APPENDIX D
FOREIGN MINES

This appendix contains information on mines in use by some communist and free-world countries. The scope of this appendix is limited due to the amount of mine types available throughout the world (obsolete, current, and prototype mines in excess of 2,000 types).

The technical information presented here is primarily for identification purposes and is not intended to provide detailed guidance for disarming the mines. Mines and fuzes can be set up in a number of different configurations, and disarming procedures which may work for a particular mine may not necessarily work for the same mine when armed with a different fuze or antihandling device. Threat mines should be neutralized by destroying them in place using the procedures contained within this manual.

Section I. Antipersonnel Mines
PMN ANTIPERSONNEL MINE (SOVIET)

**Characteristics**
Height: 56 mm (2.2 in).
Diameter: 112 mm (4.4 in).
Mine Weight: 550 grams (1 lb 3.4 oz).
Explosive Weight: 200 grams (7.1 oz).
Color: Sand or black rubber cover, Bakelite body.

**Description**
Fuze Type: Delay-armed, pressure-initiated.
Sensitivity: 5 to 8 kg (11.0 to 17.6 lb) pressure.
Detectability: With hand-held metallic detector; fair amount of metal in fuze assembly and cover retainer.

**Capability**
Type Kill: Blast effect.
Antihandling: None.

**Vulnerabilities**
None.

**Breach Guidance**
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Blast overpressure readily defeats this simple pressure fuze.
Charge Placement: Adjacent to the PMN.
PMN-2 ANTIPERSONNEL MINE (SOVIET)

Characteristics
Height: 54 mm (2.1 in).
Diameter: 125 mm (4.9 in).
Mine Weight: 450 grams (15.9 oz).
Explosive Weight: 115 grams (4.1 oz).
Color: Black rubber cover, green body.

Description
Fuze Type: Delay-armed, blast-resistant, pressure-initiated.
Sensitivity: 5 kg (11.0 lb) pressure.
Detectability: With hand-held metallic detector; fair amount of metal in fuze assembly.

Capability
Type Kill: Blast effect.
Antihandling: None.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Drastic reduction in effectiveness against PMN-2 (blast-resistant).
Charge Placement: Adjacent to the PMN-2.
PMD-6, PMD-6M ANTIPERSONNEL MINES (SOVIET)

Characteristics
Length: 196 mm (7.7 in).
Width: 87 mm (3.4 in).
Height: 50 mm (2.0 in).
Mine Weight: 400 grams (14.1 oz).
Explosive Weight: 200 grams (7.1 oz).
Color: Natural wood.

Description
Fuze Type: Pressure-initiated.
Sensitivity: 1 to 10 kg (2.2 to 22.0 lb) (depends upon condition of release pin in MUV fuze).
Detectability: With hand-held detector; fair amount of metal in MUV-type fuze and detonator assembly.

Capability
Type Kill: Blast effect.

Antihandling: None.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Blast overpressure readily defeats a “SHU” type mine.
Charge Placement: Adjacent to the PMD-6 or PMD-6M.

Remarks
Delay-armed if MUV-2, MUV-3, or MUV-4 fuzes used. Probing for small “SHU”-type mines with low pressure thresholds is a very hazardous operation.
POMZ-2, POMZ-2M ANTIPERSONNEL MINES (SOVIET)

Characteristics
Height: 107 mm (4.2 in) (without fuze).
Diameter: 60 mm (approx.) (2.4 in).
Mine Weight: 1,770 grams (3.9 lb) (POMZ-2M).
2,300 grams (5.1 lb) (POMZ-2).

Explosive Weight: 75 grams (2.6 oz).
Color: Olive drab.

Description
Fuze Type: Trip-wire-initiated,
Sensitivity: 2 to 5 kg (4.4 to 11.0 lb) (depends upon condition of release pin in MUV fuze).
Detectability: Visual, stake mounted.

Capability
Type Kill: Fragmentation effect.
Kill Radius: 4 meters.

Antihandling: None.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Heavy line charges readily defeat trip-wire-initiated mines.
Charge Placement: Adjacent to the POMZ-2 or POMZ-2M.

Remarks
Weathered/rotten mounting stakes (wood) present a hazard to clearance teams (falling POMZ type bodies are heavy enough to initiate MUV fuzes).
MON-50 ANTIPERSONNEL MINE (SOVIET)

Characteristics
Width: 220 mm (8.7 in).
Depth: 45 mm (1.8 in).
Height: 105 mm (4.1 in) (without legs).
Mine Weight: 1,960 grams (4.3 lb).
Explosive Weight: 715 grams (1.6 lb).
Color: Green.

