MINE RECOGNITION AND WARFARE HANDBOOK

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MINE RECOGNITION AND WARFARE HANDBOOK

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PREFACE

AirLand battle doctrine is based on the ability of our forces to deny freedom of maneuver to the enemy. The engineering effort required to support AirLand battle doctrine relies greatly on mines. It is a critical part of engineer operations. Mines serve as a combat multiplier during countermobility and mobility operations.

This **Mine Recognition and Warfare Handbook** was compiled with the assistance of the Foreign Science and Technology Center (FSTC) and edited by the U.S. Army Engineer Center, Fort Leonard Wood, Missouri. The purpose of this book is to provide technical guidance for conducting mine and countermine operations. It is published at the unclassified level to encourage the widest possible dissemination of information.

The **Mine Recognition and Warfare Handbook** familiarizes U.S. Forces with all those types of mines currently being employed in the Middle East area of operation. Both our mines and those of potential enemies are lethal weapons in themselves, but become even more life threatening with antihandling devices and when covered by direct/indirect fire. With this in consideration, soldiers should be reminded **NOT TO ATTEMPT** to handle or to take apart live threat mines.

This handbook is intended as a stand-alone reference. However, engineer leaders and soldiers should complement this with other references such as FM 5-34, FM 5-101, FM 20-32, and FM 90-13-1.

"Essayons!"

DANIEL R. SCHROEDER
Major General, USA
U.S. Army Engineer Center

IRAQI MINE EMPLOYMENT

Knowledge of threat mine employment doctrine and mine warfare equipment is critical for planning and executing successful offensive, mobility, and sustainment operations. The Iraqi (IZ) threat to the Arabian Peninsula is a relatively new and menacing one. After eight years of war with Iran, the Iraqi army is acutely aware of the importance of mine warfare in all military operations. The following is a summary of IZ mine employment doctrine for the US combat engineer.

Iraqi mine employment doctrine is similar to Soviet doctrine in many respects. Many IZ army officers have been trained in Soviet military schools. The IZ army has also received training from numerous Soviet military advisors and technicians living in Iraq. The IZ army is predominantly equipped with Soviet military equipment, but it does have some western military hardware in its inventory.

FIVE TYPES OF MINEFIELDS

- Antilanding: Used along coastlines and river banks to prevent unobstructed amphibious assaults and river crossings.

- Antipersonnel: Used in front of antitank minefields and defensive positions to engage sappers and supporting infantry.

- Antitank: Used along main avenues of approach, flanks, and boundaries and in front of defensive positions to protect against armor penetrations.

- Mixed: Used when both antipersonnel and antitank mines are desired. An example would be a hasty protective minefield in front of defensive positions.

- Decoy: Used to mislead or confuse an enemy as to the location and composition of actual minefields.

Antipersonnel minefields are set up in front of the forward edge and in the antitank mines for the purpose of covering them. They can be made from high explosive mines, fragmentation mines, or a combination of both. Characteristics include--

- Located on the forward edge of defensive positions.

- 10 to 50 meters deep.

- Width varies due to type of terrain.

- Two to four rows.

- One meter between mines (blast mines).

- Twice the destructive radius between mines (fragmentation mines).

- 2,000 to 3,000 blast and 100 to 300 fragmentation mines per km front.

Antitank minefields are set up primarily in armor-threatened sectors in front of defensive positions, on the flanks, on unit boundaries, and in front of artillery positions and command posts. Characteristics include--

- 60 to 120 meters deep.

- Width varies due to type of terrain.

- Three or four rows.

- 20 to 40 meters between rows.

- 9 to 12 meters between mines (belly attack).

- 4 to 5.5 meters between mines (antitrack).

- 550 to 750 antitrack or 300 to 400 belly-attack mines per km front for normal density or effectiveness.

- Over 1,000 mines per KM front for high density or increased effectiveness.

Mixed minefields are the primary type of obstacle in contemporary combined arms combat. They are highly effective, easy to install, and difficult to overcome.

- Antitank and antipersonnel mines are not normally mixed within a single mine row.

- Minefield parameters are governed by antitank mine density

to achieve objectives.

Decoy minefields are a component of Maskirovka that deceives the enemy as to the true locations and composition of actual minefields. It may disrupt enemy movement or cause the enemy to expend critical countermine assets needlessly.

- They are employed to mislead or distract the enemy from actual minefields.

- Techniques include digging up ground, installation of minefield markers, and other signs of engineer activity.

GENERAL INFORMATION

- No two minefields will be exactly alike.

- Scatterable minefields may be used to supplement conventional obstacles.

- The IZ army will analyze the terrain to determine the best way of integrating mines into a complex obstacle.

US MINE EMPLOYMENT

A thorough, in-depth understanding of the commander's INTENT leads to an obstacle system that may employ antitank (AT) or antipersonnel (AP) mines. The engineer begins with the intelligence assessment of the enemy's objectives, capabilities, and probable course of action. His observation, cover and concealment, key terrain, obstacles, and avenues of approach (OCOKA) analysis is based not only on the characteristics of the ground, but also on the enemy and the commander's intent. The engineer assessment produces advice on battle position and engagement area siting as well as initial information necessary to develop the obstacle plan.

The obstacle plan and the use of mines within the obstacle plan are part of the overall countermobility operation. The primary intent of the countermobility operation is to attack the enemy's ability to execute his plan. The secondary intent is to destroy or disable his vehicles. This is accomplished with an integrated system of tactical obstacles and fires.

Tactical obstacles are employed to reduce the enemy's ability to maneuver, mass, and reinforce, and to increase his vulnerability to fires. Individual obstacles are designed to produce one of the following primary obstacle functions:

- Disrupt. These obstacles disrupt march formations, break up operation timing, exhaust breaching assets, and cause separation between forward combat elements and wheeled supply vehicles. They are particularly effective when used to disrupt assault formations--attacking the low-level command and control while they are under direct fire.

- Turn. These obstacles move and manipulate the enemy to the force's advantage by enticing or forcing him to move in a desired direction, splitting his formation, canalizing him, or exposing his flank.

- Fix. These obstacles slow and hold the enemy in a specific area so that he can be killed with fires or to generate the time necessary for the force to break contact and disengage.

- Block. Obstacles, by themselves, never serve to block an enemy force. Blocking obstacles are complex, employed in depth, and integrated with fires to prevent the enemy from proceeding along a certain avenue of approach. They serve as a limit, beyond which the enemy will not be allowed to go.

Tactical obstacles are an integral part of the maneuver commander's plan designed to cause specific effects on the attacking force in accordance with the commander's intent. Synchronized obstacle plans ensure that every obstacle supports the entire operation. Necessary control of the obstacle planning process is accomplished by graphically designating obstacle zones, obstacle belts, and obstacle restricted areas; designating critical directed obstacles; and reserving certain obstacles for execution only on order of a specified higher headquarters.

- Obstacle zones. Division commanders generally designate these zones where lower echelons are allowed to employ tactical obstacles to ensure that division-level maneuver is unrestricted by friendly obstacles outside of the zones. (See Figure 1 for obstacle intent symbols.)

- Obstacle belts. Brigades establish belts within these zones that consist of a system of obstacles designed to perform one of the four primary obstacle functions. (See Figure 2 for obstacle belts with intent symbols.)

Situational obstacles. Obstacle emplacement capability is always held in reserve for the same reasons that a maneuver force is always held in reserve. The engineer retains the ability to employ obstacles to exploit success, attack an enemy vulnerability, or salvage force failure. Situational obstacles include Air Force-delivered scatterable mines and point-destruction smart munitions, artillery scatterable mines, ground-emplaced scatterable and surface-laid conventional mines, and rapid demolition teams.

Protective obstacles, whether installed by the defending force or by the engineers, are a critical part of survivability. Much like final protective fires, protective obstacles provide the force with a combat "edge" during the enemy's final assault that may make a difference between success or failure. Protective obstacles normally complement the defending force and have two important characteristics--they are sited according to terrain and are covered by defending fires.

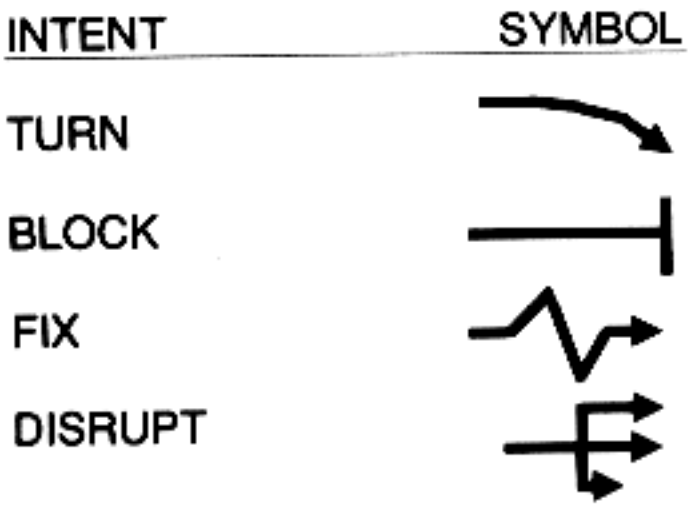


Figure 1: OBSTACLE INTENT SYMBOLS

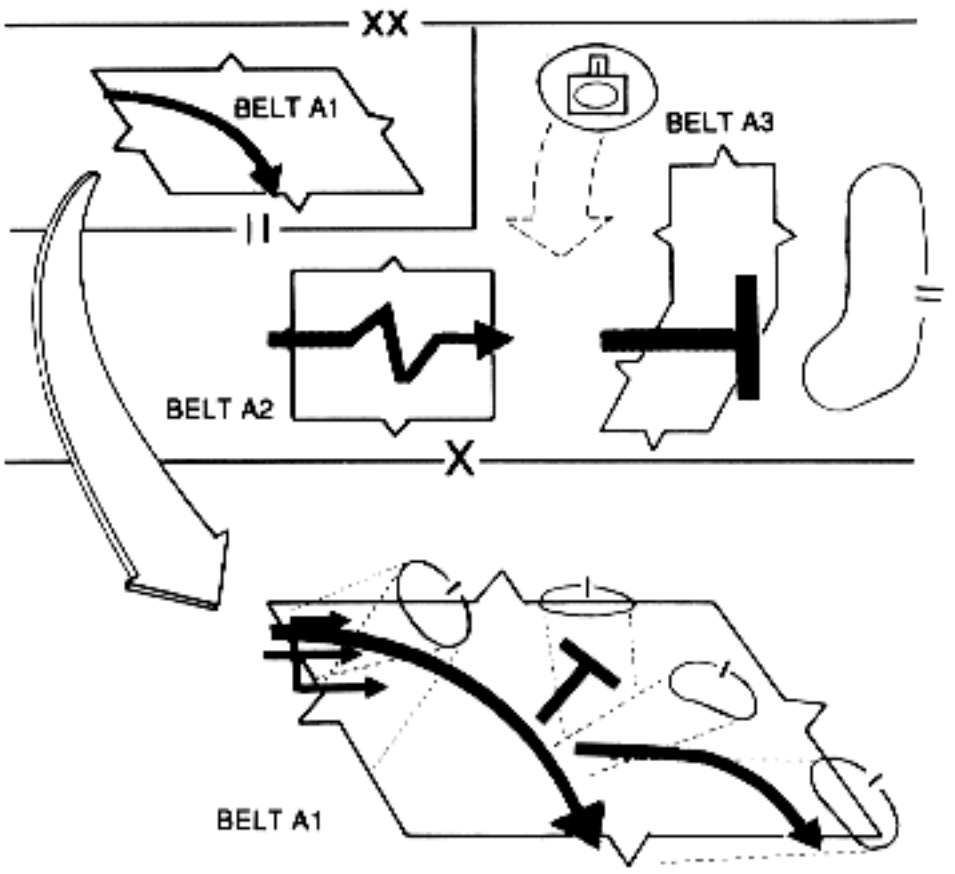


Figure 2: OBSTACLE BELTS W/INTENT SYMBOLS

US BREACHING

Minefields pose a significant challenge, as it is more difficult to determine the limits of a minefield than of other obstacles. The actual breaching technique employed, whether explosive line charges, plows, rollers, or dismounted demolition teams, depends on a swift analysis concentrating on the type of minefield, types of mines employed in the minefield, and the type and extent of effective covering fires. Regardless of the breaching technique employed it is always a COMBINED ARMS OPERATION.

FIGHTING AS A COMBINED ARMS TEAM IS IMPERATIVE TO THE SUCCESS OF ANY AND ALL BREACHING OPERATIONS!

Successful breaching operations are characterized by the application of five breaching tenets. These tenets are as follows:

- Intelligence.
- Breaching fundamentals.
- Breaching organization.
- Mass.
- Synchronization.

Intelligence. Hard intelligence gathered by reconnaissance becomes the foundation for developing and revising the breaching operation. Obstacle intelligence (OBSTINTEL) is critical! Examples of critical obstacle information are as follows:

- Obstacle location.
- Obstacle orientation.
- Presence of wire.
- Gaps/potential bypasses.
- Minefield composition (buried or surface AT and AP mines and antihandling devices).

- Type of mines (include country/manufacture if known, color, etc.).

- Location of enemy direct-fire weapons.

Breaching fundamentals. Suppress, obscure, secure, and reduce (SOSR) are the breaching fundamentals that must be applied to ensure success when breaching against a defending enemy.

- Suppress. The mission-critical task that focuses all available fires on enemy personnel, weapons, or equipment to prevent their effective fires on our friendly forces.

- Obscure. Those carefully planned activities that hamper enemy observation and target acquisition, nd conceal friendly activities and movement.

- Secure. Combined Arms forces identify the extent of the enemy defenses and secure the breaching operation site to prevent the enemy from interfering with obstacle reduction and passage of the assault force through the lanes created during the reduction.

- Reduce. The other three fundamentals must be applied and be effective before lanes are created through or over the obstacle to allow the attacking force to pass.

Breaching operations. The Combined Arms force must be organized to accomplish the SOSR breaching fundamentals quickly and effectively. The commander will organize his assets into support, breach, and assault forces with the necessary assets to accomplish their roles.

- Support Force. Suppression is critical for a successful breach; therefore, the first priority of force allocation is the Support Force. Their primary responsibility is to eliminate the enemy's ability to interfere with the breaching operation. The Support Force MUST ---

a. Isolate the battlefield with fires and suppress enemy fires covering the obstacle.

b. Mass direct and indirect fires to fix the enemy in position and to destroy any weapons that are able to bring fires on the breaching force.

c. Control obscuring smoke to prevent enemy-observed direct and indirect fires and to isolate enemy sub-units.

- Breach Force. This Combined Arms force applies the SOSR breaching fundamentals to create lanes that enable the attacking force to rapidly pass through the obstacle and continue the attack. It includes engineers, breaching assets (which could include M1 Tanks with mine plows or rollers), and enough maneuver force to provide local security and suppression of direct fire weapons in the immediate proximity of the obstacle.

- Assault Force. This force must be sufficient in size to seize objectives that eliminate fires on the breaching site since their primary mission is to destroy or dislodge the enemy on the far side of the obstacle.

Mass. Breaching is conducted by rapidly applying concentrated force at a point to crack the obstacle and rupture the defense. Massed combat power is directed against that location where a natural enemy weakness exists or where one can be created.

Synchronization. Failure to synchronize effective suppression and obscuration with the obstacle reduction and assault can result in rapid, devastating losses of friendly troops in the obstacle or in the enemy's fire sack. **DO NOT UNDERESTIMATE YOUR ENEMY!** He will use obstacles effectively to shape the battlefield and all his obstacles will be covered by extremely lethal direct and indirect fire weapons. Friendly forces ensure synchronization to defeat the enemy's obstacle intent through proper planning and force preparation. Synchronization REQUIRES the following:

- Detailed reverse planning.

- Clear subunit instructions.

- Effective command and control.

- A well-rehearsed force.

Regardless of the type of breaching operation; assault, covert, in-stride, or deliberate, the commander's INTENT merits special consideration. The commander's main effort must be clear and must be supported by the scheme of engineer operations. The engineer must plan to shift engineer forces and equipment consistent with the commander's main effort. The shift of engineer assets is particularly critical in successive breaching operations. Breach planning must be sensitive to the risk the commander is willing to accept in order to maintain mass and momentum.

LENGTH
- 1200 mm (47.2 in)

HEIGHT
- 81 mm (3.2 in)

WIDTH
- 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

Sensitivity -

Detectability - single-impulse fuze ==> transparent arming lever
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:

Breach Guidance:

Mine Plow - removes armed mines from plowed area

MICLIC - single-impulse pressure fuze ==>
double-impulse pressure fuze ==>

Charge Placement - adjacent to the Barmine

Minimum Safe Distance - for deliberate grappling ==> 50 m

Remarks:

BARMINE

M19 ANTITANK MINE

LENGTH
- 332 mm (13.1 in)

WIDTH
- 332 mm (13.1 in)

HEIGHT
- 94 mm (3.7 in)

MINE WEIGHT
- 12.56 kg (27.7 lb)

EXPLOSIVE WEIGHT
- 9.53 kg (21.0 lb)

COLOR
- olive drab, sand brown

Description:

Fuze Type - pressure initiated

Sensitivity - 150 kg (330.7 lb)

Detectability - relatively difficult with hand-held metallic detectors (total metallic content is approx. 2.86 grams)

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 body)

Vulnerabilities:

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 M19

Remarks:

M19 ANTITANK MINE

MK-7 ANTITANK MINE

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:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, detonates booby-trapped mines

MICLIC - single-impulse pressure fuze ==>
double-impulse pressure fuze ==>
tilt-rod fuze ==>

Charge Placement - adjacent to the MK-7

Remarks:

MK-7 ANTITANK MINE

P2 MK3 ANTITANK MINE

LENGTH
- 262 mm (10.3 in)

WIDTH
- 262 mm (10.3 in)

HEIGHT
- 120 mm (4.7 in)

MINE WEIGHT
- 7.26 kg (16.0 lb)

EXPLOSIVE WEIGHT
- 6.33 kg (14.0 lb)

COLOR
- light greenish tan

Description:

Fuze Type - pressure initiated

Sensitivity - 204 to 250 kg (449.7 to 551.2 lb)

Detectability - difficult with hand-held detectors (metallic content limited to spring, striker tip, and shear wire)

Capability:

Type Kill - blast effect

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

Vulnerabilities:

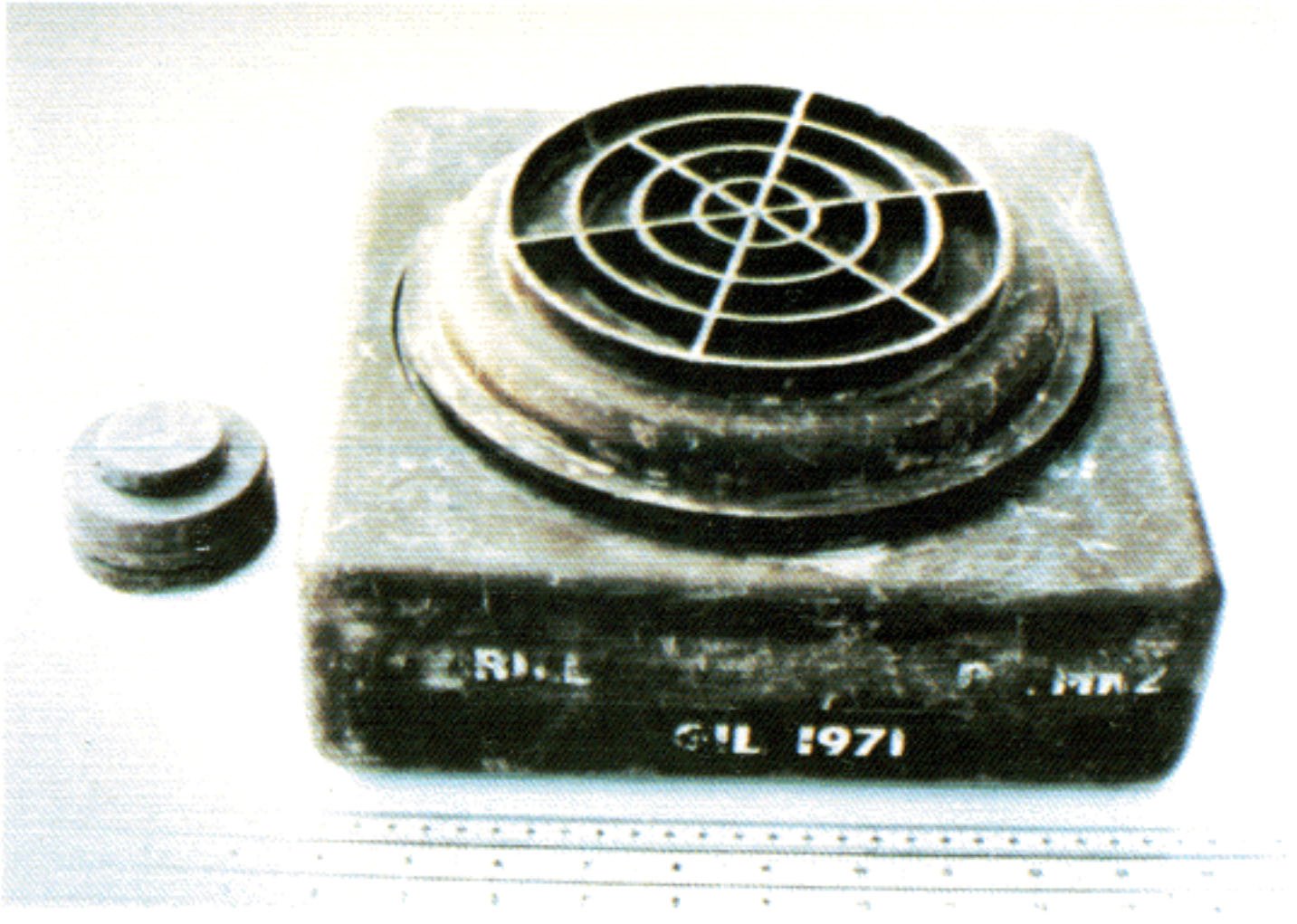
Breach Guidance:

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 P2 MK3

Remarks: The raised circular pattern on the pressure plate retains covering sand/earth. The ridges do not function as a blast-resistant pressure spider (as with the Czech PT-MI-K).



P2 MK3 ANTITANK MINE

P3 MK1 ANTITANK MINE

DIAMETER
- 306 mm (12.0 in)

HEIGHT
- 117 mm (4.6 in)

MINE WEIGHT
- 7.36 kg (16.2 lb)

EXPLOSIVE WEIGHT
- 6.50 kg (14.3 lb)

COLOR
- light gray brown with yellow base

Description:

Fuze Type - pressure initiated

Sensitivity - 204 to 250 kg (449.7 to 551.2 lb)

Detectability - difficult with hand-held detectors (metallic content limited to spring, striker tip, and shear wire)

Capability:

Type Kill - blast effect

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

Vulnerabilities:

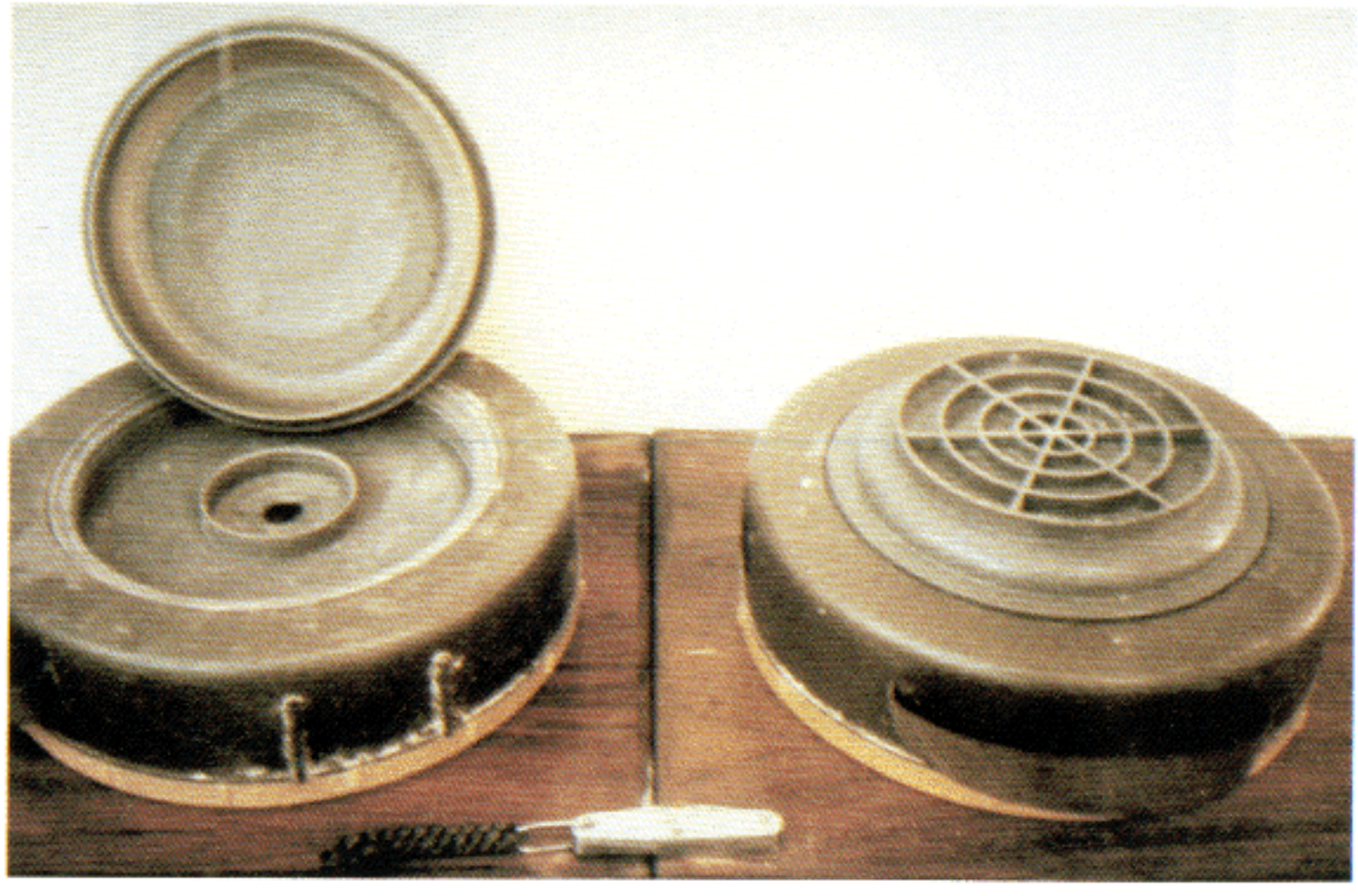
Breach Guidance:

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 P3 MK1

Remarks: The raised circular pattern on the pressure plate retains covering sand/earth. The ridges do not function as a blast-resistant pressure spider (as with the Czech PT-MI-K).



P3 MK1 ANTITANK MINE

PRB M3 ANTITANK MINE

LENGTH
- 230 mm (9.1 in)

WIDTH
- 230 mm (9.1 in)

HEIGHT
- 130 mm (5.1 in)

MINE WEIGHT
- 6.8 kg (15.0 lb)

EXPLOSIVE WEIGHT
- 6.0 kg (13.2 lb)

COLOR
- olive drab

Description:

Fuze Type - pressure initiated

Sensitivity - 250 kg (551.2 lb)

Detectability - very difficult with hand-held detectors (metallic content approx. 1.0 gram; limited to spring, striker tip, and shear wire)

Capability:

Type Kill - blast effect

Antihandling - PRB M3 has been produced in variants with and without a secondary fuze well for booby-trap purposes (if present it is located on the bottom of the mine body)

Vulnerabilities:

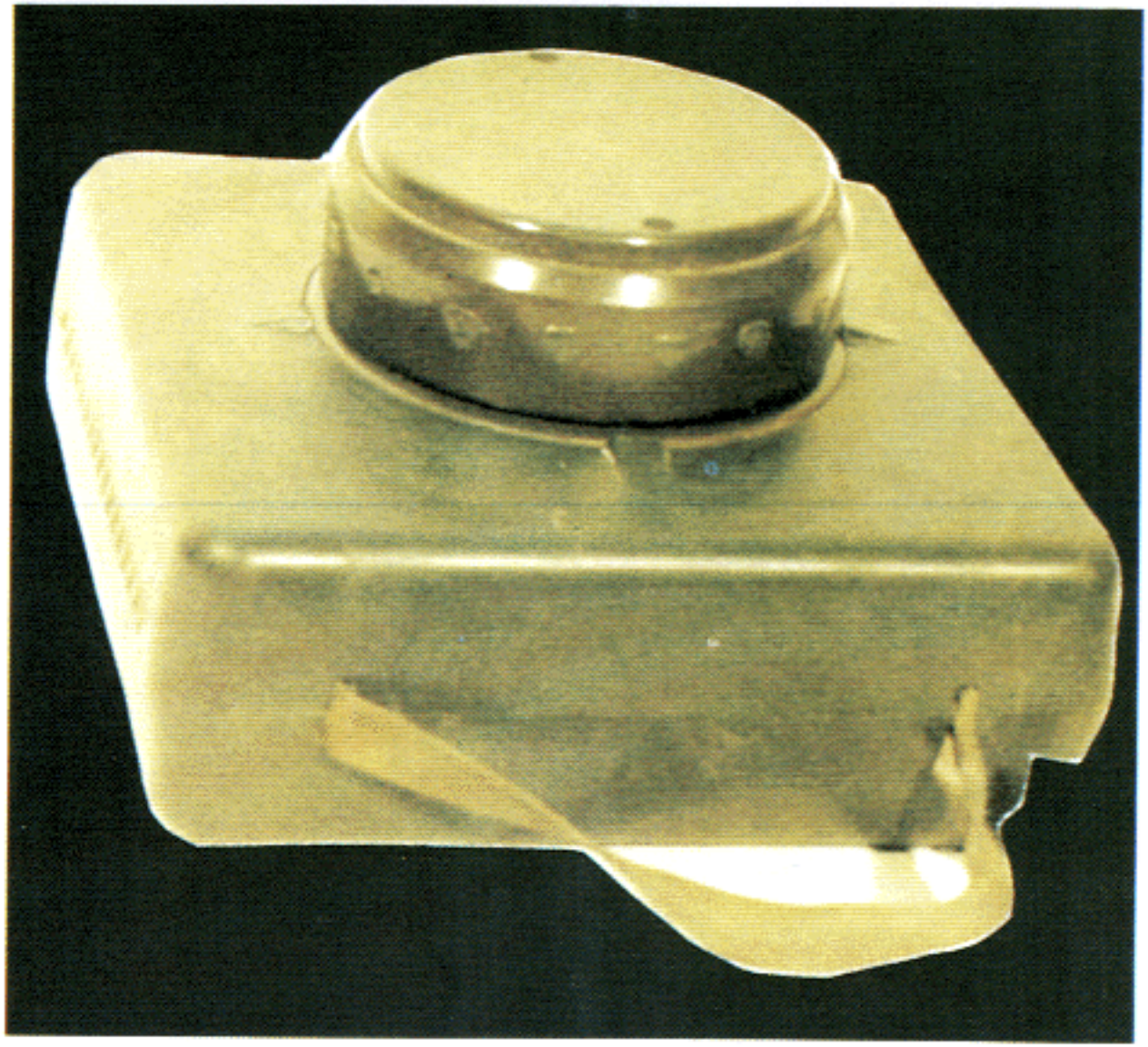
Breach Guidance:

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 PRB M3

Remarks:



PRB M3 ANTITANK MINE

PT-MI-BA III ANTITANK MINE

DIAMETER
- 330 mm (13.0 in)

HEIGHT
- 107 mm (4.2 in)

MINE WEIGHT
- 9.9 kg (21.8 lb)

EXPLOSIVE WEIGHT
- 7.23 kg (15.9 lb)

COLOR
- olive drab, black

Description:

Fuze Type - pressure initiated

Sensitivity - 200 kg (440.9 lb)

Detectability - difficult with hand-held detectors (metallic content less than 2.86 grams; steel firing pin and positioning spring)

Capability:

Type Kill - blast effect

Antihandling - None when the normal RO-2 fuze is used.
- However, when the RO-4 fuze is used the mine fuze cannot be removed without functioning the mine.

