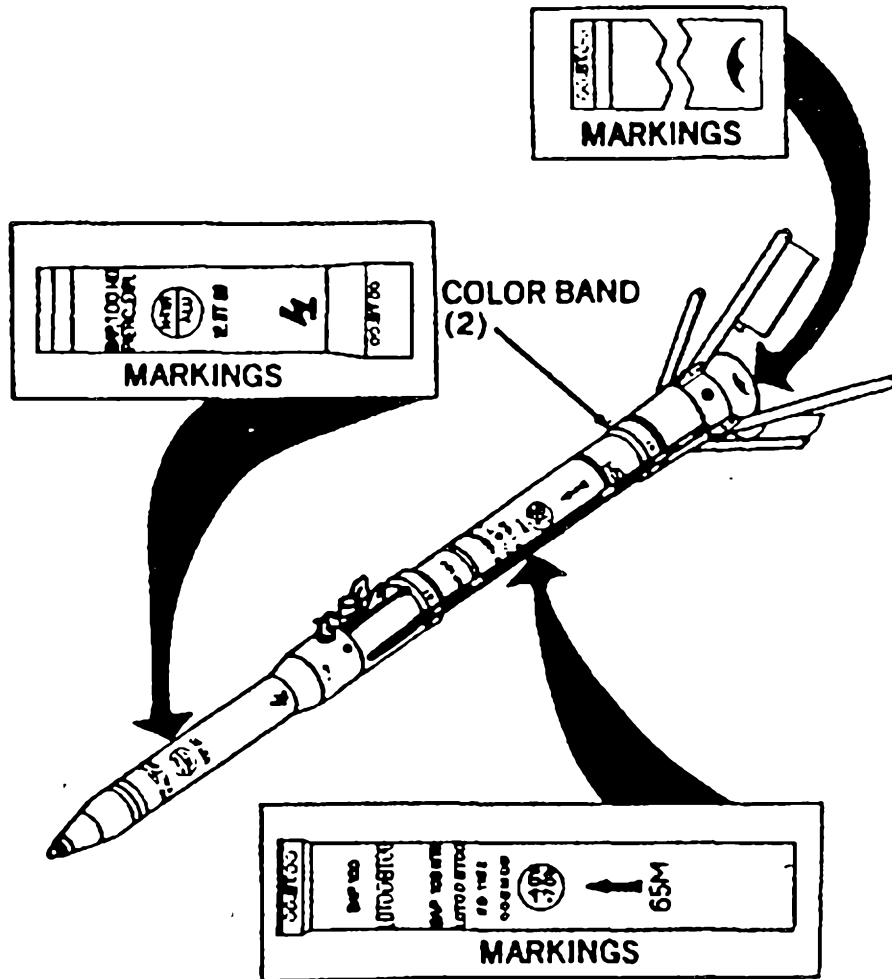
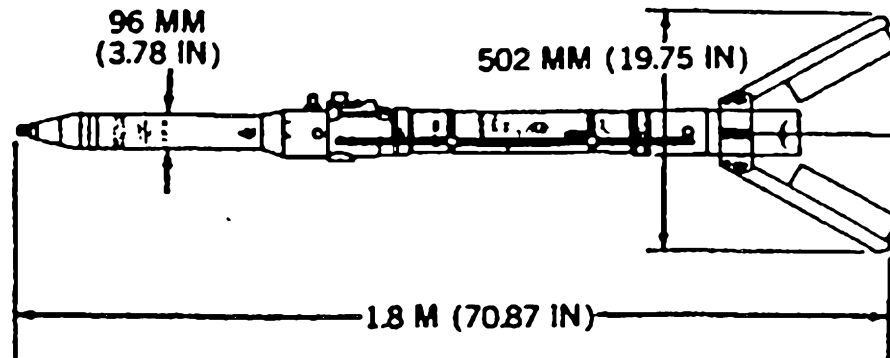


STRIM TYPE 21 SHOWN WITH STRIM 21A TAIL FIN ASSEMBLY

H-3

FOR OFFICIAL USE ONLY

French Bomb, Runway Penetrator, BAP-100 65

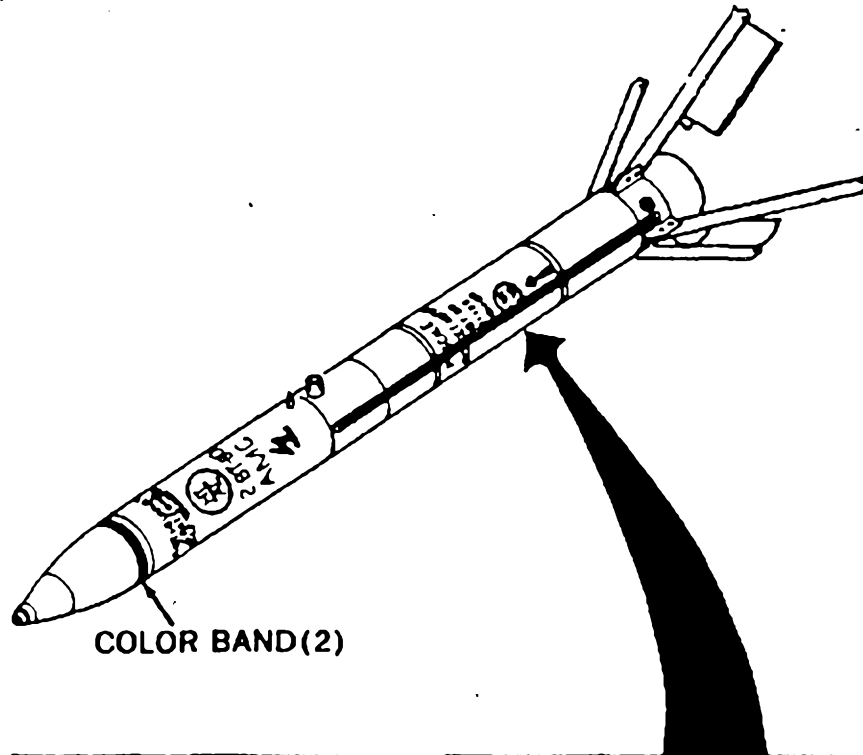
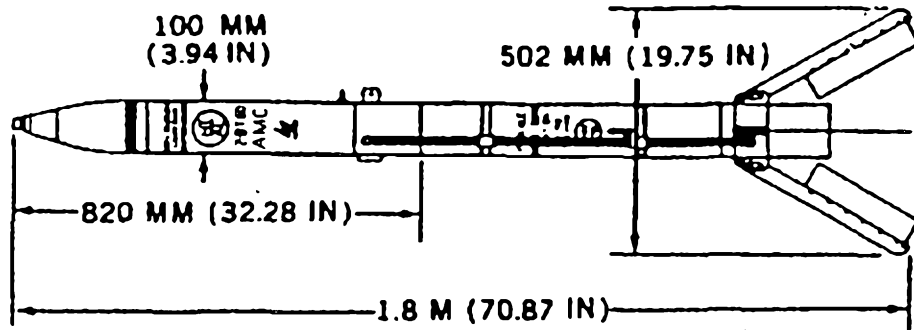


H-4

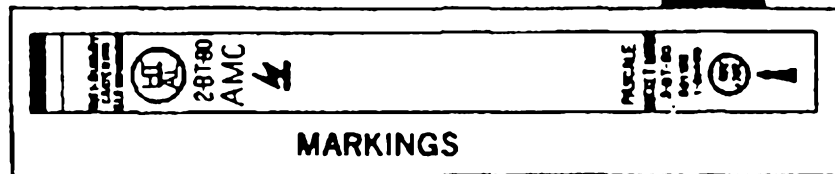
FOR OFFICIAL USE ONLY



French Bomb, Runway Penetrator, BAP-100 M2



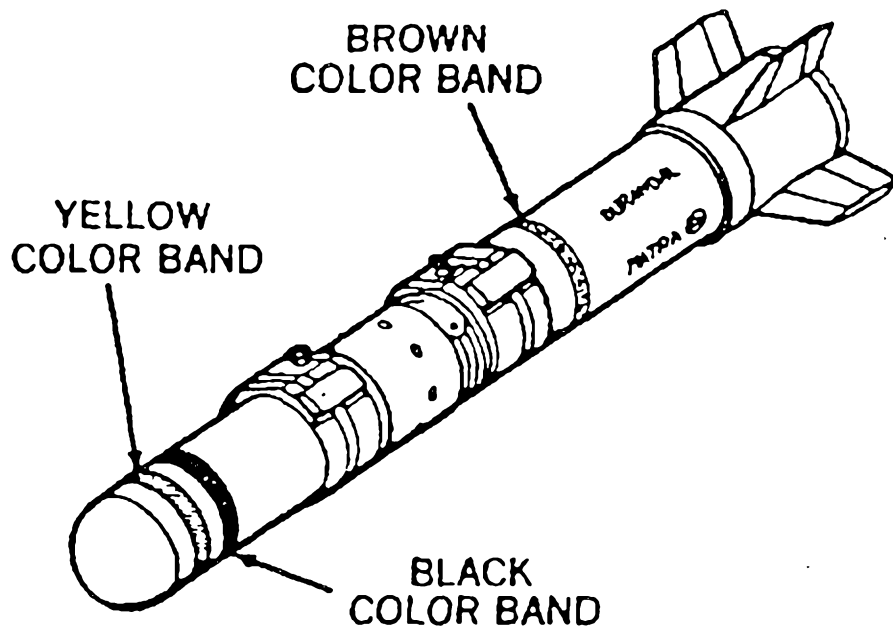
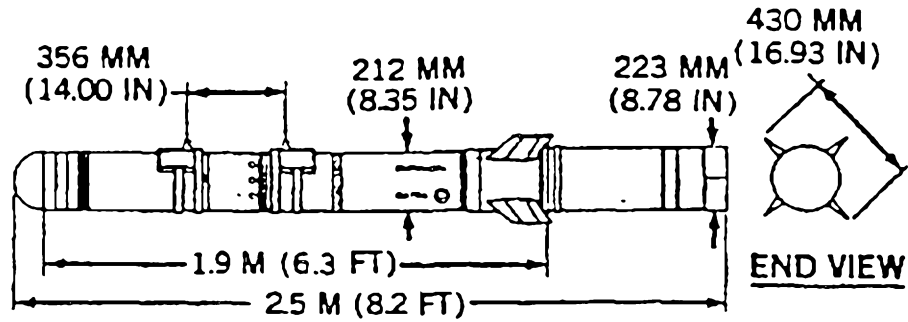
COLOR BAND (2)



H-5

FOR OFFICIAL USE ONLY

French Bomb, Target Penetration, 220-KG, Durandal



H-6

FOR OFFICIAL USE ONLY

French Bomb, 400-KG, STA, Type 200

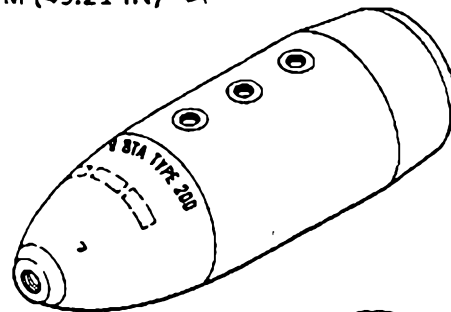
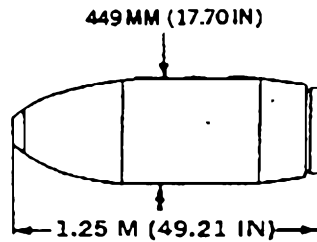
Fuzes:

Nose:

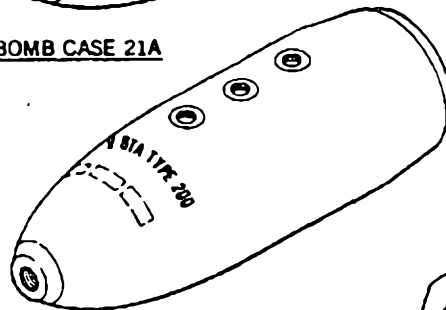
STA Type 11A
MATRA Type 19
M904E2

Tail:

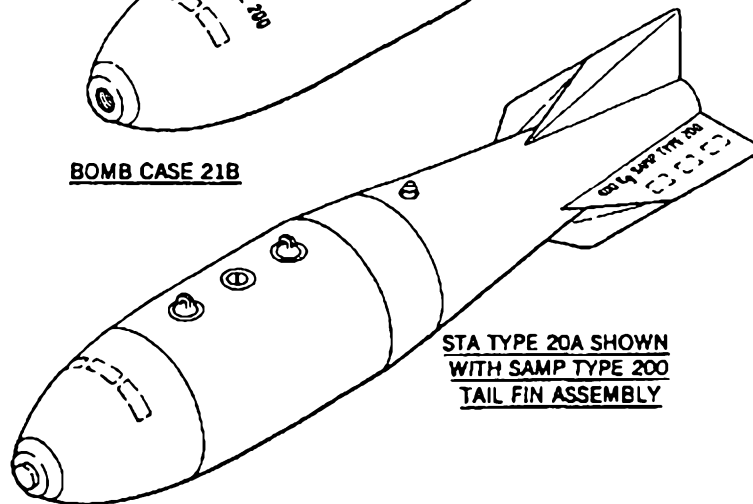
EB Type 28
EM Type 30
MATRA Type 20
MATRA Type
200 Assembly



BOMB CASE 21A



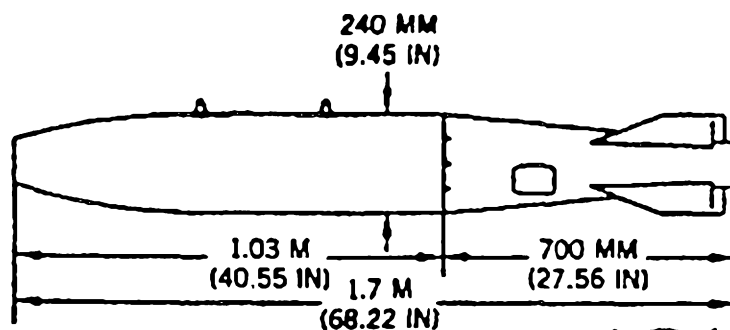
BOMB CASE 21B



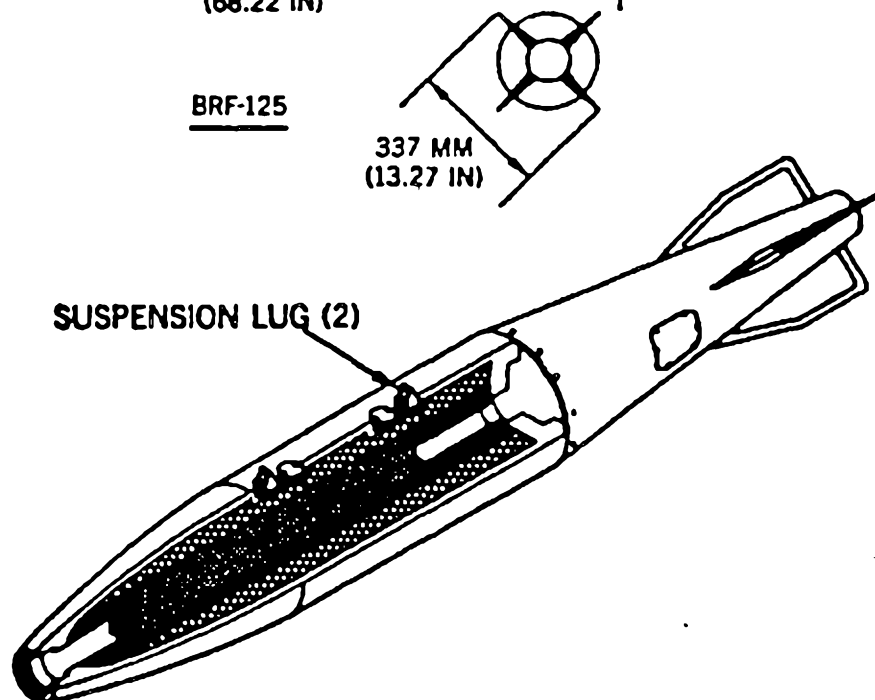
H-7

FOR OFFICIAL USE ONLY

Spanish Bomb, Frag, Models BRF-125, BRF-250, BRF-500, BRF-1000



Fuzes:
MU-05, Nose
MU-08, Tail
MU-09, Nose
EPB 1A, VT
GRL, Transverse
GRC, Tail



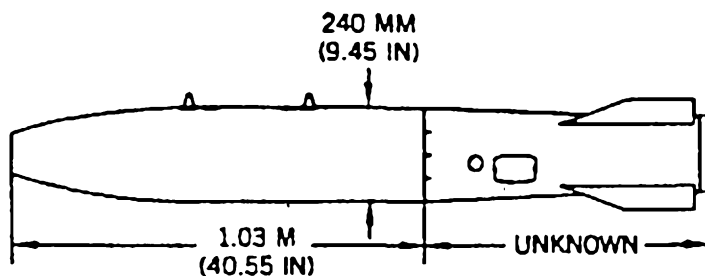
NOTE:

- (1) THIS IS A LOW-DRAG FREE-FALL FRAGMENTATION BOMB. THE BOMB IS COMPOSED OF A FORGED NOSE WELDED TO THE ROLLED BODY. THE TAIL IS BOLTED TO THE BODY. THE FRAGMENTARY ELEMENT IS 18,000 STEEL BALLS PLACED BETWEEN THE BODY AND THE EXPLOSIVE CHARGE.
- (2) NUMERALS IN NOMENCLATURE INDICATE BOMB WEIGHT
- (3) DETAILS AND DIMENSIONS FOR THE BRF-250, 500, AND 1,000 ARE UNKNOWN.

