Mine Action Information Center Journal Machine Assisted Demining Summer 1999 - Volume 3, No. 2

Table of Contents
Journal Staff
Call for Papers
E*Mail the Journal
Maic Website
Journal Archive

Focus on Machine Assisted Demining

When an Explosion is Not an Explosion: Detonating AP Mines without Explosive Charges with the AP Mine Neutralization Device

By Frank E. Varljen (Colonel, US Army, Retired)

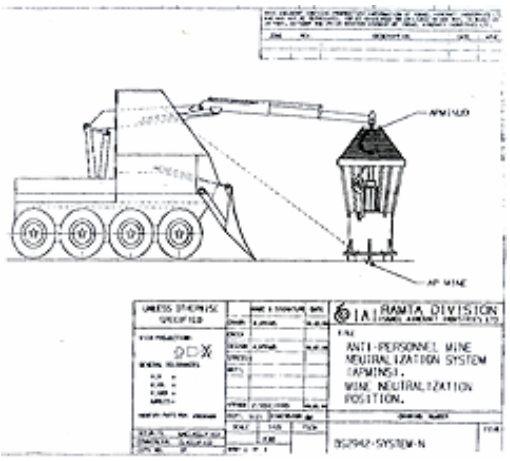
Issue 3.2 | June 1999
Information in this issue may be out of date. Click here to link to the most recent issue.

The Problem with Using Explosive Charges to Detonate AP Mines

In many demining situations, "in situ" neutralization of AR landmines is accomplished by using explosive charges to detonate the mines in place. However, there are times when it is not appropriate, safe, or feasible to use explosive charges to neutralize AP mines.

- When explosives are not available because of logistical problems, cost, and/or storage limitations.
- When explosives are not allowed because of security restrictions, and/or the possible theft of explosives by unfriendly elements.
- When trained demolition/explosive-handling personnel are not available to properly handle explosives.
- When explosives are not safe to use because the explosion and resulting shrapnel and blast effect would damage nearby facilities (buildings, communication stations, bridges, etc.).
- When there is a need to limit the spread of the shrapnel from the exploded mine.

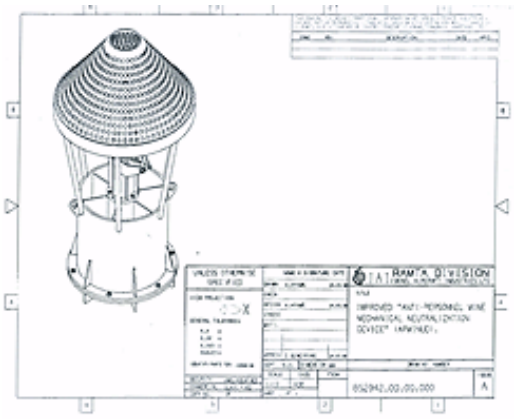
In such situations, the use of a mechanical AP mine neutralization device is necessary and appropriate. Such a device is currently being evaluated by the US Army Countermine Division of the CECOM Night Vision and Electronic Sensor Center at Fort Belvoir, Virginia



The AP Mine Neutralization Device (APMINUD).

Developed by RAMTA Division of the Israel Aircraft Industries, this device detonates an AP mine in situ, without the need for placement of any explosive charge, and without the need for any exposed personnel in the immediate vicinity of the mine. The blast of the explosion and the accompanying fragmentation are

contained by the AP Mine Neutralization Device (APMINUD), that is placed over the mine prior to its activation. (See sketch)



The mechanical system is safe and simple to operate and maintain in the field by local operating personnel. Already completed US Army tests have verified the following attributes of the APMINUD:

- It is effective over a wide variety of terrain, including clay soil, sand, and grass-covered clay soil.
- It detonates previously marked, pressure activated AP mines in situ without the need for explosive charges.
- The heavy, spring-driven plunger and hammerhead create a ground footprint of 10-12 inches in diameter.
- It triggers mines buried up to 3 inches deep.
- Using sacrificial elements, it can withstand the blast and fragmentation of at least 50 detonations of 200-gram AP mines.
- It can be lifted and transported by a variety of vehicles with booms.
- The plunger and hammerhead mechanism are locked in ready position when the APMINUD is lifted.
- The locking mechanism is released by pulling a cable, either manually or by remote control.
- After performing numerous detonations, the moving parts of the APMINUD can be easily replaced in the field by the local operators.
- The APMINUD provides a clearances rate considerably faster than the current manual mine-clearing system.

Contact Information

For more information, contact the following:

Mr. Zeev Scheiring

- IAI-RAMTA
- PO Box 323

Beer Sheva Israel 84102

- Tel: 972-7-627-2231/8086
- Fax: 972-7-627-6770
- IAH Washington Office
- 1700 North Moore Street, Ste 1210
- Arlington, VA 22209
- Tel: 703-875-3724/3735
- Fax: 703-875-3740

Frank E. Varljen (Colonel, US Army, Retired)

- Consultant
- 6508 Shamrock Road
- Manassas, VA 20112
- Tel: 703-791-6218
- Fax: 703-791-6547
- Email: fvarljen@erols.com