Vulnerabilities:

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 PT-MI-BA III

Remarks:

PT-MI-BA III ANTITANK MINE

SH-55 ANTITANK MINE

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 approx. 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:

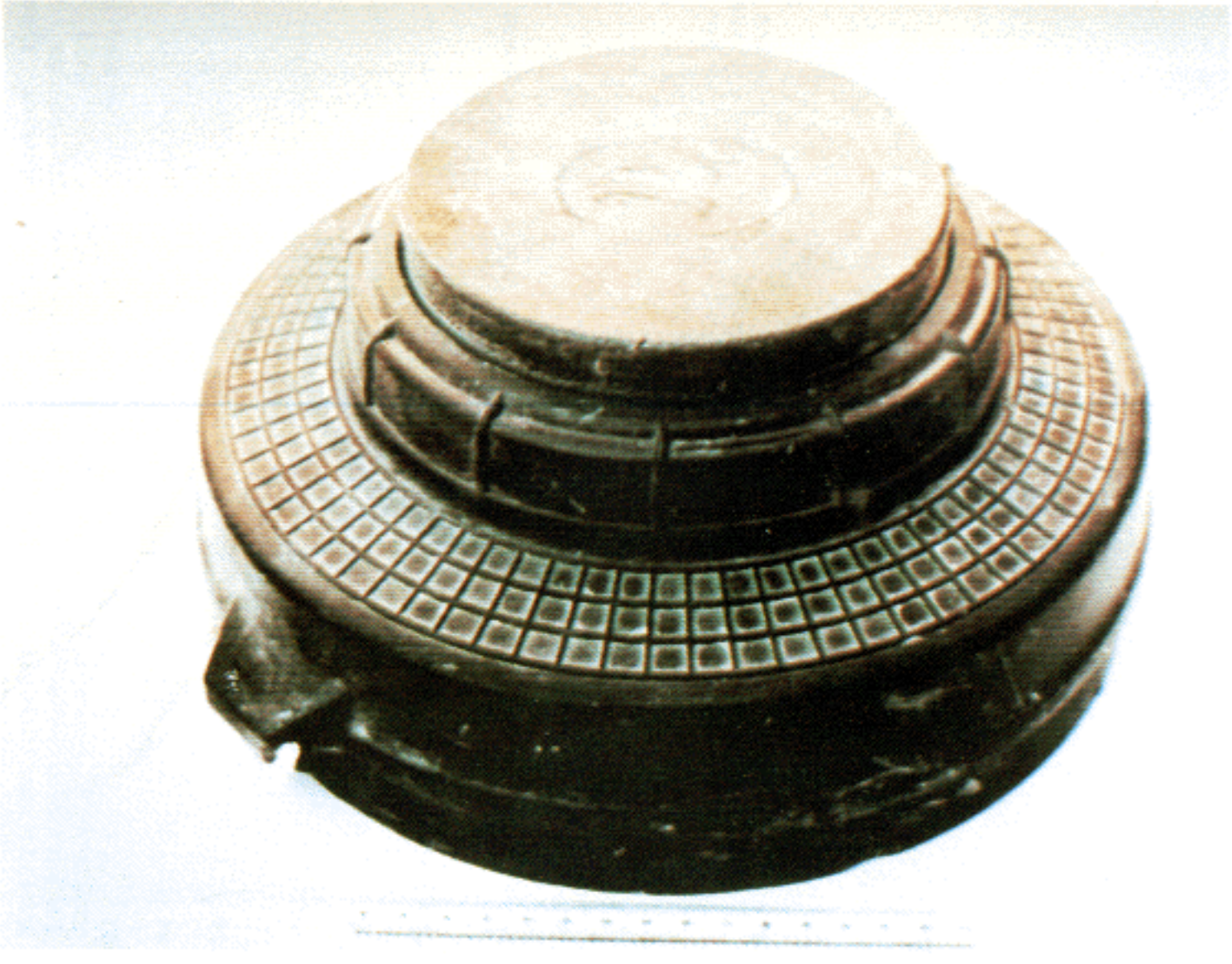
Breach Guidance:

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

Remarks:



SH-55 ANTITANK MINE

TC-6, TCE-6, T.C. 6 ANTITANK MINES

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 approx. < 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:

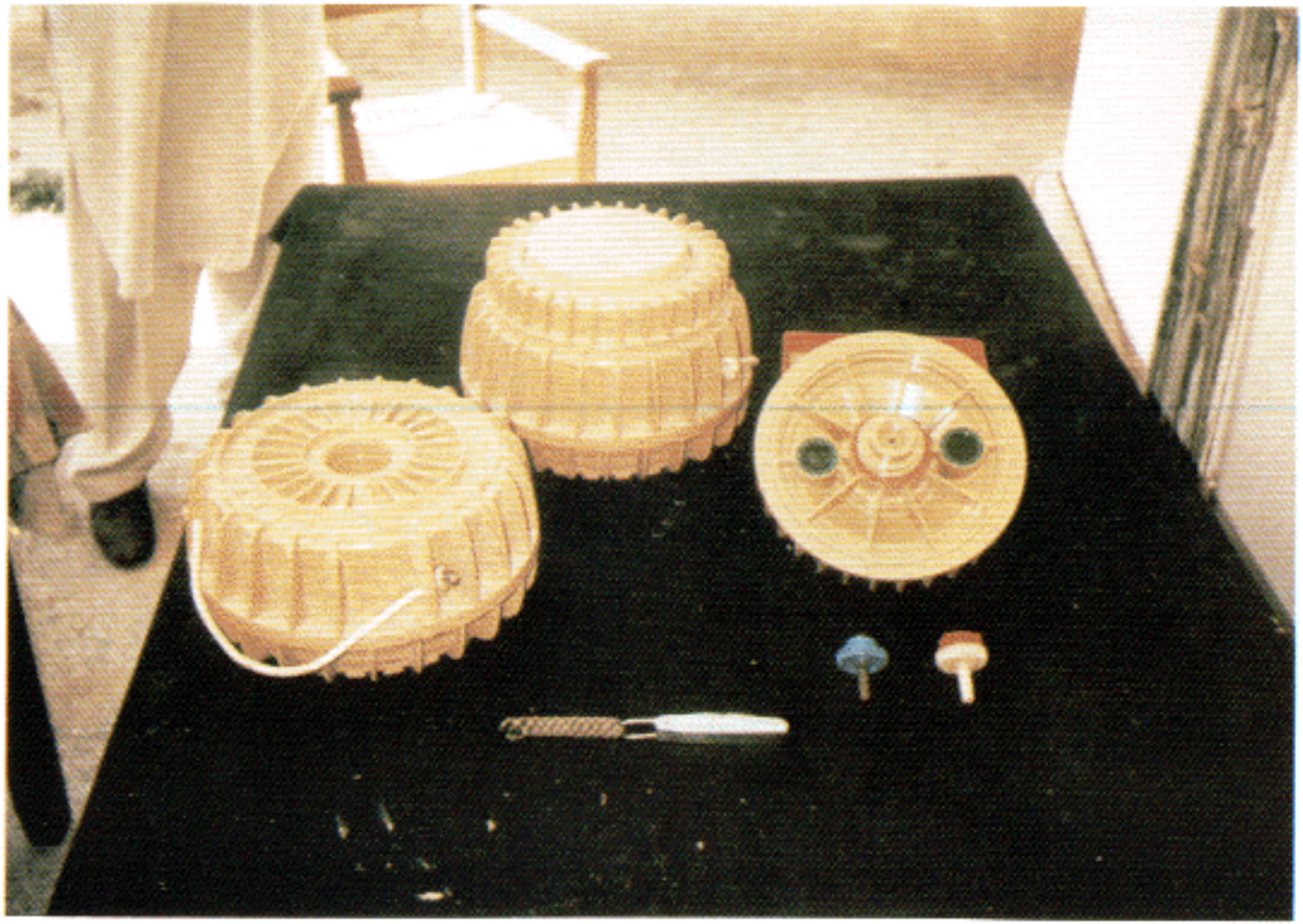
Breach Guidance:

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-6, TCE-6, or T.C.6 mines

Remarks: The "E" version incorporates an electronics package primarily intended for remote activation/de-activation 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.



TC-6, TCE-6, T.C.6 ANTITANK MINES

TM-62M ANTITANK MINE

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:

Fuze Type - delay-armed, blast-resistant, pressure initiated
- delay-armed, magnetic influence fuze type
- seismic influence fuze type

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 fuzes have inherent antidisturbance features. Additionally, antilift devices are associated with the TM-62 series mines.

Vulnerabilities:

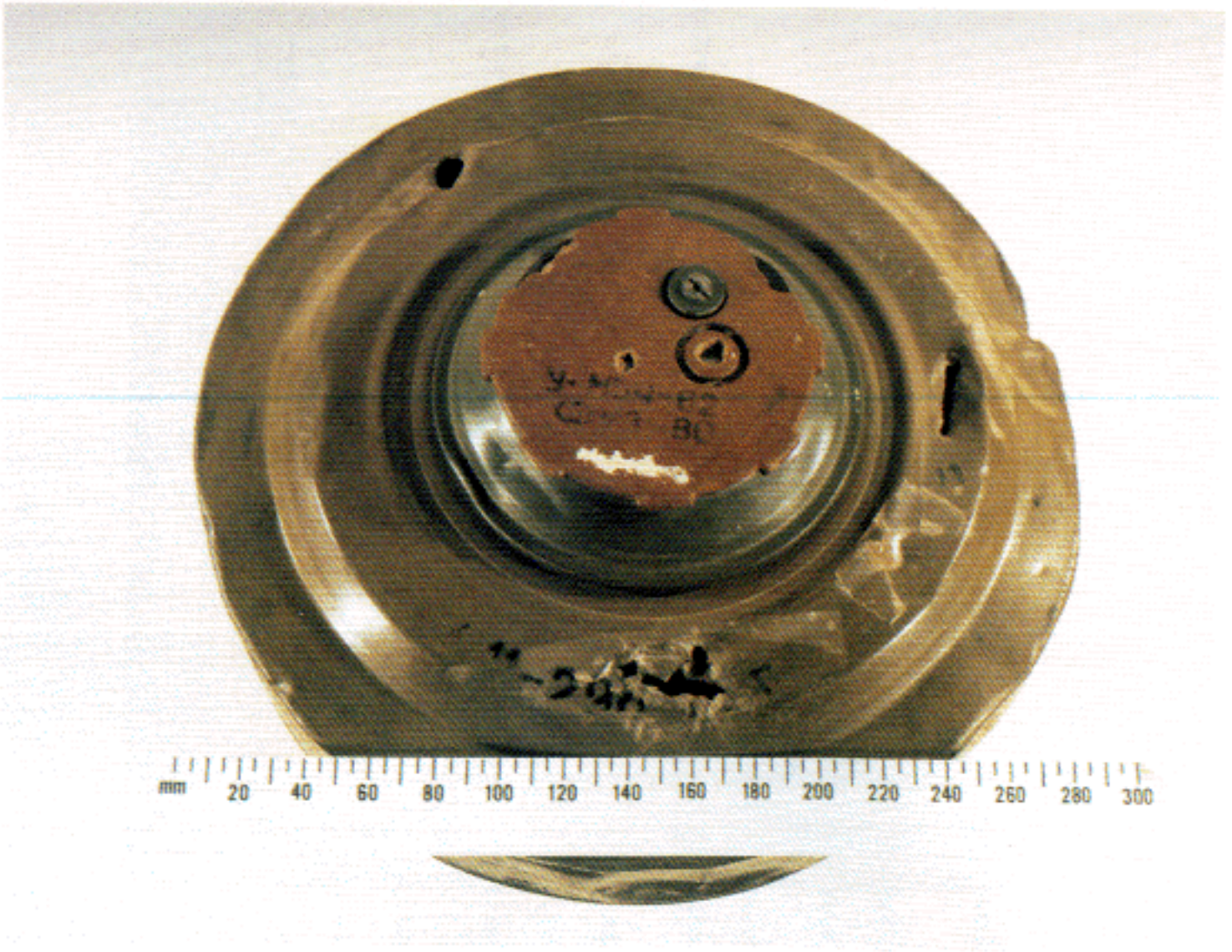
Breach Guidance:

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

Remarks:



TM-62M ANTITANK MINE

TM-57 ANTITANK MINE

DIAMETER
- 316 mm (12.4 in)

HEIGHT
- 102 mm (4.0 in)

MINE WEIGHT
- 8.47 kg (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:

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

Remarks:

TM-57 ANTITANK MINE

TM-46, TMN-46, M/71 ANTITANK MINES

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 bottom of the mine body

Vulnerabilities:

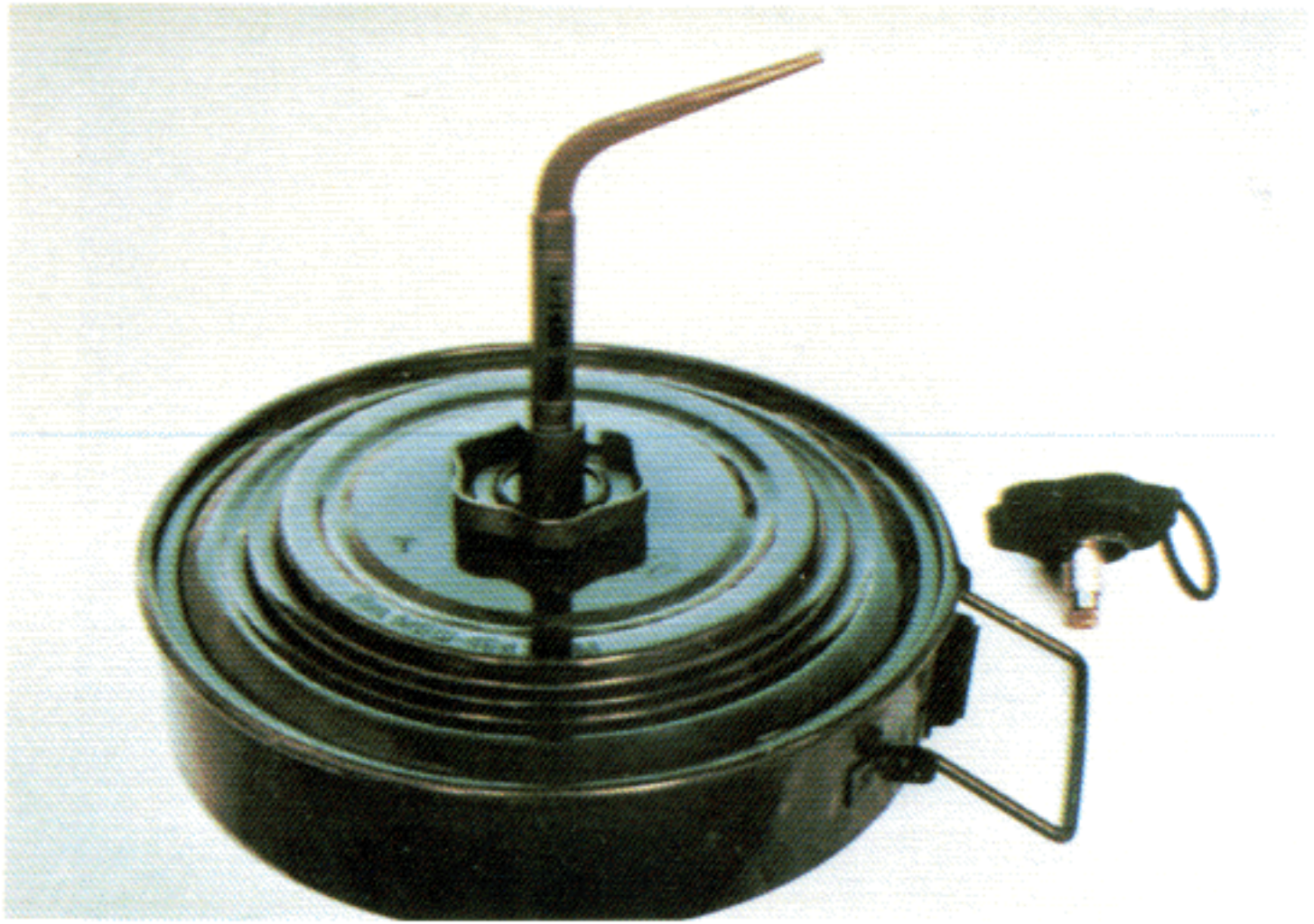
Breach Guidance:

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

Remarks:



TM-46, TMN-46, M/71 ANTITANK MINE

TMA-3 ANTITANK MINE

DIAMETER
- 265 mm (10.4 in)

HEIGHT
- 80 mm (3.1 in)

MINE WEIGHT
- 6.6 kg (14.6 lb)

EXPLOSIVE WEIGHT
- 6.5 kg (14.3 lb)

COLOR
- brown

Description:

Fuze Type - blast-resistant, pressure initiated

Sensitivity - 180 kg (396.8 lb)

Detectability - non-detectable with hand-held metallic detectors (no metallic content in mine fuze or body)

Capability:

Type Kill - blast effect

Antihandling - secondary fuze well available for booby-trap purposes (located on the bottom of the TMA-3 mine body)

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, detonates booby-trapped mines

MICLIC - drastic reduction in effectiveness against TMA-3 (blast-resistant)

Charge Placement - adjacent to the TMA-3 mine

Remarks:

TMA-3 ANTITANK MINE

TMA-5 ANTITANK MINE

LENGTH
- 312 mm (12.3 in)

WIDTH
- 275 mm (10.8 in)

HEIGHT
- 113 mm (4.4 in)

MINE WEIGHT
- 6.6 kg (14.6 lb)

EXPLOSIVE WEIGHT
- 5.65 kg (12.5 lb)

COLOR
- green

Description:

Fuze Type - pressure initiated

Sensitivity - 100 to 300 kg (220.5 to 661.4 lb)

Detectability - non-detectable with hand-held metallic detectors (no metallic content in mine fuze or body)

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, detonates booby-trapped mines

MICLIC - detonates antitank mines with simple fuzes

Charge Placement - adjacent to the TMA-5 mine

Remarks:

TMA-5 ANTITANK MINE

VS-2.2 ANTITANK MINE

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 approx. 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:

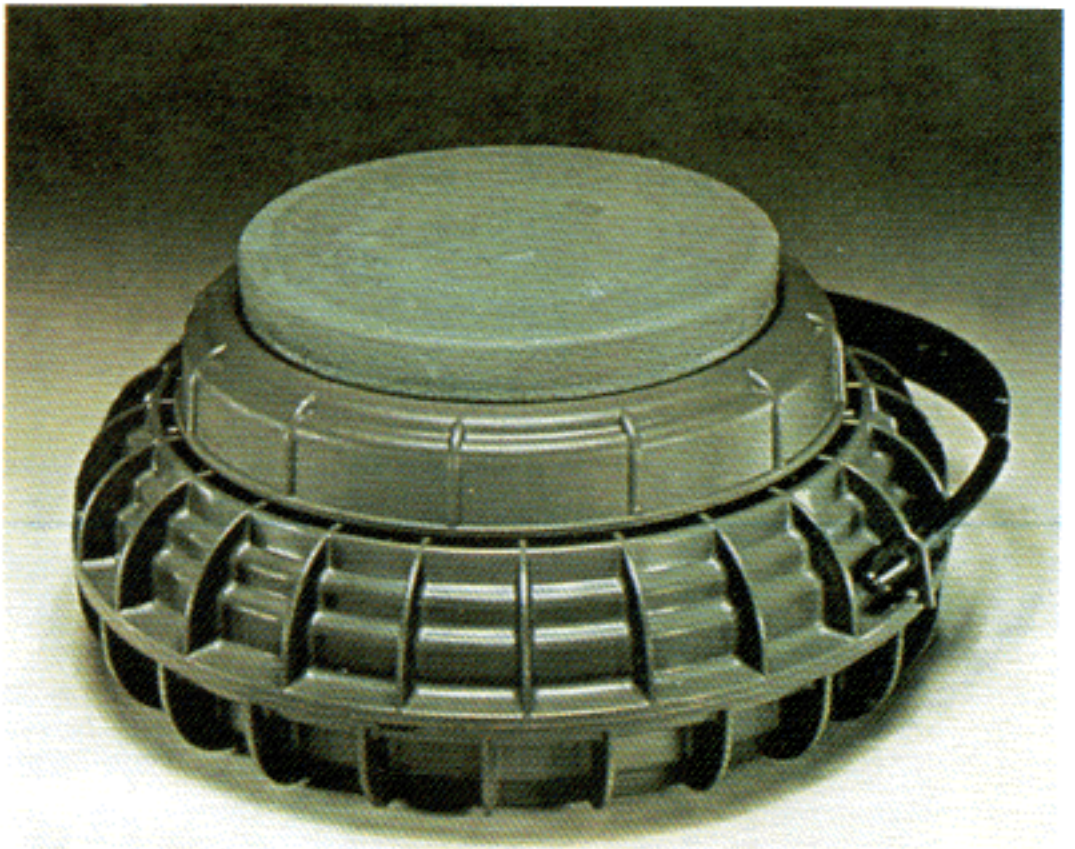
Breach Guidance:

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

Remarks:



VS-2.2 ANTITANK MINE

M21 ANTITANK MINE

DIAMETER
- 230 mm (9.1 in)

HEIGHT
- 206 mm (8.1 in) (w/fuze)
- 813 mm (32.0 in) (w/tilt-rod)

MINE WEIGHT
- 7.9 kg (17.4 lb)

EXPLOSIVE WEIGHT
- 5.0 kg (11.0 lb)

COLOR
- olive drab

Description:

Fuze Type - tilt-rod initiation (with secondary pressure functioning)

Sensitivity - pressure ==> 132 kg (291 lb)
tilt-rod movement ==> 20 degrees with minimum 1.7 kg (3.7 lb) force

Detectability - visual through identification of long tilt-rods

Capability:

Type Kill - plate-charge effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

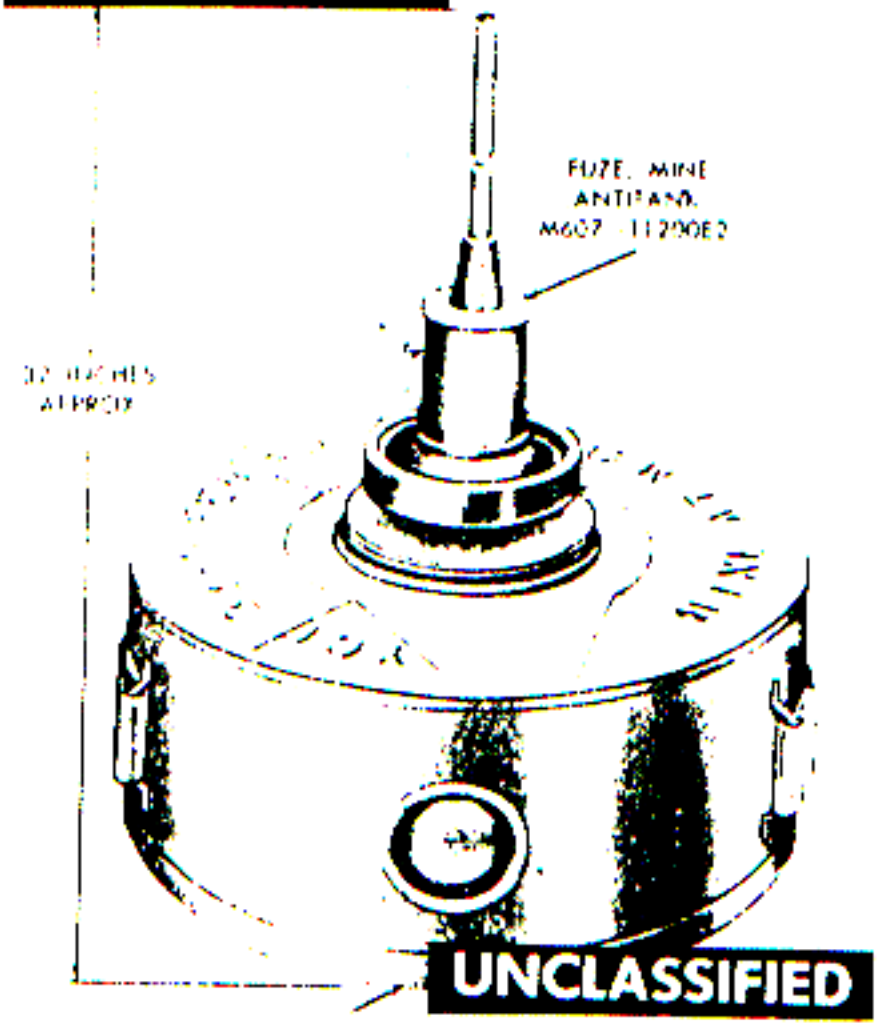
Mine Plow - removes armed mines from plowed area, some tilt-rods will function

MICLIC - slight reduction in effectiveness (tilt-rod)

Charge Placement - adjacent to the M21 mine

Remarks:

UNCLASSIFIED



UNCLASSIFIED

M21 ANTITANK MINE

SB-MV ANTITANK MINE

DIAMETER
- 236 mm (9.3 in)

HEIGHT
- 101 mm (4.0 in) (w/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 hand-held mine detectors may detonate this mine

Capability:

Type Kill - shaped-charge effect

Antihandling - both antilift (tilt) and self-neutralization features

Vulnerabilities:

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.

SB-MV ANTITANK MINE

TMK-2 ANTITANK MINE

DIAMETER
- 302 mm (11.9 in)

HEIGHT
- 262 mm (10.3 in) (w/o tilt-rod)

MINE WEIGHT
- 12.5 kg (27.6 lb)

EXPLOSIVE WEIGHT
- 6.5 kg (14.3 lb)

COLOR
- olive drab

Description:

Fuze Type - tilt-rod, contact initiated

Sensitivity - 8 to 12 kg (17.6 to 26.4 lb)

Detectability - visual, by identification of long tilt-rod assembly

Capability:

Type Kill - shaped-charge effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, many fuzes will detonate, including those under the track area

MICLIC - reduced effectiveness against buried conventional mines with tilt-rod fuzes

Charge Placement - adjacent to the TMK-2 mine

Remarks: This heavy antitank mine defeats at least 250-mm RHAE.

TMK-2 ANTITANK MINE

TMRP-6 ANTITANK MINE

DIAMETER
- 290 mm (11.4 in)

HEIGHT
- 132 mm (5.2 in) (w/o tilt-rod)

MINE WEIGHT
- 7.2 kg (15.9 lb)

EXPLOSIVE WEIGHT
- 5.1 kg (11.2 lb)

COLOR
- green

Description:

Fuze Type - delay-armed, tilt-rod, contact initiated

Sensitivity - pressure ==> 150 kg (330.7 lb)
tilt-rod ==> 1.3 to 1.7 kg (2.9 to 3.7 lb)

Detectability - visual, by identification of long tilt-rod assembly

Capability:

Type Kill - plate-charge effect

Antihandling - detonator well (located on the center base of the mine
compatible with antidisturbance devices

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, many fuzes will detonate, including those under the track area

MICLIC - reduced effectiveness against buried conventional mines with tilt-rod fuzes

Charge Placement - adjacent to the TMRP-6 mine

Remarks:

TMRP-6 ANTITANK MINE

VS-HCT ANTITANK MINE

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 hand-held mine detectors may detonate this mine

Capability:

Type Kill - shaped-charge effect

Antihandling - both antilift (tilt) and self-neutralization features

Vulnerabilities:

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: 10 self-neutralization settings ranging from 1 to 128 days.

VS-HCT ANTITANK MINE

VS-HCT2 ANTITANK MINE

LENGTH
- 260 mm (10.2 in)

WIDTH
- 260 mm (10.2 in)

HEIGHT
- 128 mm (5.0 in)

MINE WEIGHT
- 6.8 kg (15.0 lb)

EXPLOSIVE WEIGHT
- 2.3 kg (5.1 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 hand-held mine detectors may detonate this mine

Capability:

Type Kill - shaped-charge effect

Antihandling - both antilift (tilt) and self-neutralization features

Vulnerabilities:

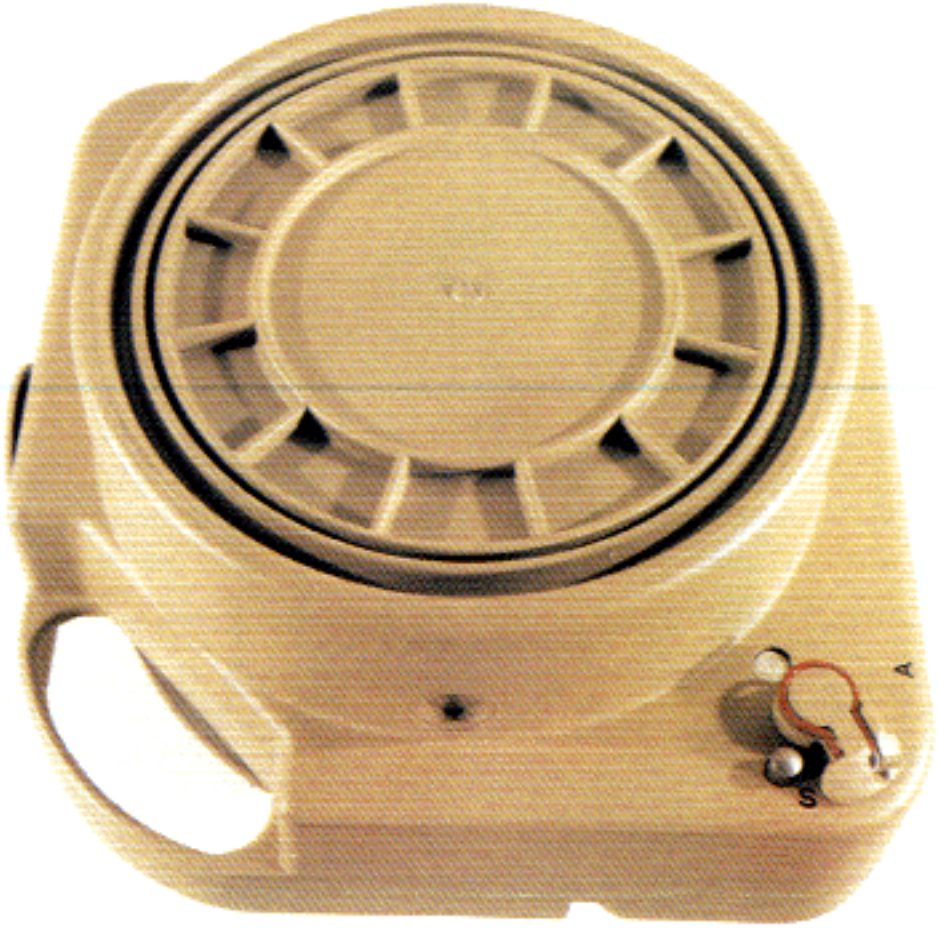
Breach Guidance:

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-HCT2 mine

Remarks: Self-neutralization incremental settings (.1 day steps) ranging from 1 to 90 days.