H-8

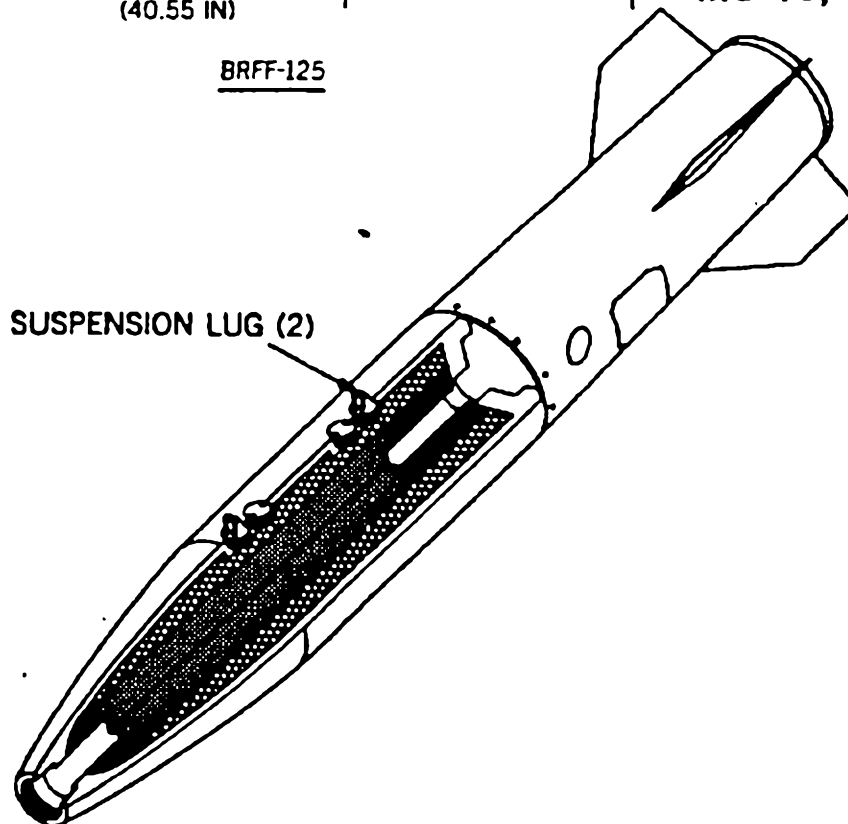
FOR OFFICIAL USE ONLY

Spanish Bombs, Frag, Models BRFF-125, BRFF-250 BRFF-500, BRFF-1000



BRFF-125

Fuzes:
MU-05, Nose
MU-09, Nose
EPB 1A, VT
GRL, Transverse
MU-08, Tail
GRC, Tail
MU-16, VT



NOTE:

(1) THIS IS A LOW-DRAG PARACHUTE RETARDED FRAGMENTATION BOMB. THE BOMB IS COMPOSED OF A FORGED NOSE WELDED TO THE ROLLED BODY. THE TAIL IS BOLTED TO THE BODY. THE FRAGMENTARY ELEMENT IS 18,000 STEEL BALLS PLACED BETWEEN THE BODY AND THE EXPLOSIVE CHARGE.

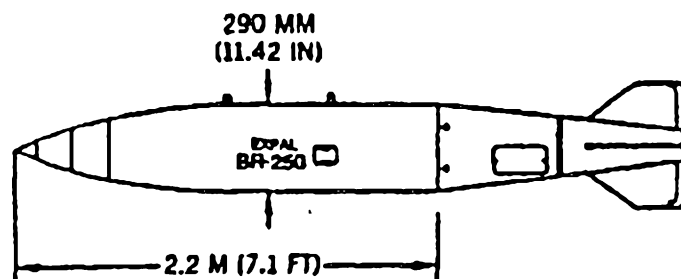
(2) NUMERALS IN NOMENCLATURE INDICATE BOMB WEIGHT.

(3) DETAILS AND DIMENSIONS FOR THE BRFF-250, 500, AND 1,000 ARE UNKNOWN.

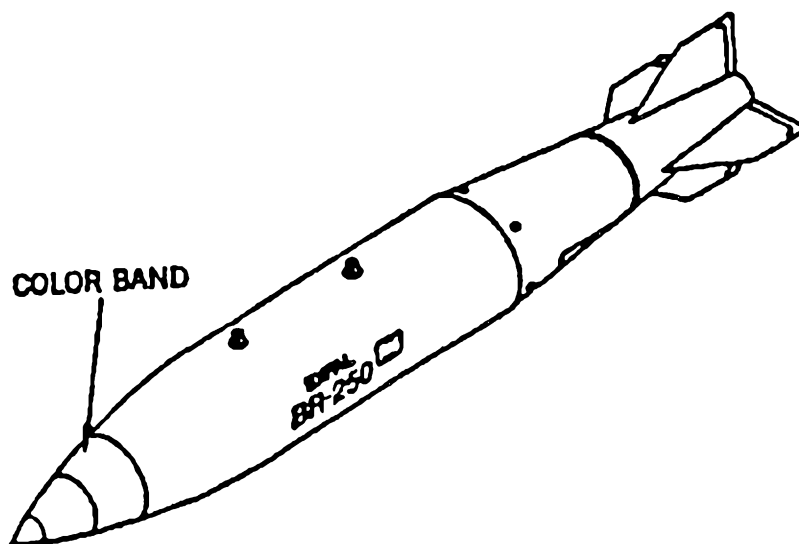
H-9

FOR OFFICIAL USE ONLY

Spanish Bomb, GP, Model BR-250



Fuzes:
MU-05, Nose
MU-09, Nose
VTB-1A, Nose
VT, Nose
MU-08, Tail
GRC Series, Tail

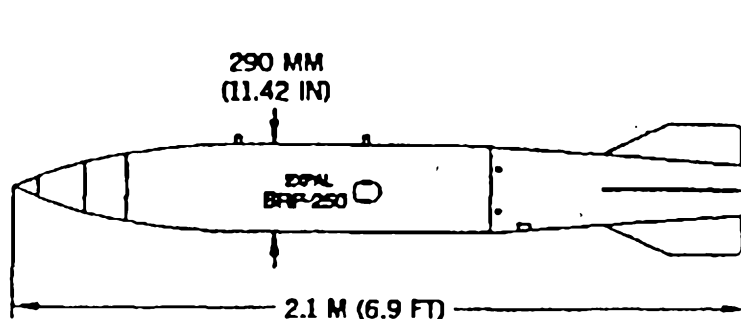


- NOTE: (1) THIS LOW DRAG, FREE FALL, GENERAL PURPOSE BOMB IS INTENDED FOR RELEASE FROM MODERN GROUND ATTACK AIRCRAFT. IT IS HIGHLY VERSATILE AND CAN ACCOMMODATE MANY FUZES FOR DIFFERENT PURPOSES.
- (2) THIS BOMB IS SIMILAR TO THE US MK 80 SERIES. THE TAIL UNIT CAN BE REPLACED BY A PARACHUTE TAIL UNIT. THE BOMB CONTAINS A TRANSVERSE FUZE WELL THAT IS NOT USED IN THE FREE FALL MODE. THE SUSPENSION LUGS ARE BOTH WARSAW PACT AND NATO STANDARD.
- (3) THE BOMB IS OLIVE DRAB WITH YELLOW MARKINGS AND A YELLOW COLOR BAND. THE PRACTICE BOMB IS BLUE WITH WHITE MARKINGS AND A WHITE COLOR BAND IS FILLED WITH AN INERT FILLER.

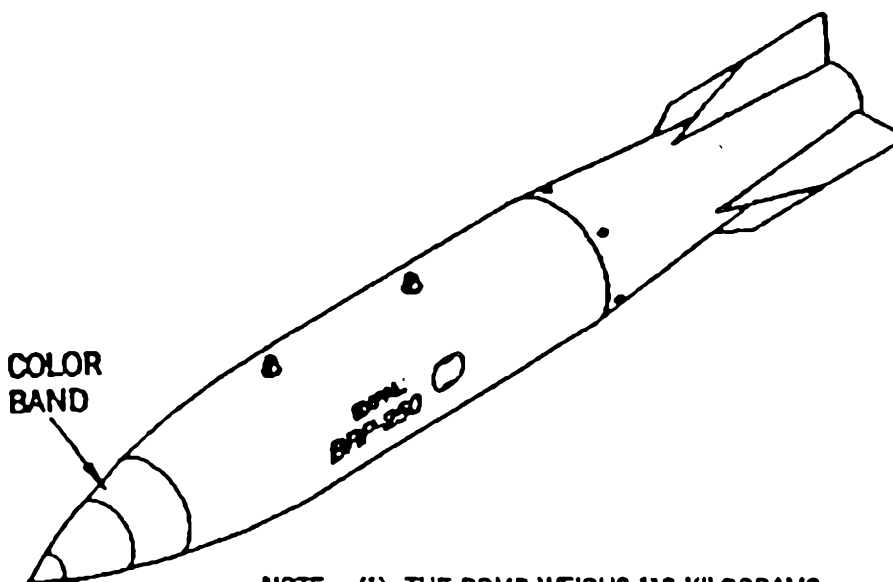
H-10

FOR OFFICIAL USE ONLY

Spanish Bomb, GP, Parachute Retarded, BRP-250



Fuzes:
KAPPA-III, Nose
EP-516, VE,
Nose
GRL, Transverse

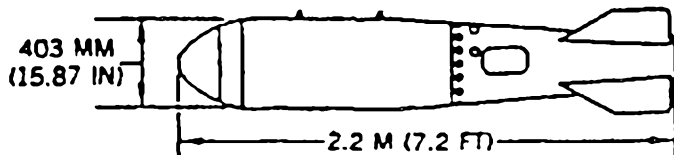


- NOTE: (1) THE BOMB WEIGHS 113 KILOGRAMS (250.0 POUNDS) AND CONTAINS TNT, OR AN INERT CHARGE FOR TRAINING.
- (2) THIS BOMB WAS DEVELOPED TO BE RELEASED AT A LOW ALTITUDE. IT IS HIGHLY VERSATILE AND CAN BE FITTED WITH A WIDE RANGE OF FUZES DESIGNED FOR DIFFERENT PURPOSES. THE NOSE CAN BE SUPPLIED WITH AN ADAPTER THAT ALLOWS FUZES PROVIDED WITH 2- AND 3.5-INCH THREADS TO BE FITTED. THE TAIL UNIT CAN BE REPLACED BY A NON-RETARDED ONE AND THE RESPECTIVE FUZES REPLACED BY THOSE USED IN THE BR SERIES.
- (3) IF THE PARACHUTE DOES NOT DEPLOY PROPERLY, THE FUZES MAY NOT FUNCTION. THE BOMB CONTAINS A TRANSVERSE FUZE WELL. THE SUSPENSION LUGS ARE BOTH WARSAW PACT AND NATO STANDARD.

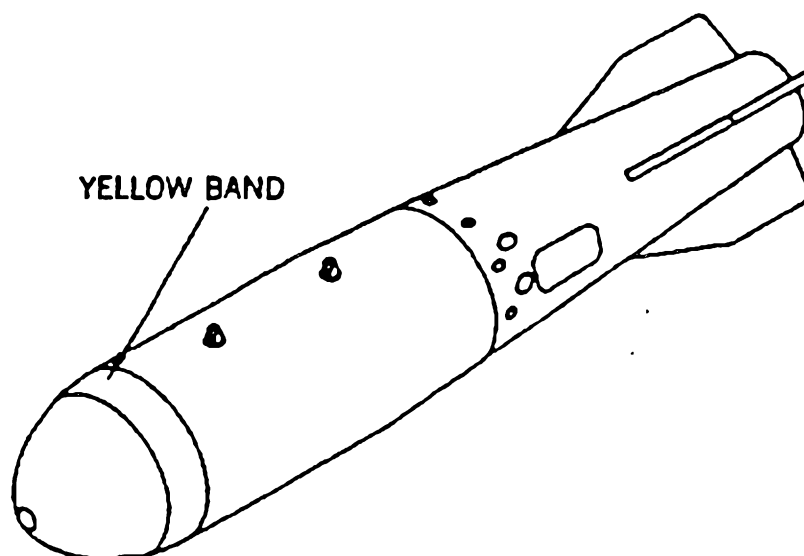
H-11

FOR OFFICIAL USE ONLY

Spanish Bomb, Parachute Retarded, Model BRIP-400



Fuzes:
KAPPA-III, Nose
VT, EP-516
GRL Series



NOTE:

(1) THE BOMB IS OLIVE DRAB WITH YELLOW MARKINGS AND A YELLOW COLOR BAND AND WEIGHS 400 KILOGRAMS (882 POUNDS). IT CONTAINS AN UNKNOWN QUANTITY OF TNT OR TRITONAL. THE PRACTICE BOMB IS BLUE WITH WHITE MARKINGS AND WHITE BAND WITH AN INERT TRAINING CHARGE.

(2) DIFFERENT FUZES CAN BE USED ACCORDING TO THE TYPE OF TARGET. THE BOMB WAS DEVELOPED TO BE RELEASED AT LOW ALTITUDES BUT, IT IS HIGHLY VERSATILE AND CAN BE TRANSFORMED INTO A FREE-FALL BOMB AND CAN BE FITTED WITH MANY DIFFERENT FUZES DESIGNED FOR DIFFERENT PURPOSES. THE NOSE CAN BE SUPPLIED WITH AN ADAPTER THAT ALLOWS FUZES PROVIDED WITH 2- AND 3.5-INCH THREADS TO BE FITTED. IF THE PARACHUTE DOES NOT DEPLOY PROPERLY, THE FUZE WILL NOT FUNCTION AND THE BOMB WILL NOT EXPLODE. TRANSVERSE FUZING IS USED WITH THIS BOMB.

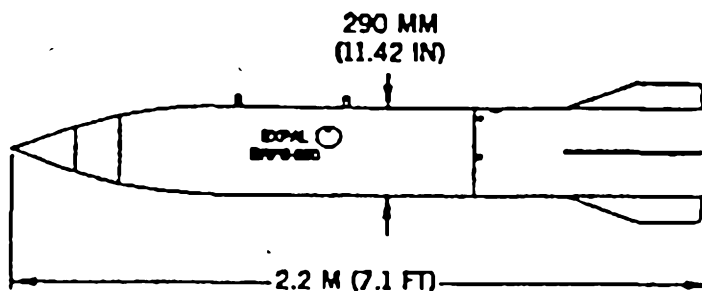
(3) SUSPENSION LUGS ARE BOTH WARSAW PACT AND NATO STANDARD.