Description
Fuze Type: Trip-wire/command-initiated.
Sensitivity: 2 to 5 kg (4.4 to 11.0 lb) (depends upon condition of release pin in MUV fuze).
Detectability: Visual; stands on own steel legs.

Capability
Type Kill: Directed fragmentation effect.
Kill Radius: 50 meters, 60-degree area of coverage (fragmentation - 455 steel cylinders).
Antihandling: None.
Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Heavy line charges readily defeat trip-wire/command-initiated mines.
Charge Placement: Adjacent to the MON-50.

Remarks
Two fuze wells provide opportunity for multiple trip lines or the use of detonating cord for series connection to adjacent mines. A threaded steel well located at the base of the mine is used in conjunction with a heavy mounting spike for attachment to trees and buildings.
MON-100 ANTIPERSONNEL MINE (SOVIET)

**Characteristics**
Diameter: 240 mm (9.4 in).
Depth: 80 mm (3.1 in).
Mine Weight: 5,400 grams (11.9 lb) (without bracket).
Explosive Weight: 2,000 grams (4.4 lb).
Color: Olive drab.

**Description**
Fuze Type: Trip-wire/command-initiated.
Sensitivity: 2 to 5 kg (4.4 to 11.0 lb) (depends upon condition of release pin in MUV fuze).
Detectability: Visual; stands on heavy steel spike.

**Capability**
Type Kill: Directed fragmentation effect.

**Kill Radius:** 100 meters, 15-degree area of coverage (fragmentation - 405 steel cylinders, 10 mm x 10 mm).
**Antihandling:** None.

**Vulnerabilities**
None.

**Breach Guidance**
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Heavy line charges readily defeat trip-wire/command-initiated mines.
Charge Placement: Adjacent to the MON-100.

**Remarks**
A heavy steel mounting spike is used for attachment to trees and buildings.
MON-200 ANTIPERSONNEL MINE (SOVIET)

Characteristics
Diameter: 450 mm (17.7 in).
Depth: 130 mm (5.1 in).
Mine Weight: 25,000 grams (55.1 lb) (without bracket).
Explosive Weight: 12,000 grams (26.5 lb).
Color: Olive drab.

Description
Fuze Type: Trip-wire/command-initiated.
Sensitivity: 2 to 5 kg (4.4 to 11.0 lb) (depends upon condition of release pin in MUV fuze).
Detectability: Visual; stands on heavy steel spike.

Capability
Type Kill: Directed fragmentation effect.
Kill Radius: 200 meters, 15-degree area of coverage (fragmentation - 910 steel cylinders, 12 mm x 12 mm).
Antihandling: None.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Heavy line charges readily defeat trip-wire/command-initiated mines.
Charge Placement: Adjacent to the MON-200.

Remarks
A heavy steel mounting stand is available.
OZM-3 ANTIPERSONNEL MINE (SOVIET)

**Characteristics**
- **Height:** 120 mm (4.7 in) (without fuze).
- **Diameter:** 75 mm (3.0 in).
- **Mine Weight:** 3,000 grams (6.6 lb).
- **Explosive Weight:** 75 grams (2.6 oz).
- **Color:** Olive drab.

**Description**
- **Fuze Type:** Trip-wire/command-initiated.
- **Sensitivity:** 2 to 5 kg (4.4 to 11.0 lb) (depends upon condition of release pin in MUV fuze).
- **Detectability:** Visual by identification of trip/command wire; significant metallic mass helps when using hand-held detectors.

**Capability**
- **Type Kill:** Bounding fragmentation effect.

**Kill Radius:** 10 meters, 360-degree area of coverage.

**Antihandling:** None.

**Vulnerabilities**
None.

**Breach Guidance**
- **Mine Plow:** Removes armed mines from plowed area; some will detonate.
- **MICLIC:** Heavy line charges readily defeat trip-wire/command-initiated mines.
- **Charge Placement:** Adjacent to the OZM-3.

**Remarks**
- Delay-armed if MUV-2, MUV-3, or MUV-4 fuzes used.

Appendix D - Foreign Mines
OZM-4 ANTIPERSONNEL MINE (SOVIET)

**Characteristics**
- **Height:** 140 mm (5.5 in) (without fuze).
- **Diameter:** 91 mm (3.6 in).
- **Mine Weight:** 5,000 grams (11.0 lb).
- **Explosive Weight:** 185 grams (6.5 oz).
- **Color:** Olive drab.