VS-HCT2 ANTITANK MINE

MIACAH F1, L14A1 ANTITANK MINES

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

Detectability - visual identification of break-, command wires
- visual identification of off-route mine location

Capability:

Type Kill - shaped-charge (horizontal effect)

Antihandling - none; however, command control must be neutralized

Vulnerabilities:

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

Remarks:

MIACAH F1, L14A1 ANTITANK MINE

TC/2.4, M/80 SCATTERABLE ANTITANK MINES

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)

COLORS
- 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 attached to bottom detonator well

Vulnerabilities:

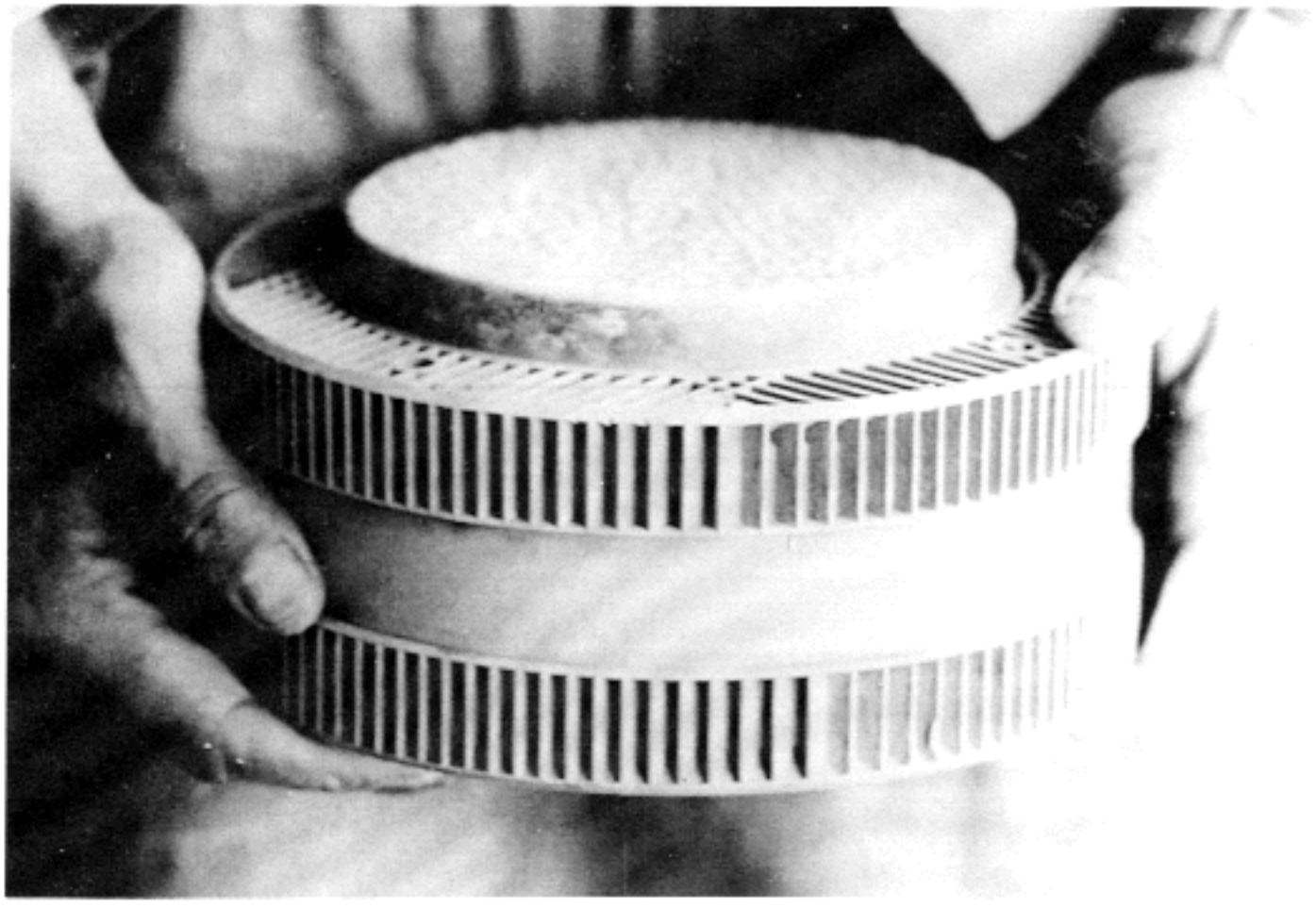
Breach Guidance:

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

Remarks:



TC/2.4, M/80 SCATTERABLE ANTITANK MINES

MATS SCATTERABLE ANTITANK MINE

DIAMETER
- 220 mm (8.7 in)
- 260 mm (10.2 in)

HEIGHT
- 90 mm (3.5 in)

MINE WEIGHT
- 3.6 kg (7.9 lb)
- 5.0 kg (11.0 lb)

EXPLOSIVE WEIGHT
- 1.5 kg (3.3 lb)
- 2.4 kg (5.3 lb)

COLORS
- sand brown, olive drab

Description:

Fuze Type - blast resistant, pressure activated

Sensitivity - 180 kg (396.8 lb)

Detectability - scattered ==> visual identification
buried ==> difficult with hand-held detectors
(total metallic content is < 2.46 grams)

Capability:

Type Kill - blast effect

Antihandling - scattered ==> none
buried ==> yes, if MUV type or VS-AR-4 antilift fuze attached to bottom detonator well

Vulnerabilities:

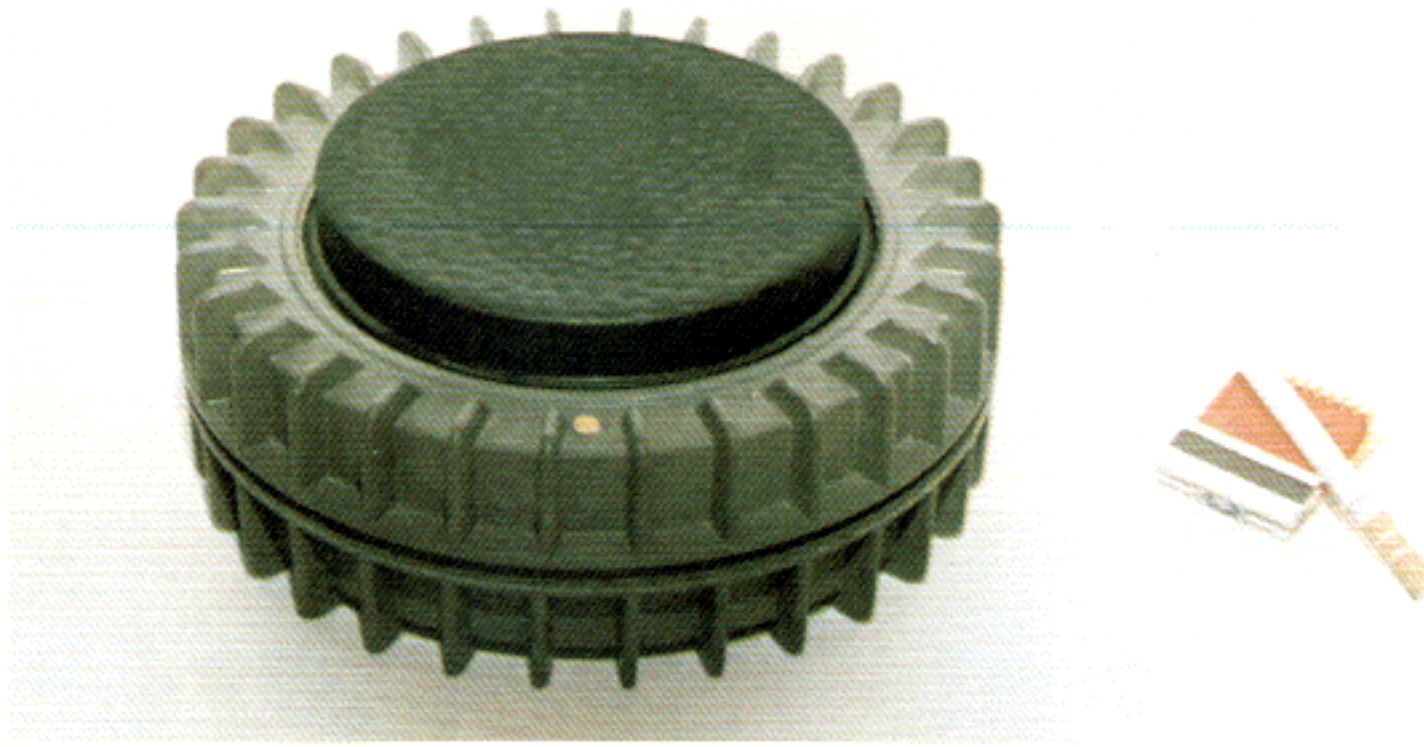
Breach Guidance:

Mine Plow - scattered ==> removes armed mines from plowed area
buried ==> removes armed mines from plowed area, detonates booby-trapped mines

MICLIC - drastic reduction in effectiveness (blast-resistant)

Charge Placement - adjacent to the MATS

Remarks: Both versions of the MATS antitank mines are helicopter deliverable by the DAT system and other compatible Italian mine scattering systems.



MATS SCATTERABLE ANTITANK MINE

MATS/2 SCATTERABLE ANTITANK MINE

DIAMETER
- 220 mm (8.7 in)
- 260 mm (10.2 in)

HEIGHT
- 90 mm (3.5 in)

MINE WEIGHT
- 3.6 kg (7.9 lb)
- 5.0 kg (11.0 lb)

EXPLOSIVE WEIGHT
- 1.5 kg (3.3 lb)
- 2.4 kg (5.3 lb)

COLORS
- sand brown, olive drab

Description:

Fuze Type - blast resistant, pressure activated

Sensitivity - 180 kg (396.8 lb)

Detectability - scattered ==> visual identification
buried ==> difficult with hand-held detectors (total metallic content is < 2.46 grams)

Capability:

Type Kill - blast effect

Antihandling - scattered ==> none
buried ==> yes, if MUV type or VS-AR-4 antilift fuze attached to bottom detonator well

Vulnerabilities:

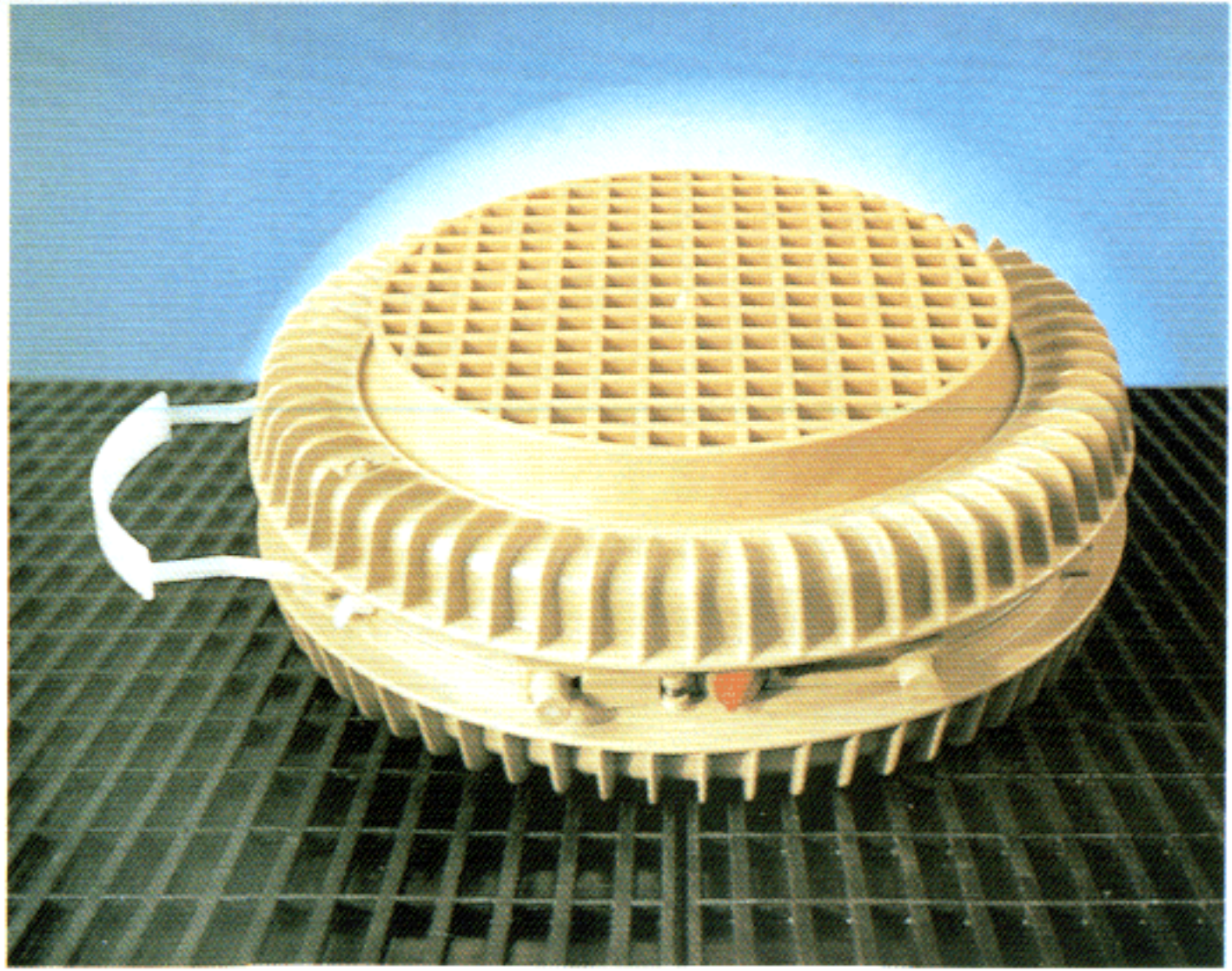
Breach Guidance:

Mine Plow - scattered ==> removes armed mines from plowed area
buried ==> removes armed mines from plowed area, detonates booby-trapped mines

MICLIC - drastic reduction in effectiveness (blast-resistant)

Charge Placement - adjacent to the MATS/2

Remarks: Both versions of the MATS/2 antitank mines are helicopter deliverable by the DAT system as well as other compatible Italian mine scattering systems.



MATS/2 SCATTERABLE ANTITANK MINE

SB-81, SB-81/AR SCATTERABLE ANTITANK MINES

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)

COLORS
- 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 antihandling/self-neutralization;
SB-81/AR: has electronics package with options for both antihandling and programmable self-neutralization

buried ==> SB-81: yes, if MUV type or VS-AR-4 antilift fuze attached to bottom detonator well
SB-81/AR: has built in capability for optional antihandling and programmable self-neutralization

Vulnerabilities:

Breach Guidance:

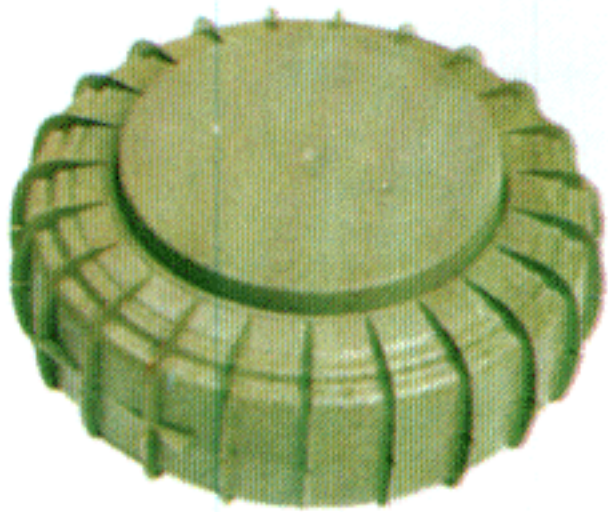
Mine Plow - scattered ==> SB-81: removes armed mines from plowed area
SB-81/AR: detonates armed mines when moved by plow

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.



SB-81, SB-81/AR SCATTERABLE ANTITANK MINES

VS-1.6, VS-1.6/AR, VS-1.6/AN SCATTERABLE ANTITANK MINES

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 w/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 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:

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

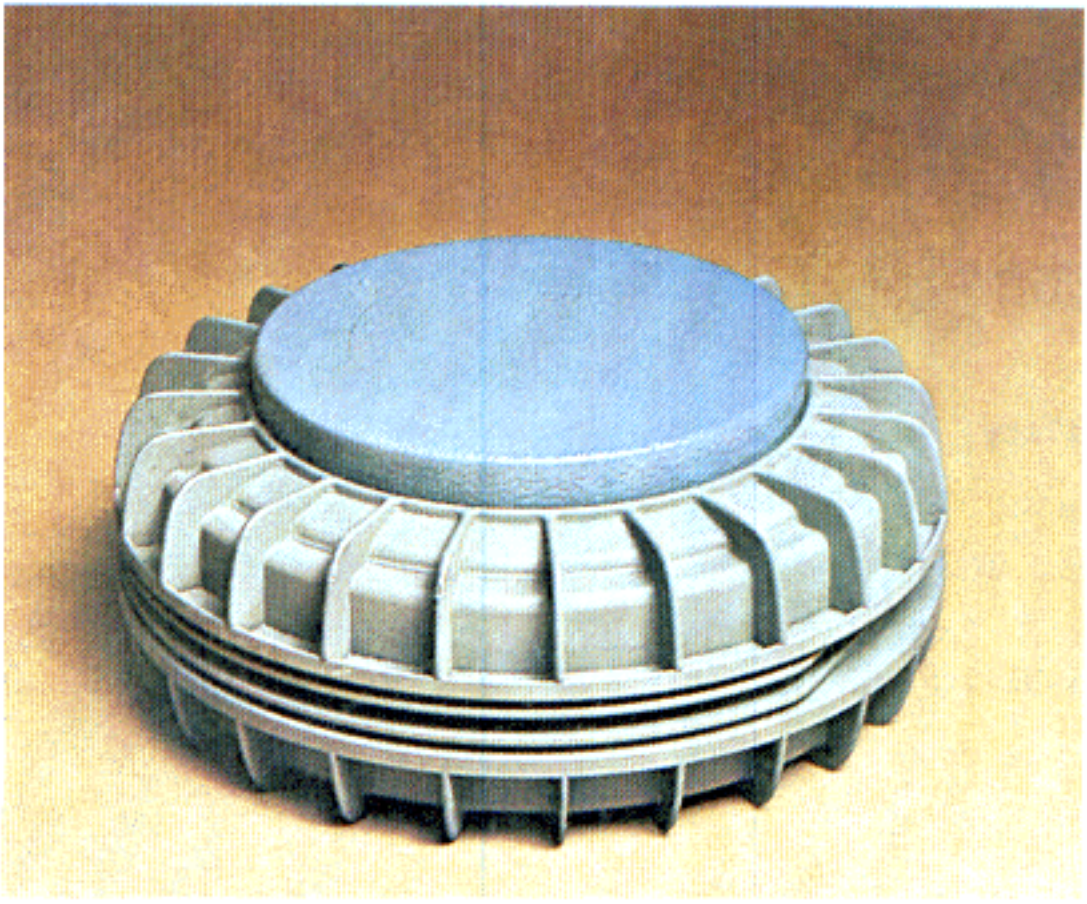
buried ==> VS-1.6: removes armed mines from plowed area, detonates booby-trapped mines

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.



VS-1.6, VS-1.6/AR, VS-1.6/AN SCATTERABLE ANTITANK MINES

IRAQI/YUGOSLAV ABABEL SCATTERABLE ANTITANK MINE

DIAMETER
- 116 mm (4.6 in)

HEIGHT
(Information not available)

MINE WEIGHT
(Information not available)

EXPLOSIVE WEIGHT
(Information not available)

COLORS
(Information not available)

Description:

Fuze Type - delay-armed, magnetic influence fuze activated

Sensitivity - changing ambient magnetic fields

Detectability - scattered ==> visual identification
note - operation of hand-held mine detectors may detonate this mine (however, it is not a buried mine)

Capability:

Type Kill - shaped-charge effect

Antihandling - scattered ==> yes, inherent in magnetic fuze design

Vulnerabilities:

Breach Guidance:

Mine Plow - scattered ==> detonates mines in plowed area, mines passing under vehicle will acquire vehicle as target

MICLIC - will cause detonation only in those mines physically moved by the blast effects and those which are close-in for sympathetic detonation

Charge Placement - remotely destroy

Remarks:

IRAQI/YUGOSLAV ABABEL SCATTERABLE ANTITANK MINE

FIROS-25 ITALIAN SCATTERABLE ANTITANK MINE

DIAMETER
- 116 mm (4.6 in)

HEIGHT
(Information not available)

MINE WEIGHT
(Information not available)

EXPLOSIVE WEIGHT
(Information not available)

COLORS
(Information not available)

Description:

Fuze Type - delay-armed, magnetic influence fuze activated

Sensitivity - changing ambient magnetic fields

Detectability - scattered --> visual identification
note - operation of hand-held mine detectors may detonate this mine (however, it is not a buried mine)

Capability:

Type Kill - shaped-charge effect

Antihandling - scattered ==> yes, inherent in magnetic fuze design

Vulnerabilities:

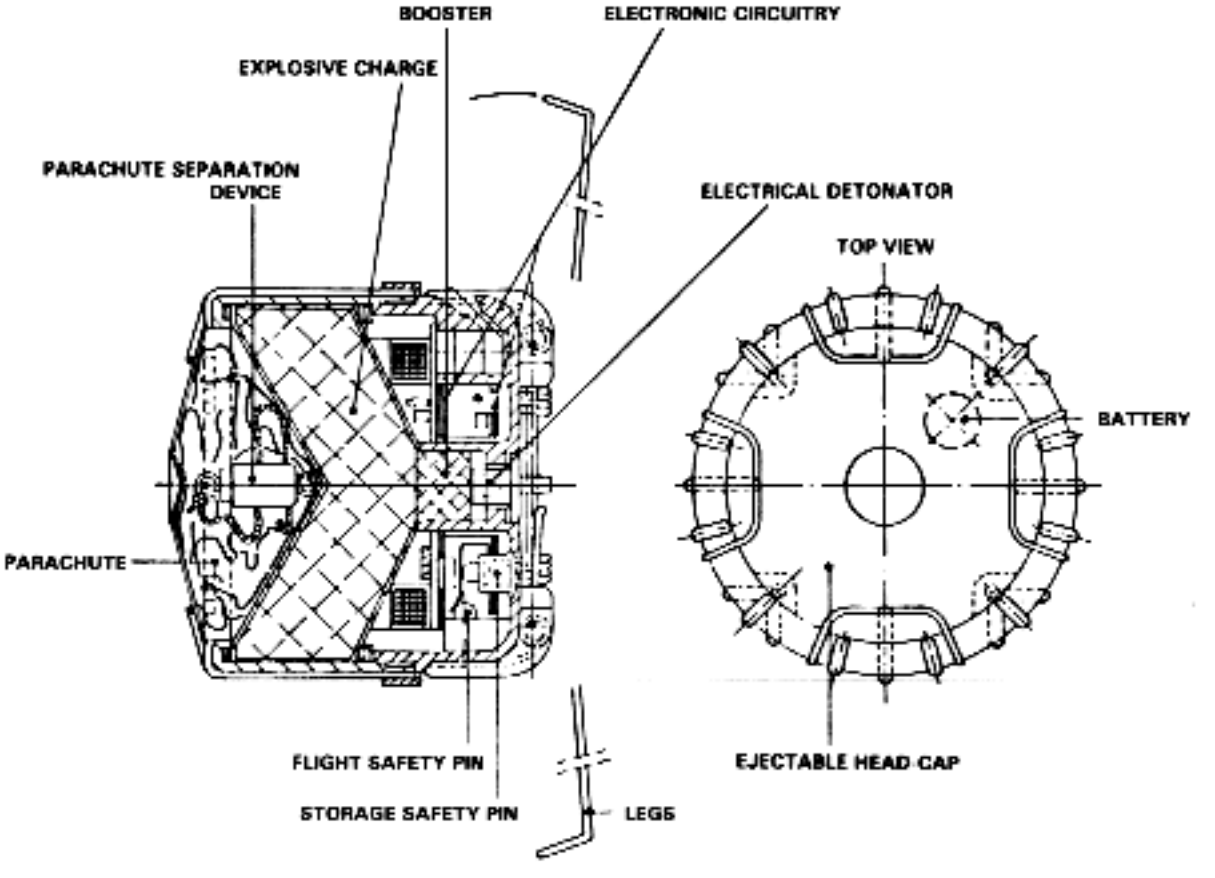
Breach Guidance:

Mine Plow - scattered ==> detonates mines in plowed area, mines passing under vehicle will acquire vehicle as target

MICLIC - will cause detonation only in those mines physically moved by the blast effects and those which are close-in for sympathetic detonation

Charge Placement - remotely destroy

Remarks: Programmable self-destruct times available at time of launch b FIROS 25 multiple rocket launcher (settings are OFF, 2, 4, 8, 16, 32, 48, or Max hours).



FIROS-25 ITALIAN SCATTERABLE ANTITANK MINE

PMN ANTIPERSONNEL MINE

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:

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

Remarks:

PMN ANTIPERSONNEL MINE

PMN-2 ANTIPERSONNEL MINE

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:

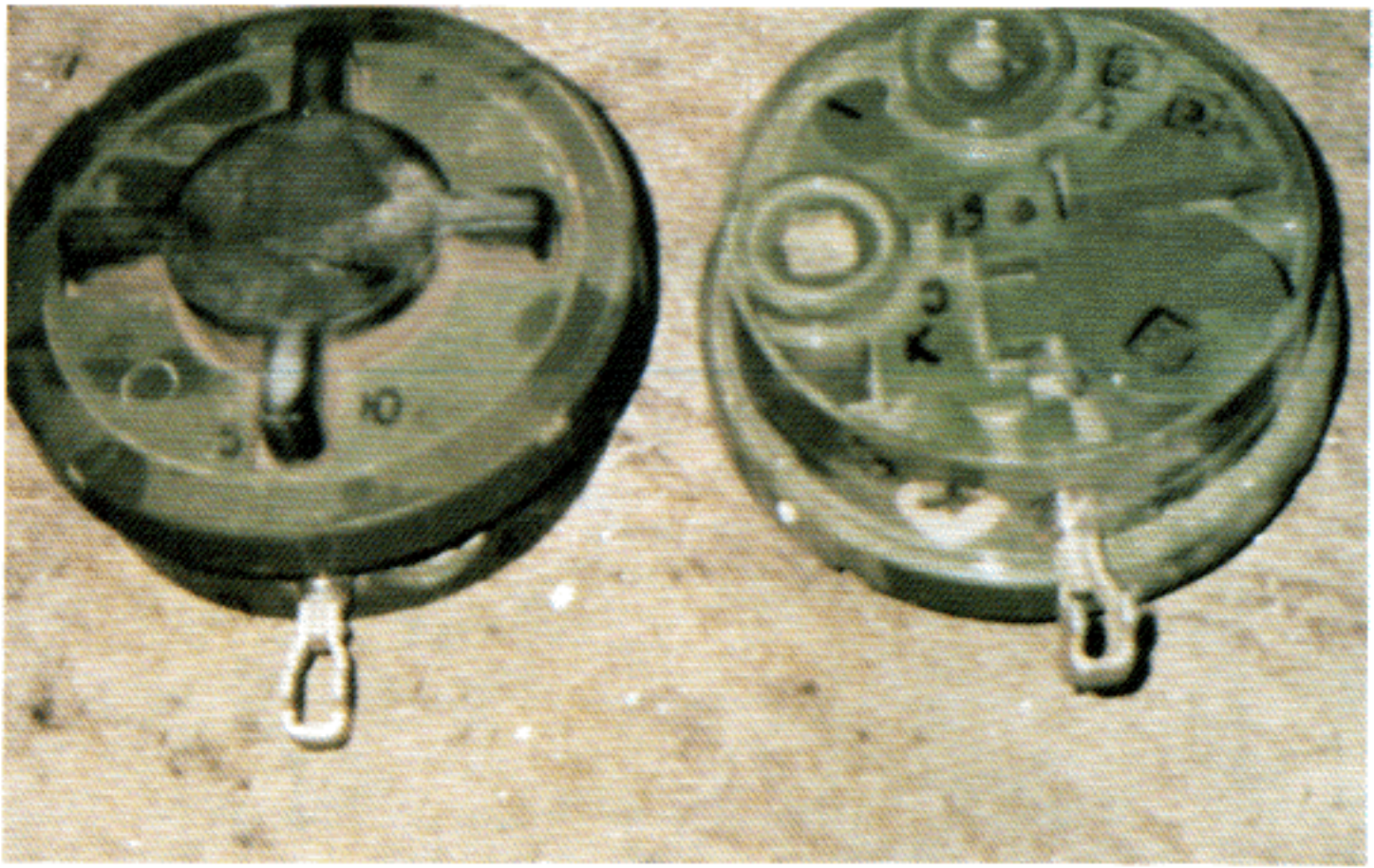
Breach Guidance:

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

Remarks:



PMN-2 ANTIPERSONNEL MINE

PRB M409 ANTIPERSONNEL MINE

HEIGHT
- 28 mm (1.1 in)

DIAMETER
- 82 mm (3.2 in)

MINE WEIGHT
- 183 grams (6.5 oz)

EXPLOSIVE WEIGHT
- 80 grams (2.8 oz)

COLOR
- green

Description:

Fuze Type - pressure initiated

Sensitivity - 8 to 30 kg (17.6 to 66.1 lb) pressure

Detectability - difficult with hand-held metallic detector; only 1 gram of metal in the fuze assembly (plus the aluminum powder in the explosive)

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

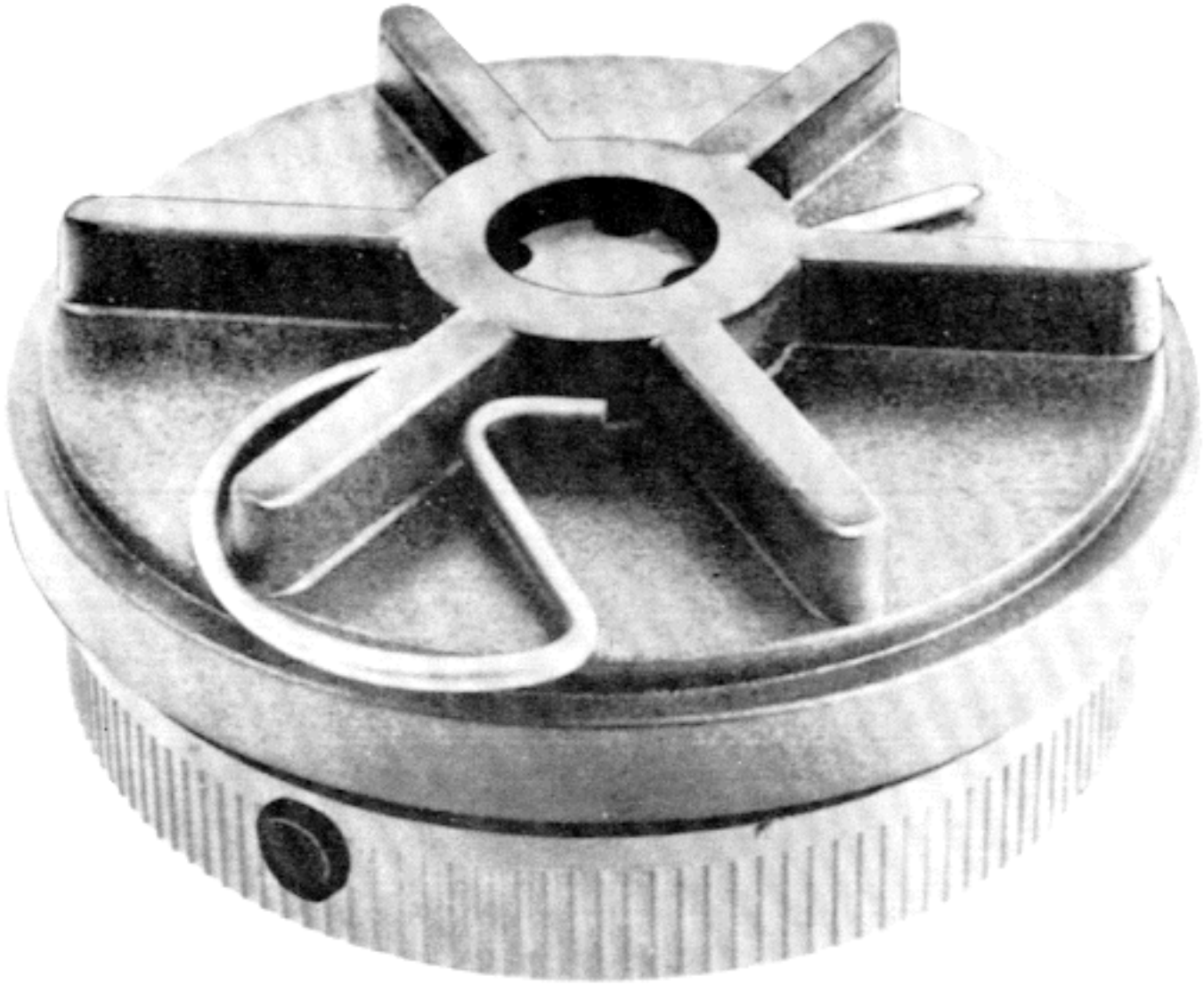
Breach Guidance:

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 PRB M409

Remarks:



PRB M409 ANTIPERSONNEL MINE

TYPE 72, TYPE 72B ANTIPERSONNEL MINE

HEIGHT
- 37 mm (1.5 in)

DIAMETER
- 78 mm (3.1 in)

MINE WEIGHT
- 150 grams (5.3 oz)

EXPLOSIVE WEIGHT
- 34 grams (1.2 oz)

COLOR
- light green cover, green body

Description:

Fuze Type - Type 72 ==> pressure initiated
Type 72B ==> delay-armed, pressure initiated

Sensitivity - Type 72 ==> 3 to 7 kg (6.6 to 15.4 lb) pressure
Type 72B ==> 3 to 7 kg pressure or > 15 degrees tilt

Detectability - difficult for Type 72 (the only metal is in the detonator and striker); electronics in the 72B allow for easier detection

Capability:

Type Kill - blast effect

Antihandling - yes, in the Type 72B

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - blast overpressure readily defeats the pressure fuze

Charge Placement - adjacent to the Type 72/Type 72B

Remarks: Probing for small mines with antidisturbance features and/or low threshold pressure fuzing is very hazardous.

TYPE 72, TYPE 72B ANTIPERSONNEL MINE

M14 ANTIPERSONNEL MINE

HEIGHT
- 40 mm (1.6 in)

DIAMETER
- 56 mm (2.2 in)

MINE WEIGHT
- 99 grams (3.5 oz)

EXPLOSIVE WEIGHT
- 29 grams (1.0 oz)

COLOR
- olive drab

Description:

Fuze Type - pressure initiated

Sensitivity - 9 to 16 kg (19.8 to 35.3 lb) pressure

Detectability - very difficult with hand-held detectors (metallic content limited to striker tip)

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - blast overpressure will defeat this pressure fuze

Charge Placement - adjacent to the M14

Remarks:

M14 ANTIPERSONNEL MINE

P4 MK1 ANTIPERSONNEL MINE

HEIGHT
- 15 mm (0.6 in)

DIAMETER
- 72 mm (2.8 in)

MINE WEIGHT
- 205 grams (7.2 oz)

EXPLOSIVE WEIGHT
- 25 grams (0.9 oz)

COLOR
- gray brown

Description:

Fuze Type - pressure initiated

Sensitivity - 10 kg (22.0 lb) pressure

Detectability - difficult with hand-held detectors (metallic content limited to spring, striker tip, and shear wire)

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow -removes armed mines from plowed area, some will detonate

MICLIC - blast overpressure will defeat this pressure fuze

Charge Placement - adjacent to the P4 MK1

Remarks:

P4 MK1 ANTIPERSONNEL MINE

PMA-2 ANTIPERSONNEL MINE

HEIGHT
- 61 mm (2.4 in) (w/fuze)

DIAMETER
- 68 mm (2.7 in)

MINE WEIGHT
- 135 grams (4.8 oz)

EXPLOSIVE WEIGHT
- 100 grams (3.5 oz)

COLOR
- green

Description:

Fuze Type - pressure initiated

Sensitivity - 7 to 10 kg (15.4 to 22.0 lb)

Detectability - nondetectable with hand-held metallic detector (no metallic content in mine or fuze)

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

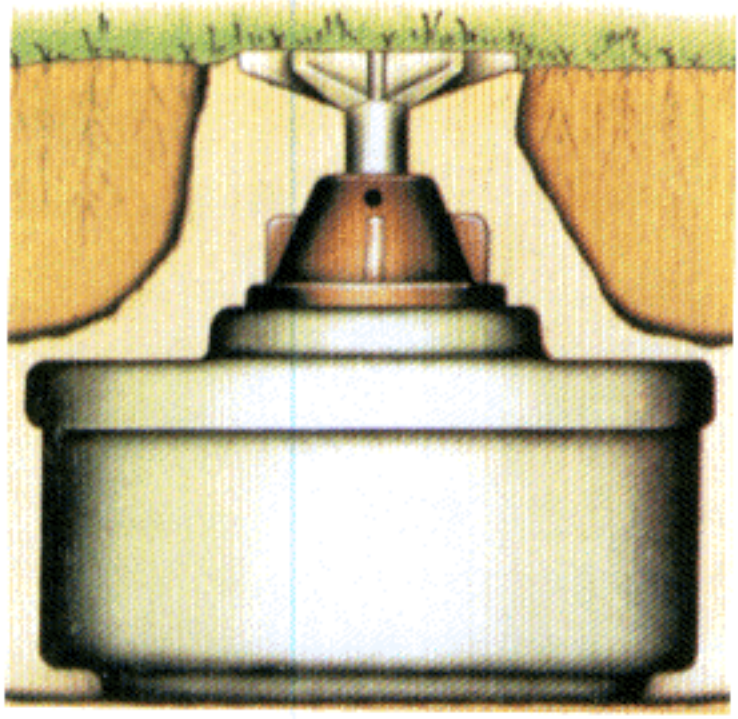
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - significant reduction in effectiveness against the pronged PMA-2 fuze

Charge Placement - adjacent to the PMA-2

Remarks:



PMA-2 ANTIPERSONNEL MINE

PMA-3 ANTIPERSONNEL MINE

HEIGHT
- 40 mm (1.6 in)

DIAMETER
- 111 mm (4.4 in)

MINE WEIGHT
- 183 grams (6.5 oz)

EXPLOSIVE WEIGHT
- 35 grams (1.2 oz)

COLOR
- black rubber cover, green body

Description:

Fuze Type - pressure initiated

Sensitivity - 8 to 20 kg (17.6 to 44.1 lb)

Detectability - nondetectable with hand-held metallic detector (no metallic content in mine or fuze)

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - significant reduction in effectiveness against the pronged PM 3 fuze

Charge Placement - adjacent to the PMA-3

Remarks: Chemical/friction fuze initiates only on a combination of pressure and rotation of the upper section of the mine housing.