FOR OFFICIAL USE ONLY

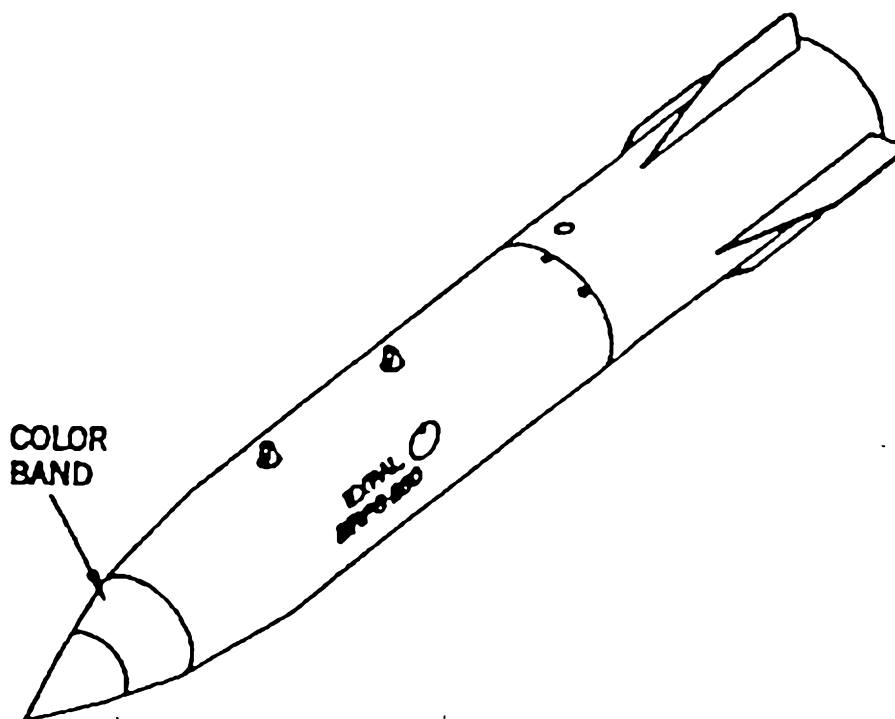
H-12



Spanish Bomb, Parachute Retarded, Model BRPS-250



Fuzes:
EP-516, VT, Nose
EROS, Nose
ERCUS, Tail
GRL, Tail
KEMA, Time



- NOTE: (1) THE BOMB WEIGHS 113 KILOGRAMS (250 POUNDS) AND CONTAINS TNT, TRITONAL, OR AN INERT FILLER FOR TRAINING.
- (2) THIS BOMB WAS DEVELOPED FOR RELEASE AT A VERY LOW ALTITUDE TO AVOID RADAR DETECTION AND AIR DEFENSE FIRE. THE NOSE CAN BE SUPPLIED WITH AN ADAPTER THAT ALLOWS FUZES PROVIDED WITH 2- AND 3.5-INCH THREADS TO BE FITTED. IF THE PARACHUTE DOES NOT DEPLOY PROPERLY, THE FUZES MAY NOT FUNCTION.
- (3) THE BOMB CONTAINS A TRANSVERSE FUZE WELL. THE SUSPENSION LUGS ARE BOTH WARSAW PACT AND NATO STANDARD.

H-13

FOR OFFICIAL USE ONLY

Spanish Bomb, GP, 400-KG, Model BRI-400



Fuzes:

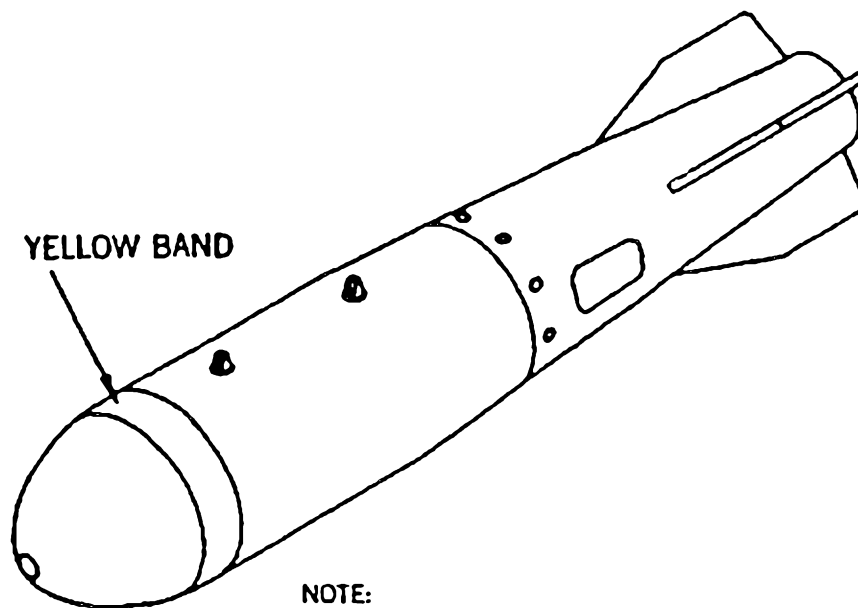
MU-05, Nose

MU-09, Nose

VTB-1A, Nose

MU-08, Tail

GRC Series, Tail



NOTE:

(1) THE BOMB IS OLIVE DRAB IN COLOR WITH YELLOW MARKINGS AND A YELLOW BAND. IT WEIGHS 400 KG (882 POUNDS) AND CONTAINS AN UNKNOWN QUANTITY OF TNT OR TRITONAL. THE PRACTICE BOMB IS BLUE WITH WHITE MARKINGS AND A WHITE BAND WITH AN INERT CHARGE.

(2) THIS IS A LOW-DRAG FREE-FALL GENERAL PURPOSE BOMB INTENDED FOR RELEASE FROM MODERN GROUND ATTACK AIRCRAFT. IT IS HIGHLY VERSATILE AND CAN BE TRANSFORMED INTO A RETARDED BOMB AND CAN ACCOMMODATE MANY FUZES FOR DIFFERENT PURPOSES. THE NOSE CAN BE SUPPLIED WITH AN ADAPTER THAT ALLOWS FUZES WITH 2- AND 3.5-INCH THREADS TO BE FITTED. THE TAIL UNIT CAN BE REPLACED BY A PARACHUTE TAIL UNIT TO TRANSFORM THE BOMB INTO A RETARDED ONE. THE BOMB CONTAINS A TRANSVERSE FUZE WELL THAT IS NOT USED IN THE FREE FALL MODE.

(3) THE SUSPENSION LUGS ARE BOTH WARSAW PACT AND NATO STANDARD.

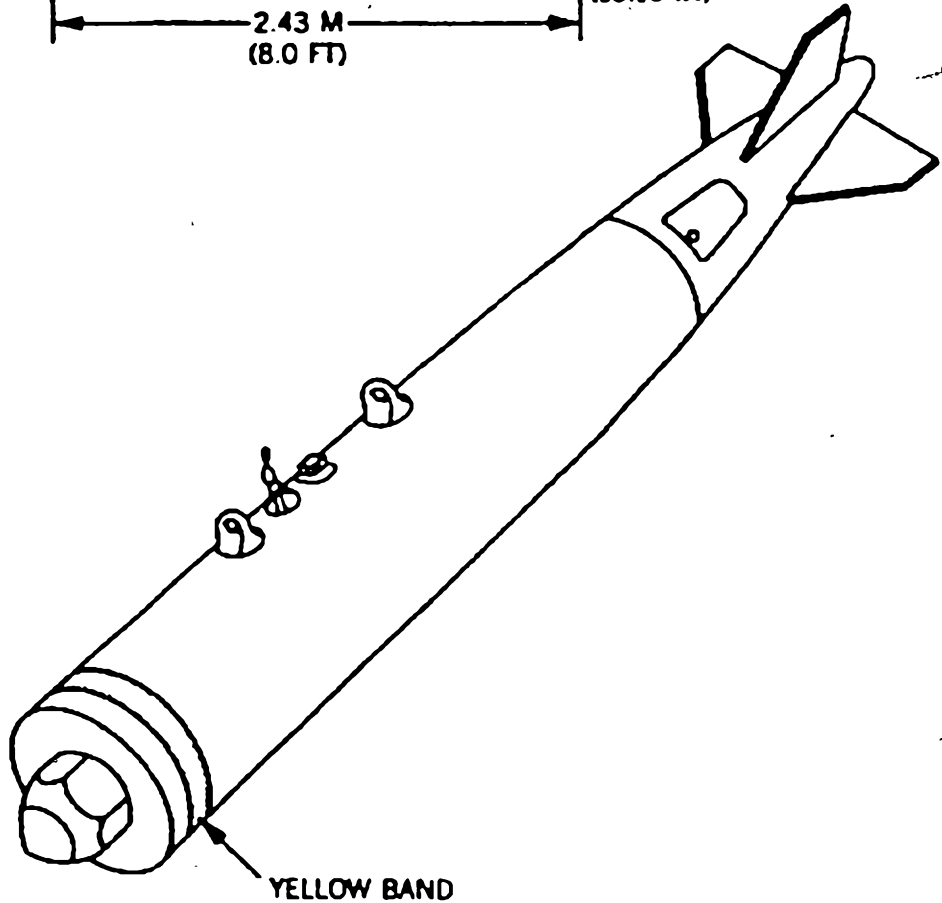
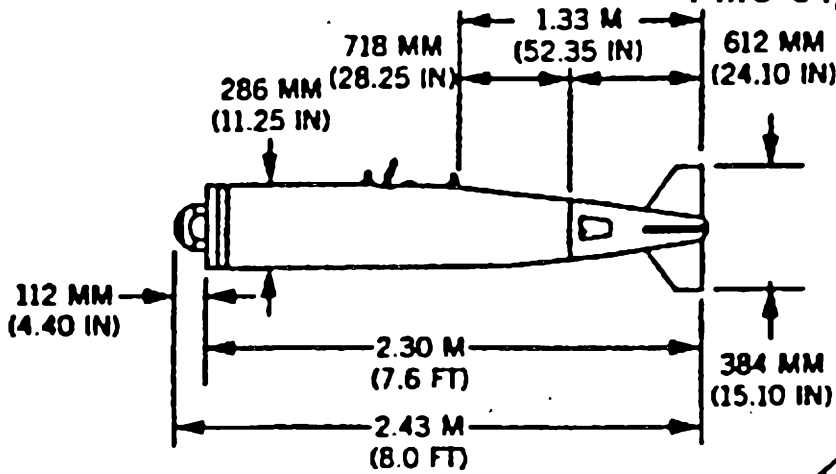
H-14

FOR OFFICIAL USE ONLY



U.S. Bomb, Demolition, BLU-31/B (Obsolete)

Fuzes:
FMU-26/B, 26A/B
FMU-30/B
FMU-35/B, 72/B
FMU-54/B
FMU-81/B

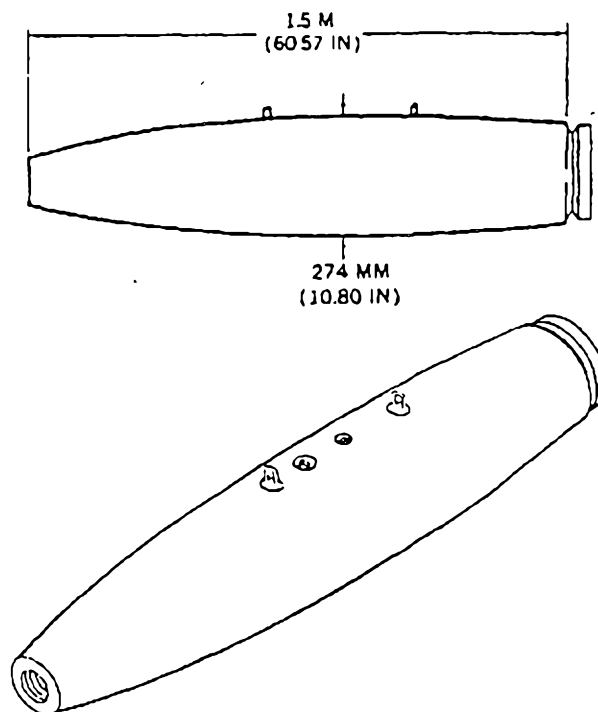


YELLOW BAND

H-15

FOR OFFICIAL USE ONLY

U.S. Bomb, GP (Low Drag), 500-lb, Mk 82



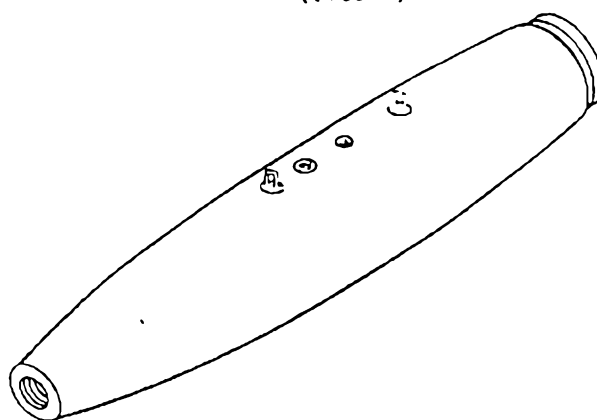
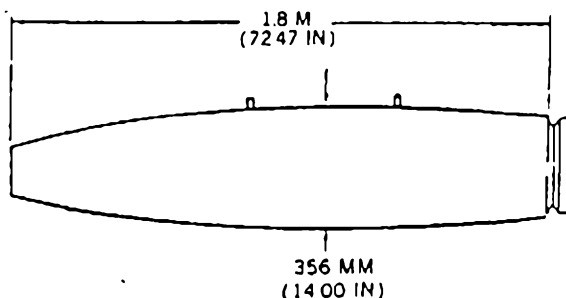
Fuzes:	M906
FMU-26/B, 26A/B, 26B/B	M990 Series
FMU-35/B, 72/B	Mk 243 Mod 0
FMU-54/B	Mk 244 Mods 0 & 1
FMU-54A/B	Mk 347 Mod 0
FMU-81/B	Mk 344 Mods 0 & 1
FMU-112/B	Mk 376 Mod 0
FMU-113/B	Mk 346
FMU-139/B	Sensing Elements:
FMU-139A/B	M20A1, M66
AN-M103A1, AN-M139A1, AN-M140A1, M140, M163, M164, M165	Target Detecting Device:
AN-M166, AN-M166E1, AN-M168, M188, M914 Series	Mk 43 Mod 0
M904E1, E2, E3, E4 M905	Fuze Extender: M1 Series (U) Destructor: Mk 36 Timer Actuator: DTU-31/B

H-16

FOR OFFICIAL USE ONLY



U.S. Bomb, GP (Low Drag), 1,000-lb, Mk 83

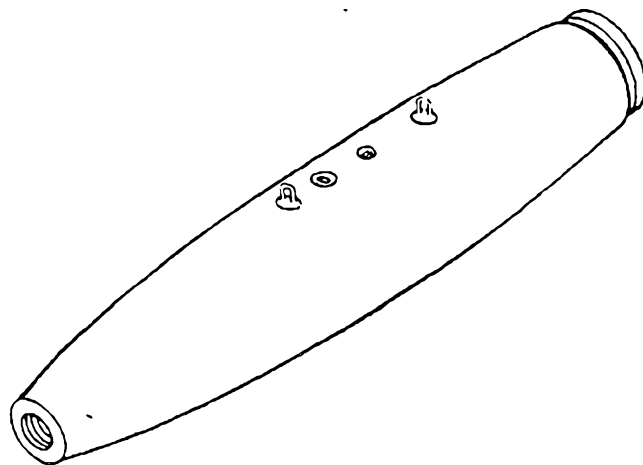
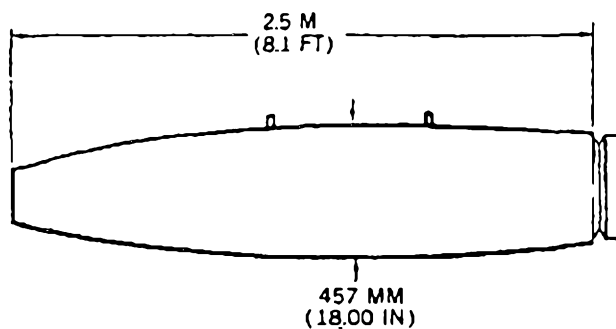