**Description**
- **Fuze Type:** Trip-wire/command-initiated.
- **Sensitivity:** 2 to 5 kg (4.4 to 11.0 lb) (depends upon condition of release pin in MUV fuze).
- **Detectability:** Visual by identification of trip/command wire; significant metallic mass helps when using hand-held detectors.

**Capability**
- **Type Kill:** Bounding fragmentation effect.

**Kill Radius:** 15 meters, 360-degree area of coverage.

**Antihandling:** None.

**Vulnerabilities**
None.

**Breach Guidance**
- **Mine Plow:** Removes armed mines from plowed area; some will detonate.
- **MICLIC:** Heavy line charges readily defeat trip-wire/command-initiated mines.
- **Charge Placement:** Adjacent to the OZM-4.

**Remarks**
- Delay-armed if MUV-2, MUV-3, or MUV-4 fuzes used.
OZM-72 ANTIPERSONNEL MINE (SOVIET)

Characteristics
Height: 150 mm (5.9 in) (without fuze).
Diameter: 107 mm (4.2 in).
Mine Weight: 5,000 grams (11.0 lb).
Explosive Weight: 700 grams (1.5 lb).
Color: Olive drab.

Description
Fuze Type: Trip-wire/command-initiated.
Sensitivity: 2 to 5 kg (4.4 to 11.0 lb) (depends upon condition of release pin in MUV fuze).
Detectability: Visual by identification of trip/command wire; significant metallic mass helps when using hand-held detectors.

Capability
Type Kill: Bounding fragmentation effect.

Kill Radius: 30 meters, 360-degree area of coverage (fragmentation - 2,300 steel cylinders, 5 mm x 5 mm).
Antihandling: None.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Heavy line charges readily defeat trip-wire/command-initiated mines.
Charge Placement: Adjacent to the OZM-72.

Remarks
Delay-armed if MUV-2, MUV-3, or MUV-4 fuzes used.
P-40 ANTIPERSONNEL MINE (ITALIAN)

Characteristics
Height: 200 mm (7.9 in) (with fuze).
Diameter: 90 mm (3.5 in).
Mine Weight: 1,500 grams (3.3 lb).
Explosive Weight: 480 grams (1.1 lb).
Color: Green, sand brown.

Description
Fuze Type: Trip-wire-initiated.
Sensitivity: 5 kg (11.0 lb) tension.
Detectability: Visual by identification of trip wire; significant metallic mass helps when using hand-held detectors.

Capability
Type Kill: Bounding fragmentation effect.
Kill Radius: 22 meters.
Antihandling: None.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Heavy line charges readily defeat trip-wire-initiated mines.
Charge Placement: Adjacent to the P-40.
VALMARA 69 ANTIPERSONNEL MINE (ITALIAN)

**Characteristics**
- **Height:** 205 mm (8.1 in) (with fuze).
- **Diameter:** 130 mm (5.1 in).
- **Mine Weight:** 3,300 grams (7.3 lb).
- **Explosive Weight:** 597 grams (1.3 lb).
- **Color:** Green, sand brown.

**Description**
- **Fuze Type:** Trip-wire/pressure-initiated.
- **Sensitivity:**
  - **Pressure:** 10 kg (22.0 lb).
  - **Tension:** 6 kg (13.2 lb).
- **Detectability:** Visual by identification of trip wire; significant metallic mass helps when using hand-held detectors.

**Capability**
- **Type Kill:** Bounding fragmentation effect.
- **Kill Radius:** 27 meters, 360-degree area of coverage (fragmentation - 1,200 steel cubes at 5x5x5 mm).
- **Antihandling:** None.

**Vulnerabilities**
None.

**Breach Guidance**
- **Mine Plow:** Removes armed mines from plowed area; some will detonate.
- **MICLIC:** Heavy line charges readily defeat trip-wire-initiated mines.
- **Charge Placement:** Adjacent to the VALMARA 69.
SB-33, SB-33/AR, EM20 SCATTERABLE ANTIPERSONNEL MINE (ITALIAN, GREEK)

Characteristics
Height: 32 mm (1.3 in).
Diameter: 88 mm (3.5 in).
Mine Weight: 140 grams (4.9 oz).
Explosive Weight: 35 grams (1.2 oz).
Color: Sand brown, olive drab.

