Portion (s) Declassified IAW:
MNF-I SCG, 31 Mar 07
Declassified on: 29JUN07

EXPLOSIVE ORDNANCE DISPOSAL INCIDENT REPORT

Document approved for release by
U.S. Central Command.
See FOIA Case #07-0160

EOD Report Number: M830A1 HEAT-MP-T

1. Incident Information
   a. Location.
      (1) Grid (MGRS): (b)(1)1.4a, (b)(1)1.4g
      (2) City: Ar Ramadi
      (3) Route: COP Grant
      (4) Area of Operation: AO Topeka

2. Unit Supported: (b)(1)1.4a

3. EOD General Information
   a. Date/Time/Group: 020055Feb07
   b. Date Received: 031300Feb07 and 081045Feb07
   c. Time Received: 1045
   d. Type of Incident: Frag Analysis for Post Blast Investigation
   e. Initiator: N/A
      (1) Initiator Comments: N/A
   f. Ordnance: M830A1 HEAT-MP-T
   g. Team Leader: (b)(3), (b)(6)
   h. Team Member:
   i. Emplacement: N/A

Derived from: MNF-I SCG, 31 Mar 07
Reason: 1.4a, 1.4g
Declassify on 20170205

4. Description of Incident: Please note that this is the SigAct posted by the Battle Captain and describes the events that took place on the COP. EOD Did Not conduct Post Blast Analysis on the scene. Original SigAct is posted in black and all updates are in blue.

(b)(1)1.4a, (b)(1)1.4g

~~4292 9855)~~ EOD conducted a crater analysis and concluded that the COP was attacked with (2) 73mm OG-9 recoilless rifle rounds with had similar effects to mortar impacts. (1) round impacted at Building 12 (b)(1)1.4a, (b)(1)1.4g 1.4a, (b)(1 in patrol sector P8, 50m south of the unit's position. The 2nd round impacted Building 40 [(1) of (2) buildings that comprise COP Grant)(1)1.4a, (b)(1)1.4

(b)(1)1.4a, (b)(1)1.4g

returned fire with (2) rounds of 120mm (M1A1 main gun), (7500) rounds of 7.62mm (coax and tower M240), (400) rounds of 5.56mm, (500) rounds of cal.50, and (30) rounds of 40mm (M203). (b)(1)1.4a **COP Grant engaged (2) AIF in Building 46 of patrol sector P8** (b)(1)1.4a, (b)(1)1.4g **at a distance of 140m to the east, (1) AIF in a grassy area** (b)(1)1.4a, (b)(1)1.4g)1.4a, (b)(1) **350m to the northeast, and (1) AIF IVO Building 125** (b)(1)1.4a, (b)(1)1.4g **in the L5 patrol sector at a distance of 280m to the northeast. Enemy BDA from these engagements was** (b)(1)1.4a Also during the attack, a M2A2 clipped the front end of an M1114 in the vehicle staging area causing damage to the front end of the M1114. C/1-37 AR declared end of TIC at 0245. After the engagement, (2) CF (US) soldiers were determined to have mild concussions and lacerations. Both were treated at the TF 1-37 Forward Aid Station and were returned to duty.