Fuzes:	M904E1, E2, E3, E4
FMU-26/B, 26A/B, 26B/B	M905
FMU-35/B, 72/B	M906
FMU-54/B	M990 Series
FMU-54A/B	Mk 243 Mod 0
FMU-81/B	Mk 244 Mods 0, 1
FMU-112/B	Mk 344 Mods 0, 1
FMU-113/B	Mk 347 Mod 0
FMU-139/B	Mk 376 Mod 0
FMU-139A/B	Mk 346
AN-M103A1, AN-M139A1, AN-M140A1	Sensing Elements: M20A1, M66
M163, M164, M165	Target Detecting Device: Mk 43 Mod 0
AN-M166, AN- M166E1, AN- M168, M188, M914 Series	Fuze Extender: M1 Series Destructor: Mk 40

H-17

FOR OFFICIAL USE ONLY

U.S. Bomb, GP (Low Drag), 2,000-lb, Mk 84



Fuzes:

FMU-26A/B, 26/B,
26B/B
FMU-35/B, 72/B
FMU-54/B
FMU-54A/B
FMU-81/B
FMU-112/B
FMU-113/B
FMU-139/B
FMU-139A/B
AN-M103A1,
AN-M139A1, AN-
M140A1, M163,
M164, M165
AN-M166, AN-M166E1,
AN-M168, M188
M914 Series
M904E1, E2, E3,
E4
M905
M906
M990 Series
Mk 243 Mod 0
Mk 244 Mods 0, 1
Mk 344 Mods 0, 1
Mk 347 Mod 0
Mk 376 Mod 0
Mk 346

Sensing Element:

M20A1, M66

Target Detecting Device:

Mk 43 Mod 0

Fuze Extender:

M1 Series

Destructor:

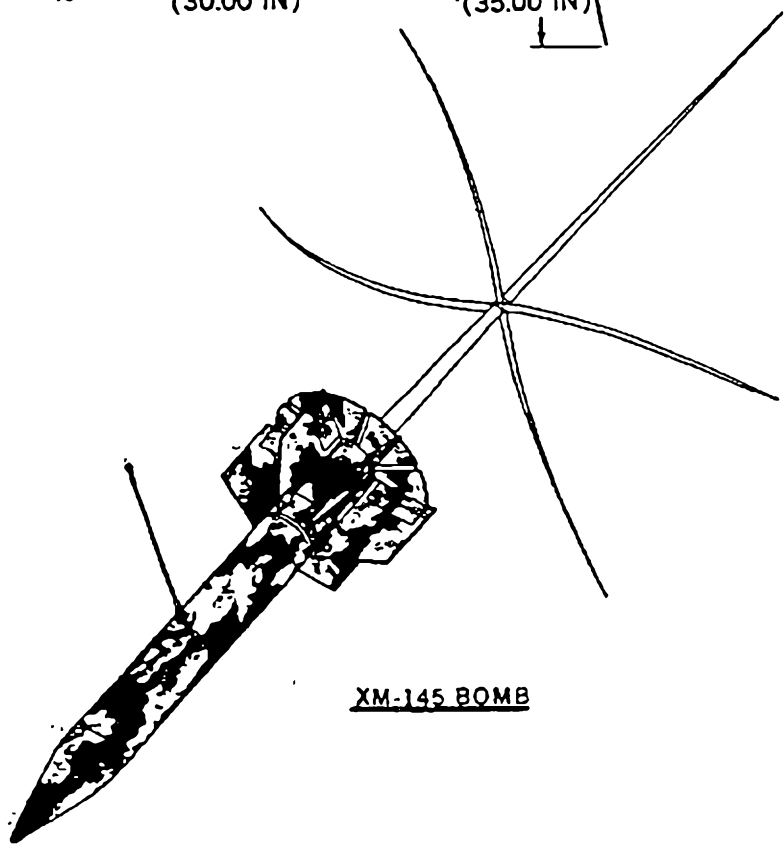
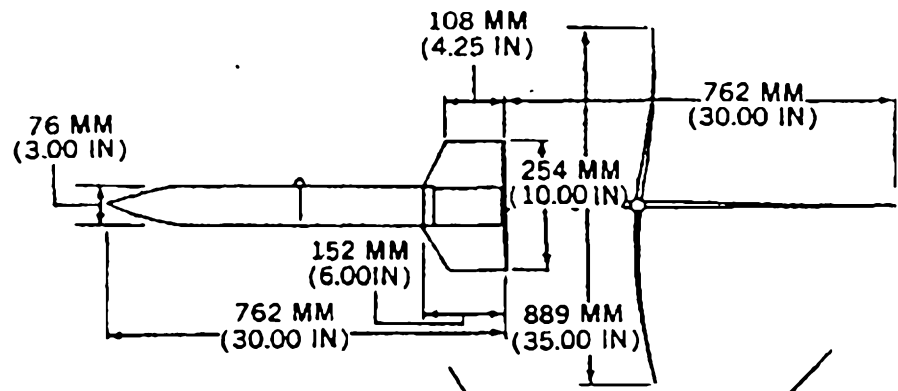
Mk 41

H-18

FOR OFFICIAL USE ONLY



U.S. Bomb, Terrain-Implantation, HE, XM145 and Sensor Intrusion Detector (ADSID)

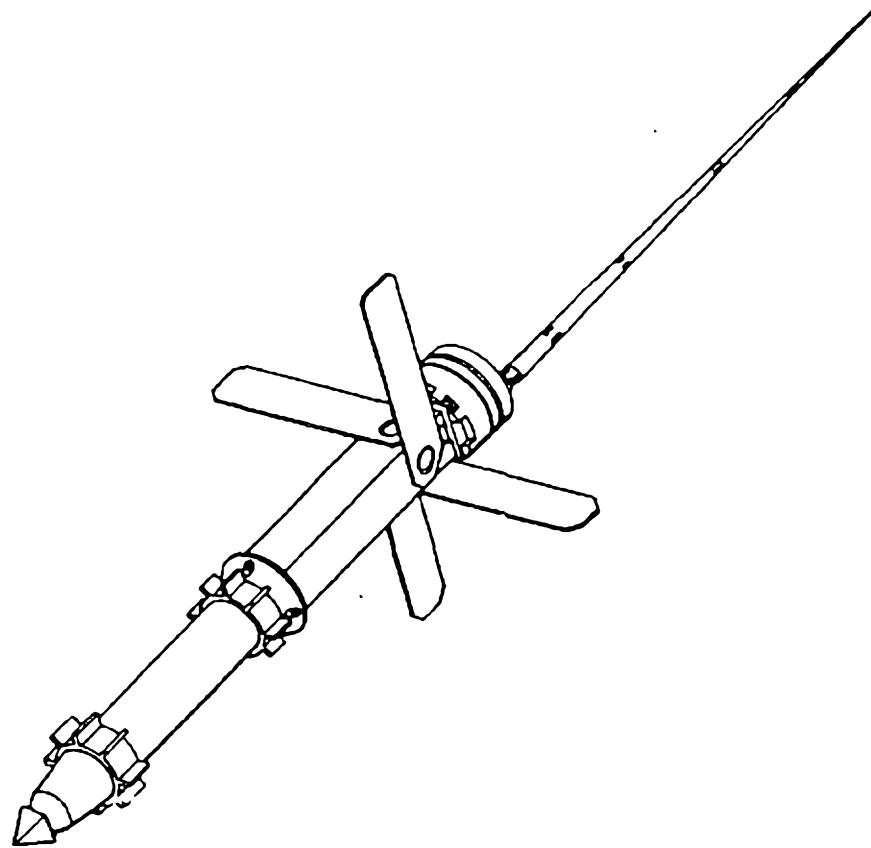
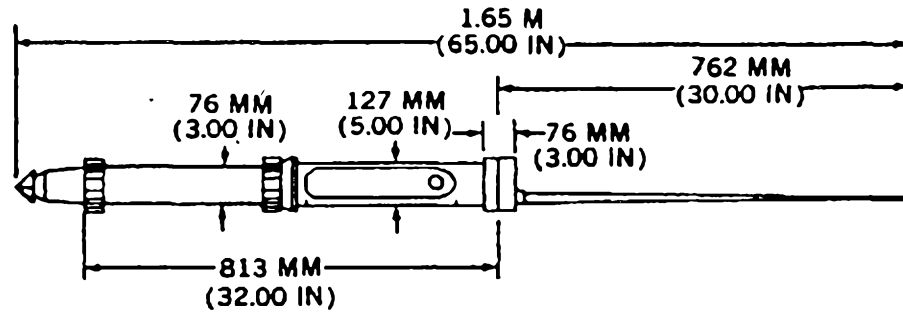


XM-145 BOMB

H-19

FOR OFFICIAL USE ONLY

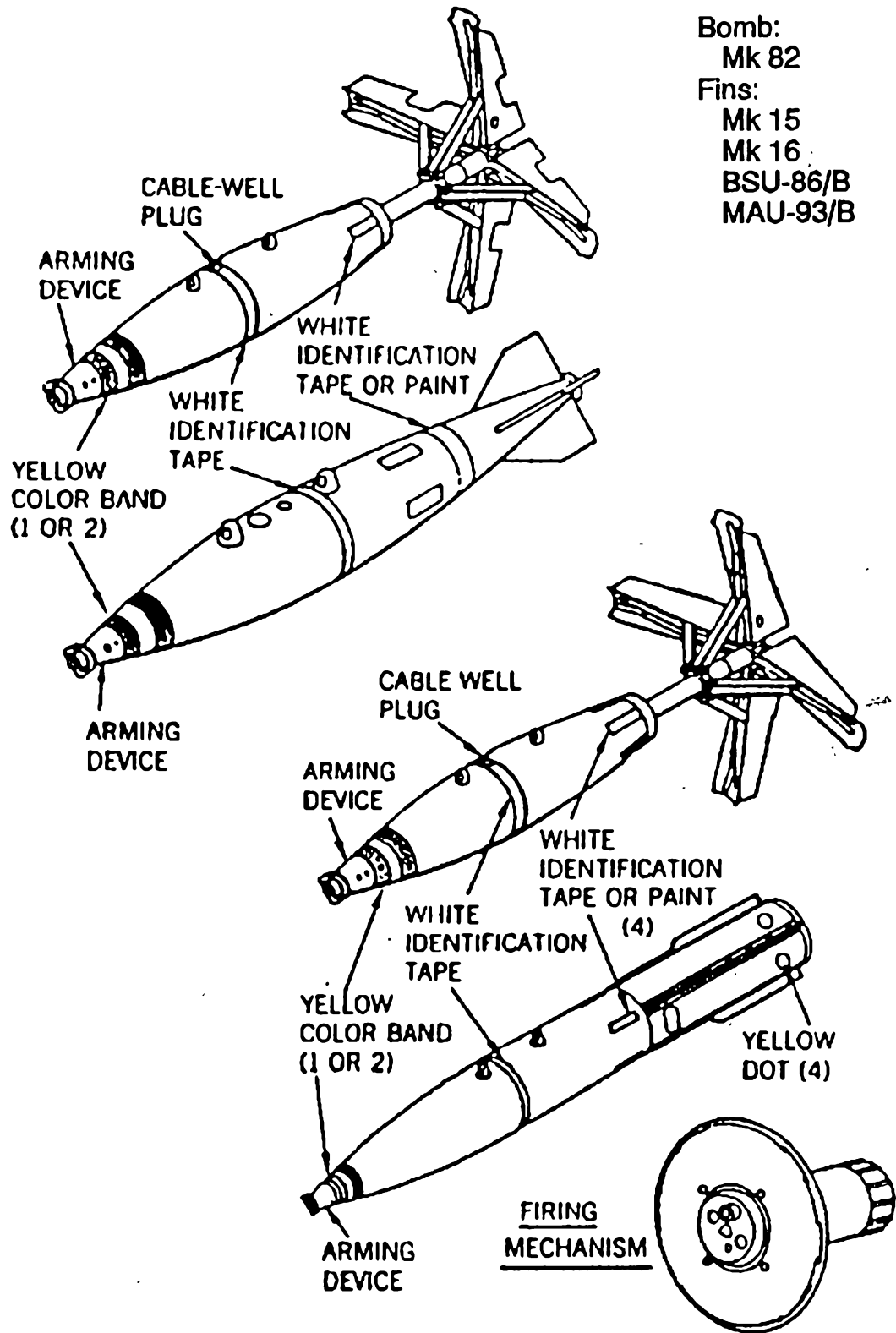
U.S. Bomb, Terrain-Implantation, HE, XM146 and Sensor Intrusion Detector (HELOSID)