Description
Fuze Type: Blast-resistant, pressure-initiated.
Sensitivity: 5 to 20 kg (11.0 to 44.1 lb) pressure.
Detectability: Scattered- visual identification. Buried - difficult with handheld metallic detector (approximately .86 gram metal, all nonmagnetic).

Capability
Type Kill: Blast effect.
Antihandling: Yes; the SB-33/AR version includes an electronic package with antiremoval features.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Drastic reduction in effectiveness against SB-33 (blast-resistant).
Charge Placement: Adjacent to the SB-33.
VS-50, TS-50, T/79 SCATTERABLE ANTIPERSONNEL MINES (ITALIAN)

Characteristics
Height: 45 mm (1.8 in).
Diameter: 90 mm (3.5 in).
Mine Weight: 186 grams (6.6 oz).
Explosive Weight: 50 grams (1.8 oz).
Color: Sand brown, olive drab.

Description
Fuze Type: Blast-resistant, pressure-initiated.
Sensitivity: 10 to 12 kg (22.0 to 26.4 lb) pressure.
Detectability: Scattered - visual identification. Buried - difficult with handheld metallic detector (approximately .86 gram metal, all nonmagnetic).

Capability
Type Kill: Blast effect.
Antihandling: Yes; the VS-50-A version includes an electronic package with antiremoval features.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Drastic reduction in effectiveness (blast-resistant).
Charge Placement: Adjacent to the mine.
VS-MK2, VS-MK2-E SCATTERABLE ANTIPERSONNEL MINES (ITALIAN)

**Characteristics**
- Height: 32 mm (1.3 in).
- Diameter: 90 mm (3.5 in).
- Mine Weight: 135 grams (4.8 oz).
- Explosive Weight: 34 grams (1.2 oz) (VS-MK2), 22 grams (0.8 oz) (VS-MK2-E).
- Color: Sand brown, green, olive drab.

**Description**
- Fuze Type: Blast-resistant, pressure-initiated.
- Sensitivity: 10 kg (22.0 lb) pressure.
- Detectability: Scattered - visual identification, Buried - difficult with handheld metallic detector (approximately .86 gram metal, all nonmagnetic).

**Capability**
- Type Kill: Blast effect.
- Antihandling: Yes; the VS-MK2-E version includes an electronic package with antiremoval features.

**Vulnerabilities**
None.

**Breach Guidance**
- Mine Plow: Removes armed mines from plowed area; some will detonate.
- MICLIC: Drastic reduction in effectiveness (blast-resistant).
- Charge Placement: Adjacent to the mine.
PFM-1 SCATTERABLE ANTIPERSONNEL MINE (SOVIET)

Characteristics
Length: 120 mm (4.75 in).
Width: 60 mm (2.4 in).
Height: 20 mm (0.75 in).
Mine Weight: 74 grams (2.37 oz).
Explosive Weight: 40 grams (1.28 oz).
Color: Green, sand, or white.

Description
Fuze Type: Pressure-initiated (delay arming).
Sensitivity: 5 kg.
Detectability: Scattered - visual identification.

Capability
Type Kill: Blast effect.
Antihandling: None.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.
MICLIC: Blast overpressure will defeat this fuze.
Charge Placement: Adjacent to PFM-1.
VP 12/13 ANTIPERSONNEL MINEFIELD CONTROL DEVICE (SOVIET)

**Characteristics**
- Diameter: 110 mm (4.3 in).
- Height: 250 mm (9.8 in).
- Mine Weight: 2 kg (4.4 lb).
- Power Source: 6 x 1.5V battery.
- Fuze: MUV-2 or MUV-4.
- Color: Olive drab, white markings.

**Description**
The VP systems are not mines, but are control and initiation devices for mines. Originally known as the UMK, the first model, the VP4, with its battery pack (VP5), has been succeeded by the VP 12 and VP 13. Both units are essentially similar and employ one or more geophones (seismic sensors) to detect personnel on foot up to 20 meters away. The unit is cylindrical in shape with a plain sheet steel body. The top surface is a complex series of sockets with wires protruding; it is attached to the main body by three steel clips. The geophone has a pointed probe on a cylinder with a wide cap and three attached wires.