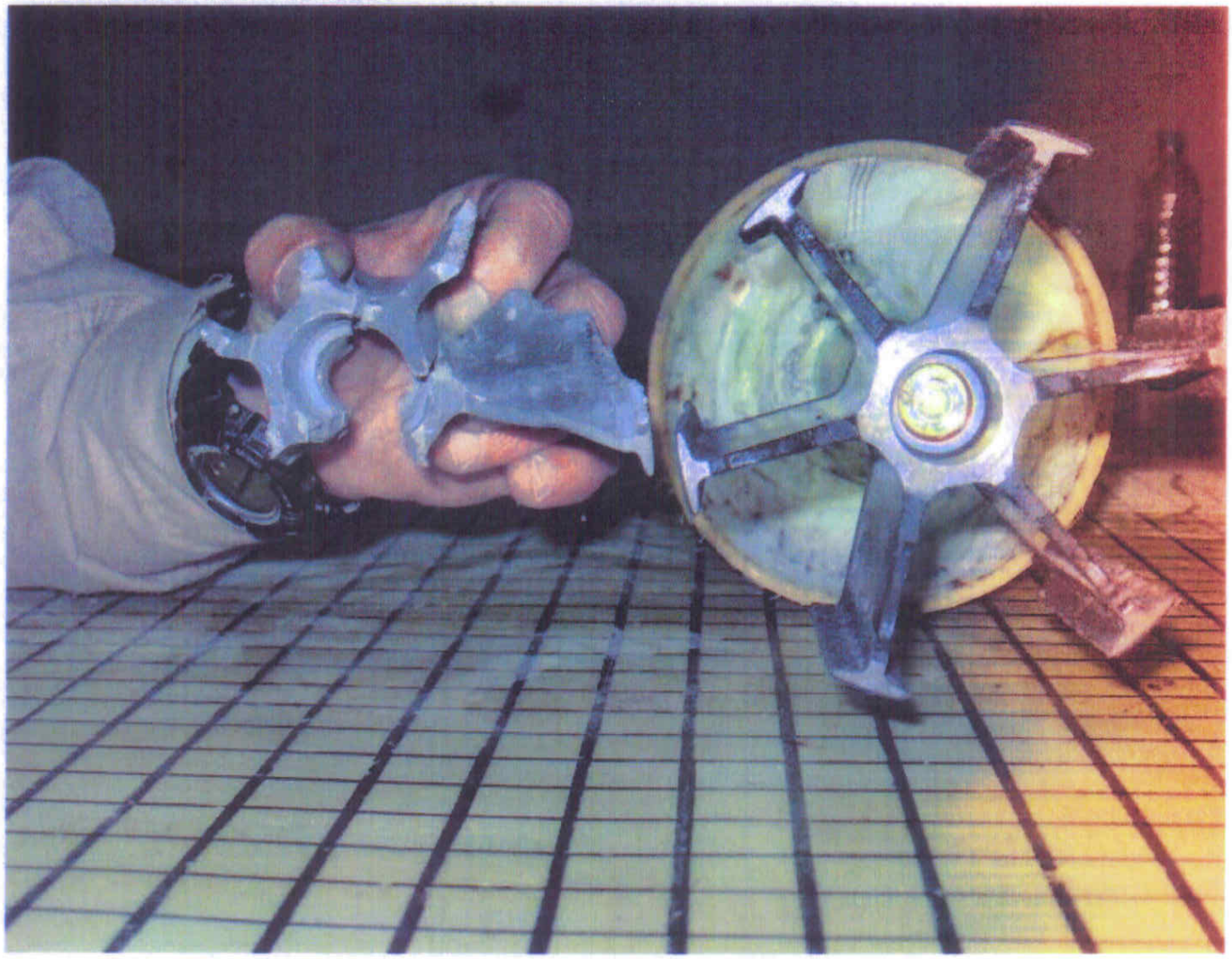
(b)(1)1.4a, (b)(1)1.4g

5. EOD Procedures Performed: Fragmentation found at the site of the blast was brought to EOD at approximately 1045 on 08 Feb 2007. The fragmentation was brought to EOD by TF 3-69 S-2 element. EOD was told that the fragmentation was found on the roof and below the building on COP Grant. EOD reconstructed the tail assembly out of the fragmentation and compared it to a similar round obtained from the unit and made a positive identification of the fragmentation. The round was positively identified as a U.S. M830A1 HEAT-MP-T projectile for use in a M1A1.

6. Final Disposition: Fragmentation was maintained by EOD as evidence for forthcoming investigations.

7. Conclusion: Fragmentation brought to EOD was aluminum construction fin fragments and heavy steel fragmentation. No oxidation or rust existed on any of the fragments indicating that the fragmentation was very recent and had not been exposed to the elements for any period of time. EOD believes the Battalion S-2 was tasked with identifying what type of round impacted the COP and the fragmentation was collected by the investigating officer. From the pictures provided to EOD by the unit we can determine that the angle of impact was on a trajectory traveling low to high when the round detonated causing the damage to the rooftop and casualties. Damage to the rooftop is too extensive to be a RPG round and the angle of fire eliminates the possibility of a mortar strike. EOD believes this damage to be consistent with the impact of a U.S. M830A1 HEAT-MP-T projectile fired by a M1A1 Tank. EOD has not conducted analysis at the site of the incident and only conducted analysis on the fragmentation at the units insistence. A Power Point slide show is being constructed by EOD to supplement this IR.

8. Pictures with titles:



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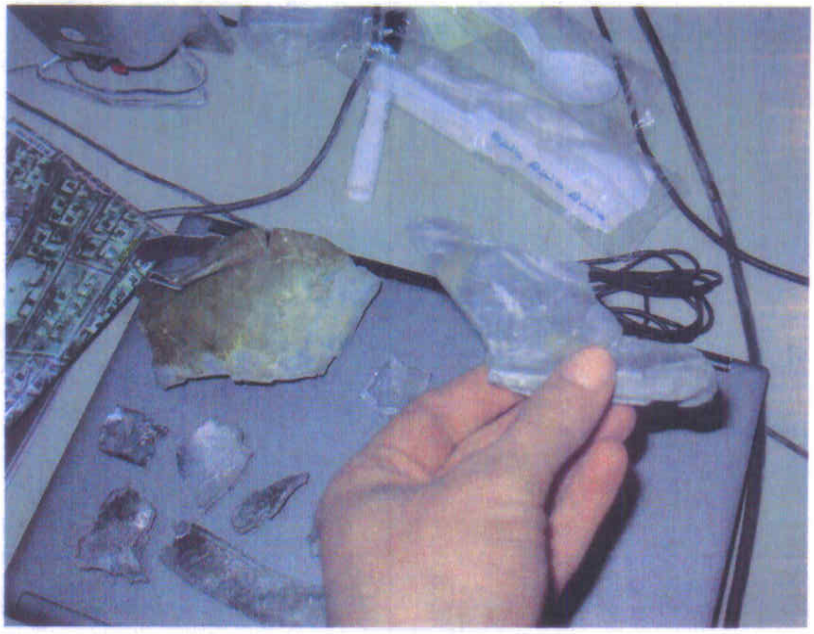
A3 (55)