H-20

FOR OFFICIAL USE ONLY

U.S. Destroyers, Mk 36 Mods 0 thru 7 and 15

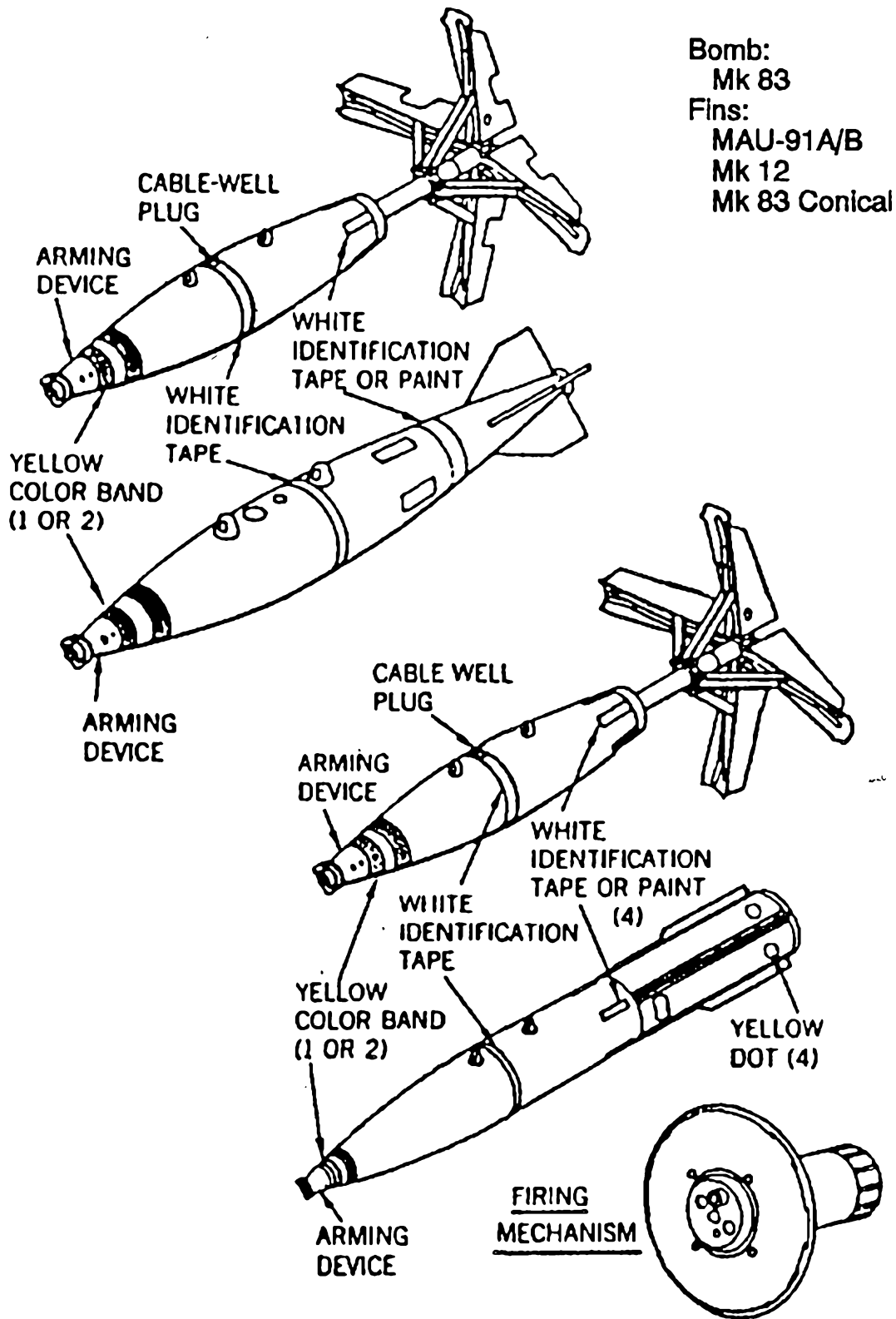


Bomb:
Mk 82
Fins:
Mk 15
Mk 16
BSU-86/B
MAU-93/B

H-21

FOR OFFICIAL USE ONLY

U.S. Destructors, Mk 40 Mods 0 thru 7 and 15



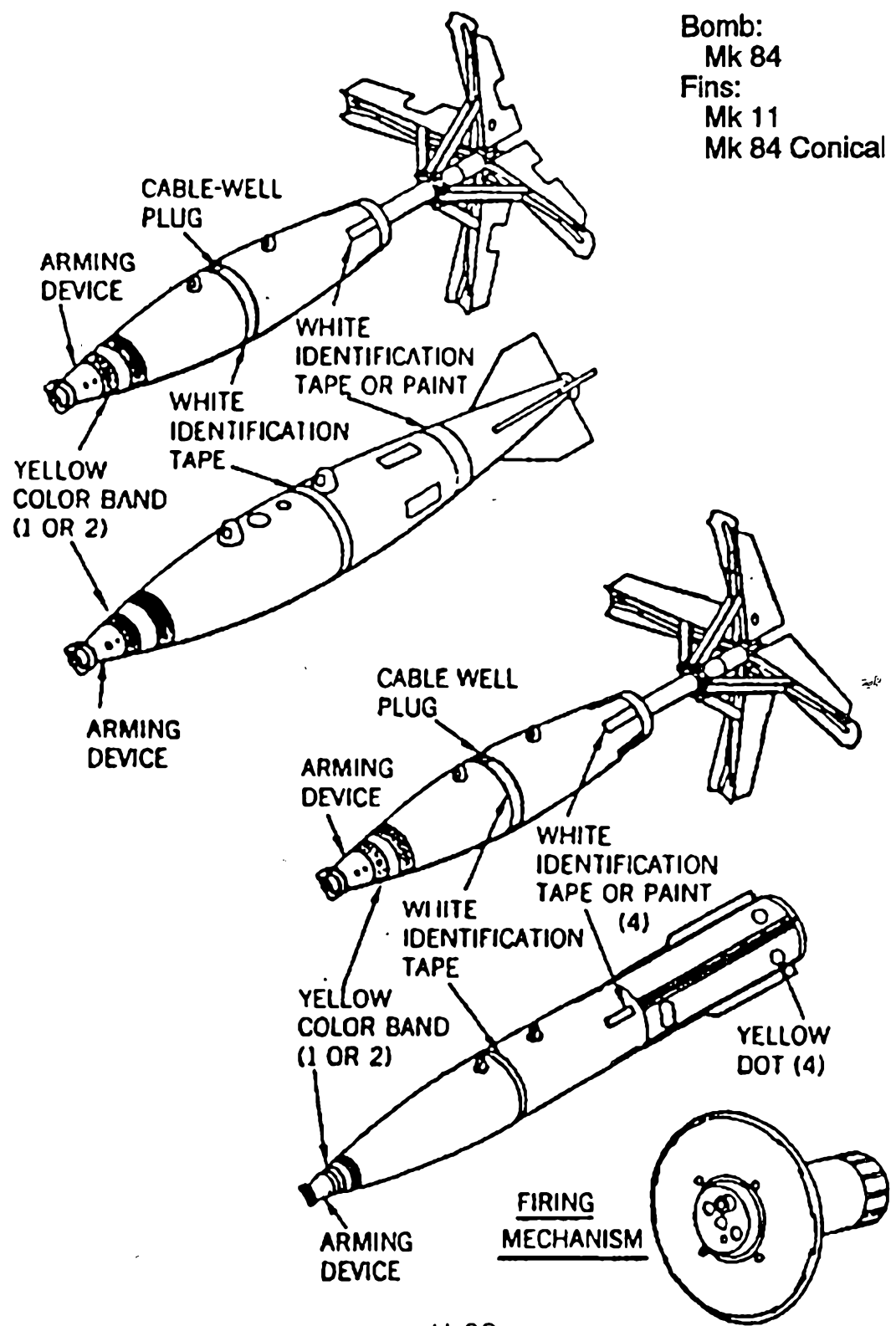
H-22

FOR OFFICIAL USE ONLY



U.S. Destructors, Mk 41 Mods 3 thru 7 and 9

Bomb:
Mk 84
Fins:
Mk 11
Mk 84 Conical



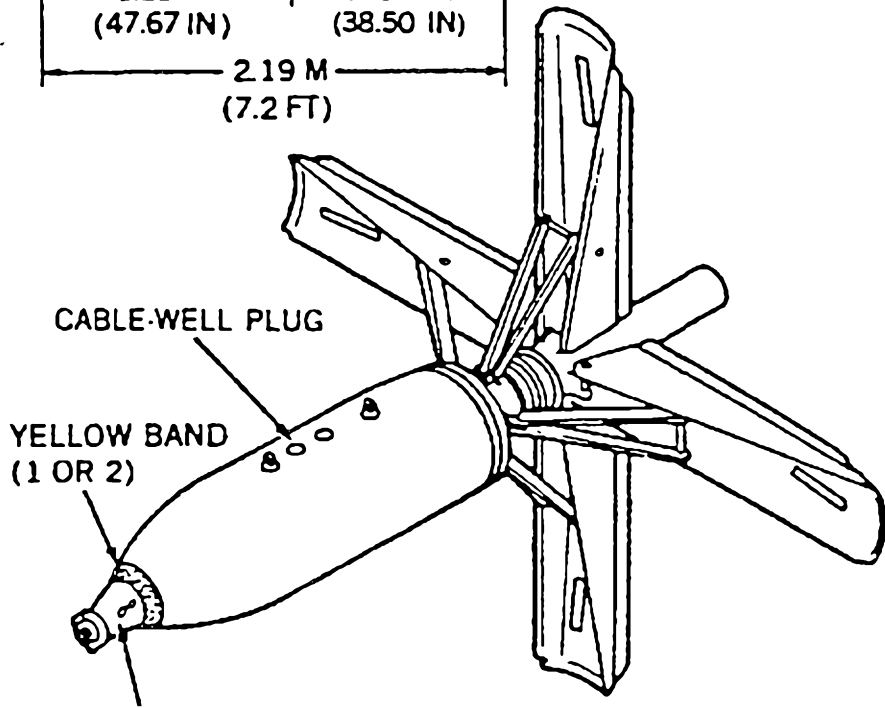
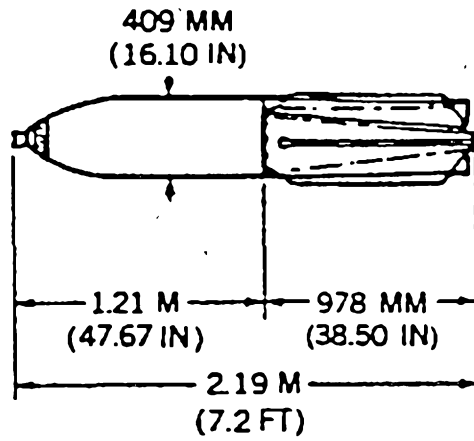
H-23

FOR OFFICIAL USE ONLY

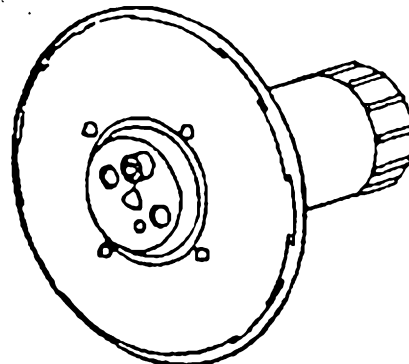
U.S. Destructor, M117/D

Bombs:
M117 Demolition

Fin:
MAU-91



MK 32 MOD 1
ARMING DEVICE



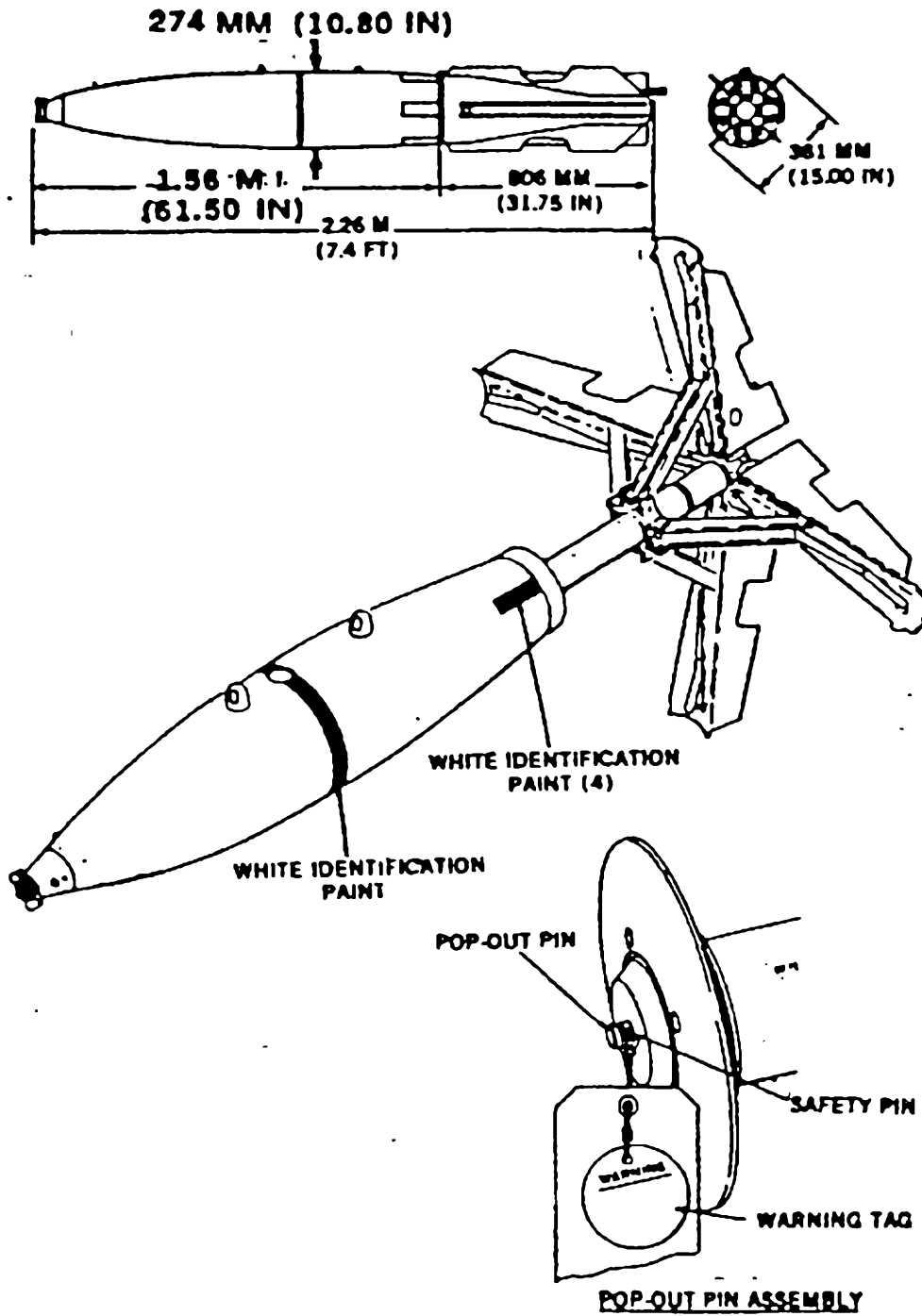
MK 42 FIRING MECHANISM
(GOLD ANODIZED)

H-24

FOR OFFICIAL USE ONLY



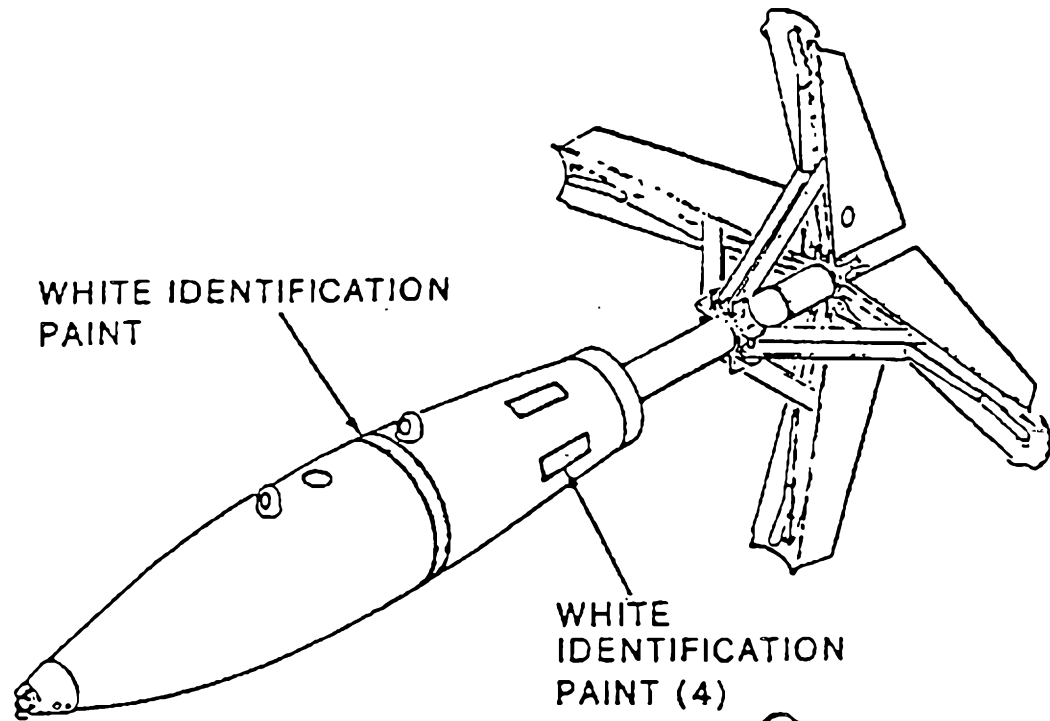
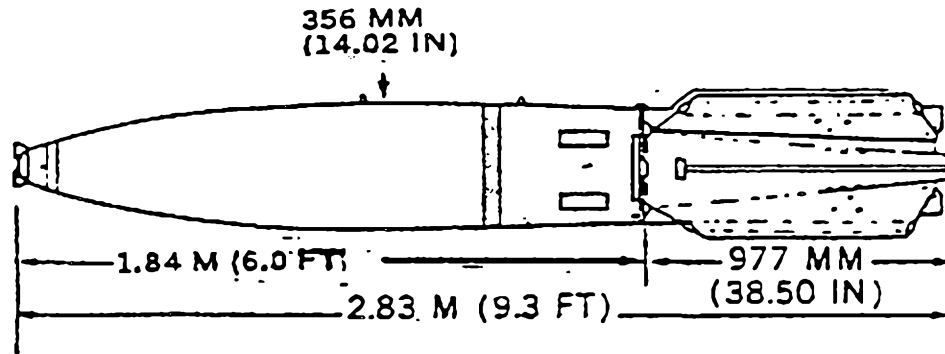
U.S. Naval Mine, Mk 62 Mod 0 (Quickstrike)



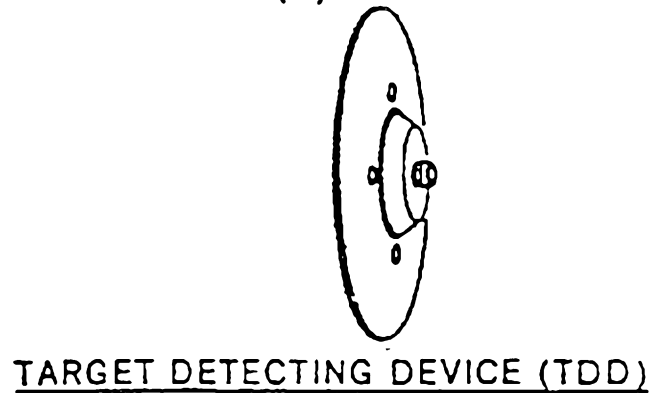
H-25

FOR OFFICIAL USE ONLY

U.S. Naval Mine, Mk 63 Mod 0 (Quickstrike)