**Operation**
The unit is positioned and the geophone(s) buried nearby. Up to five mines, normally directional or bounding, are connected to wires from sockets on the top surface; they may be up to 25 meters away from the unit. Once set up, a self-destruct charge is normally placed on the unit in a position marked by a white box stenciled on the body. Two wires are provided for this purpose. An MUV-2 or MUV-4 is screwed onto a socket housing a micro switch; this provides the delay to arming. When the micro switch is depressed by the striker, a red light-emitting diode (LED) indicates that the unit is active. The geophones will now register movement on foot, and the VP unit will fire some or all of the mines. When the battery runs down, the unit will automatically self-destruct. Battery life is thought to be up to one year.

**Neutralization**
No attempt should be made to neutralize a VP 12 or 13.
Disarming
It is clearly undesirable to approach a VP system under any circumstances. Should clearance be absolutely necessary, all mines must be identified before any action is taken, bearing in mind the range of directional mines (up to 200 meters). The mines may be disarmed one at a time or a remote attack made on the control unit from a safe location: both options would be extremely dangerous if the unit were still active. Should an individual encounter a VP 12 or 13, his best option is to cut the copper-colored wires to the mine, one by one. This practice is not guaranteed to be safe, merely the best alternative.

Section II. Antitank Mines

BARMINE (UK)

Characteristics
Length: 1,200 mm (47.2 in).
Width: 81 mm (3.2 in).
Height: 102 mm (4.0 in).
Mine Weight: 10.4 kg (22.9 lb).
Explosive Weight: 8.4 kg (18.5 lb).
Color: Olive drab.

Description
Fuze Type: Both single- and double-impulse pressure fuzes available.
Double-impulse fuze - black arming lever.

Capability
Type Kill: Blast effect.
Antihandling: None with above fuzes. However, an additional fuze does incorporate magnetic sensing and antidisturbance.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area;
Double-impulse pressure fuze - none.
Charge Placement: Adjacent to the Barmine.
Minimum Safe Distance: For deliberate grappling - 50 meters.
MK-7 ANTITANK MINE (UK)

**Characteristics**
Diameter: 325 mm (12.8 in).
Height: 130 mm (5.1 in).
Mine Weight: 13.6 kg (30.0 lb),
Explosive Weight: 8.89 kg (19.6 lb).
Color: Olive drab, brown.

**Description**
Fuze Type: Both single- and double-impulse pressure fuzes available as well as a tilt-rod fuze.
Sensitivity: Pressure - 150 kg (330.7 lb), Tilt - 3 to 18 kg (6.1 to 39.7 lb).
Detectability: Visual for tilt rods; remaining by hand-held metallic detector (significant metallic content in mine body).

**Capability**
Type Kill: Blast effect.

Antihandling: Secondary fuze well available for booby-trap purposes (located on the bottom of the mine body).

**Vulnerabilities**
None.

**Breach Guidance**
Mine Plow: Removes armed mines from plowed area; detonates booby-trapped mines.
Charge Placement: Adjacent to the MK-7.
SH-55 ANTITANK MINE (ITALIAN)

Characteristics
Diameter: 280 mm (11.0 in).
Height: 122 mm (4.8 in).
Mine Weight: 7.3 kg (16.1 lb).
Explosive Weight: 5.5 kg (12.1 lb).
Color: Sand brown.

Description
Fuze Type: Blast-resistant, pressure-initiated.
Sensitivity: 185 kg (407.8 lb).
Detectability: Difficult with hand-held detectors (metallic content approximately 5.0 grams; steel striker tip).

Capability
Type Kill: Blast effect.

Antihandling: Two secondary fuze wells available for booby-trap purposes (one each on the side and bottom of the mine case). Additionally, if the VSN/AR-AN fuze is present, then removal of the fuze itself will detonate the mine.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; detonates booby-trapped mines.
MICLIC: Drastic reduction in effectiveness (blast resistant).
Charge Placement: Adjacent to the SH-55.
TC-6, TCE-6, T.C. 6 ANTITANK MINES (ITALIAN, EGYPTIAN)

**Characteristics**
- Diameter: 270 mm (10.6 in).
- Height: 185 mm (7.3 in).
- Mine Weight: 9.6 kg (21.2 lb).
- Explosive Weight: 6.0 kg (13.2 lb).
- Color: Sand brown, olive drab.

**Description**
- Fuze Type: Blast-resistant, pressure-initiated.
- Sensitivity: 180 kg (396.8 lb).
- Detectability: Difficult with hand-held detectors (metallic content approximately 2.86 grams; stainless steel striker tip and retaining spring). Much easier detection if the "E" version with its electronics package is employed.