PMA-3 ANTIPERSONNEL MINE

PMD-6, PMD-6M ANTIPERSONNEL MINES

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:

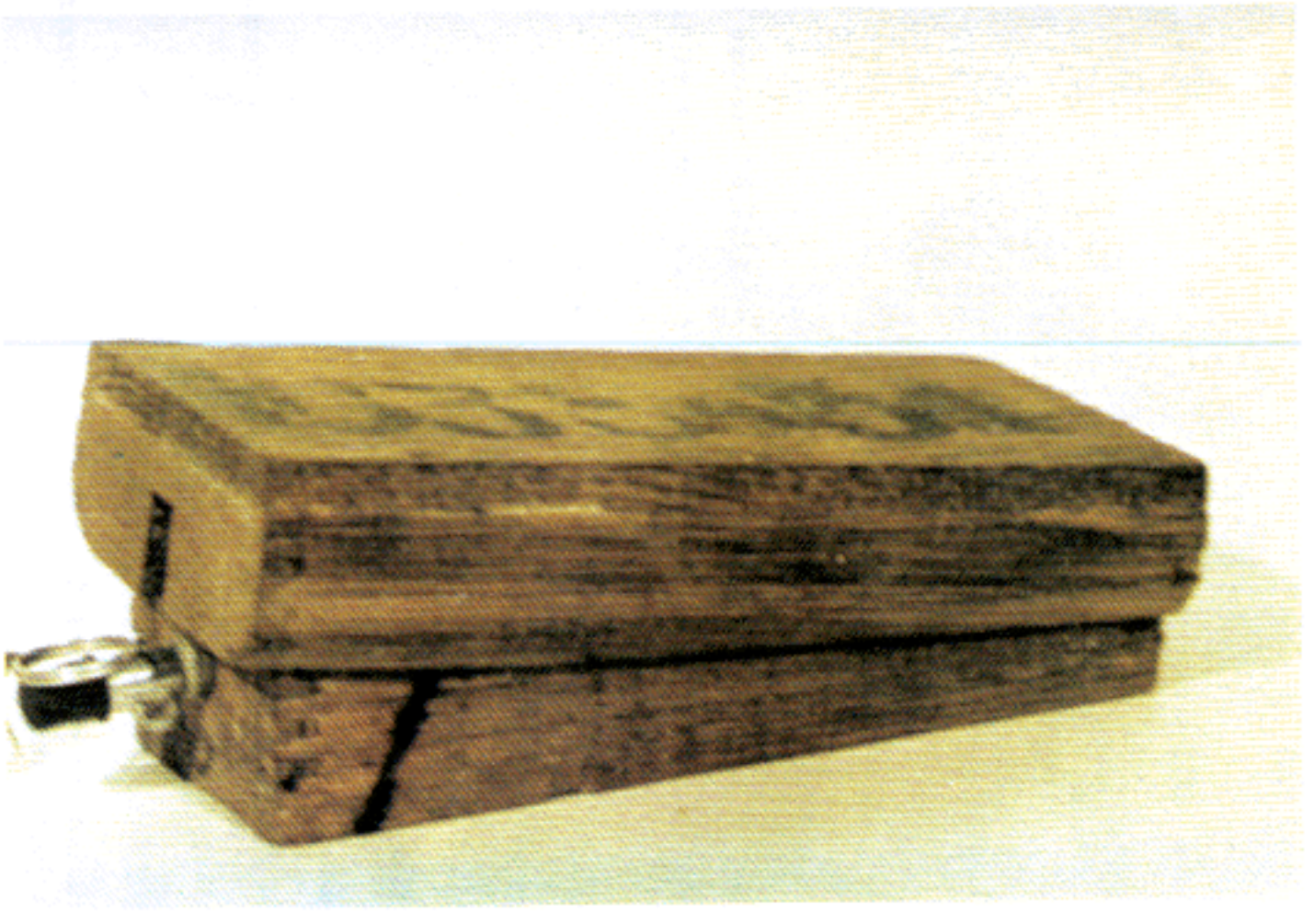
Breach Guidance:

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.



PMD-6, PMD-6M ANTIPERSONNEL MINE

M/78 ANTIPERSONNEL MINE

LENGTH
- 135 mm (5.3 in)

WIDTH
- 68 mm (2.7 in)

HEIGHT
- 41 mm (1.6 in)

MINE WEIGHT
- 270 grams (9.5 oz)

EXPLOSIVE WEIGHT
- 190 grams (6.7 oz)

COLOR
- light brown

Description:

Fuze Type - pressure initiated (no arming delay)

Sensitivity - 8 kg (17.6 lb) (depends upon condition of release pin)

Detectability - with hand-held detector; fair amount of metal in fuze and detonator assembly

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

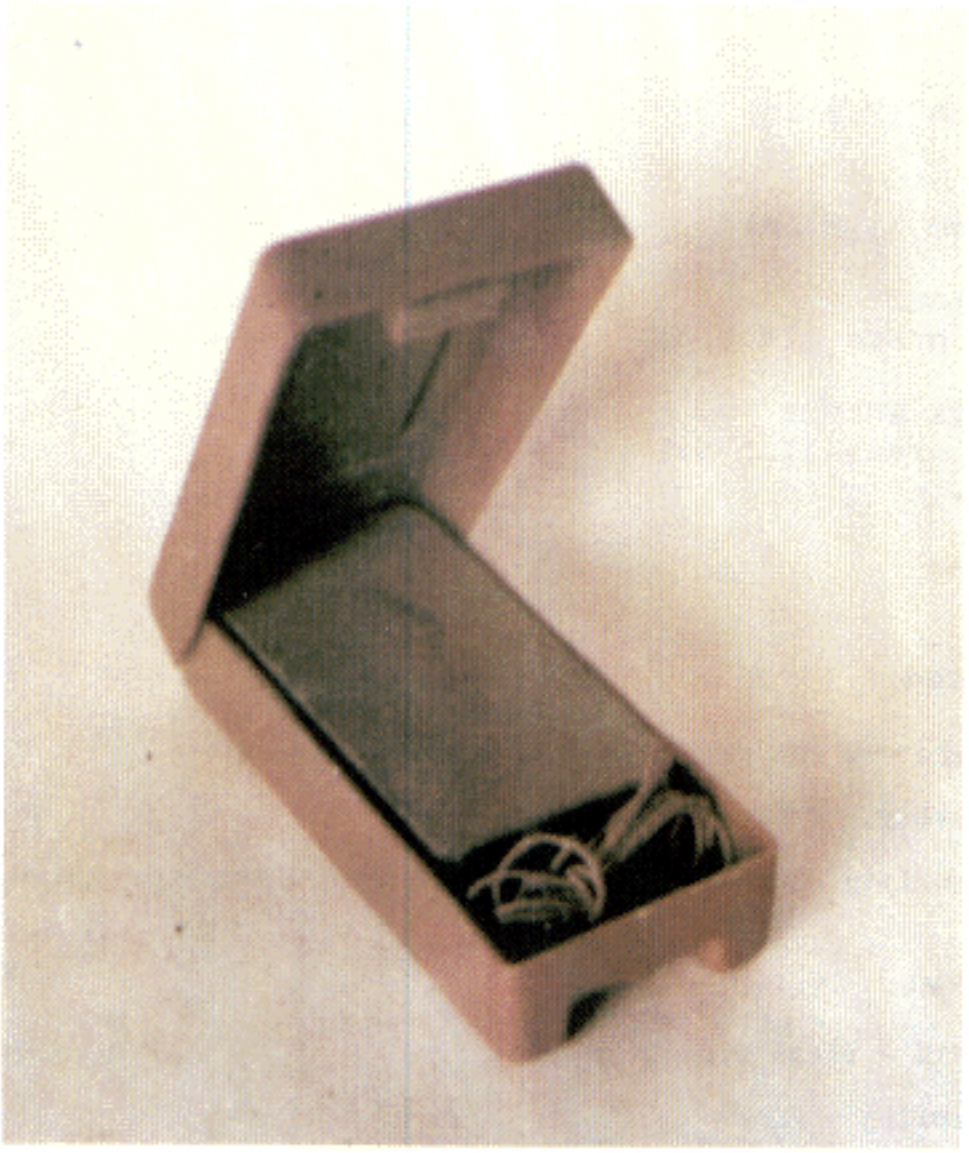
Breach Guidance:

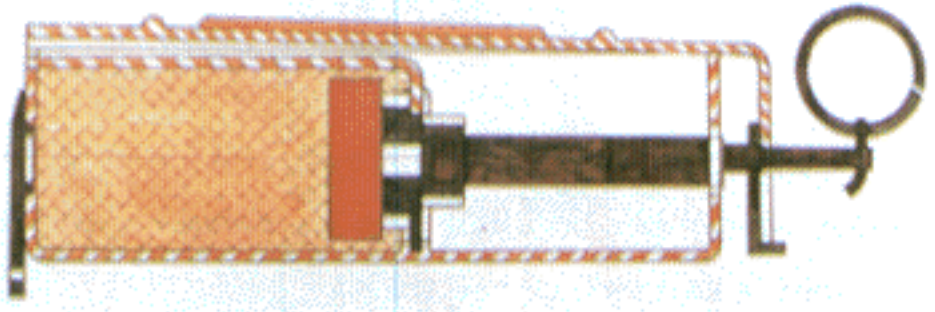
Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - blast overpressure readily defeats a "SHU" type mine

Charge Placement - adjacent to the M/78

Remarks: Probing for small "SHU" type mines with low pressure thresholds is a very hazardous operation.





M/78 ANTIPERSONNEL MINE

PMA-1A ANTIPERSONNEL MINE

LENGTH
- 140 mm (5.5 in)

WIDTH
- 70 mm (2.8 in)

HEIGHT
- 30 mm (1.2 in)

MINE WEIGHT
- 400 grams (14.1 oz)

EXPLOSIVE WEIGHT
- 200 grams (7.1 oz)

COLOR
- green

Description:

Fuze Type - pressure initiated (no delay arming)

Sensitivity - 3 kg (6.6 lb)

Detectability - nondetectable with hand-held detector (no metallic content in mine or fuze)

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

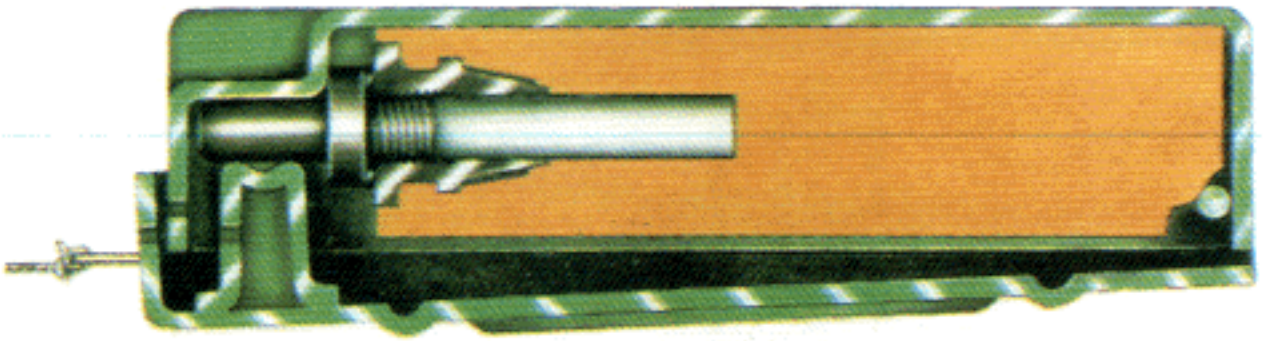
Breach Guidance:

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 PMA-1A

Remarks: Probing for small "SHU" type mines with low pressure thresholds is a very hazardous operation.



PMA-1A ANTIPERSONNEL MINE

POMZ-2, POMZ-2M ANTIPERSONNEL MINES

HEIGHT
- 107 mm (4.2 in) (w/o 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 (tension) 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:

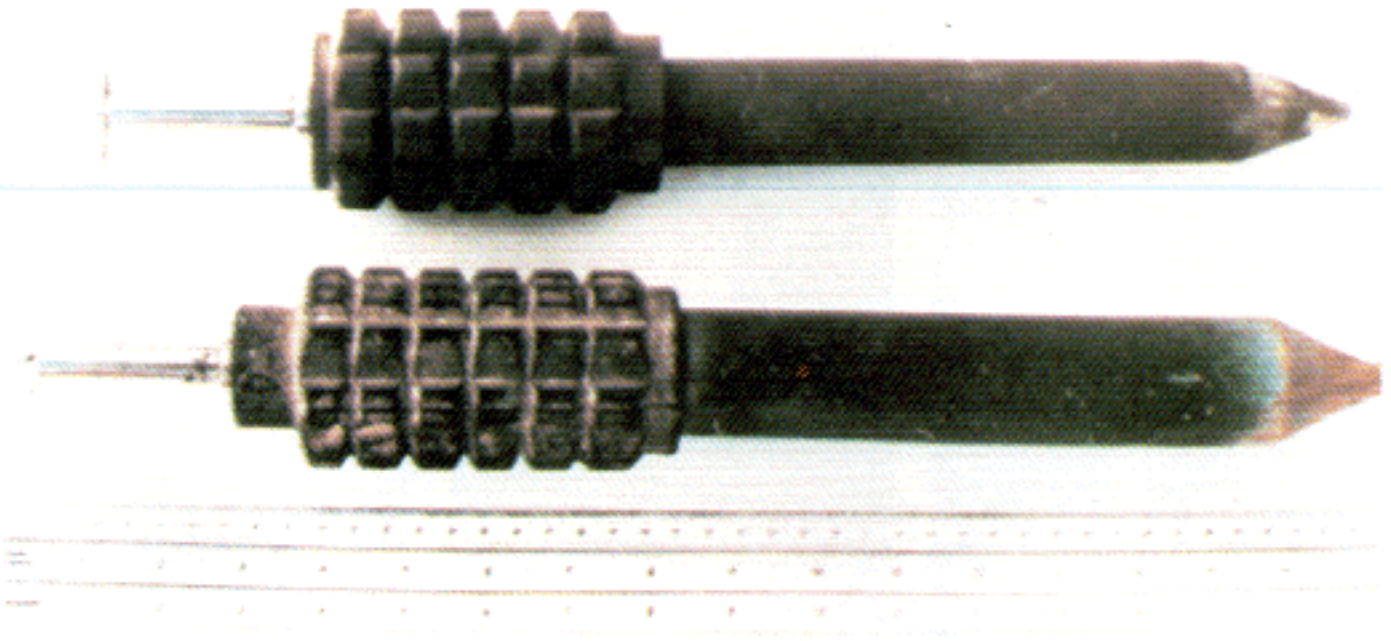
Breach Guidance:

Mine Plow - removes armed mines from plow 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.



POMZ-2, POMZ-2M ANTIPERSONNEL MINES

PMR-2A ANTIPERSONNEL MINE

HEIGHT
- 132 mm (5.2 in) (w/fuze)

DIAMETER
- 66 mm (2.6 in)

MINE WEIGHT
- 1,700 grams (3.8 lb)

EXPLOSIVE WEIGHT
- 100 grams (3.5 lb)

COLOR
- green

Description:

Fuze Type - trip wire (tension) initiated (no arming delay)

Sensitivity - 3 kg (6.6 lb) (depends upon condition of release pin in fuze)

Detectability - visual, stake mounted

Capability:

Type Kill - fragmentation effect

Kill Radius - 8 meters

Antihandling - none

Vulnerabilities:

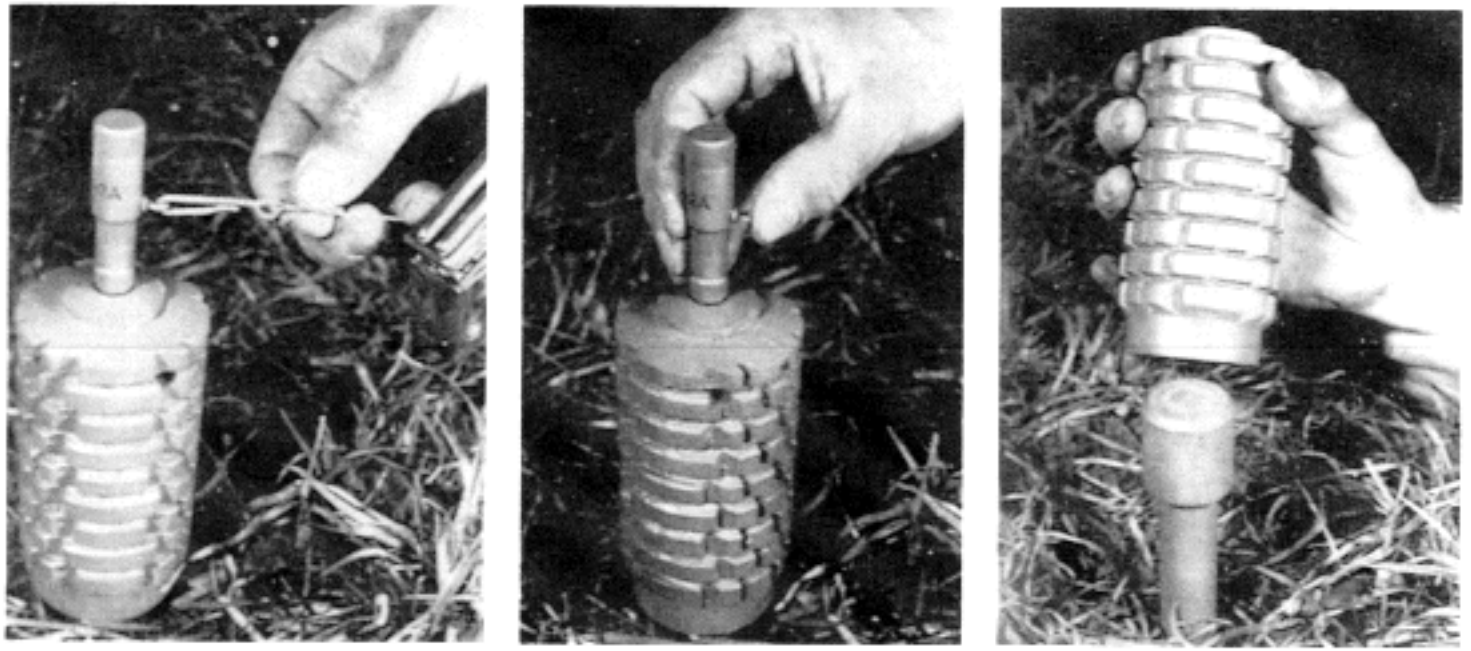
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire initiated mines

Charge Placement - adjacent to the PMR-2A

Remarks: Both steel and wood mounting stakes available.



PMR-2A ANTIPERSONNEL MINE

P-25 ANTIPERSONNEL MINE

HEIGHT
- 180 mm (7.1 in) (w/fuze)

DIAMETER
- 75 mm (3.0 in)

MINE WEIGHT
- 700 grams (1.5 lb)

EXPLOSIVE WEIGHT
- 180 grams (6.3 oz)

COLOR
- green, sand brown

Description:

Fuze Type - trip wire (tension) initiated (no delay arming)

Sensitivity - 5 kg (11.0 lb)

Detectability - visual, stake mounted

Capability:

Type Kill - fragmentation effect

Kill Radius - 10 meters

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire initiated mines

Charge Placement - adjacent to the P-25

Remarks:

P-25 ANTIPERSONNEL MINE

CLAYMORE TYPE ANTIPERSONNEL MINE

WIDTH
- 200 mm (approx.) (7.9 in)

DEPTH
- 45 mm (approx.) (1.8 in)

HEIGHT
- 105 mm (approx.) (4.1 in)

MINE WEIGHT
- 2,000 grams (4.4 lb)

EXPLOSIVE WEIGHT
- 1,000 grams (2.2 lb)

COLOR
- sand brown

Description:

Fuze Type - trip wire (tension), command initiated

Sensitivity - 3 kg (6.6 lb)

Detectability - visual, stands on own steel legs

Capability:

Type Kill - directed fragmentation effect

Kill Radius - 50 meters

Antihandling - none

Vulnerabilities:

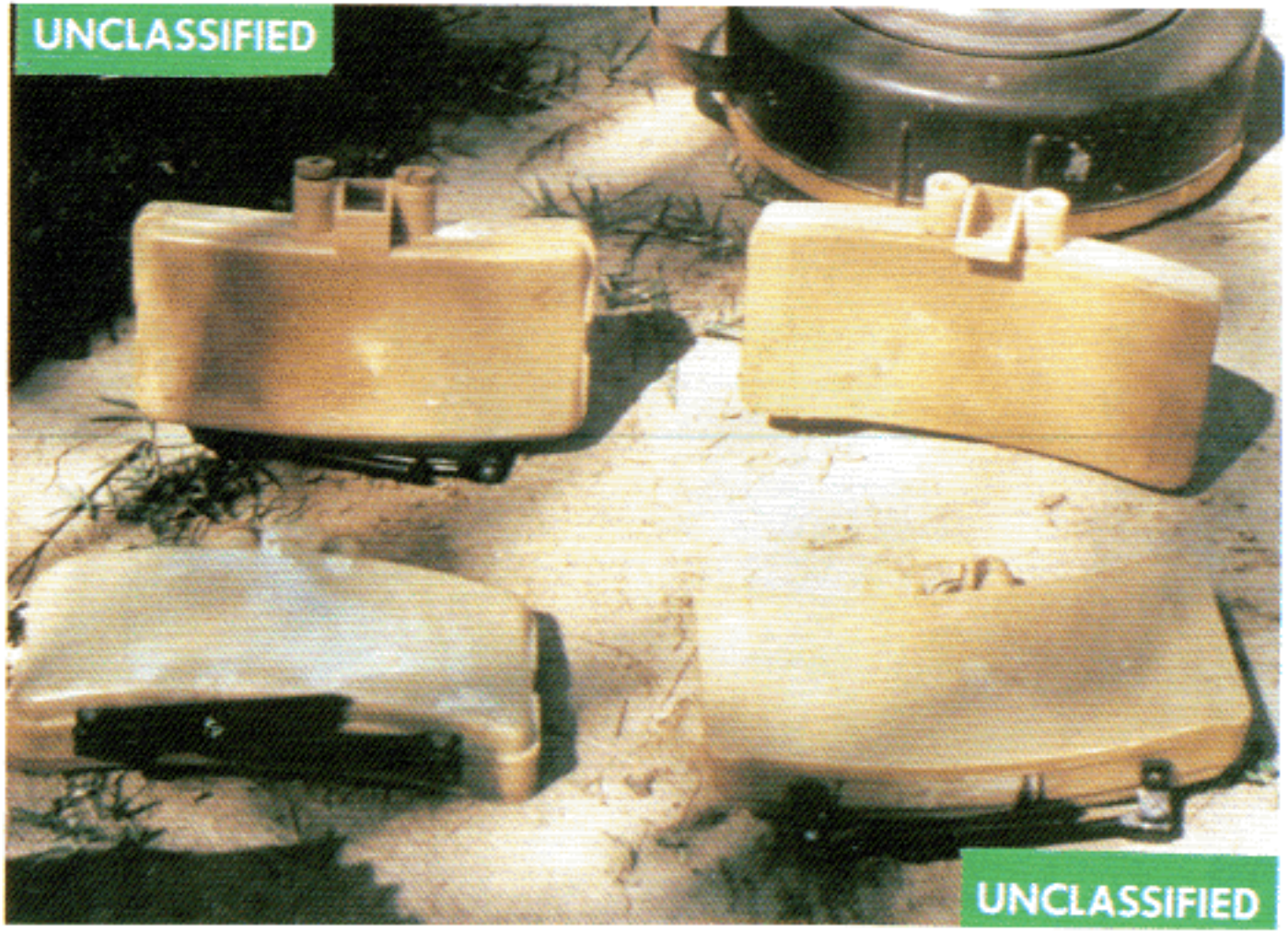
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - heavy line charges readily defeat trip wire/command mines

Charge Placement - adjacent to the claymore mine

Remarks: Two fuze wells provide opportunity for multiple trip lines.



CLAYMORE TYPE ANTIPERSONNEL MINE

MRUD ANTIPERSONNEL MINE

WIDTH
- 231 mm (9.1 in)

DEPTH
- 46 mm (1.8 in)

HEIGHT
- 89 mm (3.5 in) (w/o legs)

MINE WEIGHT
- 1,500 grams (3.3 lb)

EXPLOSIVE WEIGHT
- 900 grams (2.0 lb)

COLOR
- green

Description:

Fuze Type - trip wire (tension), command initiated

Sensitivity - 3 kg (6.6 lb)

Detectability - visual, stands on own steel legs

Capability:

Type Kill - directed fragmentation effect

Kill Radius - 50 meters, 60 degree area of coverage (fragmentation - 650 steel balls at 5.5 mm dia.)

Antihandling - none

Vulnerabilities:

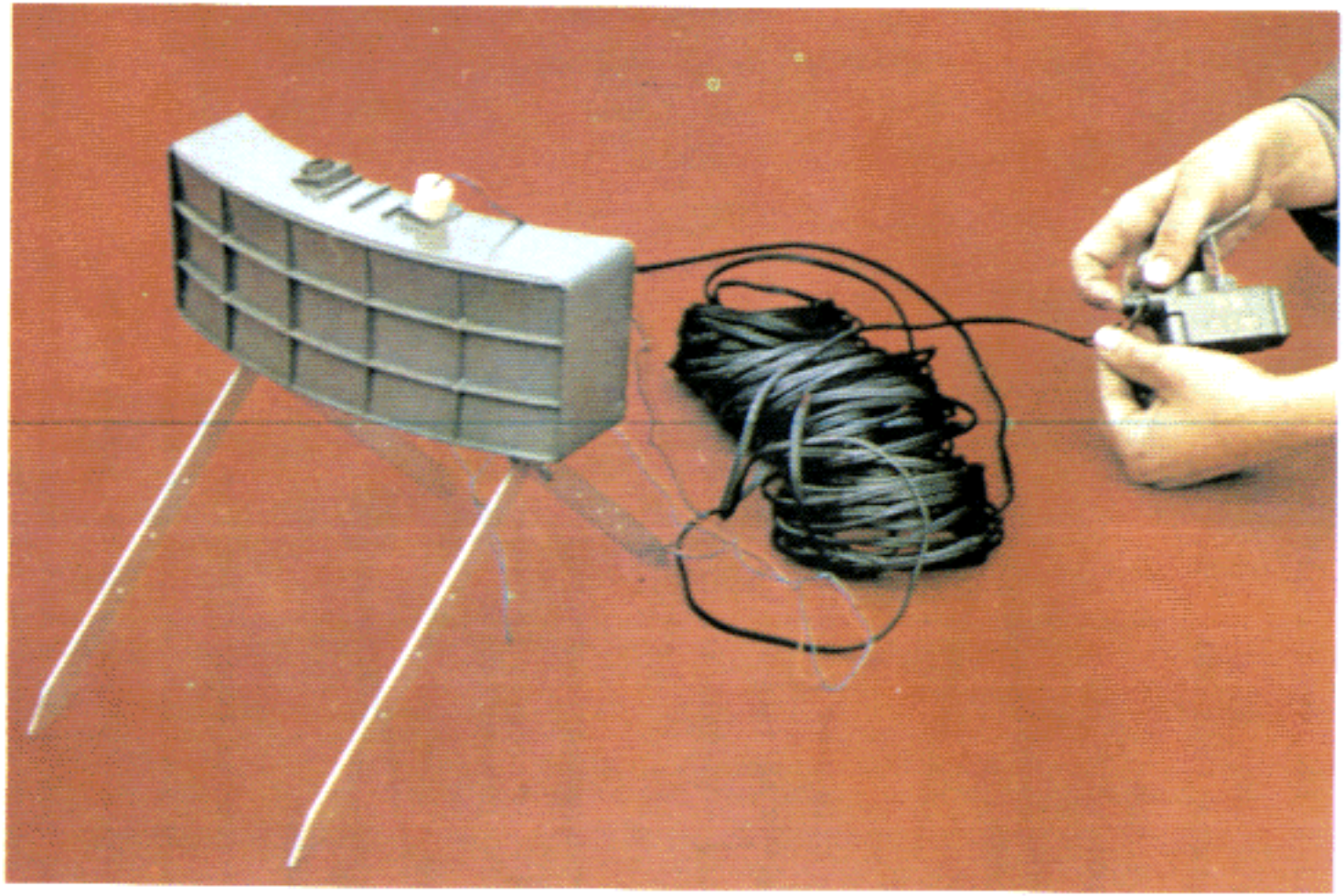
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - heavy line charges readily defeat trip wire/command mines

Charge Placement - adjacent to the MRUD

Remarks: Two fuze wells provide opportunity for multiple trip lines or the use of detonating cord for series connection to adjacent MRUD mine.



MRUD ANTIPERSONNEL MINE

M18A1, P5 MK1 ANTIPERSONNEL MINE

WIDTH
- 230 mm (9.1 in)

DEPTH
- 50 mm (2.0 in)

HEIGHT
- 90 mm (3.5 in) (w/o legs)

MINE WEIGHT
- 1,600 grams (3.5 lb)

EXPLOSIVE WEIGHT
- 900 grams (2.0 lb)

COLOR
- sand brown

Description:

Fuze Type - trip wire (tension), command initiated

Sensitivity - 3 kg (6.6 lb)

Detectability - visual, stands on own steel legs

Capability:

Type Kill - directed fragmentation effect

Kill Radius - 50 meters, 60 degree area of coverage
(fragmentation - 760 steel balls)

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - heavy line charges readily defeat trip wire/command mines

Charge Placement - adjacent to the M18A1, P5 MK1

Remarks: Two fuze wells provide opportunity for multiple trip lines or the use of detonating cord for series connection to adjacent mines.