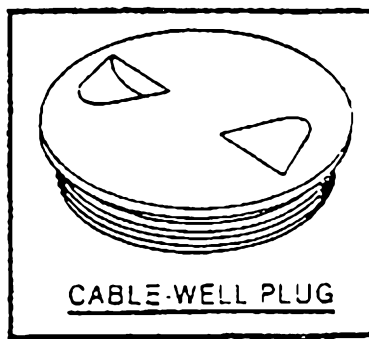
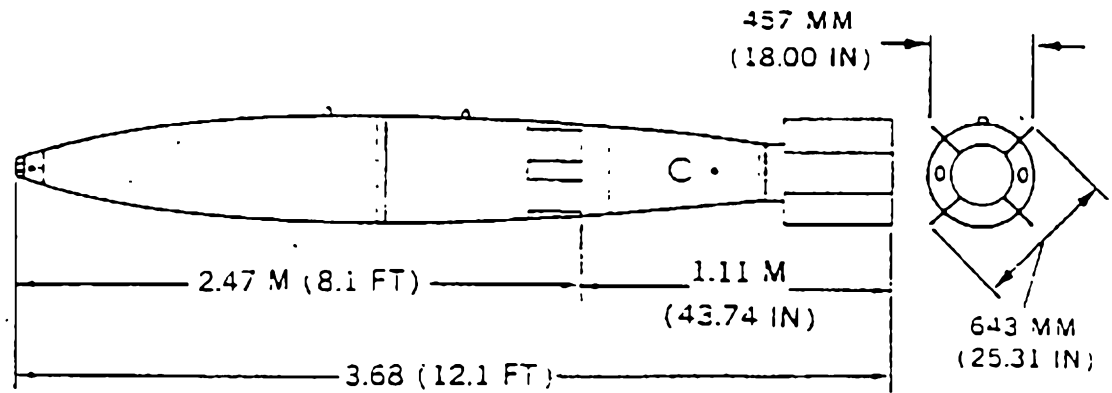


NOTE: TDD
UNDER ADAPTER

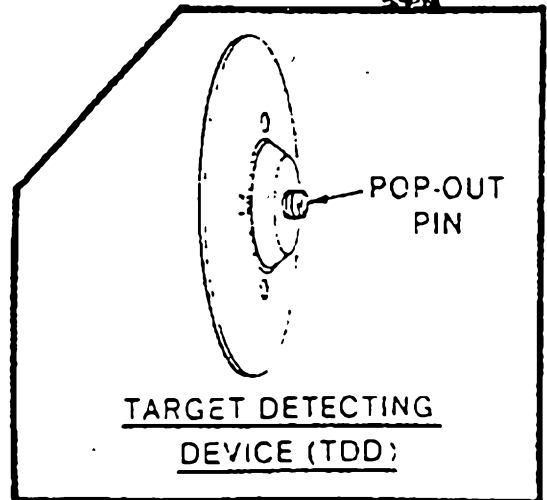
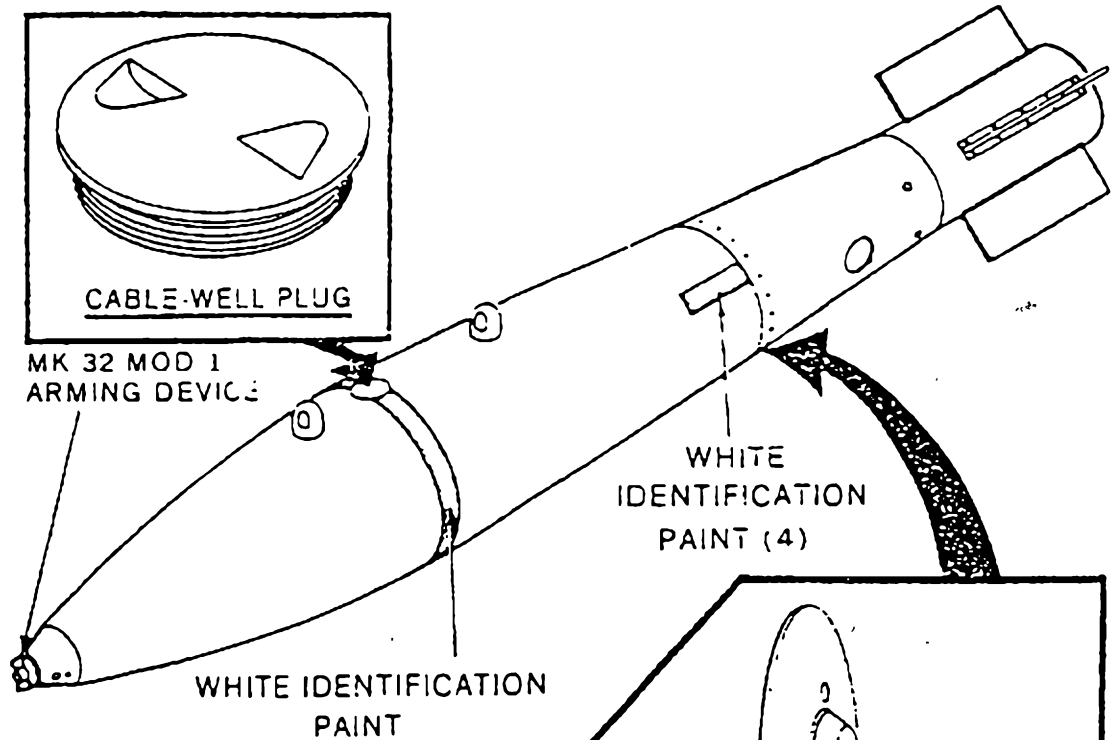


H-26
FOR OFFICIAL USE ONLY

U.S. Naval Mine, Mk 64 Mod 0 (Quickstrike)



MK 32 MOD 1
ARMING DEVICE

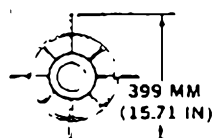
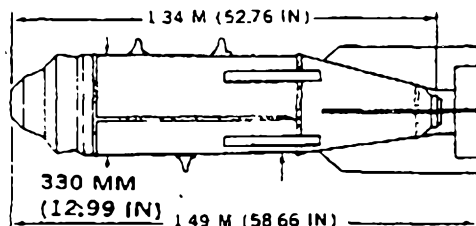


H-27

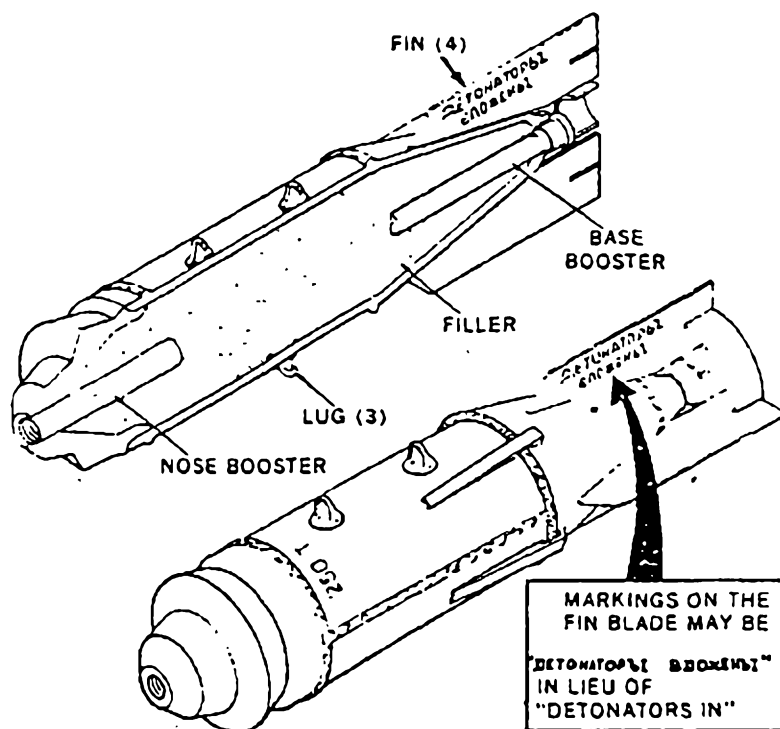
FOR OFFICIAL USE ONLY

Former U.S.S.R. Bomb, GP, FAB-250 M54

Fuzes:
APUV, APUV-1
AV-1, AV-1 d/u
AV-139-E
AVDM
AVU-E
VDV, VDV-1
VDV-2



END VIEW

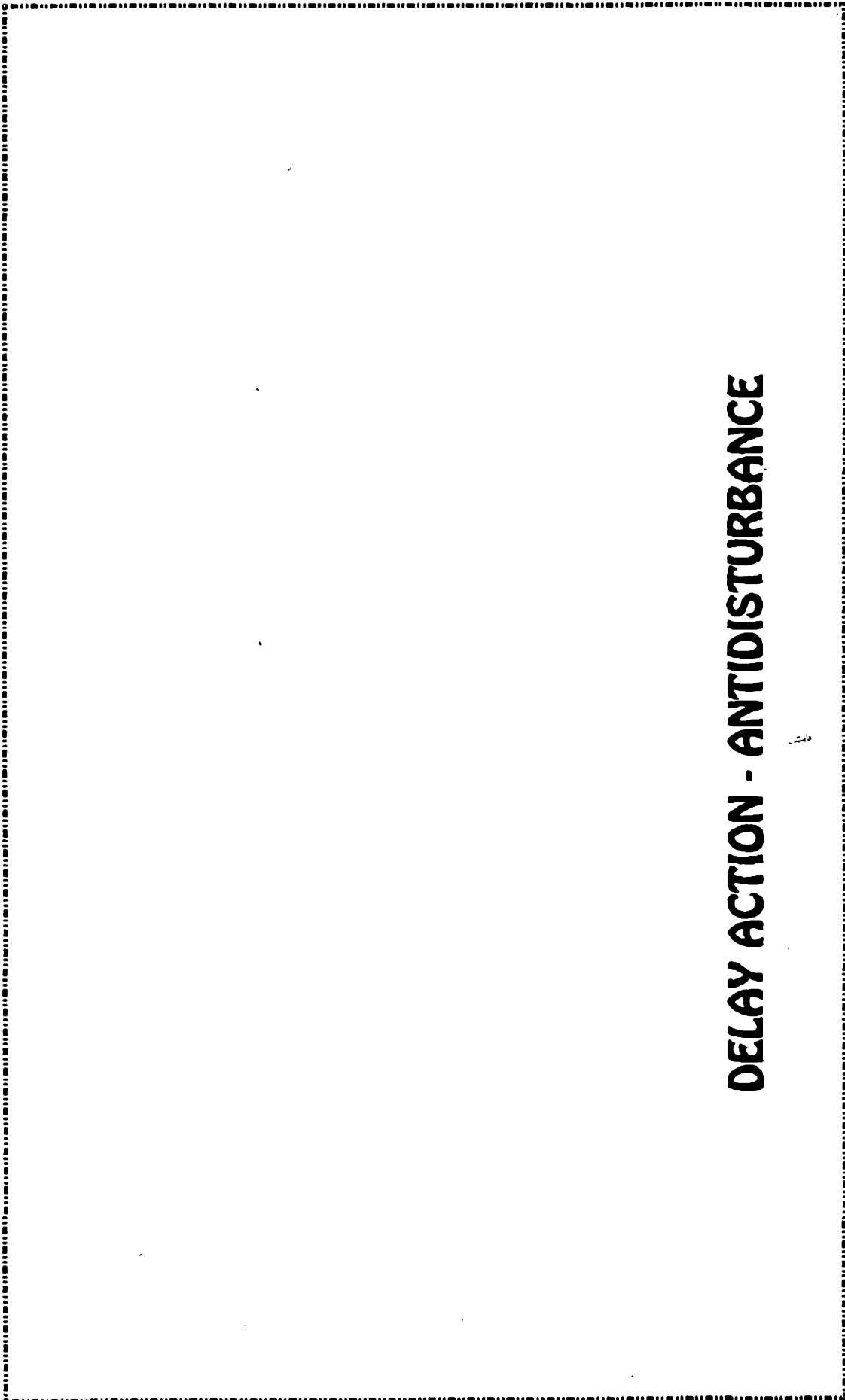


- NOTES: (1) THE STEEL BOMB IS PAINTED GRAY WITH A BLUE NOSE BAND.
(2) THE BOMB WEIGHS 234.0 KILOGRAMS (516.0 POUNDS).
(3) THE BOMB CONTAINS 96.4 KILOGRAMS (212.5 POUNDS) OF TNT.

H-28

FOR OFFICIAL USE ONLY

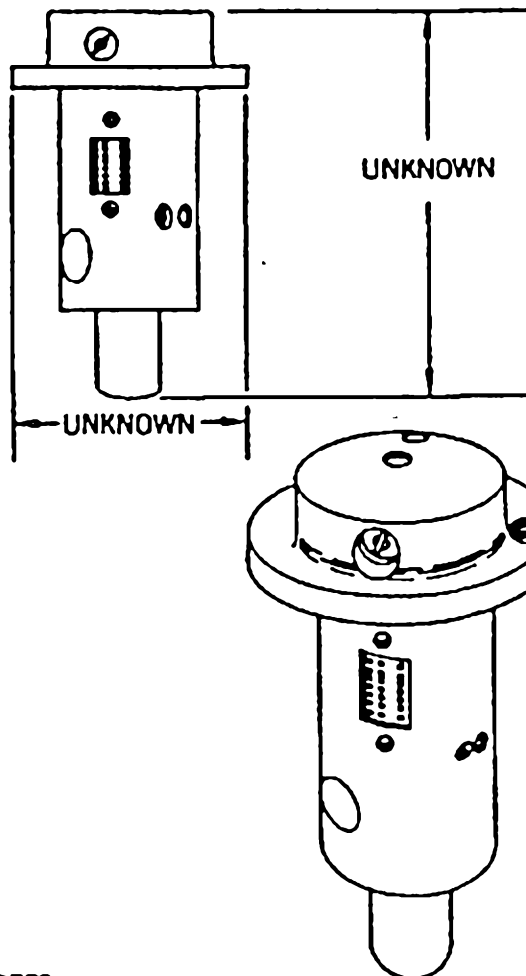
BOMB FUZES



DELAY ACTION - ANTIDISTURBANCE



Argentine Bomb Fuze, Long Delay, Model GRT



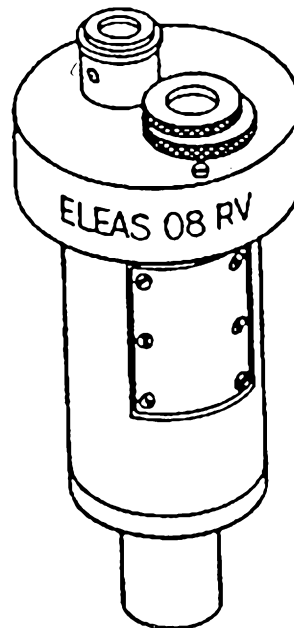
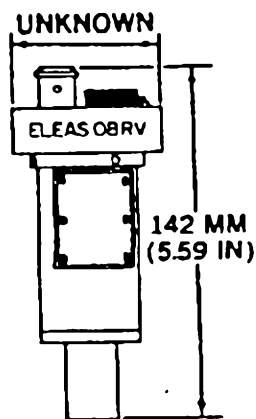
Bombs:
BRP: 50 KG,
125 KG, 250 KG,
375 KG, 500 KG,
1000 KG

NOTES:

(1) THE DETONATION TIME CAN BE PROGRAMMED USING A CODE NUMBER OF FOUR FIGURES MAXIMUM DELAY IS 9999 MINUTES. THE FUZE IS BATTERY POWERED. THE ARMING HEAD HAS A CLOCKWORK DEVICE WITH A MICROSWITCH FOR START TIME COUNTING. DURING ELECTRONIC COUNTDOWN, IF THE FUZE IS DISTURBED, THE FIRING TRAIN WILL ALIGN, THE IGNITER WILL ACTIVATE AND THE BOMB WILL DETONATE.