**Capability**
- Type Kill: Blast effect.
- Antihandling: Secondary fuze well available for booby-trap purposes (on the bottom of the mine case).

**Vulnerabilities**
- None.

**Breach Guidance**
- Mine Plow: Removes armed mines from plowed area; detonates booby-trapped mines.
- Charge Placement: Adjacent to the TC-6, TCE-6, or T.C. 6 mines.

**Remarks**
- The "E" version incorporates an electronics package primarily intended for remote activation/deactivation with a hand-held remote controller. Currently, this version does not include antilift/antidisturbance/self-destruct features. However, these are normal options in most Italian electronic fuzes.
TM-46, TMN-46, M/71 ANTITANK MINES (SOVIET, EGYPTIAN)

**Characteristics**
Diameter: 305 mm (12.0 in).
Height: 108 mm (4.3 in).
Mine Weight: 8.6 kg (19.0 lb).
Explosive Weight: 5.7 kg (12.6 lb).
Color: Sand brown, olive drab.

**Description**
Fuze Type: pressure-initiated (no delay arming). Truncated tilt rod, contact-initiated.
Sensitivity: 180 kg (396.8 lb).
Detectability: Visually (truncated tilt rods) and hand-held detectors (significant metallic content in mine body).

**Capability**
Type Kill: Blast effect.
Antihandling: Secondary fuze well (TMN-46 only) available for booby-trap purposes (on the side of the mine body).

**Vulnerabilities**
None.

**Breach Guidance**
Mine Plow: Removes armed mines from plowed area; detonates booby-trapped mines.
MICLIC: Detonates antitank mines with simple pressure fuzes.
Charge Placement: Adjacent to the mine.
TM-57 ANTITANK MINE (SOVIET)

Characteristics
Diameter: 316 mm (12.4 in).
Height: 102 mm (4.0 in).
Mine Weight: 8.47 (18.7 lb).
Explosive Weight: 6.34 kg (14.0 lb).
Color: Olive drab.

Description
Fuze Type: Delay-armed, blast-resistant, pressure-initiated. Truncated tilt rod, contact-initiated.
Sensitivity: 200 kg (440.9 lb).
Detectability: Visually (truncated tilt rods) and hand-held detectors (significant metallic content in mine body).

Capability
Type Kill: Blast effect.
Antihandling: Secondary fuze well available for booby-trap purposes (located on the side of the mine body).

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; detonates booby-trapped mines.
MICLIC: Drastic reduction in effectiveness (blast-resistant).
Charge Placement: Adjacent to the TM-57 mine.
Mine/Countermine Operations

TM-62M ANTITANK MINE (SOVIET)

**Characteristics**
- Diameter: 320 mm (12.6 in).
- Height: 102 mm (4.0 in).
- Mine Weight: 8.5 kg (18.7 lb).
- Explosive Weight: 7.2 kg (15.9 lb).
- Color: Olive drab.

**Description**
- Sensitivity: 200 kg (440.9 lb).
- Detectability: With hand-held detectors; significant amount of metal in mine body.

**Capability**
- Type Kill: Blast effect.
- Antihandling: No secondary fuze wells. The magnetic and seismic fuze have inherent antidisturbance features. Additionally, antilift devices are associated with the TM-62 series mines.

**Vulnerabilities**
None.

**Breach Guidance**
- Mine Plow: Removes armed mines from plowed area; detonates booby-trapped mines.
- MICLIC: Drastic reduction in effectiveness (blast-resistant).
- Charge Placement: Adjacent to the TM-62M mine.

Appendix D - Foreign Mines
VS-2.2 ANTITANK MINE (ITALIAN)

Characteristics
Diameter: 240 mm (9.4 in).
Height: 120 mm (4.7 in).
Mine Weight: 3.5 kg (7.7 lb).
Explosive Weight: 2.13 kg (4.7 lb).
Color: Sand brown, olive drab, green.

Description
Fuze Type: Blast-resistant, pressure-initiated.
Sensitivity: 180 to 220 kg (396.8 to 485.0 lb).
Detectability: Difficult with hand-held detectors (metallic content approximately 5.0 grams; steel striker tip).