M18A1, P5 MK1 ANTIPERSONNEL MINE

M18A1 ANTIPERSONNEL MINE

WIDTH
- 216 mm (8.5 in)

DEPTH
- 35 mm (1.4 in)

HEIGHT
- 83 mm (3.3 in) (w/o legs)

MINE WEIGHT
- 1,580 grams (3.5 lb)

EXPLOSIVE WEIGHT
- 685 grams (1.5 lb)

COLOR
- sand brown

Description:

Fuze Type - trip wire (tension), command initiated

Sensitivity - 3 kg (6.6 lb)

Detectability - visual, stands on own steel legs

Capability:

Type Kill - directed fragmentation effect

Kill Radius - 50 meters, 60 degree area of coverage
(fragmentation - 700 steel balls)

Antihandling - none

Vulnerabilities:

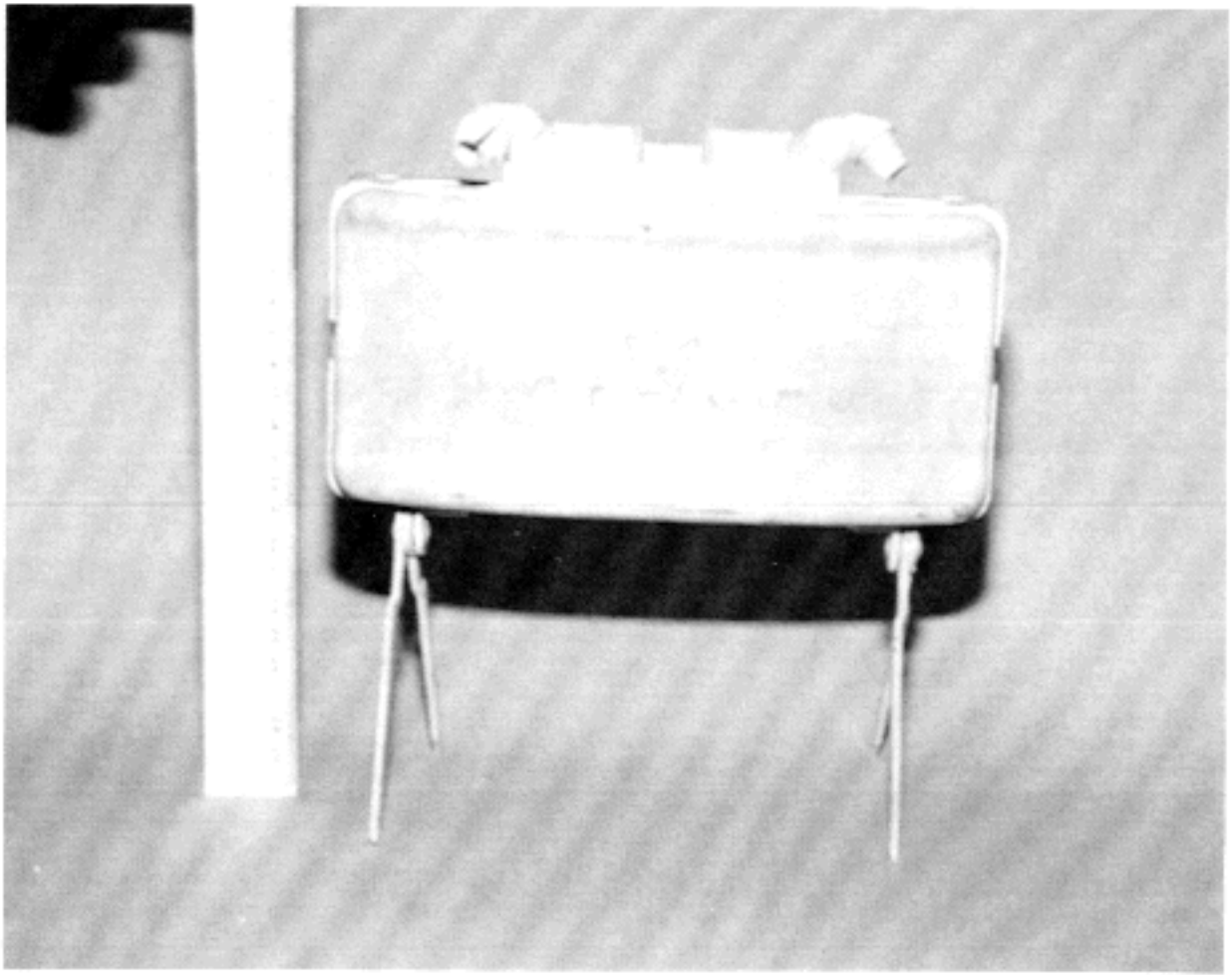
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - heavy line charges readily defeat trip wire/command mines

Charge Placement - adjacent to the M18A1

Remarks: Two fuze wells provide opportunity for multiple trip lines or the use of detonating cord for series connection to adjacent mines.



M18A1 ANTIPERSONNEL MINE

MON-50 ANTIPERSONNEL MINE

WIDTH
- 220 mm (8.7 in)

DEPTH
- 45 mm (1.8 in)

HEIGHT
- 105 mm (4.1 in) (w/o legs)

MINE WEIGHT
- 1,960 grams (4.3 lb)

EXPLOSIVE WEIGHT
- 715 grams (1.6 lb)

COLOR
- green

Description:

Fuze Type - trip wire (tension), 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:

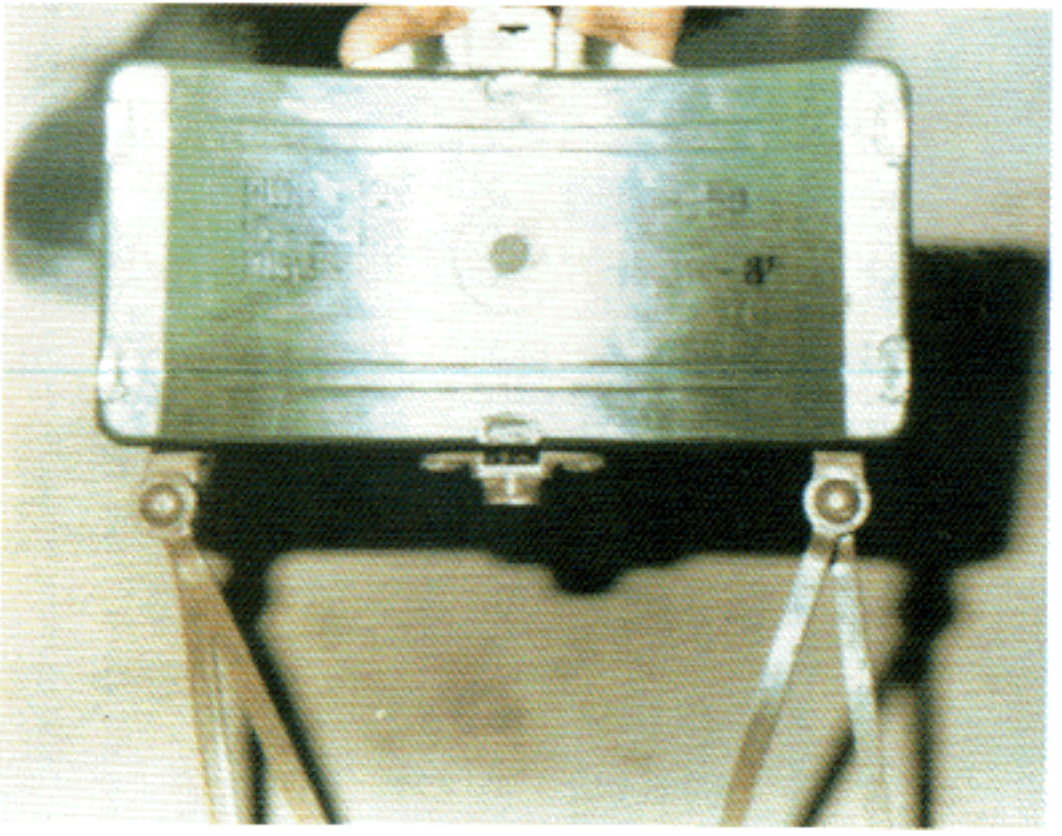
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - heavy line charges readily defeat trip wire/command 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, buildings, etc.



MON-50 ANTIPERSONNEL MINE

MON-100 ANTIPERSONNEL MINE

DIAMETER
- 240 mm (9.4 in)

DEPTH
- 80 mm (3.1 in)

MINE WEIGHT
- 5,400 grams (11.9 lb) (w/o bracket)

EXPLOSIVE WEIGHT
- 2,000 grams (4.4 lb)

COLOR
- olive drab

Description:

Fuze Type - trip wire (tension), 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:

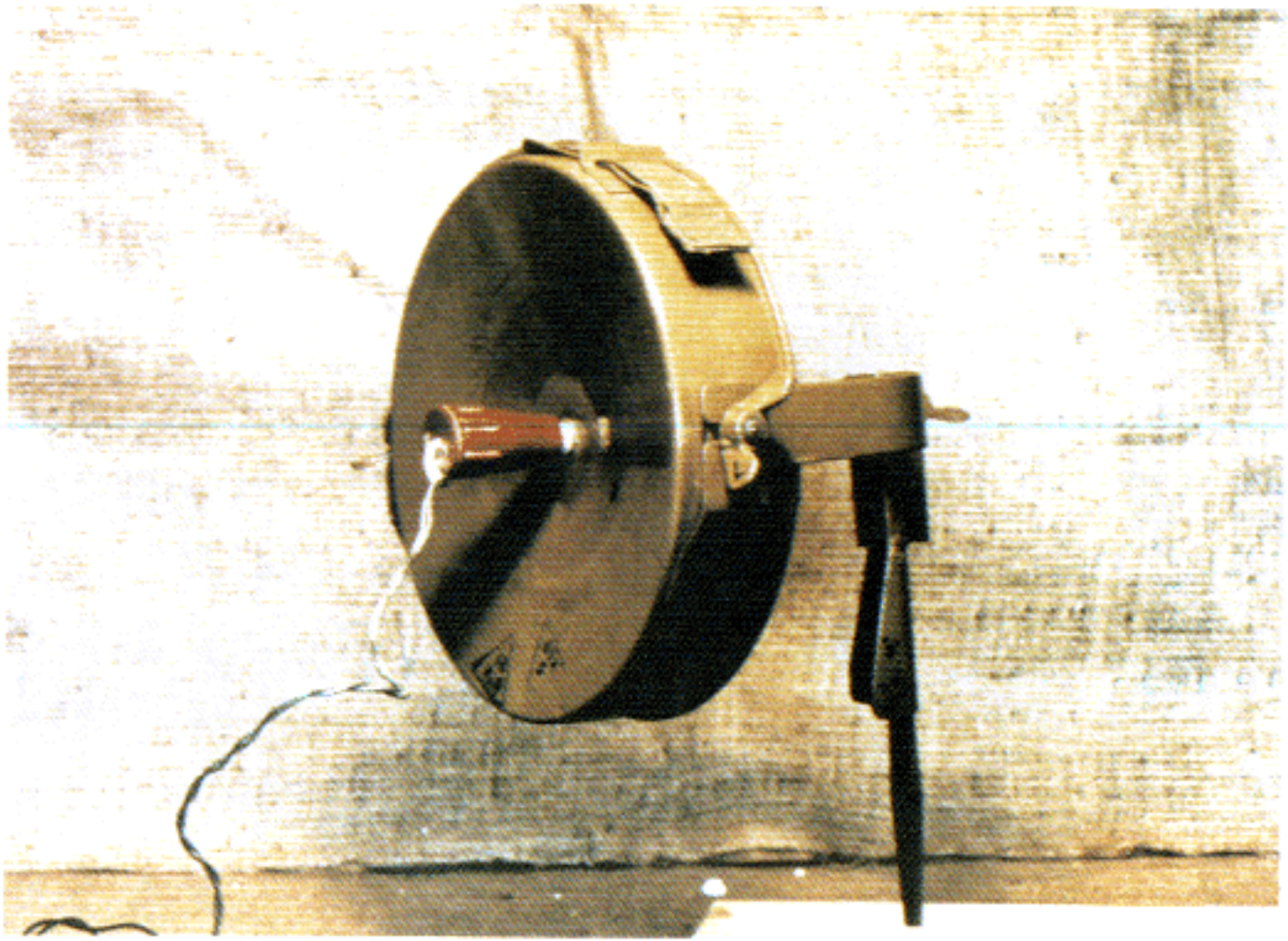
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - heavy line charges readily defeat trip wire/command mines

Charge Placement - adjacent to the MON-100

Remarks: A heavy steel mounting spike is used for attachment to trees, buildings, etc.



MON-100 ANTIPERSONNEL MINE

MON-200 ANTIPERSONNEL MINE

DIAMETER
- 450 mm (17.7 in)

DEPTH
- 130 mm (5.1 in)

MINE WEIGHT
- 25,000 grams (55.1 lb) (w/o bracket)

EXPLOSIVE WEIGHT
- 12,000 grams (26.5 lb)

COLOR
- olive drab

Description:

Fuze Type - trip wire (tension), 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:

Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - heavy line charges readily defeat trip wire/command mines

Charge Placement - adjacent to the MON-200

Remarks: A heavy steel mounting stand is available.

MON-200 ANTIPERSONNEL MINE

OZM-3 ANTIPERSONNEL MINE

HEIGHT
- 120 mm (4.7 in) (w/o 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 (tension), 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:

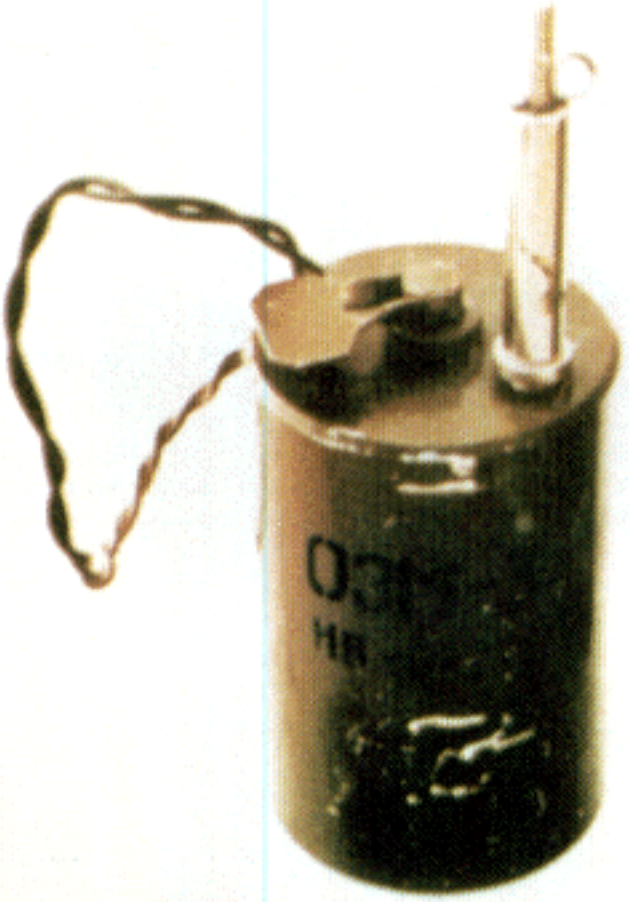
Breach Guidance:

Mine Plow - removes armed mines from plow 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.



OZM-3 ANTIPERSONNEL MINE

OZM-4 ANTIPERSONNEL MINE

HEIGHT
- 140 mm (5.5 in) (w/o 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 (tension), 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:

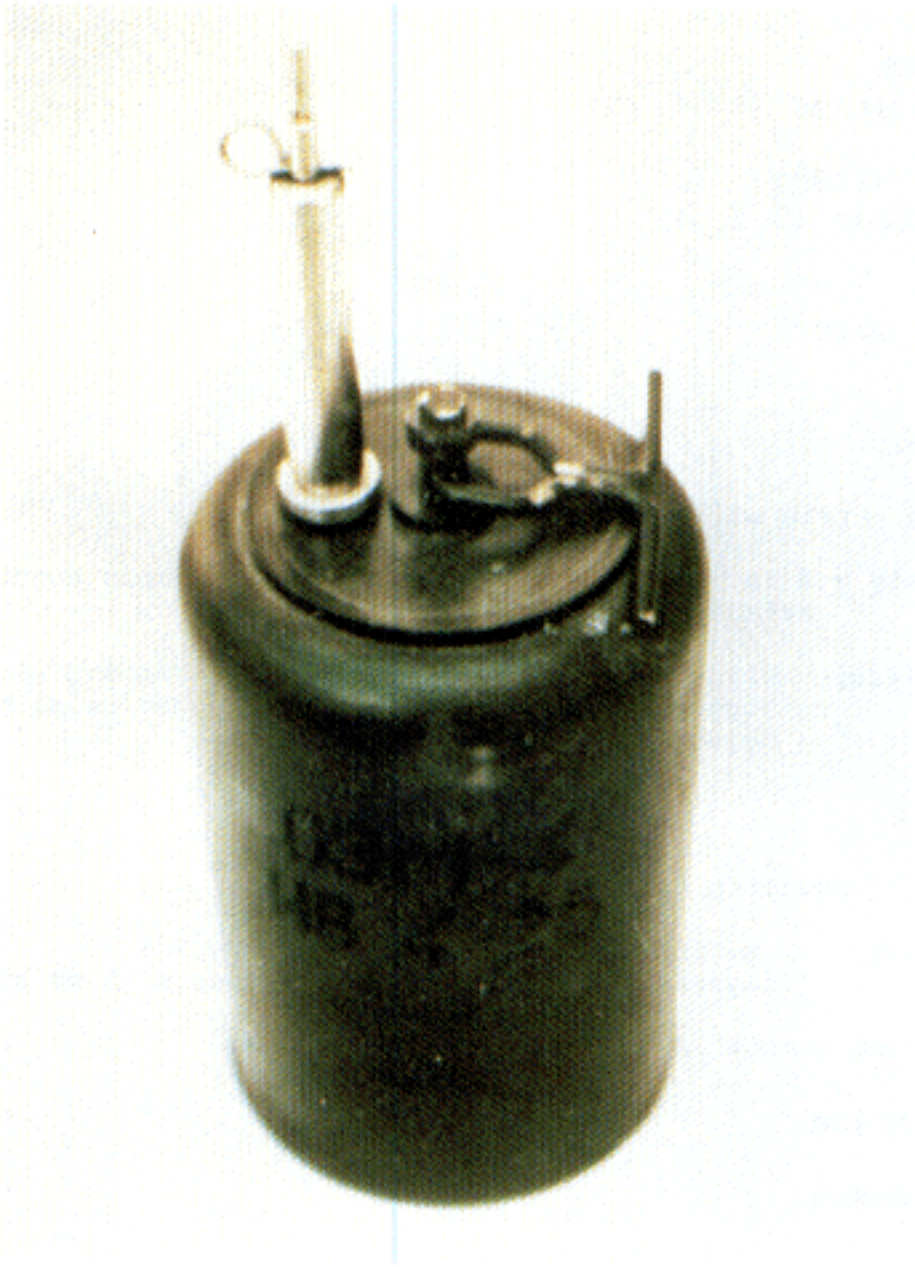
Breach Guidance:

Mine Plow - removes armed mines from plow 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-4 ANTIPERSONNEL MINE

OZM-72 ANTIPERSONNEL MINE

HEIGHT
- 150 mm (5.9 in) (w/o 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 (tension), 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 - 2300 steel cylinders, 5 mm X 5 mm)

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plow 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.

OZM-72 ANTIPERSONNEL MINE

TYPE 69 ANTIPERSONNEL MINE

HEIGHT
- 114 mm (4.5 in) (w/o fuze)

DIAMETER
- 61 mm (2.4 in)

MINE WEIGHT
- 1,350 grams (3.0 lb)

EXPLOSIVE WEIGHT
- 105 grams (3.7 oz)

COLOR
- olive drab

Description:

Fuze Type - pressure, trip wire (tension), command initiated

Sensitivity - pressure ==> 7 to 20 kg (15.4 to 44.1 lb)
tension ==> 1.5 to 4 kg (3.3 to 8.8 lb)

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 - 13 meters, 360 degree area of coverage (approx. 240 cast iron fragments at .7 grams each)

Antihandling - none

Vulnerabilities:

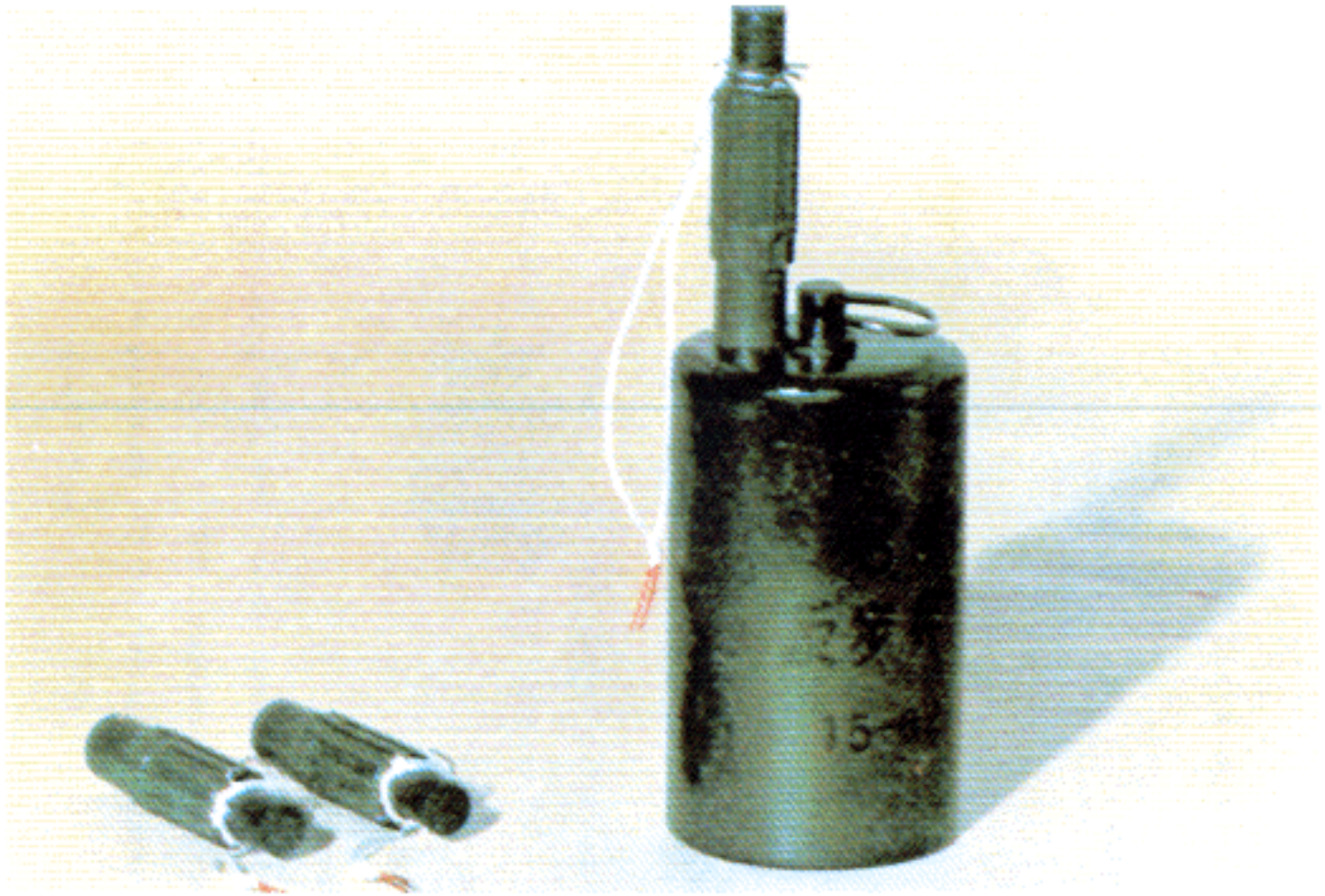
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire/command initiated mines

Charge Placement - adjacent to the Type 69

Remarks:



TYPE 69 ANTIPERSONNEL MINE

BOUNDING ANTIPERSONNEL MINE

HEIGHT
(Information not available)

DIAMETER
(Information not available)

MINE WEIGHT
(Information not available)

EXPLOSIVE WEIGHT
(Information not available)

COLOR
- sand brown

Description:

Fuze Type - pressure, trip wire (tension)

Sensitivity - pressure ==> 5 kg (11.0 lb)
tension ==> 2 kg (4.4 lb)

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:

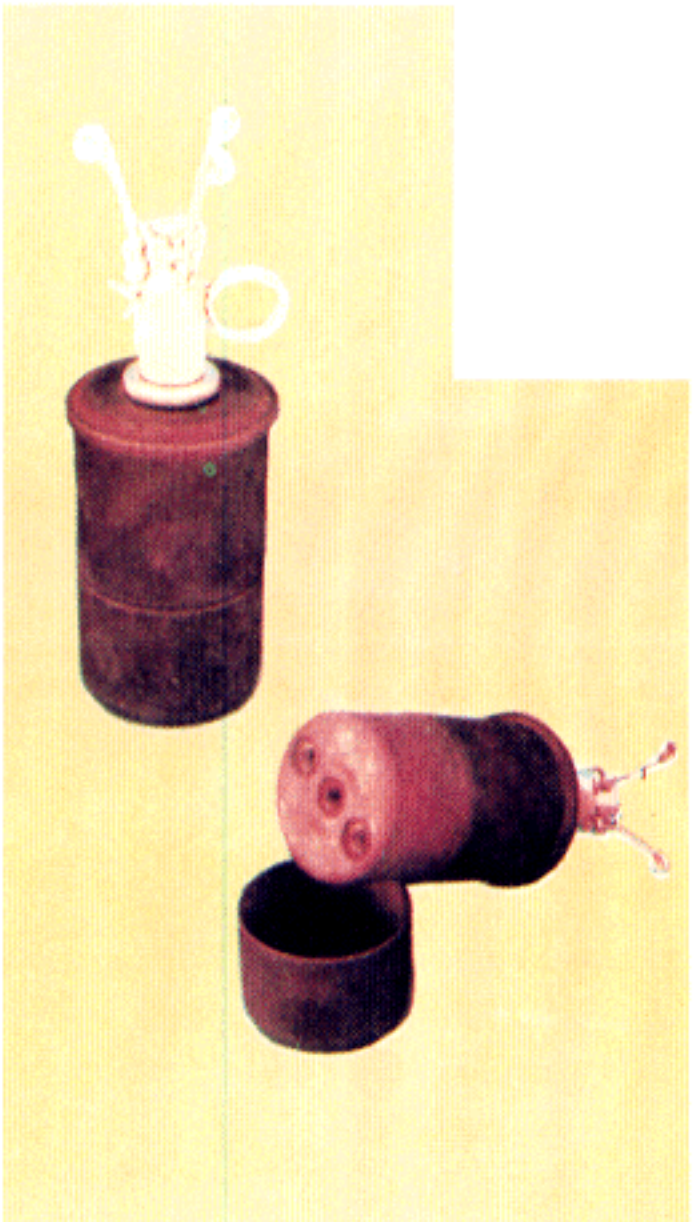
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire mines

Charge Placement - adjacent to the bounding mine

Remarks:



BOUNDING ANTIPERSONNEL MINE

ANTIPERSONNEL JUMPING MINE

HEIGHT
- 165 mm (6.5 in)

DIAMETER
- 54 mm (2.1 in)

MINE WEIGHT
(Information not available)

EXPLOSIVE WEIGHT
(Information not available)

COLOR
- olive drab

Description:

Fuze Type - pressure, trip wire (tension)

Sensitivity - pressure ==> 5 kg (11.0 lb)
tension ==> 2 kg (4.4 lb)

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 (fragmentation - approx. 5000 steel balls)

Antihandling - none

Vulnerabilities:

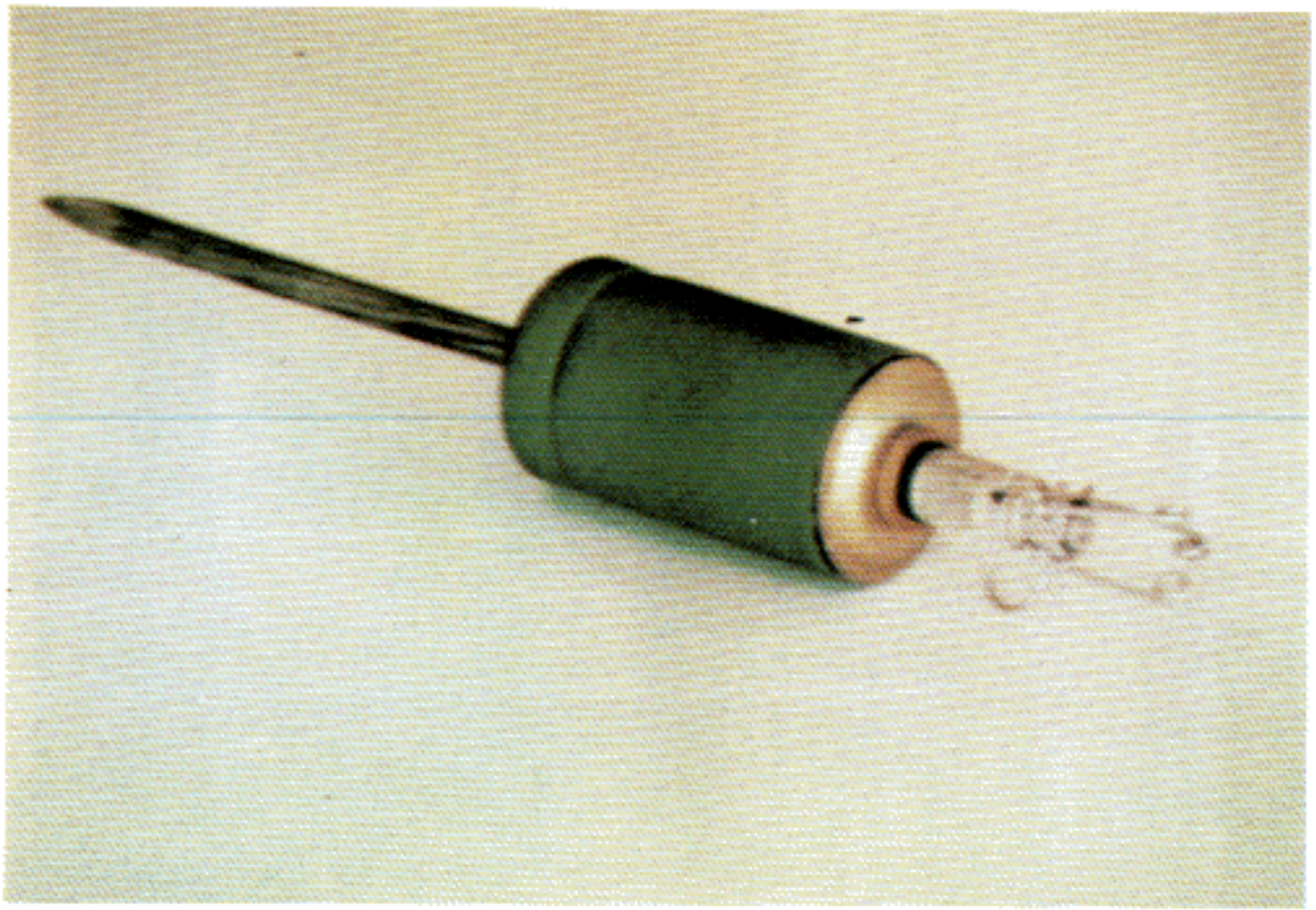
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire mines

Charge Placement - adjacent to the jumping mine

Remarks: The mounting stake provides much needed stability in loose sandy soils, even though not normally associated with a bounding fragmentation type mine.