(2) THE FUZE HAS SHIPMENT, HANDLING AND INERTIAL SAFETY FEATURES. DECELERATION IS REQUIRED FOR ARMING WHEN USED IN BRAKED BOMBS, THIS DECELERATION IS PRODUCED WHEN THE PARACHUTE IS DEPLOYED. IT HAS IN-FLIGHT SAFETY BECAUSE OF THE ARMING WIRE THAT PREVENTS THE MICROSWITCH FROM MOVING THE FIRING TRAIN OUT-OF-LINE UNTIL THE SET TIME HAS ELAPSED.

Argentine Bomb Fuze, Transverse, Electromechanical, Delayed Action, Model ELEAS 08 RV



Bombs:
BRP: 50 KG,
125 KG, 250 KG,
500 KG

BRPS: 125 KG,
250 KG, 500 KG

FAS: 250 KG

NOTES:

- (1) THE FUZE IS ARMED ELECTRONICALLY 08 SECONDS AFTER PARACHUTE DEPLOYMENT THE DELAY PORTION OF THE FUZE WILL CAUSE INITIATION IN TIMES RANGING FROM 1.76 SECONDS TO 6 HOURS NOT ENOUGH INFORMATION EXISTS ON THE FUZE TO TELL IF IT HAS AN ANTIWITHDRAWAL OR ANTIDISTURBANCE FEATURE THEREFORE, THESE FEATURES MUST BE CONSIDERED WHEN WORKING ON THE BOMB
- (2) THE DELAY TIMES OF THE FUZE: 1.76, 7, 12 SECONDS, 15, 30, 45 MINUTES, AND 1, 3, 6 HOURS
- (3) THE FUZE IS HELD IN THE BOMB BY TWO SCREWS
- (4) THE MARKINGS ARE BLACK
- (5) THE TOTAL WEIGHT OF THE FUZE IS 680 GRAMS (1.5 POUNDS).

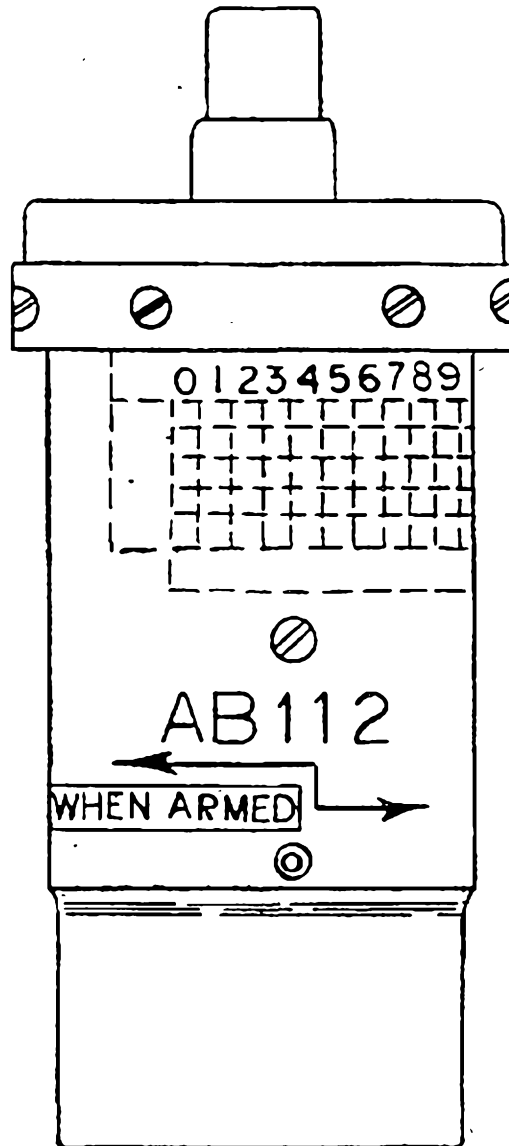
1-2

FOR OFFICIAL USE ONLY



South African Bomb Fuze, Nose & Tail, Electronic, Multioption, Model AB112

Fuze Options:
Impact
Delay
Antidisturbance



Fuze detonates on battery run down.

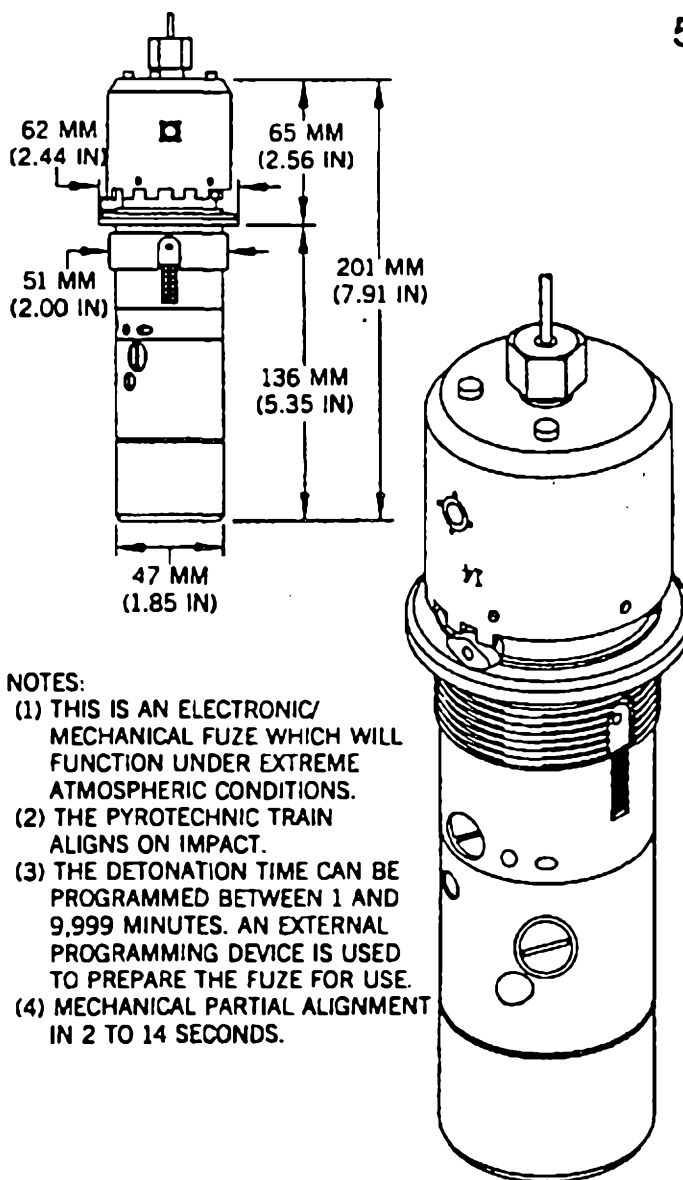
I-3

FOR OFFICIAL USE ONLY

Spanish Bomb Fuze, Tail, Long Delay, Model GRC/AR

Bombs:
BR-50, 125, 250,
375, 500, 1000

BRF-125, 250,
500, 1000



NOTES:

- (1) THIS IS AN ELECTRONIC/
MECHANICAL FUZE WHICH WILL
FUNCTION UNDER EXTREME
ATMOSPHERIC CONDITIONS.
- (2) THE PYROTECHNIC TRAIN
ALIGNS ON IMPACT.
- (3) THE DETONATION TIME CAN BE
PROGRAMMED BETWEEN 1 AND
9,999 MINUTES. AN EXTERNAL
PROGRAMMING DEVICE IS USED
TO PREPARE THE FUZE FOR USE.
- (4) MECHANICAL PARTIAL ALIGNMENT
IN 2 TO 14 SECONDS.

I-4

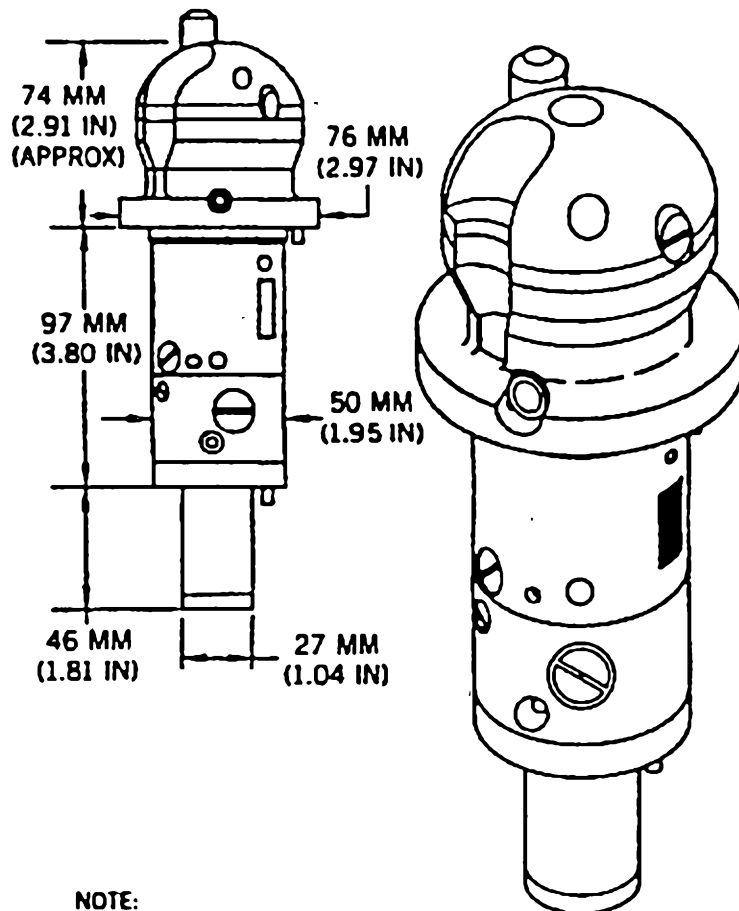
FOR OFFICIAL USE ONLY



Spanish Bomb Fuze, Transverse, Long Delay, Model GRL/AR

Bombs:
BR-50, 125, 250,
375, 500, 1000

**BRF-125, 250,
500, 1000**

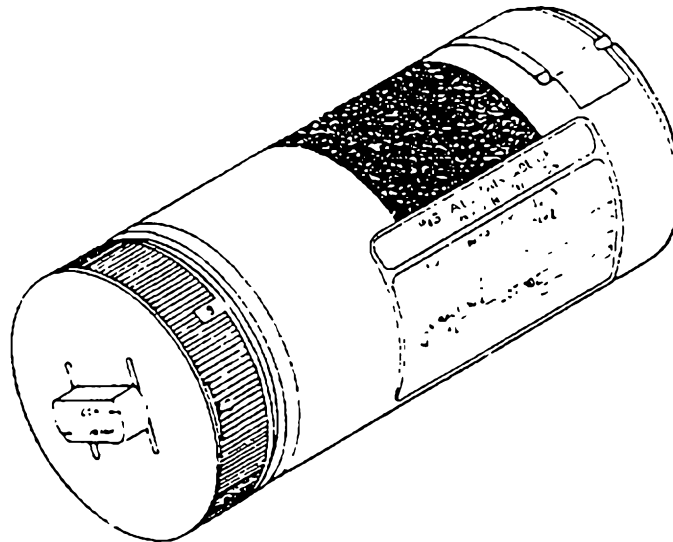
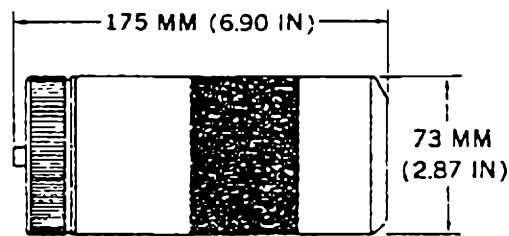


NOTE:

- (1) THIS IS AN ELECTRONIC/MECHANICAL FUZE WHICH WILL FUNCTION UNDER EXTREME ATMOSPHERIC CONDITIONS.
- (2) THE PYROTECHNIC TRAIN ALIGNS ON IMPACT.
- (3) IF THE PARACHUTE FAILS TO OPEN OR ONLY OPENS PARTIALLY, OR BREAKS FOLLOWING OPENING, THE FUZE WILL NOT ARM
- (4) THE DETONATION TIME CAN BE PROGRAMMED BETWEEN 1 AND 9,999 MINUTES. AN EXTERNAL PROGRAMMING DEVICE IS USED TO PREPARE THE FUZE FOR USE.
- (5) ELECTRONIC COUNTDOWN DOES NOT BEGIN UNTIL IMPACT.
- (6) THE FUZE WEIGHS APPROXIMATELY 950 GRAMS (2.1 POUNDS).

U.S. Bomb Fuze, Nose & Tail, Electronic, Long Delay, Antidisturbance, FMU-35/B (Obsolete)

Bombs:
BLU-31/B
M117 Series
M118
Mks 81, 82, 83, 84

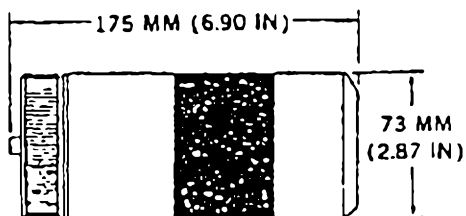


I-6

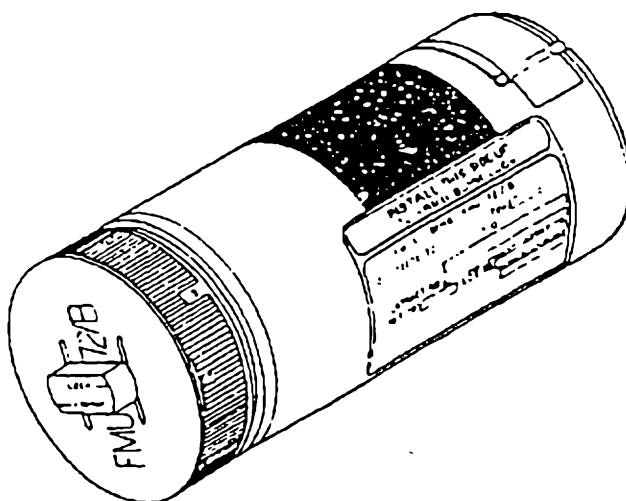
FOR OFFICIAL USE ONLY



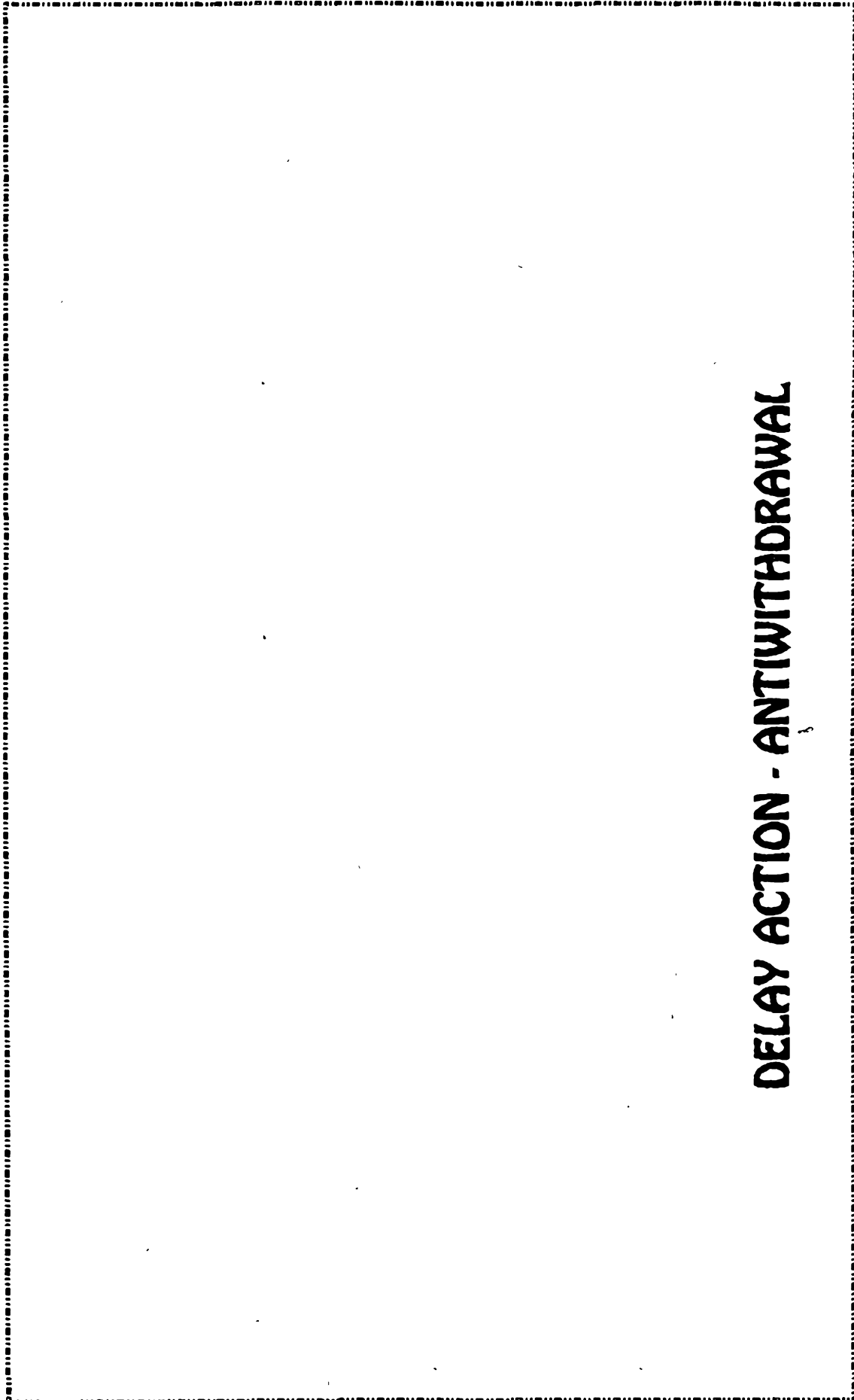
U.S. Bomb Fuze, Nose and Tail, Electronic, Long Delay, Antidisturbance, FMU-72/B