Capability
Type Kill: Blast effect.
Antihandling: Bottom detonator well available for booby-trap devices. Additionally, if the VSN/AR-AN fuze is present, then removal of the fuze itself will detonate the mine.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; detonates booby-trapped mines.
MICLIC: Drastic reduction in effectiveness (blast-resistant).
Charge Placement: Adjacent to the VS-2.2 mine.
B-MV ANTITANK MINE (ITALIAN)

Characteristics
Diameter: 236 mm (9.3 in).
Height: 101 mm (4.0 in) (with fuze).
Mine Weight: 5.0 kg (11.0 lb).
Explosive Weight: 2.6 kg (5.7 lb).
Color: Sand brown, olive drab.

Description
Fuze Type: Delay-armed, magnetic-influence initiated.
Sensitivity: Changing ambient magnetic fields.
Detectability: By probing and visual identification of camouflage efforts. Operating handheld mine detectors may detonate this mine.

Capability
Type Kill: Shaped-charge effect.

Antihandling: Both antilift (tilt) and self-neutralization features.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; all fuzes will detonate, even those under the track area.
MICLIC: Little effectiveness against magnetic fuzes in buried conventional mines.
Charge Placement: Adjacent to the SB-MV mine.

Remarks
Self-neutralization settings are programmable.
VS-HCT ANTITANK MINE (ITALIAN)

**Characteristics**
- Diameter: 290 mm (11.4 in).
- Height: 108 mm (4.3 in).
- Mine Weight: 7.0 kg (15.4 lb).
- Explosive Weight: 5.0 kg (11.0 lb).
- Color: Sand brown, olive drab.

**Description**
- Fuze Type: Delay-armed, magnetic-influence initiated.
- Sensitivity: Changing ambient magnetic fields.
- Detectability: By probing and visual identification of camouflage efforts. Operating handheld mine detectors may detonate this mine.

**Capability**
- Type Kill: Shaped-charge effect.

**Antihandling**
- Both antilift (tilt) and self-neutralization features.

**Vulnerabilities**
- None.

**Breach Guidance**
- Mine Plow: Removes armed mines from plowed area; all fuzes will detonate, even those under the track area.
- MICLIC: Little effectiveness against magnetic fuzes in buried conventional mines.
- Charge Placement: Adjacent to the VS-HCT mine.

**Remarks**
- Ten self-neutralization settings ranging from 1 to 128 days.
**MIACAH F1, L14A1 ANTITANK MINES (FRENCH, UK)**

**Characteristics**
Length: 260 mm (10.2 in).
Diameter: 200 mm (7.9 in).
Height: 350 mm (13.8 in).
Mine Weight: 12.0 kg (26.5 lb).
Explosive Weight: 5.0 kg (11.0 lb).
Color: Olive drab,

**Description**
Fuze Type: Break wire, infrared sensor, command detonation initiation.
Sensitivity: Vehicle passage to 80 meters range.

**Capability**
Type Kill: Shaped-charge (horizontal effect).
Antihandling: None; however, command control must be neutralized.

**Vulnerabilities**
None.

**Breach Guidance**
Mine Plow: Initiates off-route mines, destroys host vehicle.
MICLIC: Heavy explosive line charge will neutralize break and command wires, as well as overturning those mines fairly close to the line charge. Not effective against infrared sensor unit.
Charge Placement: Adjacent to the MIACAH F1 or L14A1 mines.
TC/2.4, M/80 SCATTERABLE ANTITANK MINES (ITALIAN, EGYPTIAN)

Characteristics
Diameter: 204 mm (8.0 in).
Height: 108 mm (4.3 in).
Mine Weight: 3.3 kg (7.3 lb).
Explosive Weight: 2.4 kg (5.3 lb).
Color: Sand brown, olive drab.

Description
Fuze Type: Blast-resistant, pressure-activated.
Sensitivity: 180 kg (396.8 lb).
Detectability: Difficult with hand-held detectors (total metallic content is 2.46 grams).

Capability
Type Kill: Blast effect.

Antihandling: Yes; if MUV-type or VS-AR-4 antilift fuze is attached to bottom detonator well.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; detonates booby-trapped mines.
MICLIC: Drastic reduction in effectiveness (blast-resistant).
Charge Placement: Adjacent to the TC/2.4 or M/80 mine.
SB-81, SB-81/AR SCATTERABLE ANTITANK MINES
(ITALIAN)

Characteristics
Diameter: 232 mm (9.1 in).
Height: 90 mm (3.5 in).
Mine Weight: 3.2 kg (7.1 lb).
Explosive Weight: 2.0 kg (4.4 lb).
Color: Sand brown, olive drab.