ANTIPERSONNEL JUMPING MINE

BM/85 ANTIPERSONNEL MINE

HEIGHT
- 200 mm (7.9 in)

DIAMETER
- 120 mm (4.7 in)

MINE WEIGHT
- 2,000 grams (4.4 lb)

EXPLOSIVE WEIGHT
- 450 grams (15.9 oz)

COLOR
- sand brown

Description:

Fuze Type - pressure, trip wire (tension)

Sensitivity - pressure ==> 12 to 13 kg (26.4 to 28.6 lb)
tension ==> 6 kg (13.2 lb)

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 - 20 meters, 360 degree area of coverage (fragmentation - approx. 1000 steel balls)

Antihandling - none

Vulnerabilities:

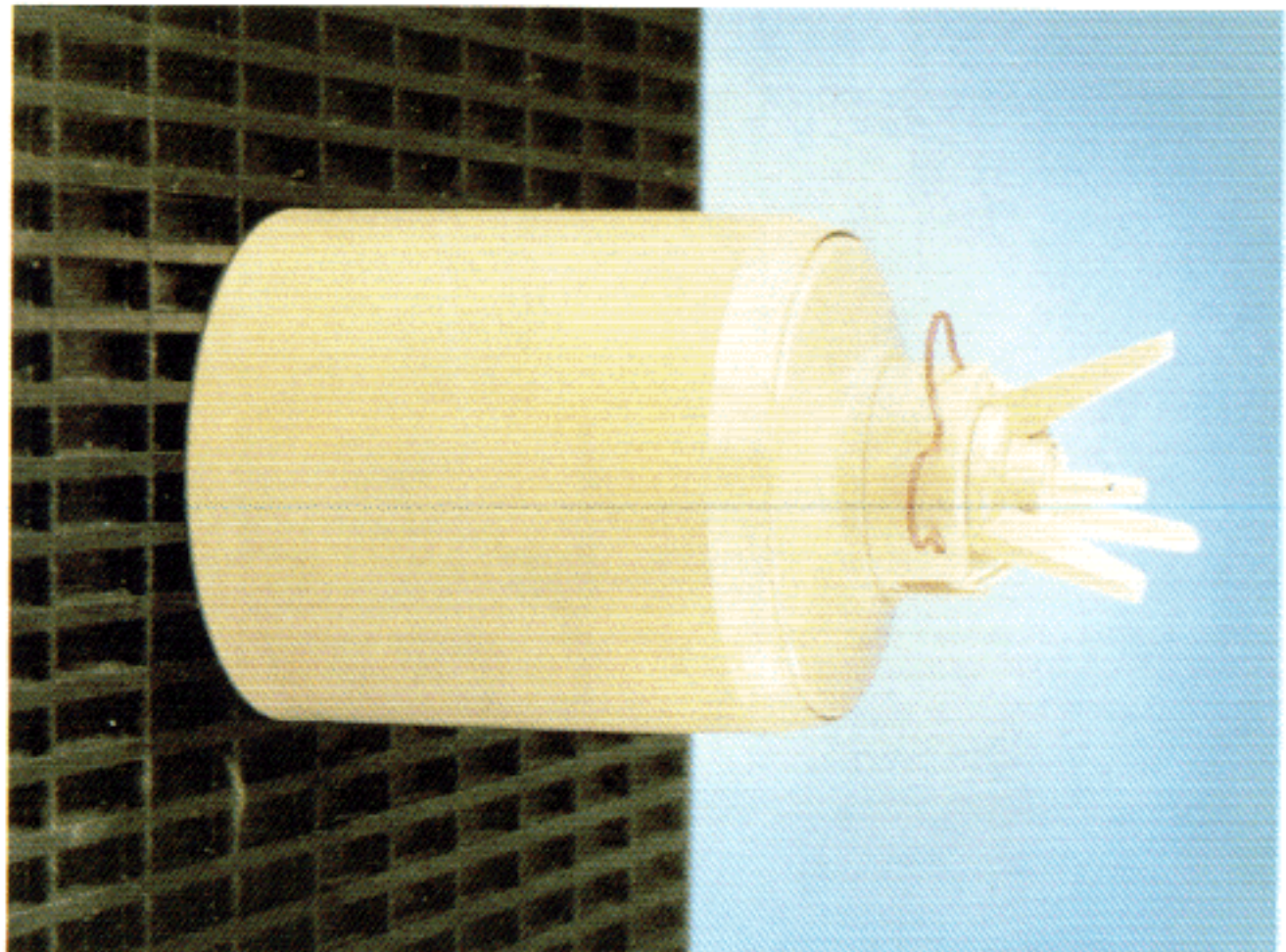
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire mines

Charge Placement - adjacent to the BM/85

Remarks:



BM/85 ANTIPERSONNEL MINE

P-40 ANTIPERSONNEL MINE

HEIGHT
- 200 mm (7.9 in) (w/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 (tension) 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:

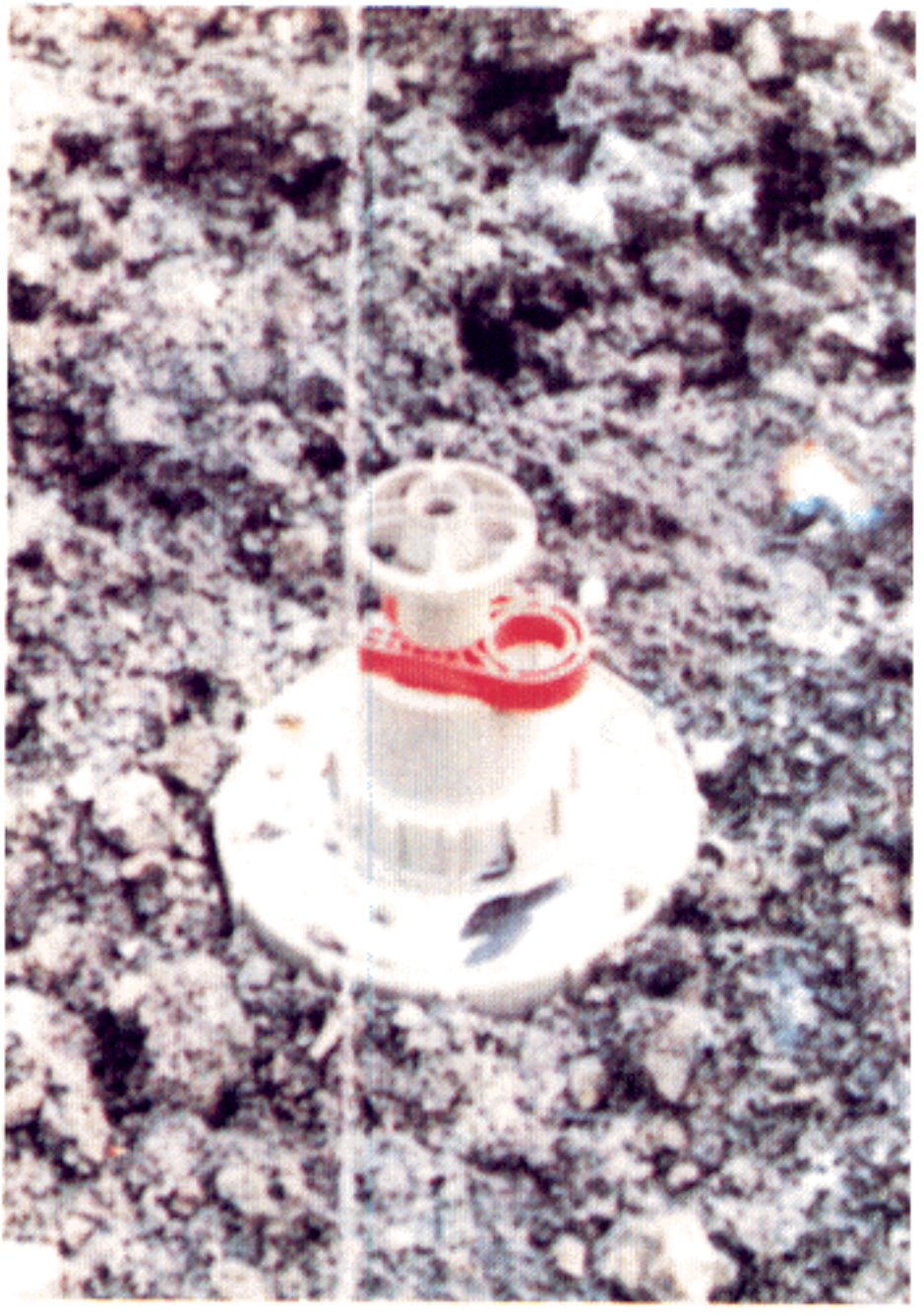
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire initiated mines

Charge Placement - adjacent to the P-40

Remarks:



P-40 ANTIPERSONNEL MINE

VALMARA 69 ANTIPERSONNEL MINE

HEIGHT
- 205 mm (8.1 in) (w/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 (tension), 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 - 1200 steel cubes at 5X5X5 mm)

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire initiated mines

Charge Placement - adjacent to the VALMARA 69

Remarks:

VALMARA 69 ANTIPERSONNEL MINE

VALMARA 59 ANTIPERSONNEL MINE

HEIGHT
- 196 mm (7.7 in) (w/fuze)

DIAMETER
- 102 mm (4.0 in)

MINE WEIGHT
- 3,200 grams (7.1 lb)

EXPLOSIVE WEIGHT
- 550 grams (1.2 lb)

COLOR
- green, sand brown

Description:

Fuze Type - trip wire (tension), pressure initiated

Sensitivity - pressure ==> 12 kg (26.4 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 - 1200 steel cubes at 5X5X5 mm)

Antihandling - none

Vulnerabilities:

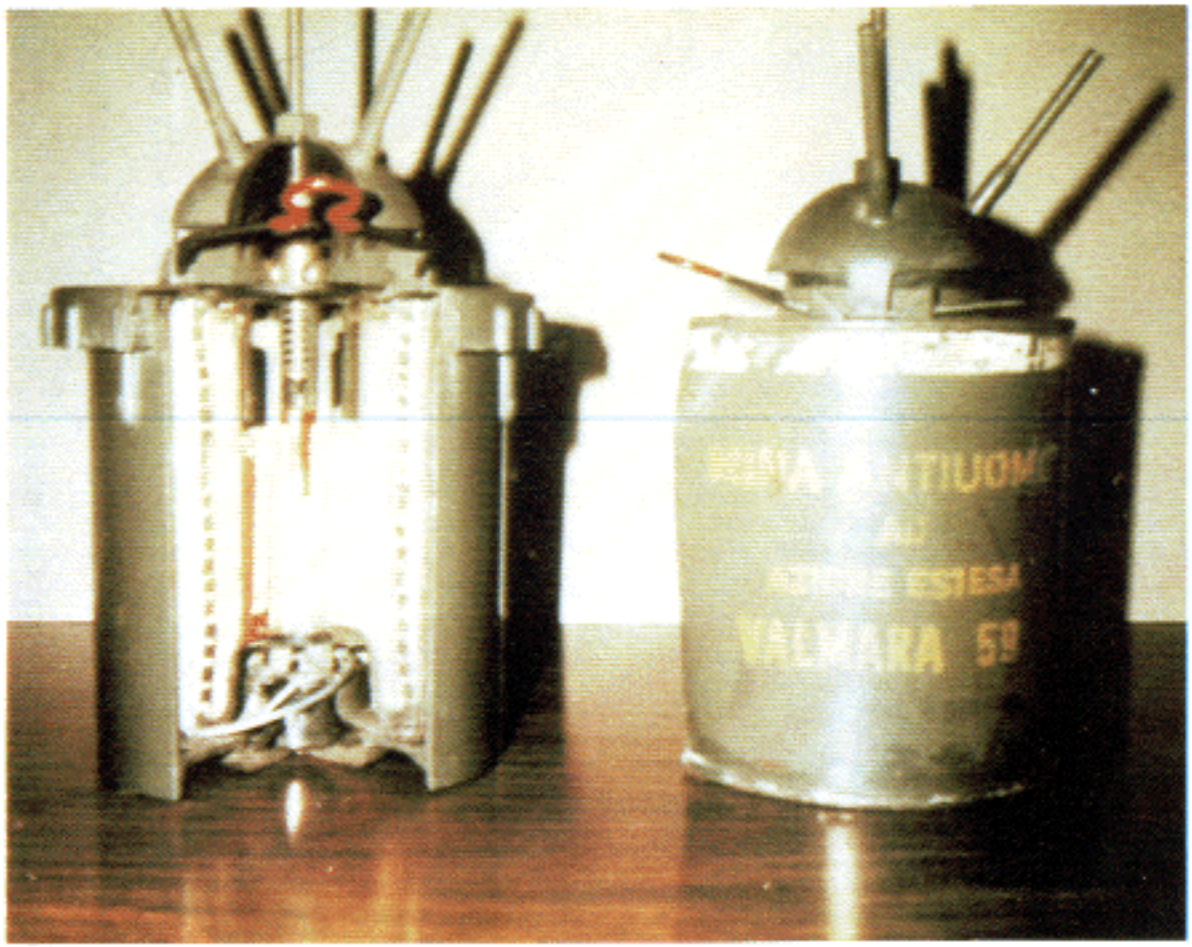
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire initiated mines

Charge Placement - adjacent to the VALMARA 59

Remarks:



VALMARA 59 ANTIPERSONNEL MINE

M16A1 ANTIPERSONNEL MINE

HEIGHT
- 203 mm (8.0 in) (w/fuze)

DIAMETER
- 103 mm (4.1 in)

MINE WEIGHT
- 3,570 grams (7.9 lb)

EXPLOSIVE WEIGHT
- 513 grams (1.1 lb)

COLOR
- green, olive drab

Description:

Fuze Type - trip wire (tension), pressure initiated

Sensitivity - pressure ==> 5 kg (11.0 lb)
tension ==> 2 kg (4.4 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

Antihandling - none

Vulnerabilities:

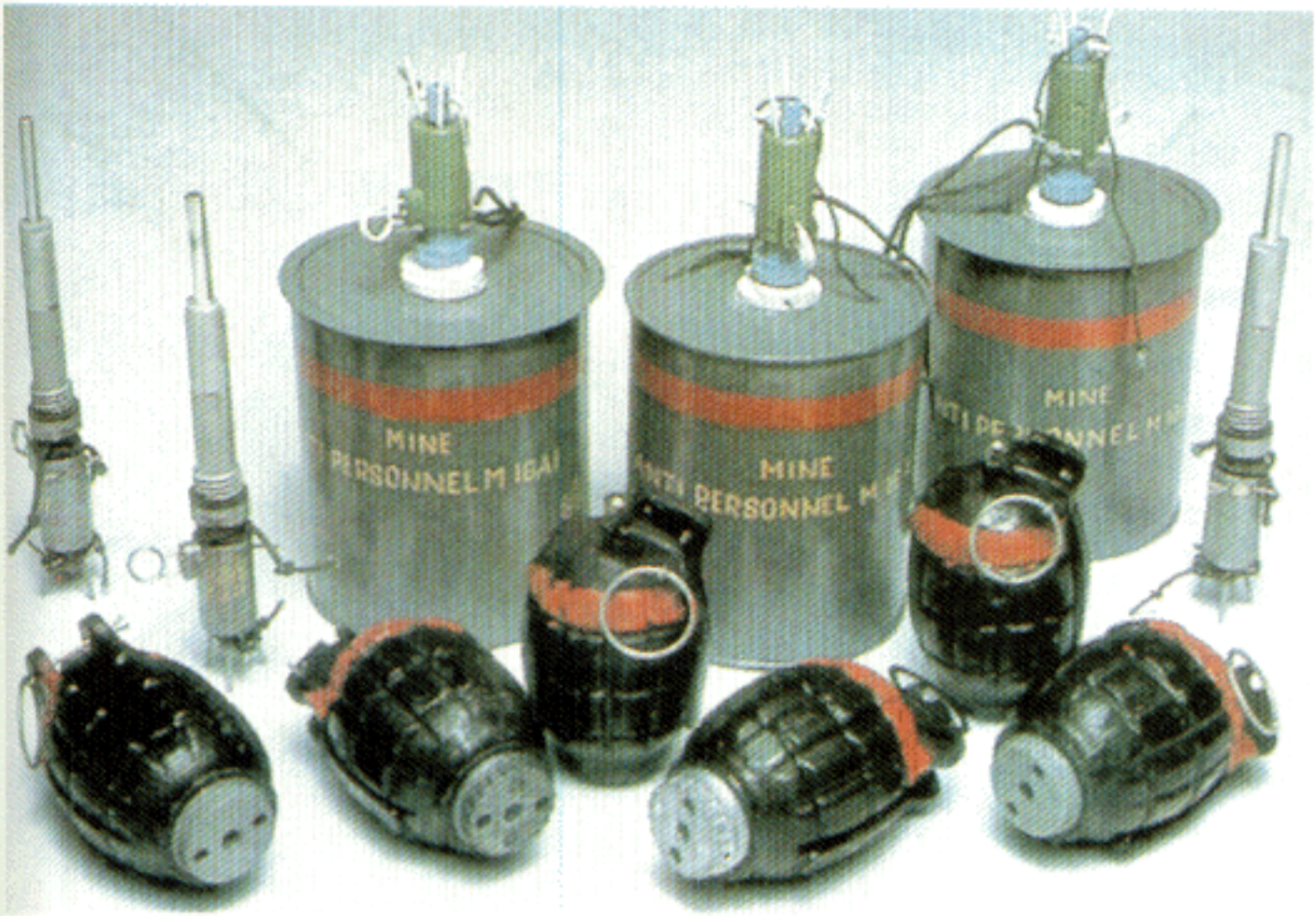
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire initiated mines

Charge Placement - adjacent to the M16A1

Remarks:



M16A1 ANTIPERSONNEL MINE

PROM-1 ANTIPERSONNEL MINE

HEIGHT
- 470 mm (18.5 in) (w/fuze)

DIAMETER
- 75 mm (3.0 in)

MINE WEIGHT
- 3,000 grams (6.6 lb)

EXPLOSIVE WEIGHT
- 425 grams (15.0 oz)

COLOR
- olive drab

Description:

Fuze Type - trip wire (tension), pressure initiated

Sensitivity - pressure ==> 9 kg (19.8 lb)
tension ==> 3 kg (6.6 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 - 22 meters, 360 degree area of coverage

Antihandling - none

Vulnerabilities:

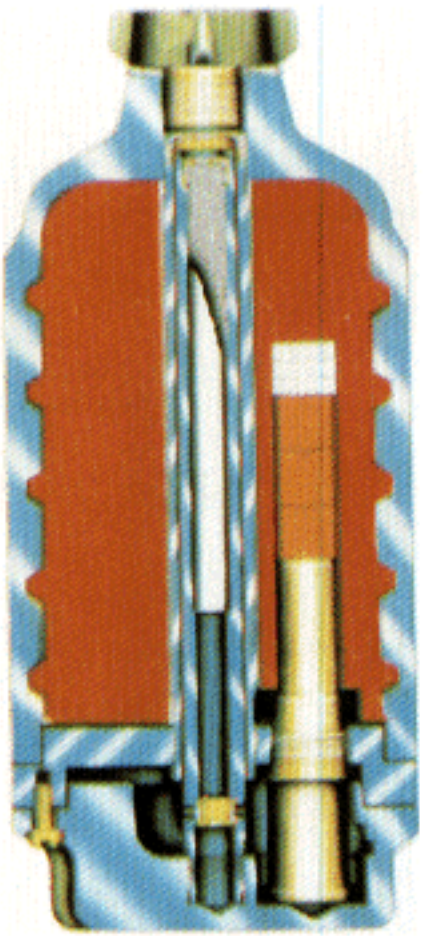
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire initiated mines

Charge Placement - adjacent to the PROM-1

Remarks:



PROM-1 ANTIPERSONNEL MINE

P7 MK1 ANTIPERSONNEL MINE

HEIGHT
- 250 mm (9.8 in) (w/fuze)

DIAMETER
- 97 mm (3.8 in)

MINE WEIGHT
- 2,950 grams (6.5 lb)

EXPLOSIVE WEIGHT
- 154 grams (5.4 oz)

COLOR
- olive drab

Description:

Fuze Type - trip wire (tension), pressure initiated

Sensitivity - pressure ==> 3 to 9 kg (6.6 to 19.8 lb)
tension ==> 1 to 5 kg (2.2 to 11.0 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 - 20 meters, 360 degree area of coverage

Antihandling - none

Vulnerabilities:

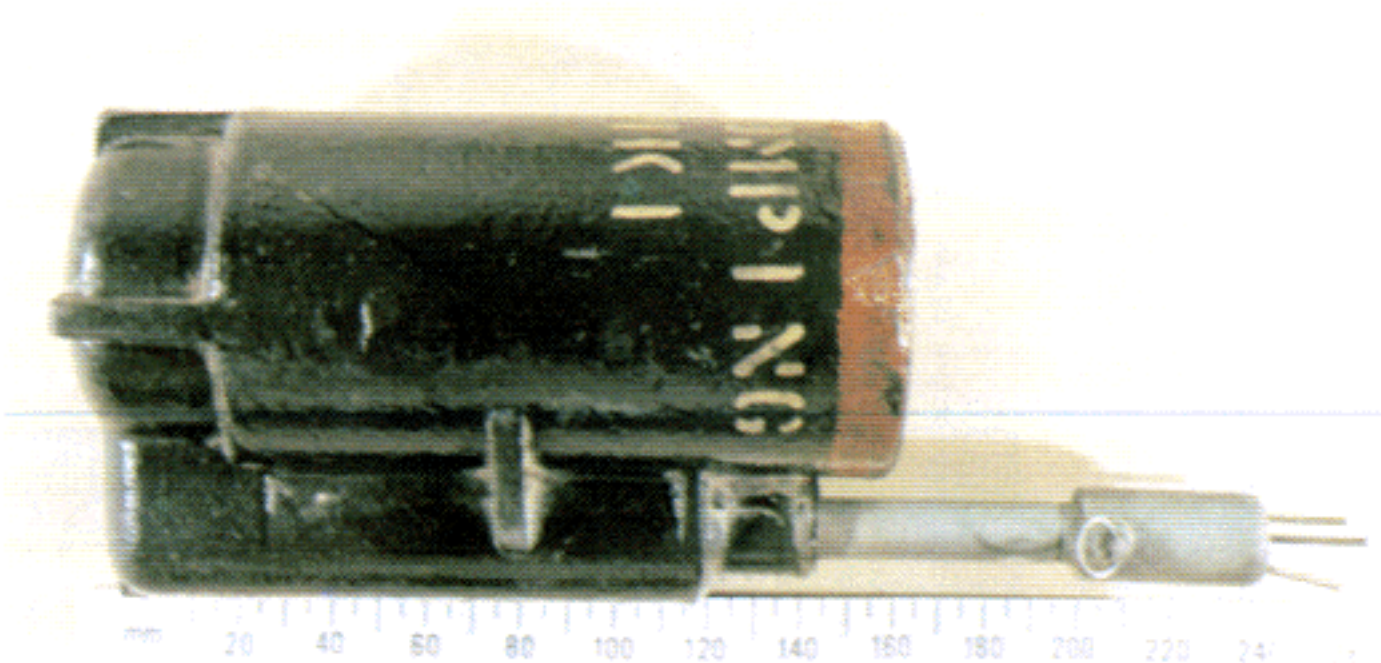
Breach Guidance:

Mine Plow - removes armed mines from plow area, some will detonate

MICLIC - heavy line charges readily defeat trip wire initiated mines

Charge Placement - adjacent to the P7 MK1

Remarks:



P7 MK1 ANTIPERSONNEL MINE

UDAR ANTIPERSONNEL MINE

MINE WEIGHT
- 20 kg (light) (44.1 lb)
- 40 kg (heavy) (88.2 lb)

EXPLOSIVE WEIGHT
- 10 kg (light) (22.0 lb)
- 20 kg (heavy) (44.1 lb)

Description:

Fuze Type - remote control, command detonated

Sensitivity -

Detectability - visual by identification of control wire or remote control unit

Capability:

Type Kill - bounding fuel-air explosive blast effect

Kill Radius - light version ==> 25 meters, 360 degree area of coverage
heavy version ==> 40 meters, 360 degree area of coverage

Lethal Effects - overpressure described as 20 bars (direct)
40 bars (reflected)

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - removes control units from plow area

MICLIC - heavy line charges may not defeat remote control unit

Charge Placement - adjacent to the UDAR

Remarks:

UDAR ANTIPERSONNEL MINE

SB-33, SB-33/AR, EM20 SCATTERABLE ANTIPERSONNEL MINE

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 hand-held metallic detector
(approx. .86 grams metal, all nonmagnetic)

Capability:

Type Kill - blast effect

Antihandling - yes, the SB-33/AR version includes an electronic package with antiremoval features

Vulnerabilities:

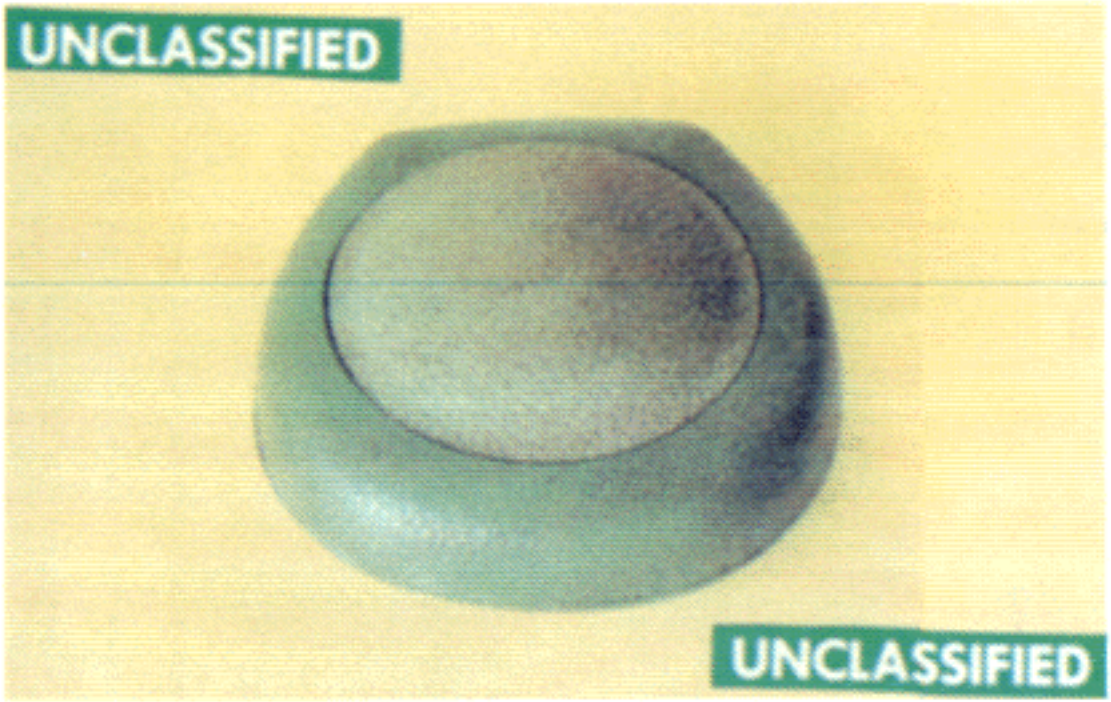
Breach Guidance:

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

Remarks:



SB-33, SB-33/AR, EM20 ANTIPERSONNEL MINE

VS-50, TS-50, T/79 SCATTERABLE ANTIPERSONNEL MINES

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, green, 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 hand-held metallic detector
(approx. .86 grams metal, all nonmagnetic)

Capability:

Type Kill - blast effect

Antihandling - yes, the VS-50-A version includes an electronic package with antiremoval features

Vulnerabilities:

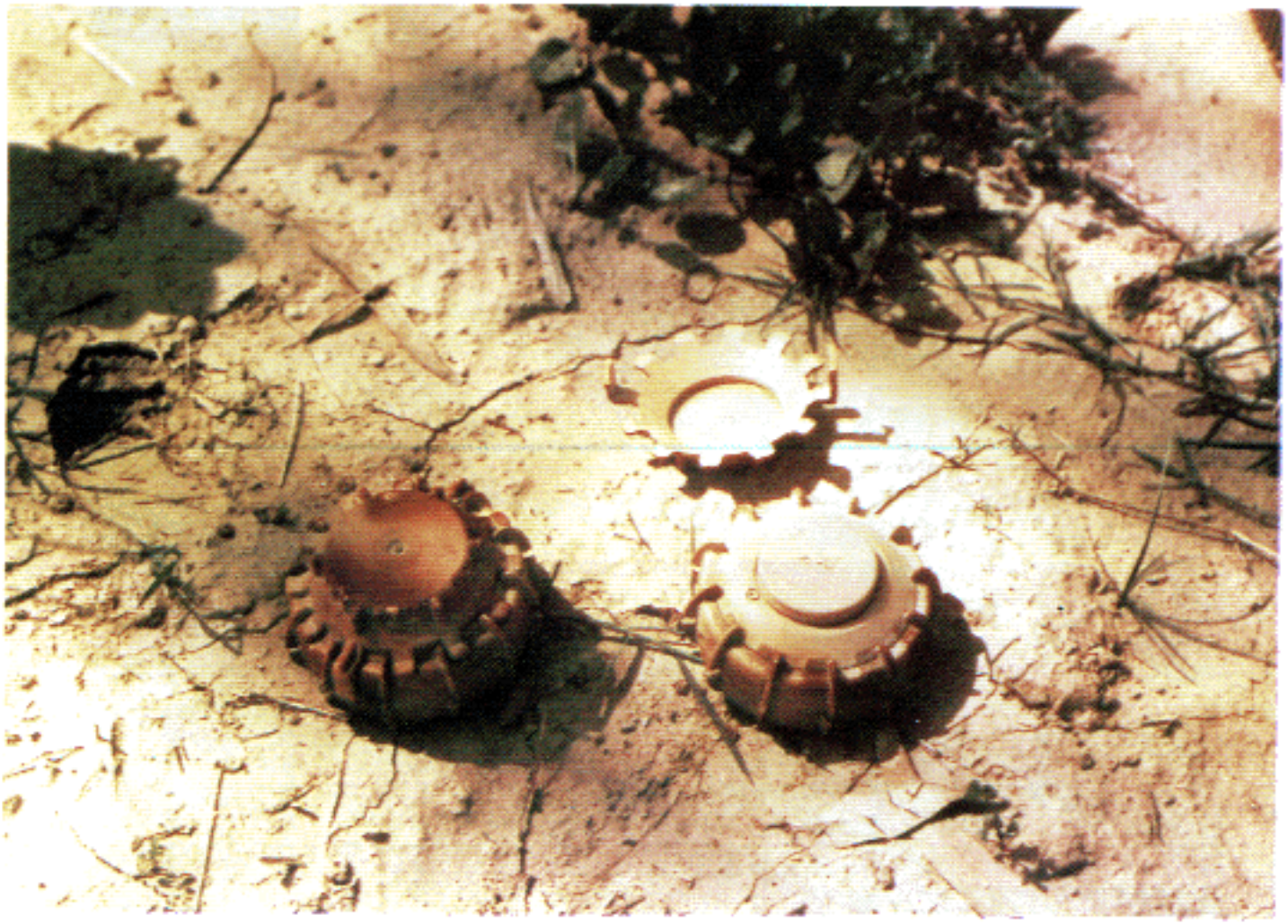
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - drastic reduction in effectiveness (blast-resistant)

Charge Placement - adjacent to the mine

Remarks:



VS-50, TS-50, T/79 SCATTERABLE ANTIPERSONNEL MINE

VS-MK2, VS-MK2-E SCATTERABLE ANTIPERSONNEL MINES

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 hand-held metallic detector
(approx. .86 grams metal, all nonmagnetic)

Capability:

Type Kill - blast effect

Antihandling - yes, the VS-MK2-E version includes an electronic package with antiremoval features

Vulnerabilities:

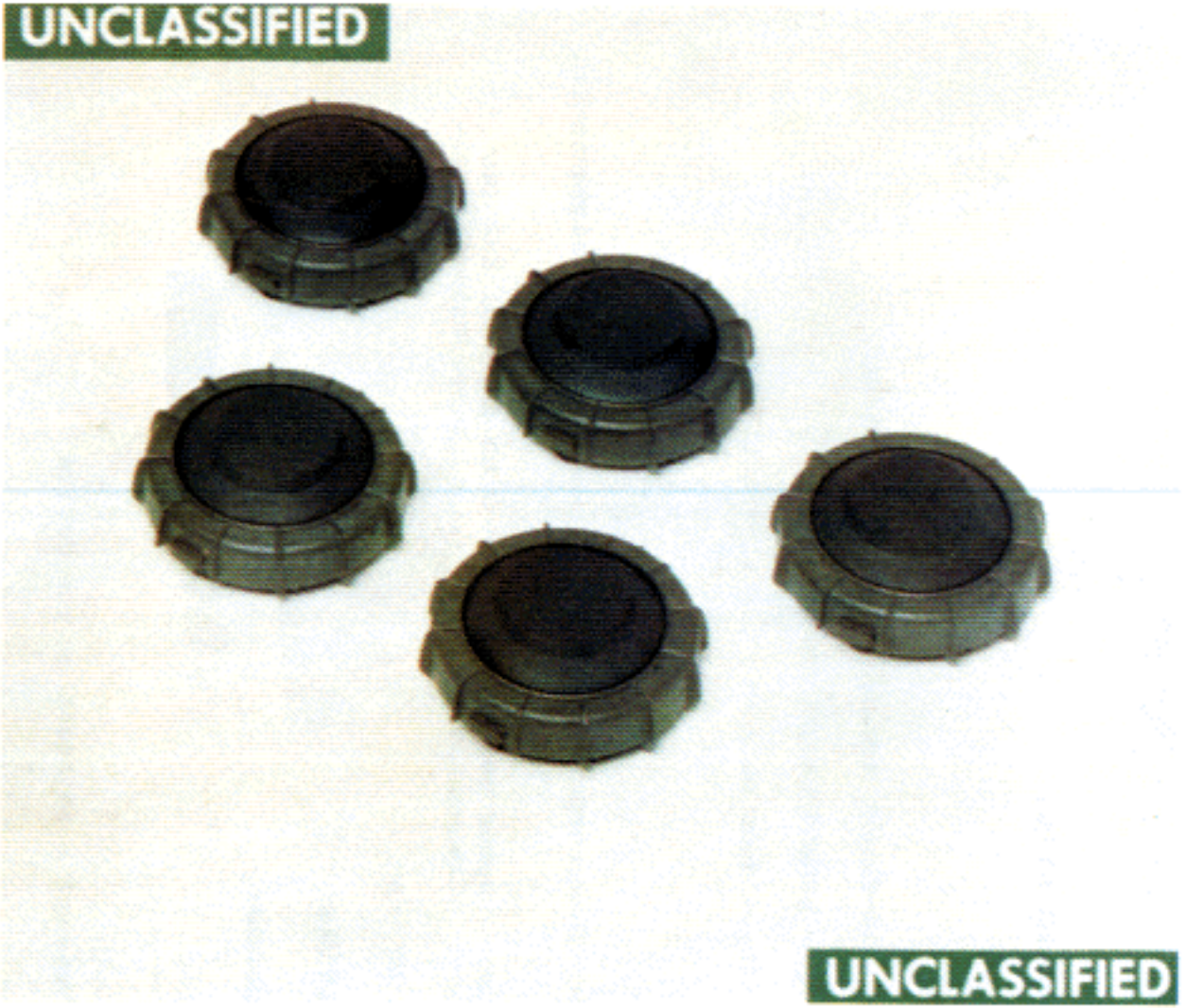
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - drastic reduction in effectiveness (blast-resistant)

Charge Placement - adjacent to the mine

Remarks:



VS-MK2, VS-MK2-E SCATTERABLE ANTIPERSONNEL MINE

IRAQI/YUGOSLAV SCATTERABLE DUAL-PURPOSE ICM

HEIGHT
- 81 mm (est.) (3.2 in)

DIAMETER
- 38 mm (est.) (1.5 in)

WEIGHT
- 198 grams (est.) (7.0 oz)

EXPLOSIVE WEIGHT
- 35 grams (est.) (1.2 oz)

COLOR
- unfinished steel

Description:

Fuze Type - in-flight arming, impact initiation

Sensitivity - ground/target contact

Detectability - duds only ==> visual identification

Capability:

Type Kill - dual-purpose ==> both shaped-charge and fragmentation effects

Kill Radius - armor penetration ==> 70 mm (2.8 in) RHA (est.)
fragmentation ==> 100 square meters (est.)