Bombs:
BLU-31/B
M117 Series
M118
Mks 81, 82, 83, 84
GBU-10



(U) Do not use fuze accessories (lanyard locks or adjusters, conical closure plugs, closure rings, streamlined and/or hexagonal plugs) as positive identification features for the FMU-35/B and FMU-72/B fuzes. These accessories are used with other internal electronic short-delay, electronic long-delay, antidisturbance and influence FMU series fuzes.

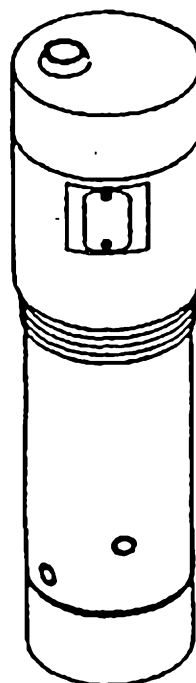
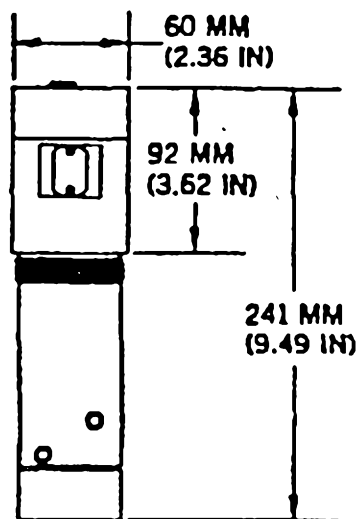


DELAY ACTION - ANTIWITHDRAWAL



Spanish Bomb Fuze, Tail, Delayed Action, Model INFA RR

Bombs:
Retarded, HE
125-500 KG

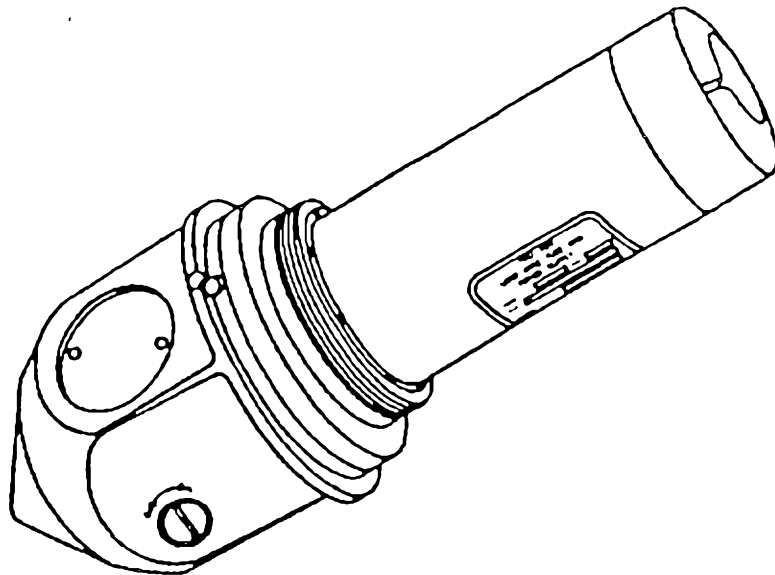
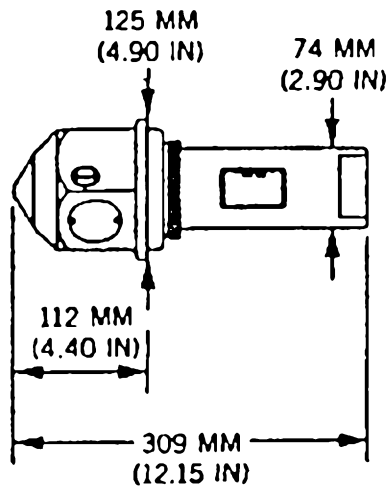


NOTES:

- (1) THE FUZE HAS A PROGRAMMABLE DELAY FROM 30 SECONDS TO 36 HOURS. IT IS INTENDED FOR USE WITH RETARDED BOMBS DURING LOW-LEVEL ATTACKS. NOT ENOUGH INFORMATION EXISTS ON THE FUZE TO DETERMINE IF IT HAS AN ANTI-WITHDRAWAL OR ANTIDISTURBANCE FEATURE. THEREFORE, THESE FEATURES MUST BE CONSIDERED WHEN WORKING ON THE BOMB.
- (2) THE FUZE REQUIRES DECELERATION TO ARM.
- (3) THE TOTAL WEIGHT OF THE FUZE IS 1.4 KILOGRAMS (3.1 LBS.).

U.S. Bomb Fuze, Nose, FMU-30/B (Obsolete)

Bombs:
BLU-31/B



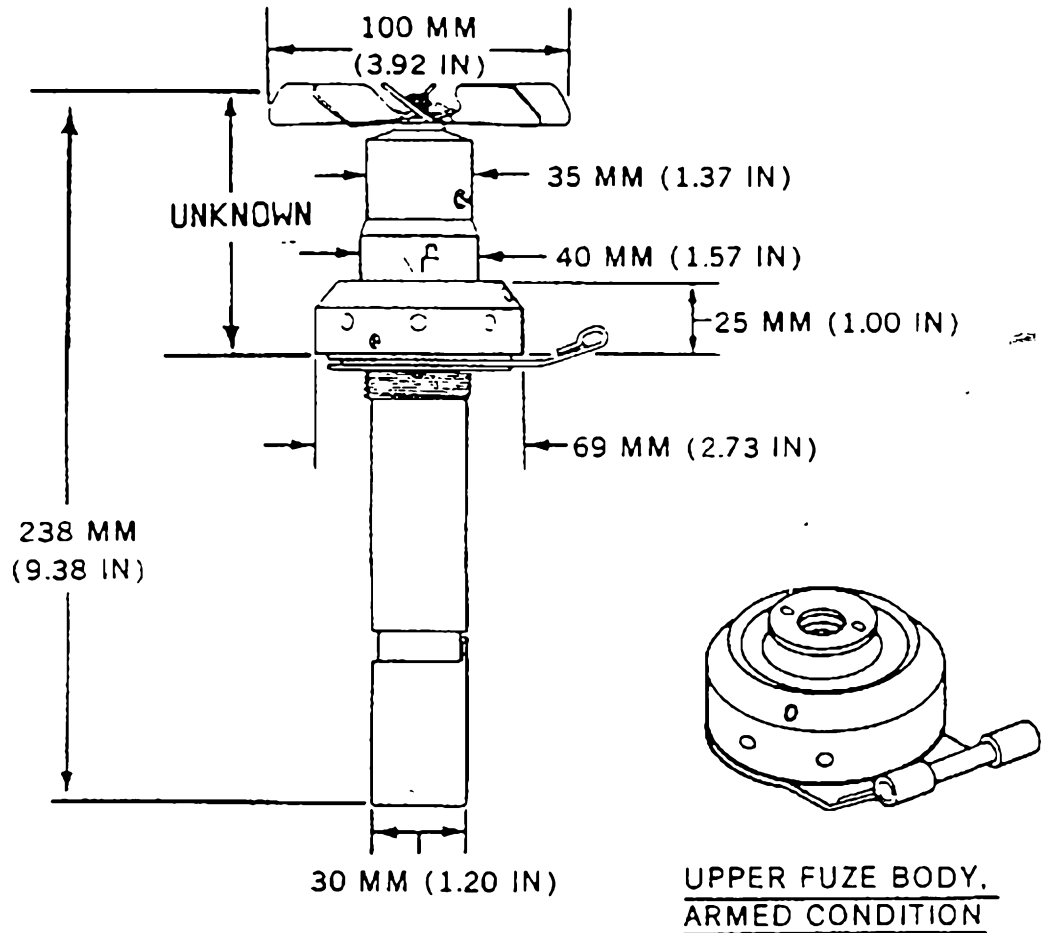
I-9

FOR OFFICIAL USE ONLY



Former U.S.S.R. Bomb Fuze, Tail, AVDM

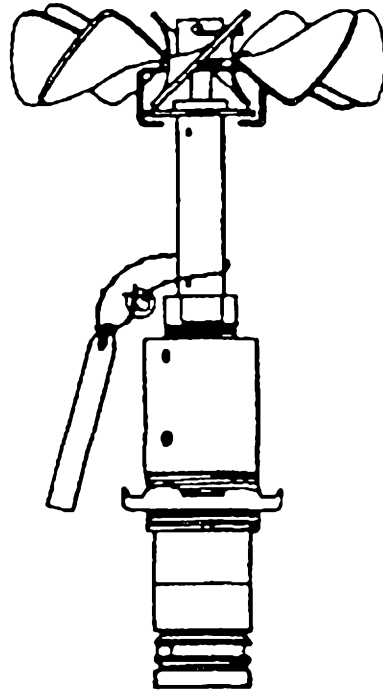
Bombs:
FAB-250 M46
FAB-250 M54
FAB-500 M46
FAB-500 M54



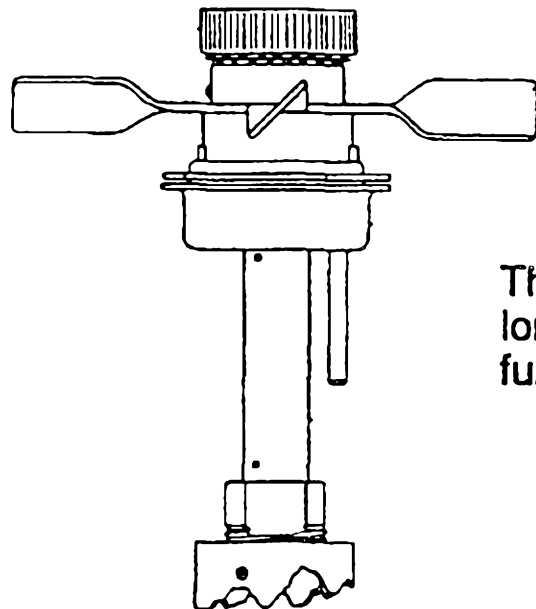
NOTE: THIS IS A LONG-DELAY FUZE.

FOR OFFICIAL USE ONLY

U.S. Bomb Fuzes, Tail, M123, M124, and M125



M OR AN-M123A1, 124A1, AND-125A1 FUZES



These are chemical,
long-delay/antiwithdrawal
fuzes.

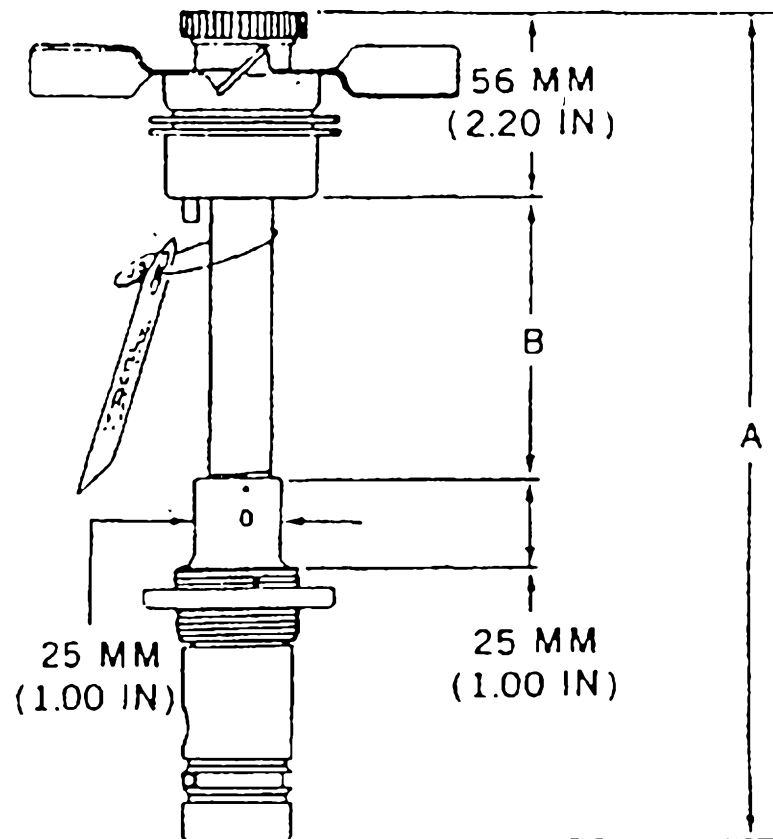
M OR AN-M123, 124, AND 125 FUZES

1-11

FOR OFFICIAL USE ONLY



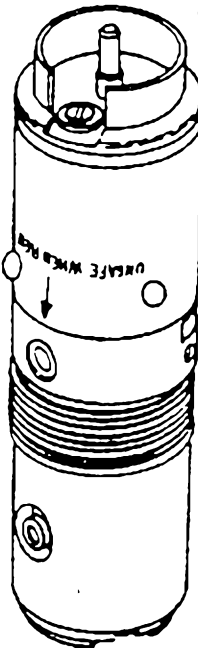
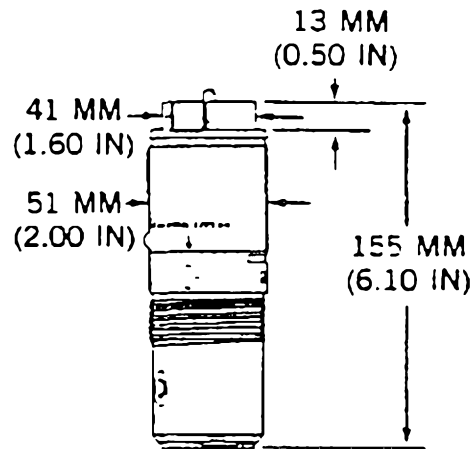
U.S. Bomb Fuze, Tail, M132, M133, and M134



DIMENSION	FUZE M132	FUZE M133	FUZE M134
A	244 MM (9.60 IN)	320 MM (12.60 IN)	422 MM (16.60 IN)
B	81 MM (3.20 IN)	157 MM (6.20 IN)	259 MM (10.20 IN)

U.S. Bomb Fuze, Tail, Mk 346 Mod 0

Bombs:
M117 Series
M118
Mks 81, 82, 83,
84



I-13

FOR OFFICIAL USE ONLY