Description
Fuze Type: Blast-resistant, pressure-activated.
Sensitivity: 150 kg (330.7 lb).
Detectability: Scattered - visual identification.
Buried - difficult with hand-held detectors (total metallic content of SB-81 is .91 grams).

Capability
Type Kill: Blast effect.
Antihandling:
- Scattered
  - SB-81: No built-in antihanldling/self-neutralization.
- SB-81/AR: Has electronics package with options for both anti-handling and programmable self-neutralization.
  - Buried
    - SB-81: Yes; if MUV-type or VS-AR-4 antilift fuze is attached to bottom detonator well.
    - SB-81/AR: Has built-in capability for optional antihandling and programmable self-neutralization.

Vulnerabilities
None.

Breach Guidance
Mine Plow:
- Scattered
  - SB-81: Removes armed mines from plowed area.
  - SB-81/AR: Detonates armed mines when moved by plow.
• Buried
  – SB-81: Removes armed mines from plowed area; detonates booby-trapped mines.
  – SB-81/AR: Detonates armed mines when moved by plow.

MICLIC: Drastic reduction in effectiveness (blast-resistant).

Charge Placement: Adjacent to the SB-81, SB-81/AR mine.

Remarks
Both the SB-81 and SB-81/AR antitank mines are helicopter-deliverable by the SY-AT system as well as other compatible Italian mine scattering systems.

PGDM SCATTERABLE ANTITANK MINE (SOVIET)

Characteristics
Length: 300 mm (11.8 in).
Height: 65 mm (2.5 in).
Mine Weight: 1.7 kg (approx) (3.7 lb).
Explosive Weight: 1.5 kg (approx.) (3.3 lb).
Color: Green, khaki, white.

Description
Fuze Type: Delay-armed, pressure-activated.
Sensitivity: Single pressure or accumulation of slight pressure - weight unknown.
Detectability: Scattered - visual identification.
Capability
Type Kill: Blast effect.
Antihandling: None; self-destruct 0 - 24 hours.

Vulnerabilities
None.

Breach Guidance
Mine Plow: Removes armed mines from plowed area; some will detonate.

MICLIC: Blast overpressure will defeat this fuze.
Charge Placement: Adjacent to PGMDM.

Remarks
This mine is thought to be extremely sensitive and cannot be disarmed. The mine, therefore, should never be touched and only approached if absolutely necessary after self-destruct period has elapsed.

VS-1.6, VS-1.6/AR, VS-1.6/AN SCATTERABLE ANTITANK MINES (ITALIAN)

Characteristics
Diameter: 222 mm (8.7 in).
Height: 92 mm (3.6 in).
Mine Weight: 3.0 kg (6.6 lb).
Explosive Weight: 1.85 kg (4.1 lb).
Colors: Sand brown, olive drab with black rubber cover.

Description
Fuze Type: Blast-resistant, pressure-activated.
Sensitivity: 190 kg (418.9 lb).
Detectability: Scattered- visual identification. Buried- difficult with hand-held detectors (total metallic content of VS-1.6 is 2.46 grams).
**Capability**

Type Kill: Blast effect.

Antihandling:
- Scattered
  - VS-1.6: No built-in antihandling/self-neutralization,
  - VS-1.6/AR: Yes; electronics package with antiremoval.
  - VS-1.6/AN: No; electronics package has self-neutralization.
- Buried
  - VS-1.6: Yes; if MUV-type or VS-AR-4 antilift fuze is attached to bottom detonator well.
  - VS-1.6/AR: Yes; built-in capability for antihandling.
  - VS-1.6/AN: No; but does include self-neutralization.

**Vulnerabilities**

None.

**Breach Guidance:**

Mine Plow:

- Scattered
  - VS-1.6: Removes armed mines from plowed area.
  - VS-1.6/AR: Detonates armed mines when moved by plow.
- Buried
  - VS-1.6: Removes armed mines from plowed area; detonates booby-trapped mines.
  - VS-1.6/AR: Detonates armed mines when moved by plow.
  - VS-1.6/AN: Removes armed mines from plowed area; still subject to self-neutralization.

**MICLIC:** Drastic reduction in effectiveness (blast-resistant).

**Charge Placement:** Adjacent to the VS-1.6, VS-1.6/AR, VS-1.6/AN mine.

**Remarks**

All the VS-1.6 antitank mines are helicopter-deliverable by the VS-MD-H system as well as other compatible Italian mine scattering systems.