Antihandling - no

Vulnerabilities:

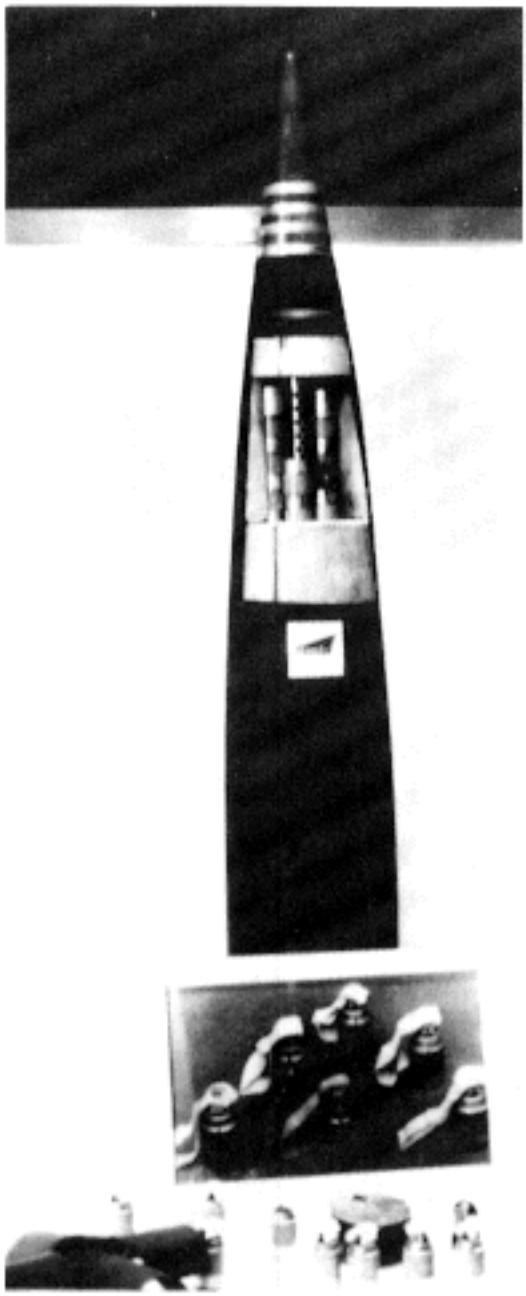
Breach Guidance:

Mine Plow -

MICLIC -

Charge Placement - adjacent to the device

Remarks: While not a land mine, this is included to increase awareness of other extremely lethal munitions which will also be remotely emplaced. Only dud ordnance will remain after these dual-purpose munitions are remotely emplaced from their heavy multiple rocket launcher (ABABEL) with a range of 50 kilometers.



IRAQI/YUGOSLAV SCATTERABLE DUAL-PURPOSE ICM

HEIGHT
- 81 mm (est.) (3.2 in)

DIAMETER
- 38 mm (est.) (1.5 in)

WEIGHT
- 198 grams (est.) (7.0 oz)

EXPLOSIVE WEIGHT
- 35 grams (est.) (1.2 oz)

COLOR
- unfinished steel

Description:

Fuze Type - in-flight arming, impact initiation

Sensitivity - ground/target contact

Detectability - duds only ==> visual identification

Capability:

Type Kill - dual-purpose ==> both shaped-charge and fragmentation effects

Kill Radius - armor penetration ==> 70 mm (2.8 in) RHA (est.)
fragmentation ==> 100 square meters (est.)

Antihandling - no

Vulnerabilities:

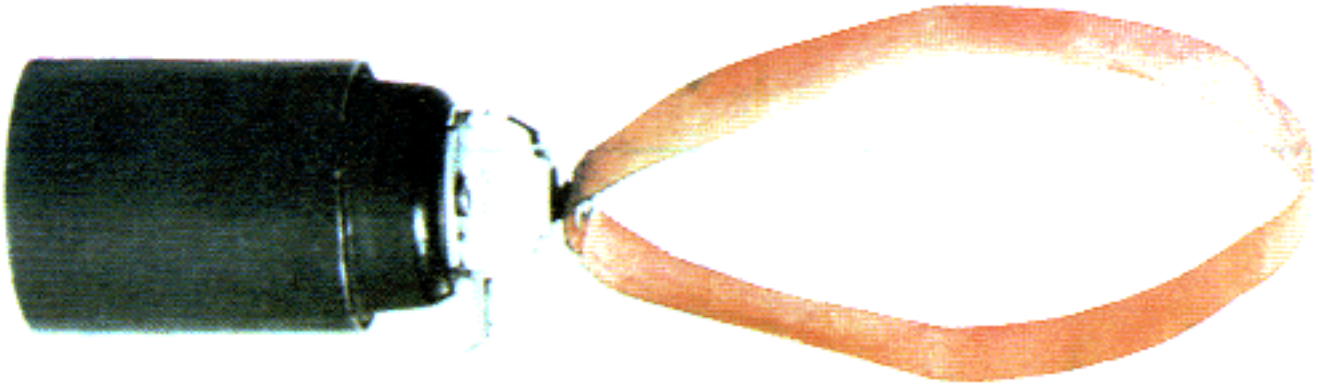
Breach Guidance:

Mine Plow -

MICLIC -

Charge Placement - adjacent to the device

Remarks: While not a land mine, this is included to increase awareness of other extremely lethal munitions which will also be remotely emplaced. Only dud ordnance will remain after these dual-purpose munitions are remotely emplaced from their 40 tube multiple rocket launchers (FIROS 25) -range 25 kilometers.



ITALIAN SCATTERABLE DUAL-PURPOSE ICM

ITALIAN SCATTERABLE ANTIPERSONNEL MINE

HEIGHT
- 32 mm (1.3 in)

DIAMETER
- 90 mm (3.5 in)

WEIGHT
- 135 grams (4.8 oz)

EXPLOSIVE WEIGHT
- 34 grams (1.2 oz)

COLOR
- sand brown, green, olive drab

Description:

Fuze Type - in-flight arming, blast-resistant, pressure initiated

Sensitivity - 10 kg (22.0 lb) pressure

Detectability - scattered ==> visual identification
buried ==> difficult with hand-held metallic detector (approx. .86 grams metal, all nonmagnetic)

Capability:

Type Kill - blast effect

Antihandling - yes, if the electronic version is employed, incorporates antiremoval features

Vulnerabilities:

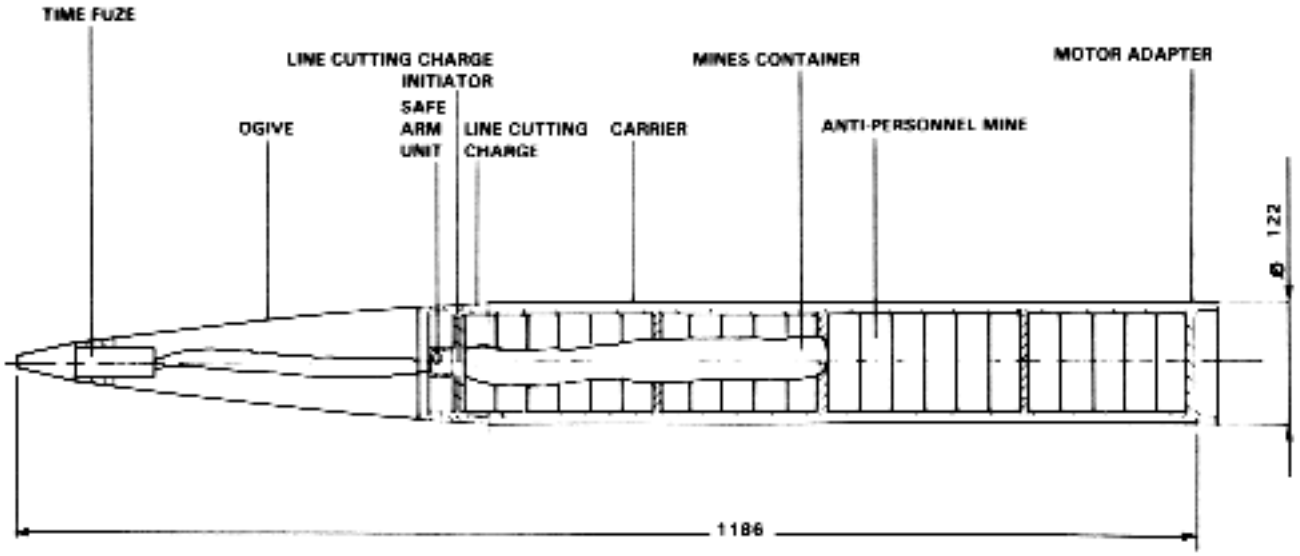
Breach Guidance:

Mine Plow - removes armed mines from plowed area, some will detonate

MICLIC - drastic reduction in effectiveness (blast-resistant)

Charge Placement - adjacent to the mines

Remarks: These scatterable antipersonnel mines are remotely emplaced from their 40 tube multiple rocket launchers (FIROS 25) with a range of 25 kilometers.



ITALIAN SCATTERABLE ANTIPERSONNEL MINE

MAS/22 SHALLOW-WATER MINE

HEIGHT
- 370 mm (14.6 in) (w/fuzes)

DIAMETER
- 380 mm (15.0 in)

MINE WEIGHT
- 22 kg (48.5 lb)

EXPLOSIVE WEIGHT
- 18 kg (39.7 lb)

COLOR
- light blue

Description:

Fuze Type - tilt-rods (3), contact initiated

Sensitivity - 30 degree deflection of sensor mast

Detectability - extremely difficult when located within the active surf zone

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

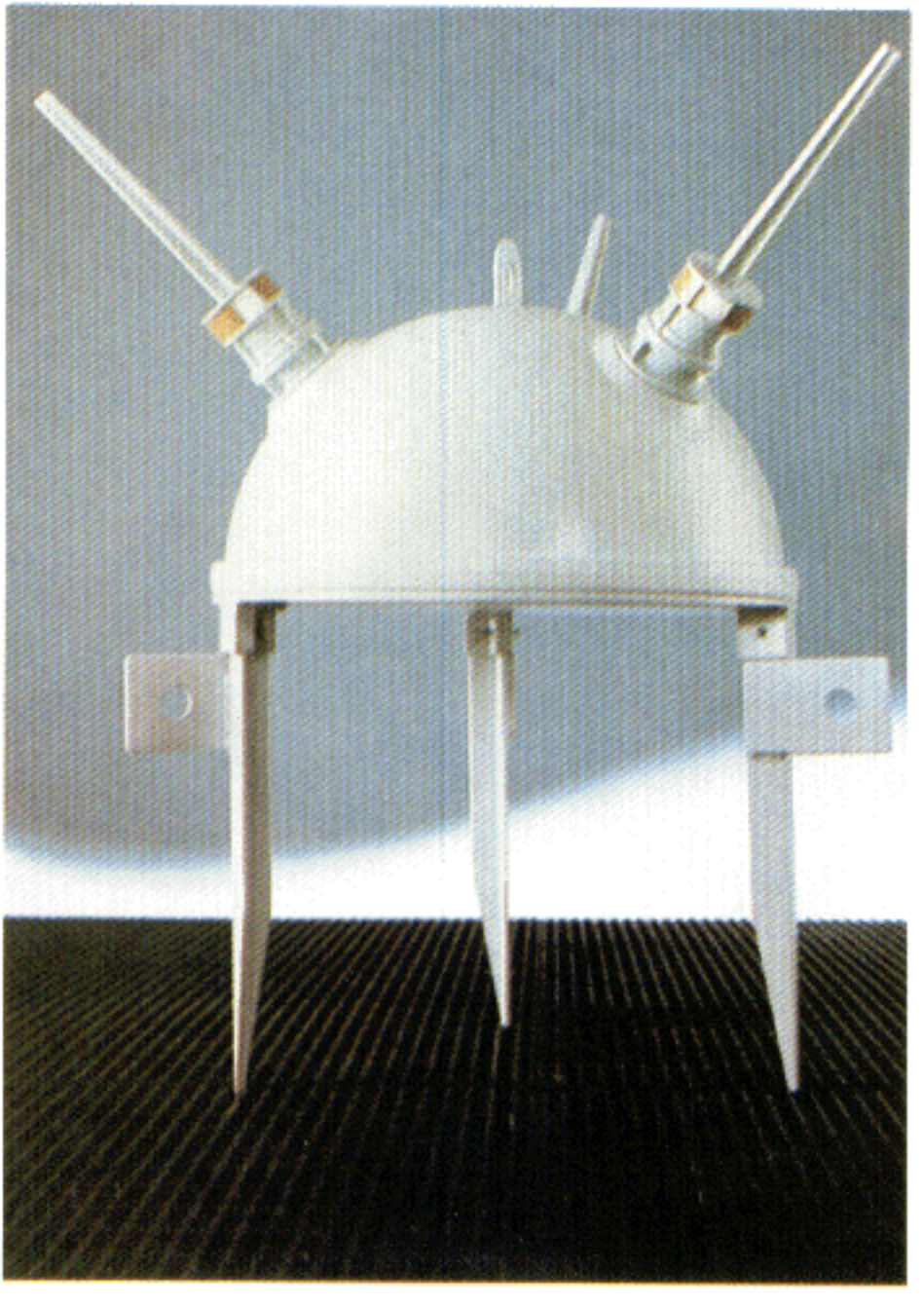
Breach Guidance:

Mine Plow - not applicable

MICLIC - heavy explosive line charge works well in shallow water against tilt-rod or pressure mast fuzes

Charge Placement - attach against plastic target body

Remarks: The three pressure sensors and three stability spikes combine to create a formidable shallow-water threat to landing/assault vehicles. Employment is at a minimum depth below low tide.



MAS/22 SHALLOW-WATER MINE

MAL/17 SHALLOW-WATER MINE

HEIGHT (body)
- 470 mm (18.5 in) (w/fuzes)

HEIGHT (stabilizer)
- 630 mm (24.8 in)

DIAMETER
- 380 mm (15.0 in)

MINE WEIGHT
- 22 kg (48.5 lb) (w/o mooring chain and sinker)

EXPLOSIVE WEIGHT
- 18 kg (39.7 lb)

COLOR
- light blue

Description:

Fuze Type - tilt-rods (3), contact initiated

Sensitivity - 30 degree deflection of sensor mast

Detectability - Difficult, depending on water visibility. Normally placed just below the low tide water level.

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

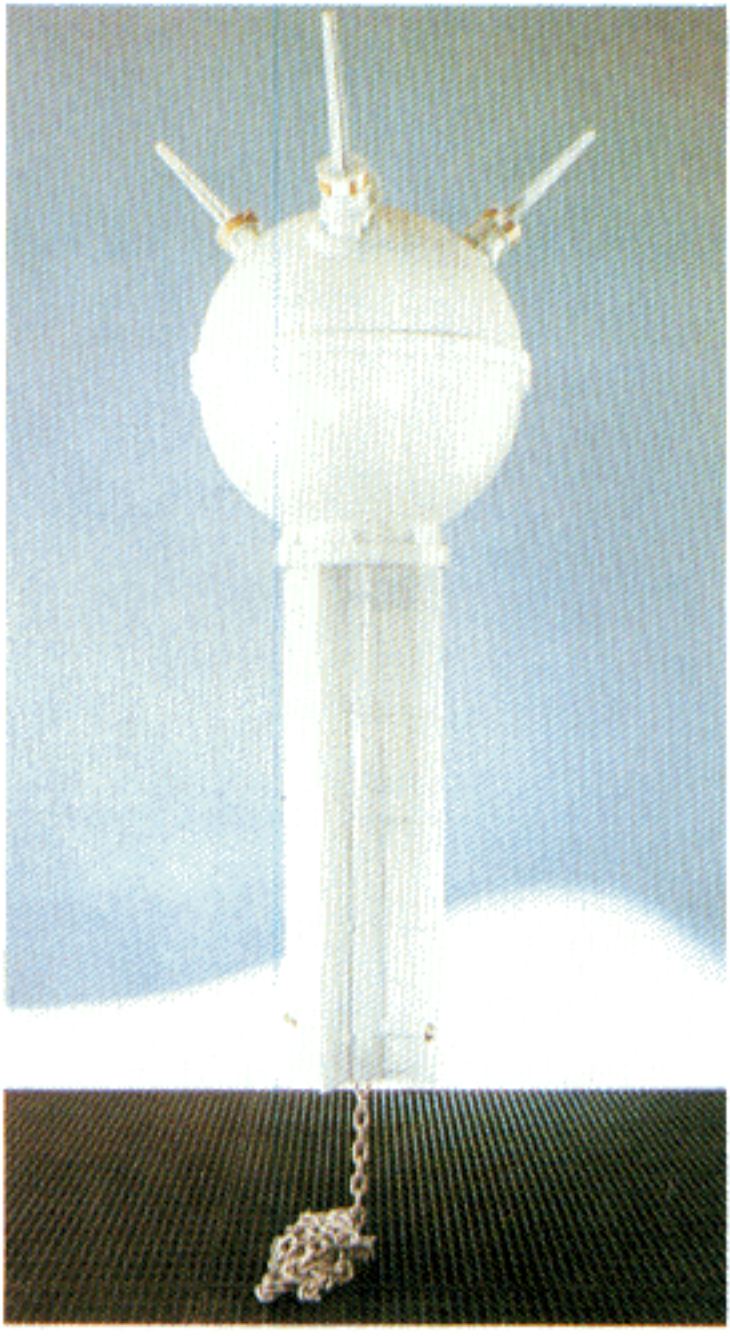
Breach Guidance:

Mine Plow - not applicable

MICLIC - heavy explosive line charge works well in shallow water against tilt-rod or pressure mast fuzes

Charge Placement - attach against plastic target body

Remarks: The three pressure sensors and mooring chain combine to create a formidable shallow-water threat to landing/assault vehicles. Employment is at a minimum depth below low tide.



MAL/17 SHALLOW-WATER MINE

MAL-17 SHALLOW-WATER MINE

HEIGHT (body)
- 470 mm (18.5 in) (w/fuzes)

HEIGHT (stabilizer)
(Information not available)

DIAMETER
- 380 mm (15.0 in)

MINE WEIGHT
- 22 kg (48.5 lb) (w/o mooring chain and sinker)

EXPLOSIVE WEIGHT
- 18 kg (39.7 lb)

COLOR
- light blue, olive drab

Description:

Fuze Type - tilt-rods (3), contact initiated

Sensitivity - 30 degree deflection of sensor mast

Detectability - Difficult, depending on water visibility. Normally placed just below the low tide water level.

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - not applicable

MICLIC - heavy explosive line charges work well in shallow water against tilt-rod or pressure mast fuzes

Charge Placement - attach against plastic target body

Remarks: The three pressure sensors and mooring chain combine to create a formidable shallow-water threat to landing/assault vehicles. The body of this shallow-water mine is identical to the Italian MAL/17, its stabilizer and mooring chain are probably similar to other Egyptian shallow-water mines.

MAL-17 SHALLOW-WATER MINE

HEIGHT (body)
(Information not available)

HEIGHT (stabilizer)
(Information not available)

DIAMETER
- 380 mm (15.0 in)

MINE WEIGHT
(Information not available)

EXPLOSIVE WEIGHT
- 18 kg (39.7 lb)

COLOR
- light blue, olive drab, sand brown

Description:

Fuze Type - tilt-rods (1), contact initiated, or
tilt-rods (3), contact initiated

Sensitivity - 30 degree deflection of sensor mast

Detectability - Difficult, depending on water visibility. Normally placed just below the low tide water level.

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

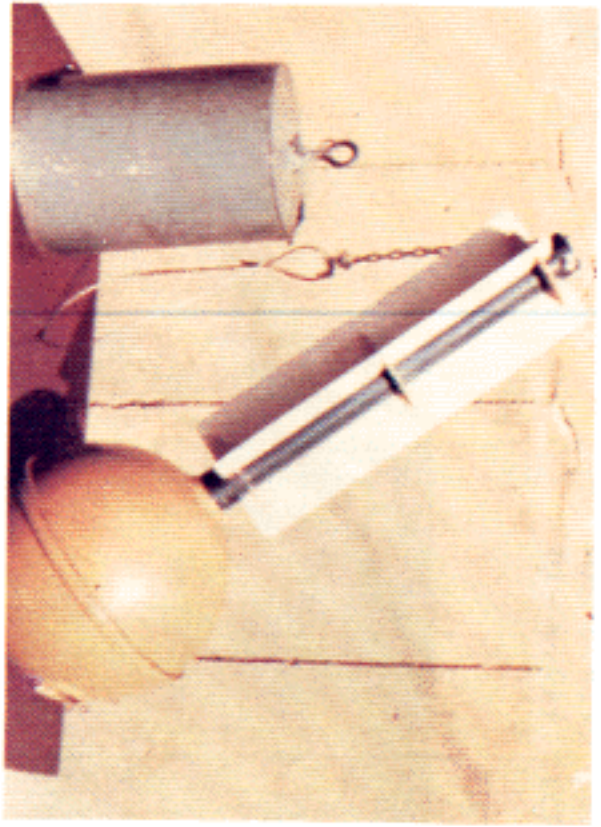
Breach Guidance:

Mine Plow - not applicable

MICLIC - heavy explosive line charges work well in shallow water against tilt-rod or pressure mast fuzes

Charge Placement - attach against plastic target body

Remarks: These two mines are variants of the Egyptian MAL-17 and the Italian MAL/17, MAS/22. One version uses a single top-mounted pressure mast (tilt-rod) while the other uses the more standard arrangement of three pressure masts. In both versions the upper section contains the blast warhead. The lower sections contain buoyant material for floatation.



EGYPTIAN SHALLOW-WATER MINE

AL-MUTHENA/35, AL-MUTHENA/45 MOORED SHALLOW-WATER MINES

HEIGHT (body)
- 610 mm (/35) (24.0 in)
- 660 mm (/45) (26.0 in)

DIAMETER (w/o fuzes)
- 550 mm (/35) (21.7 in)
- 555 mm (/45) (21.9 in)

MINE TOTAL WEIGHT
- 190 kg (/35) (418.9 lb)
- 200 kg (/45) (440.9 lb)

EXPLOSIVE WEIGHT
- 35 kg (/35) (77.2 lb)
- 45 kg (/45) (99.2 lb)

ANCHOR WEIGHT
- 105 kg (231.5 lb)

COLOR
- sand brown, light blue

Description:

Fuze Type - electromechanical tilt-rods (6), contact initiated

Sensitivity - unknown

Detectability - Visual for floating mines; difficult for moored mines set just below the low tide water level (depends on water visibility).

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - not applicable

MICLIC - heavy explosive line charges work well in shallow water against tilt-rod or pressure mast fuzes

Charge Placement - attach against steel target body

Remarks: These mines are described as having multiple functions. They are primarily intended for use as moored shallow-water mines, presenting a significant threat to assault/landing vehicles. However, they are also described as floating mines that drift against floating and fixed bridges as well as commercial/ military shipping.

AL-MUTHENA/35, AL-MUTHENA/45

MOORED SHALLOW-WATER MINE

VS-RM-30 SHALLOW-WATER MINE

HEIGHT (body)
- 200 mm (7.9 in)

DIAMETER (body)
- 500 mm (19.7 in)

MINE WEIGHT
- 40 kg (88.2 lb)

EXPLOSIVE WEIGHT
- 30 kg (66.1 lb)

ANCHOR WEIGHT
- 5 kg (11.0 lb)

COLOR
- light blue, light green

Description:

Fuze Type - delay-armed, magnetic influence initiated
- remote control, command initiated

Sensitivity - changing ambient magnetic fields

Detectability - extremely difficult, depending on water clarity

Capability:

Type Kill - blast effect

Antihandling - antilift (inherent in magnetic influence type fuzes)

Vulnerabilities:

Breach Guidance:

Mine Plow - not applicable

MICLIC - Questionable performance against magnetic influence mines well anchored into the sea floor. Will detonate any mines that are disturbed to the point of movement.

Charge Placement - adjacent to the target body

Remarks: The four stabilizing/mounting legs will hold this mine tightly against the sea floor, a feature necessary for magnetic fuzed mines (movement normally causes detonation). The heavy (30 kg) warhead functions well in the two- to ten-meter range.

VS-RM-30 SHALLOW-WATER MINE

SIGEEL/400 SEA MINE

HEIGHT (body)
- 610 mm (24.0 in)

DIAMETER (upper)
- 700 mm (27.6 in)

DIAMETER (lower)
- 980 mm (38.6 in)

MINE WEIGHT
- 535 kg (1179.5 lb)

EXPLOSIVE WEIGHT
- 400 kg (881.8 lb)

COLOR
- light blue, light green

Description:

Fuze Type - delay-armed, magnetic influence initiated

Sensitivity - changing ambient magnetic fields

Detectability - can be difficult as this mine is intended for deeper water applications than the shallow-water zone; however, depends on water clarity (bottom mine)

Capability:

Type Kill - blast effect

Antihandling - antilift (inherent in magnetic influence type fuzes),
- self-neutralization mechanism

Vulnerabilities:

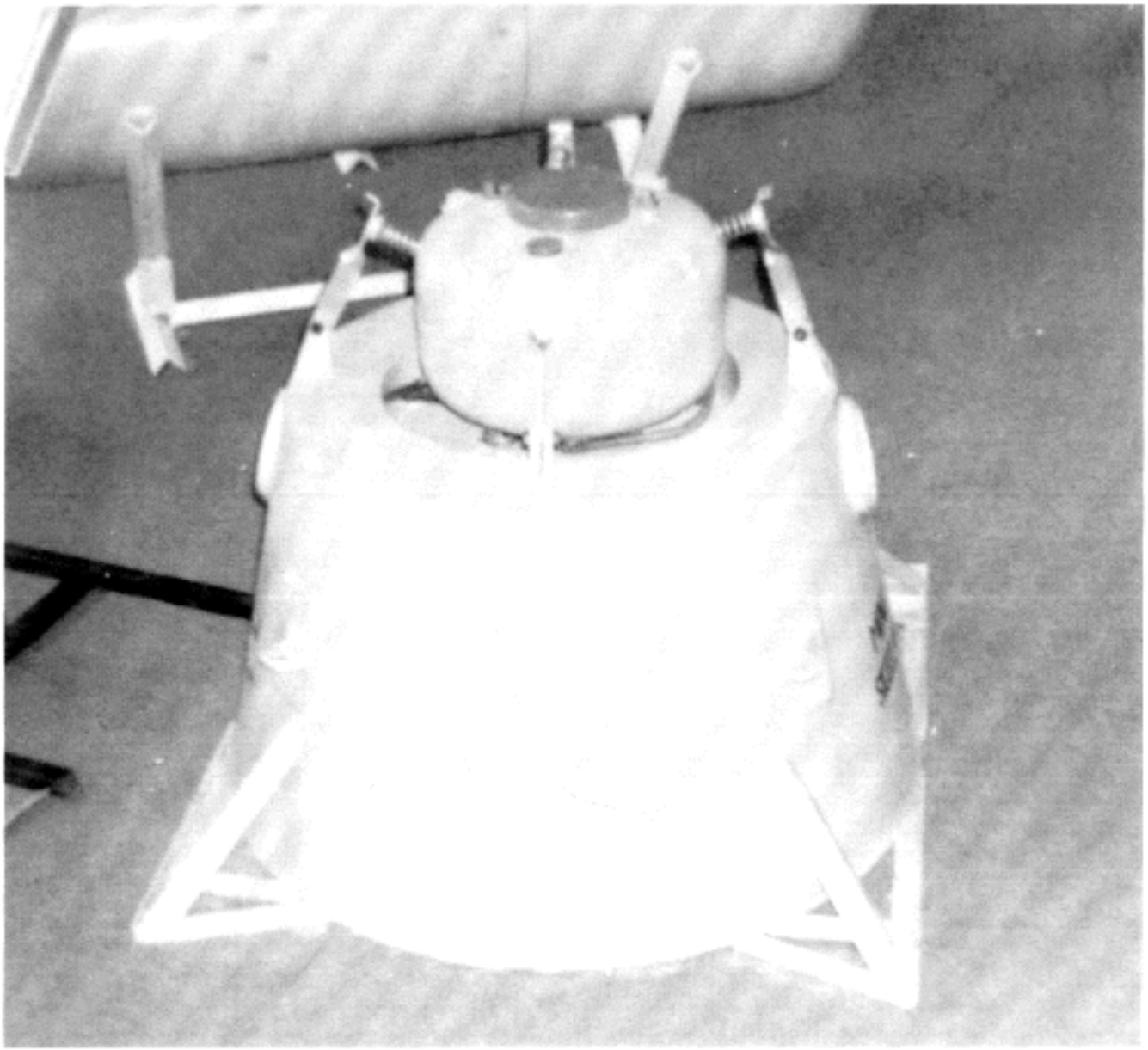
Breach Guidance:

Mine Plow - not applicable

MICLIC - Questionable performance against magnetic influence mines well anchored into the sea floor. Will detonate any mines that are disturbed to the point of movement.

Charge Placement - adjacent to the target body

Remarks: This heavy sea mine is included in this section to demonstrate that deep-water mines are sometimes utilized in shallower water. Despite its large size, it is still deployable from a variety of ship and helicopter platforms.



SIGEEL/400 SEA MINE

MANTA SEA MINE

HEIGHT (body)
- 490 mm (19.3 in)

DIAMETER (upper)
- 700 mm (27.6 in)

DIAMETER (lower)
- 980 mm (38.6 in)

MINE WEIGHT
- 220 kg (485.0 lb)

EXPLOSIVE WEIGHT
- 140 kg (308.6 lb) TNT, or
- 170 kg (374.8 lb) HBX-3

COLOR
- brownish gray

Description:

Fuze Type - delay-armed, dual influence initiated (acoustic/magnetic)

Sensitivity - changing ambient magnetic fields, target selection includes a ship counter (determines which target to fire at, 1 - 7)

Detectability - Can be difficult as this mine is intended for deeper water applications (2.5 to 100 meters). Shallowest depth further limited to the region beyond active tidal/surf surges.

Capability:

Type Kill - blast effect

Antihandling - antilift (selectable),
- self-neutralization mechanism (intervals of 1 day to 17 months)

Vulnerabilities:

Breach Guidance:

Mine Plow - not applicable

MICLIC - Questionable performance against magnetic influence mines well anchored into the sea floor. Will detonate any mines (with antilift option) that are disturbed to the point of movement.

Charge Placement - adjacent to the target body

Remarks: This class sea mine is an example of the larger and more sophisticated style of shallow-water mine available.

MANTA SEA MINE

EPR/2.5 LIMPET MINE

HEIGHT (body)
- 90 mm (3.5 in)

DIAMETER
- 260 mm (10.2 in)

MINE WEIGHT
- 5 kg (11.0 lb)

EXPLOSIVE WEIGHT
- 2.5 kg (5.5 lb)

COLOR
- light green, greenish gray

Description:

Fuze Type - delay-armed, time-delay detonation

Sensitivity - time delay is temperature dependent

Detectability - visual only due to the sabotage uses of this device

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

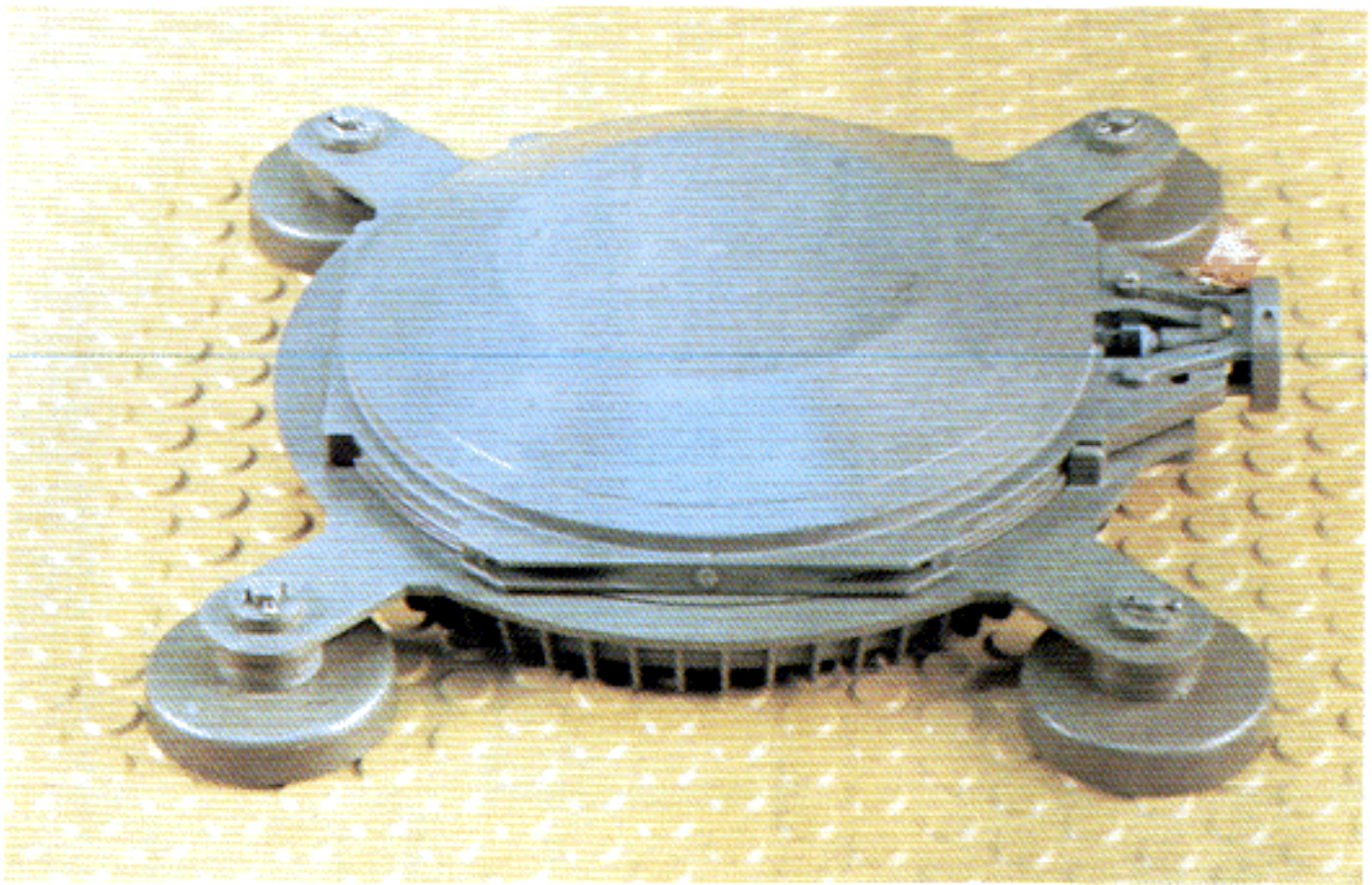
Breach Guidance:

Mine Plow - not applicable

MICLIC - not applicable

Charge Placement - not applicable

Remarks: This limpet mine detonates at a pre-selected time (from 1 to 16 hours, 1 hour increments). The EPR/2.5 can be used against a variety of military/civilian land and sea targets.



EPR/2.5 LIMPET MINE

MPM LIMPET MINE

HEIGHT (body)
- 45 mm (1.8 in)

LENGTH
- 146 mm (5.7 in)

WIDTH
- 72 mm (2.8 in)

MINE WEIGHT
- 732 grams (1 lb 9.8 oz)

EXPLOSIVE WEIGHT
- 315 grams (11.1 oz)

COLOR
- reddish Bakelite

Description:

Fuze Type - time-delay detonation

Sensitivity - the time-delay (shear-wire cutting a lead strip) is time dependent

Detectability - visual only, due to the sabotage uses of this device

Capability:

Type Kill - blast effect

Antihandling - none

Vulnerabilities:

Breach Guidance:

Mine Plow - not applicable

MICLIC - not applicable

Charge Placement - not applicable

Remarks: This limpet mine detonates at times determined by selection of a lead strip (color coded for hardness/length of time), subject to a great deal of variation depending upon temperature.

MPM LIMPET MINE

SM SIGNAL MINE

HEIGHT (body)
- 278 mm (10.9 in)

DIAMETER
- 25 mm (1.0 in)

MINE WEIGHT
- 400 grams (14.1 oz)

PYROTECHNIC WEIGHT
- 256 grams (9.0 oz)

COLOR
- olive drab

Description:

Fuze Type - trip wire (tension) initiated

Sensitivity - 2 to 5 kg (4.1 to 11.0 lb) (depends upon condition of release pin in MUV fuze)

Detectability - visual, identification of trip wire and its mounting stake

Capability:

Type Kill - none, provides a combination audible/visual alarm

Kill Radius - none, creates a fire hazard out to 10 meters

Antihandling - none

Vulnerabilities:

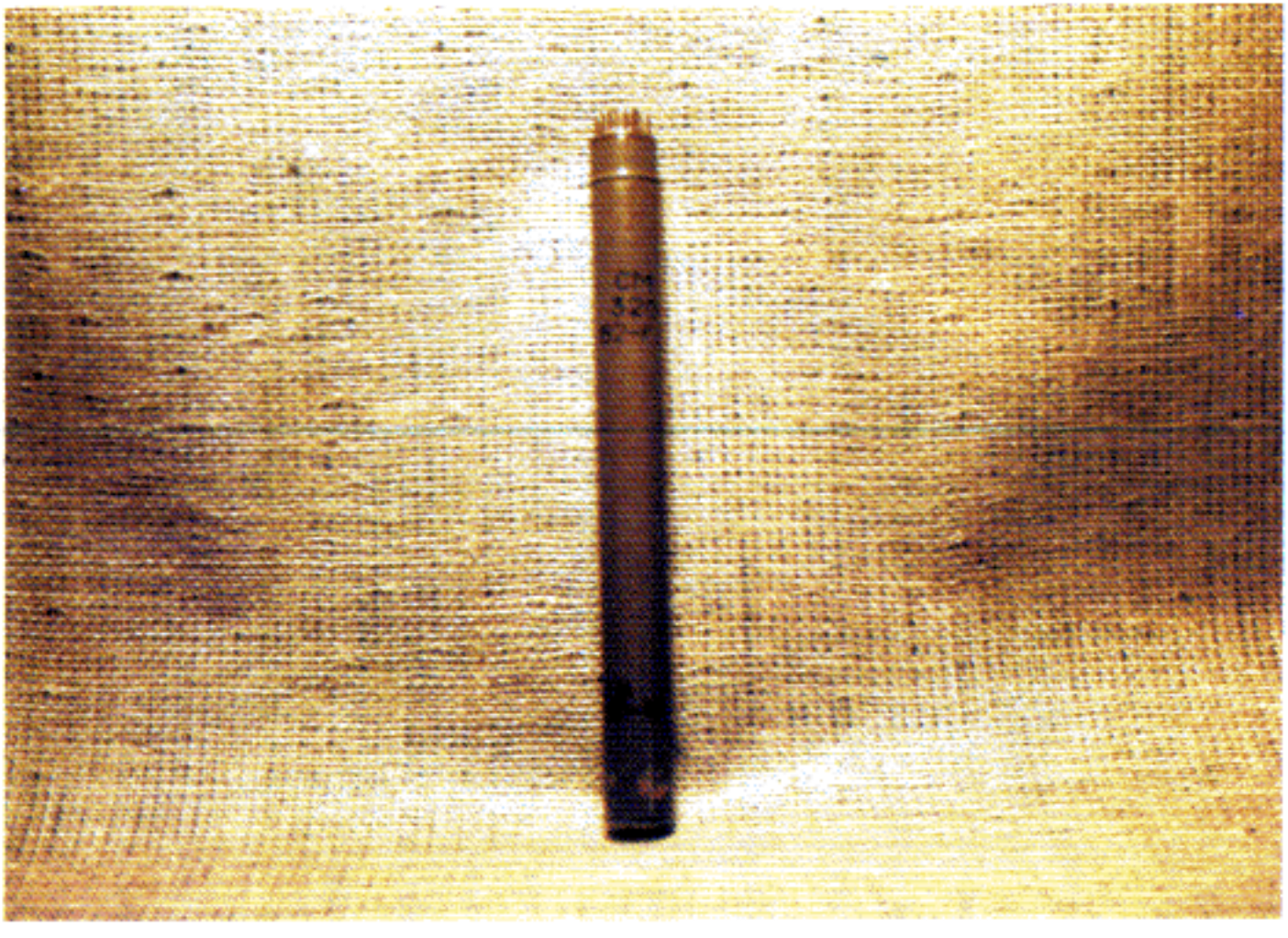
Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate some trip wires

MICLIC - heavy line charges readily defeat trip wire initiated devices

Charge Placement - adjacent to the SM signal mine

Remarks: This signal mine launches pyrotechnic signal stars to a height of 5 to 25 meters and simultaneously generates an audible signal. The bottom of the mine is painted white, green, or red to reflect the color of the signal stars within. The pyrotechnics last about 10 seconds, and the audible/visual range is up to 500 meters.



SM SIGNAL MINE

EGYPTIAN SIGNAL MINES

HEIGHT (body)
- 290 mm (11.4 in)

DIAMETER
- 25 mm (1.0 in)

MINE WEIGHT
- 400 grams (14.1 oz)

PYROTECHNIC WEIGHT
- 256 grams (9.0 oz)

COLOR
- olive drab

Description:

Fuze Type - trip wire (tension) initiated

Sensitivity - 2 to 5 kg (4.1 to 11.0 lb) (depends upon condition of release pin in MUV type fuze)

Detectability - visual, identification of trip wire and the mine's mounting stake

Capability:

Type Kill - none, provides a combination audible/visual alarm

Kill Radius - none, creates a fire hazard out to 10 meters

Antihandling - none

Vulnerabilities:

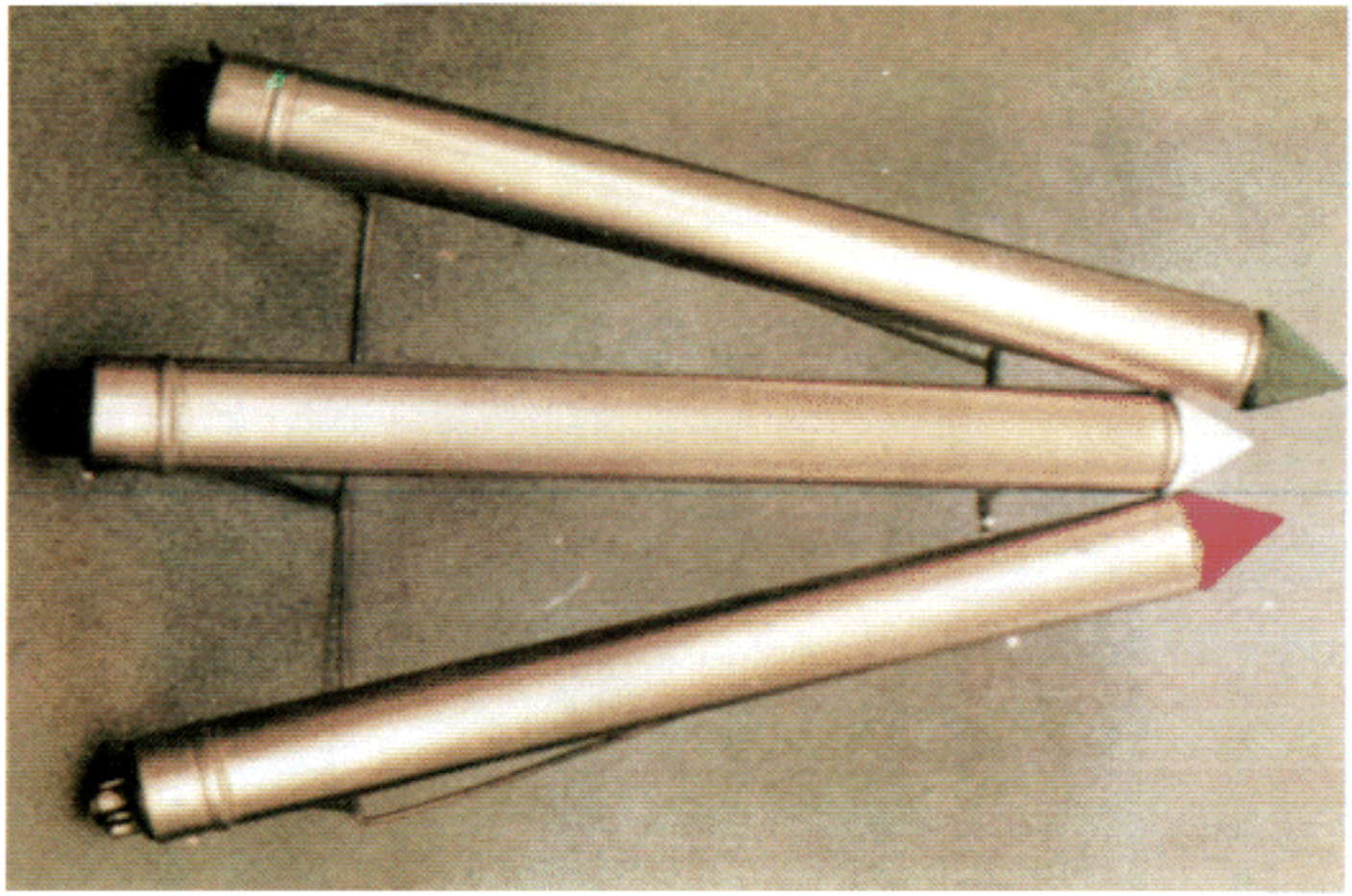
Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate some trip wires

MICLIC - heavy line charges readily defeat trip wire initiated devices

Charge Placement - adjacent to the signal mine

Remarks: This signal mine launches pyrotechnic signal stars to a height of 5 to 25 meters and simultaneously generates an audible signal. The bottom of the mine has a color coded point for ease of driving into the ground. The colors (white, green, or red) reflect the color of the signal stars within.



EGYPTIAN SIGNAL MINE

VAR/IG ILLUMINATION MINE

HEIGHT (body)
- 210 mm (8.3 in)

HEIGHT (stake)
- 25 mm (1.0 in)

DIAMETER
- 66 mm (2.6 in)

MINE WEIGHT (body)
- 500 grams (1 lb 1.6 oz)

COLOR
- sand brown, olive drab, gray

Description:

Fuze Type - trip wire (tension), pressure initiated

Sensitivity - pressure ==> 12 kg (26.4 lb)
tension ==> 6 kg (13.2 lb)

Detectability - visual, by identification of trip wire

Capability:

Type Kill - none, provides a visual (illumination) alarm

Kill Radius - none, creates a fire hazard out to 5 meters

Antihandling - none

Vulnerabilities:

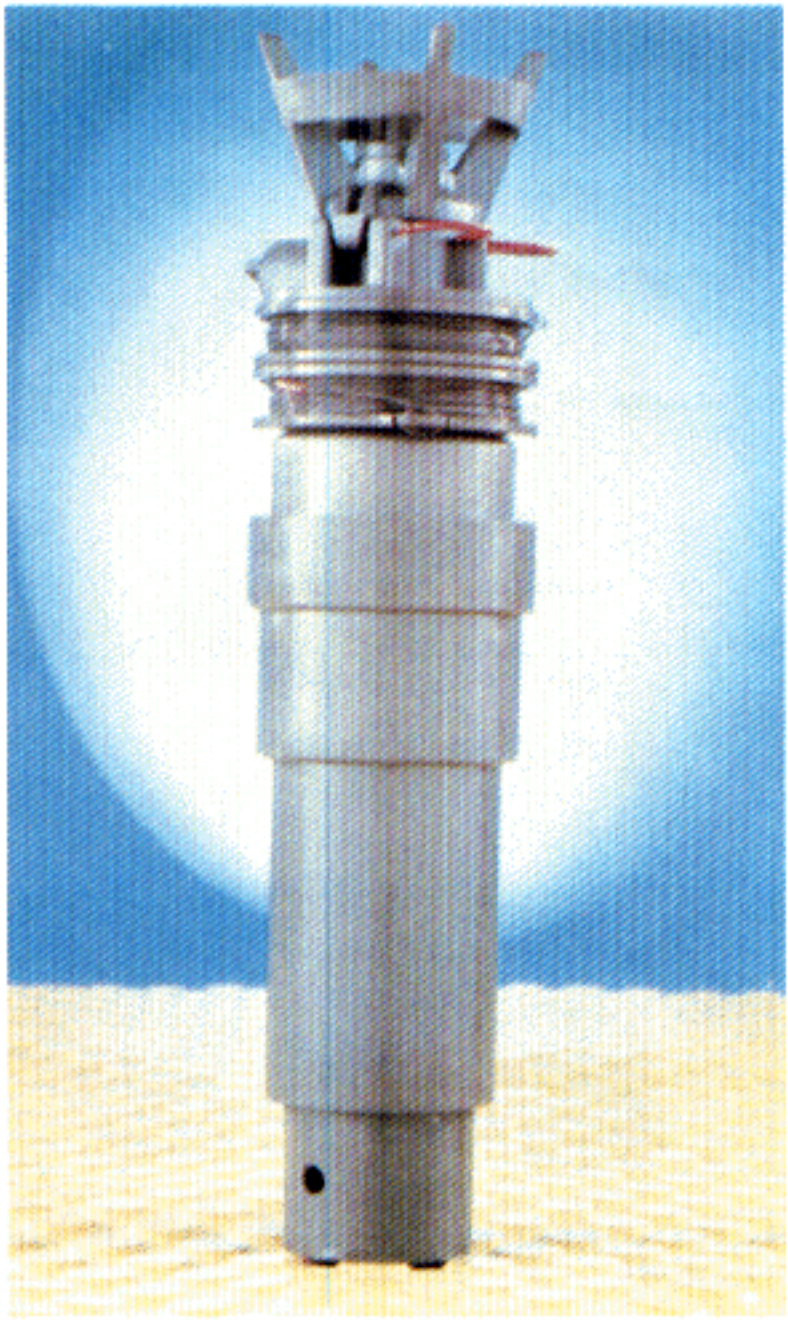
Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate some trip wires

MICLIC - heavy line charges readily defeat trip wire initiated devices

Charge Placement - adjacent to the VAR/IG illuminating mine

Remarks:



VAR/IG ILLUMINATION MINE

VS-T ILLUMINATION MINE

HEIGHT (body)
- 220 mm (8.7 in)

HEIGHT (stake)
- 400 mm (long) (15.7 in)
- 260 mm (short) (10.2 in)

DIAMETER
- 70 mm (2.8 in)

MINE WEIGHT (body)
- 470 grams (1 lb 0.6 oz)

COLOR
- sand brown, olive drab,

Description:

Fuze Type - trip wire (tension), pressure initiated

Sensitivity - pressure ==> 4 to 20 kg (8.8 to 44.1 lb)
tension ==> 2 to 10 kg (4.4 to 22.0 lb)

Detectability - visual, by identification of trip wire

Capability:

Type Kill - none, provides a visual (illumination) alarm

Kill Radius - none, creates a fire hazard out to 5 meters

Antihandling - none

Vulnerabilities:

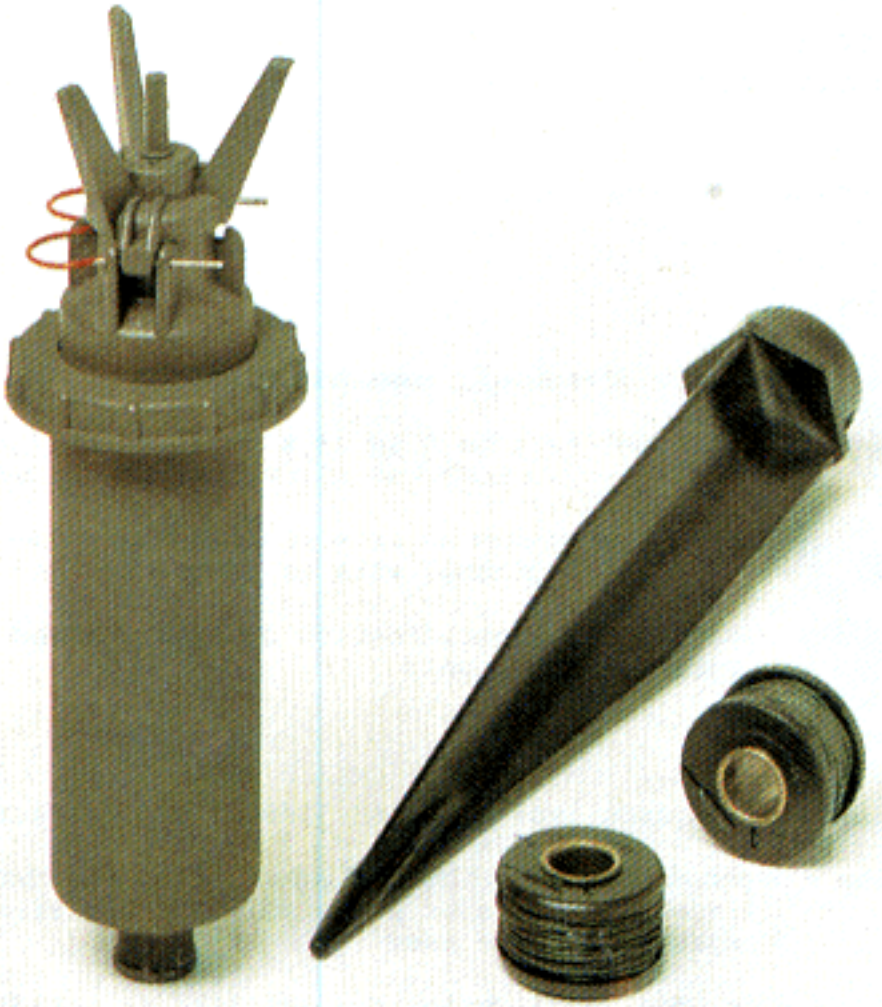
Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate some trip wires

MICLIC - heavy line charges readily defeat trip wire initiated devices

Charge Placement - adjacent to the VS-T illumination mine

Remarks:



VS-T ILLUMINATION MINE

HEIGHT
(Information not available)

DIAMETER
(Information not available)

MINE WEIGHT
(Information not available)

CHEMICAL FILL
(Information not available)

COLOR
(Information not available)

Description:

Fuze Type - trip wire (tension), command initiated

Sensitivity - trip wire ==> 2 to 5 kg (4.4 to 11.0 lb) (depends upon condition of release pin in MUV type fuze)

command ==> fires on receipt of firing pulse from command control wire or remote control unit

Detectability - visual, by identification of trip/command wire or remote control unit

Capability:

Type Kill - depends upon type of agent (lethal or incapacitating)

Kill Radius - depends upon the volume of agent held, its characteristics (viscosity and vapor pressure), and the size bursting/dispensing charge used

Antihandling - an ideal application for antilift or antidisturbance devices

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate some trip wires

MICLIC - heavy line charges readily defeat trip wire initiated devices

Charge Placement - not applicable

Remarks: Conceptually, this type weapon is simply a container (filled with a chemical agent) equipped with a fuze (typically command controlled) and a bursting charge (to dispense the chemical agent). A variety of chemical agents are readily available. For land mine use, either a persistent mustard agent or a non-persistent nerve agent is expected.

CHEMICAL LAND MINES

ANTILIFT DEVICE

HEIGHT
(Information not available)

DIAMETER
(Information not available)

WEIGHT
(Information not available)

COLOR
(Information not available)

Description:

Fuze Type - pressure release

Sensitivity - 1 to 2.5 kg (2.2 to 5.5 lb)

Detectability - buried under the mine to which it is attached

Capability:

Type Kill - detonator functions main explosive charge of attached mine

Kill Radius - depends upon the mine being booby-trapped

Antihandling - not applicable, this is an antilift device

Vulnerabilities:

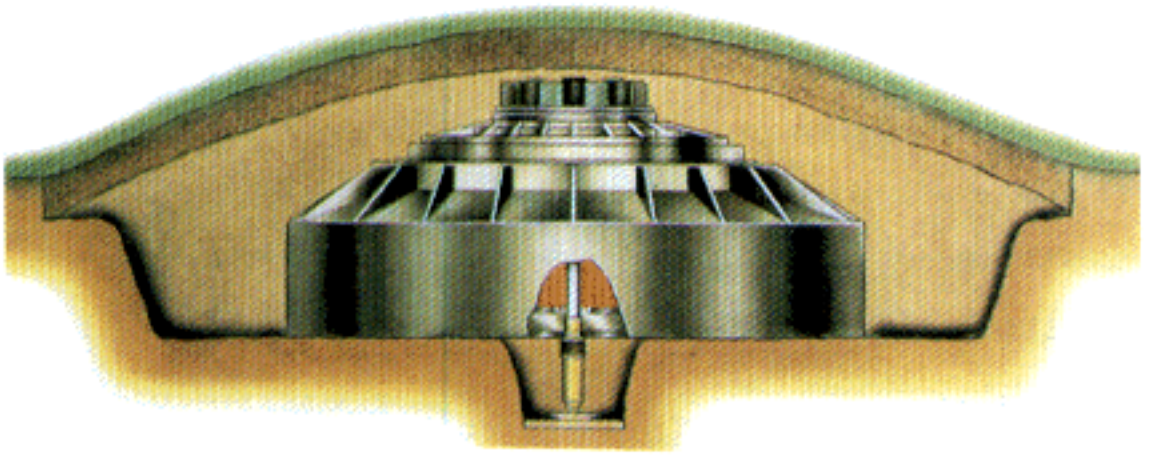
Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate antilift devices

MICLIC - heavy line charges will have minimal effect on antilift devices attached to buried mines

Charge Placement - adjacent to the mine/device

Remarks: Conceptually, this type weapon is simply a container (filled with a chemical agent) equipped with a fuze (typically command controlled) and a bursting charge (to dispense the chemical agent). A variety of chemical agents are readily available. For landmine use, either a persistent mustard agent or a nonpersistent nerve agent is expected.



ANTILIFT DEVICE

HEIGHT
(Information not available)

DIAMETER
(Information not available)

WEIGHT
(Information not available)

COLOR
(Information not available)

Description:

Fuze Type - trip wire (tension) initiated

Sensitivity - 1 kg (2.2 lb)

Detectability - buried under the mine to which it is attached

Capability:

Type Kill - striker/percussion cap functions the detonator of the mine

Kill Radius - depends upon the mine being booby-trapped

Antihandling - not applicable, this is an antidisturbance device

Vulnerabilities:

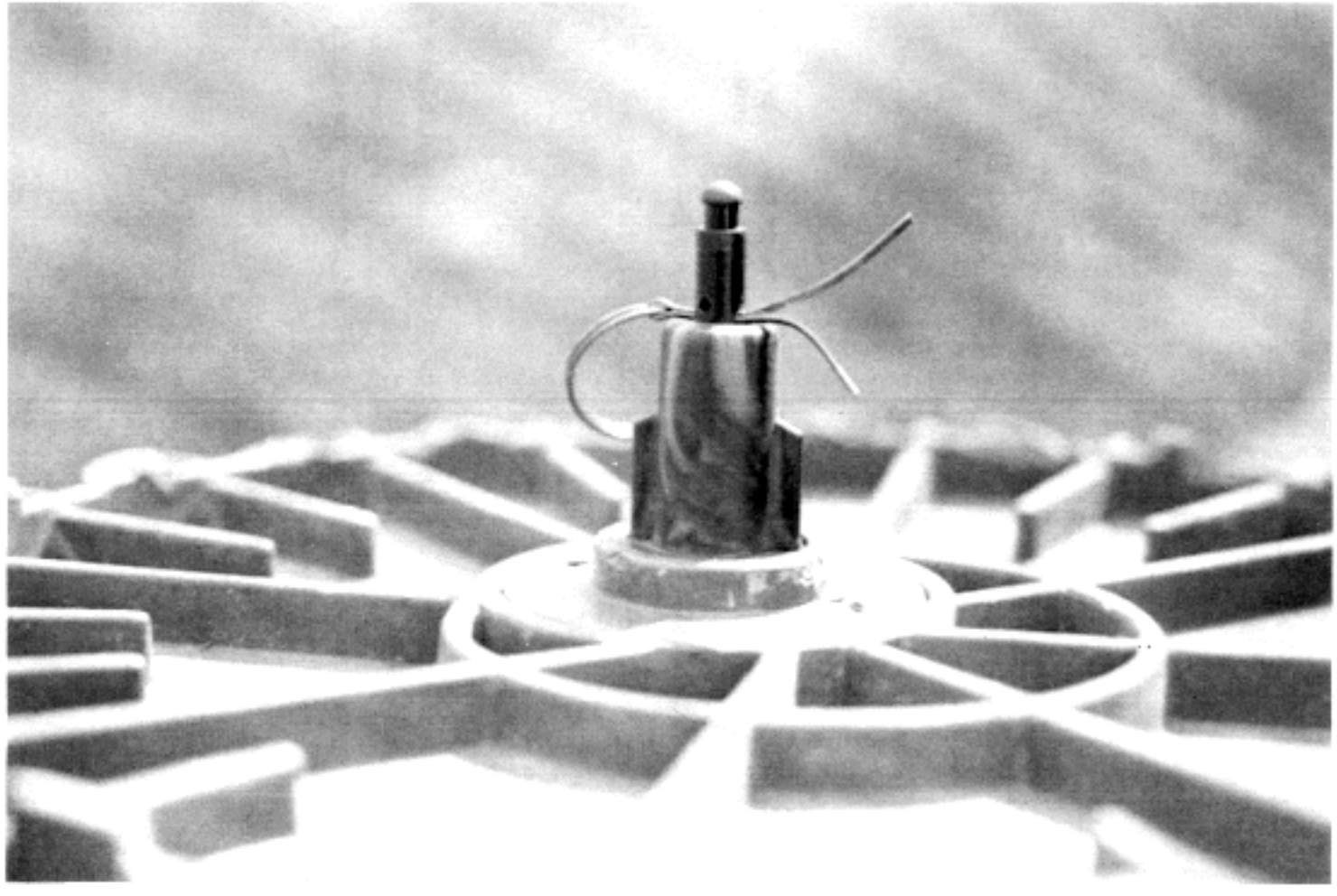
Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate antidisturbance devices

MICLIC - heavy line charges will have minimal effect on antidisturbance devices attached to buried mines

Charge Placement - adjacent to the mine/device

Remarks:



ANTIDISTURBANCE DEVICE

VS-AR-4 ANTILIFT DEVICE

HEIGHT
(Information not available)

DIAMETER
(Information not available)

WEIGHT
(Information not available)

COLOR
(Information not available)

Description:

Fuze Type - pressure release initiated

Sensitivity - .1 kg

Detectability - buried under the mine to which it is attached

Capability:

Type Kill - self contained device with fuze/explosive charge to explosively initiate the mine it is placed under

Kill Radius - depends upon the mine being booby-trapped

Antihandling - not applicable, this is an antilift device

Vulnerabilities:

Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate antilift devices

MICLIC - heavy line charges will have minimal effect on antilift devices attached to buried mines

Charge Placement - adjacent to the mine/device

Remarks:

PHOTO NOT AVAILABLE

VS-AR-4 ANTILIFT DEVICE

HEIGHT
(Information not available)

DIAMETER
(Information not available)

WEIGHT
(Information not available)

COLOR
(Information not available)

Description:

Fuze Type - pressure initiated
- pressure release initiated
- trip wire (both tension and tension release) initiated

Sensitivity - .1 to 5 kg

Detectability - difficult, due to the nature of these booby-trap devices

Capability:

Type Kill - self contained device with fuze/detonator assemblies; requires only a main explosive charge

Kill Radius - depends upon the explosive charge being initiated

Antihandling - not applicable, this are antihandling devices

Vulnerabilities:

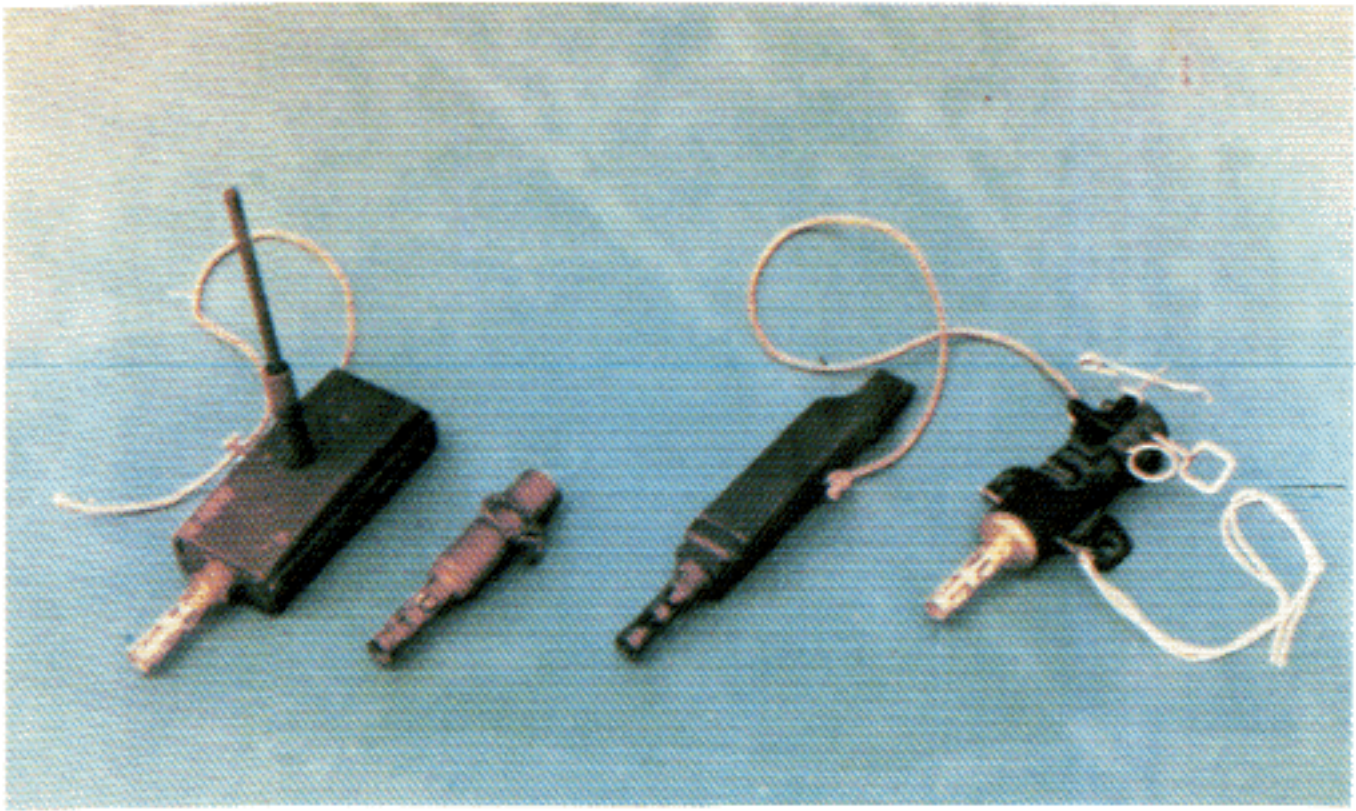
Breach Guidance:

Mine Plow - removes armed mines from plow area, will initiate antihandling devices

MICLIC - heavy line charges will have minimal effect on antihandling devices attached to buried charges

Charge Placement - adjacent to the mine/device

Remarks:



MISCELLANEOUS FIRING DEVICES

GLOSSARY

AT	antitank
AP	antipersonnel
g	gram
in	inch
IZ	Iraqi
kg	kilogram
lb	pound
m	meter
mm	millimeter
OBSTINTEL	obstacle intelligence
OCOKA	observation, cover and concealment, key terrain, obstacles, and avenues of approach
oz	ounce
"SHU"-type mine	a rectangular, wooden box-type AP pressure-blast mine similar in appearance and size to a shoe box
SOSR	suppress, obscure, secure, and reduce
UK	United Kingdom