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A3 (56)

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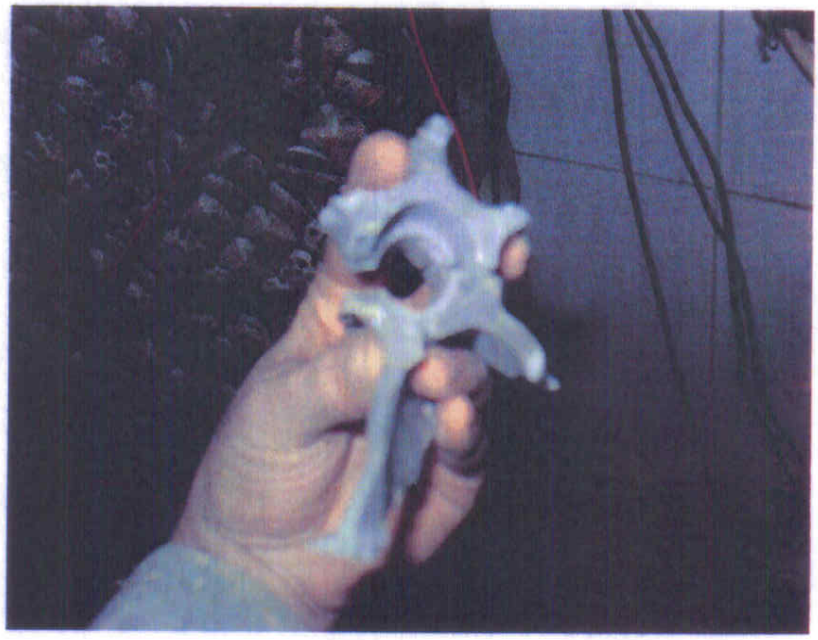

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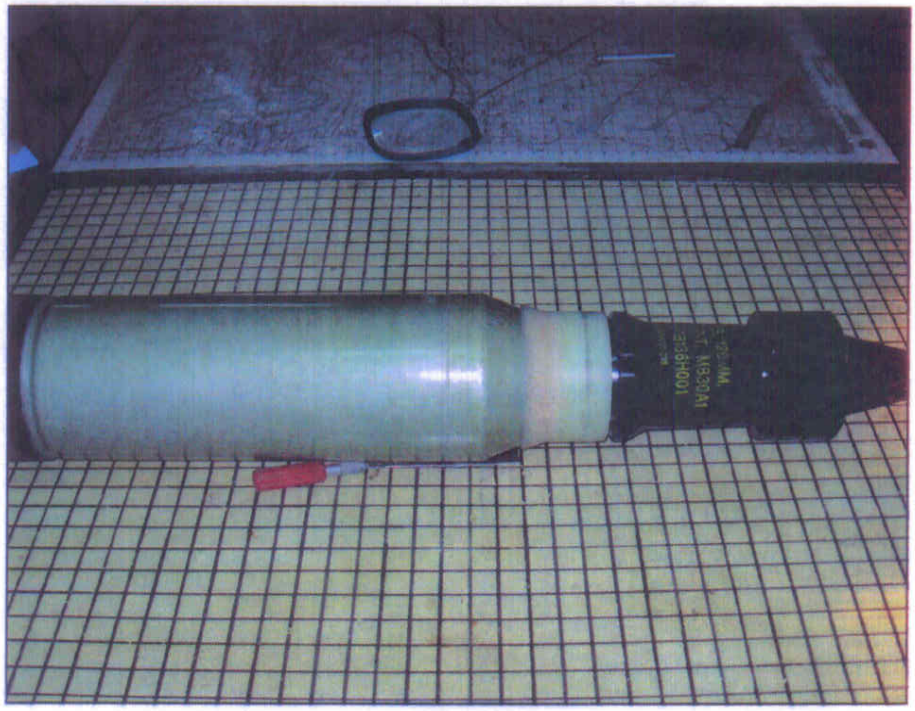

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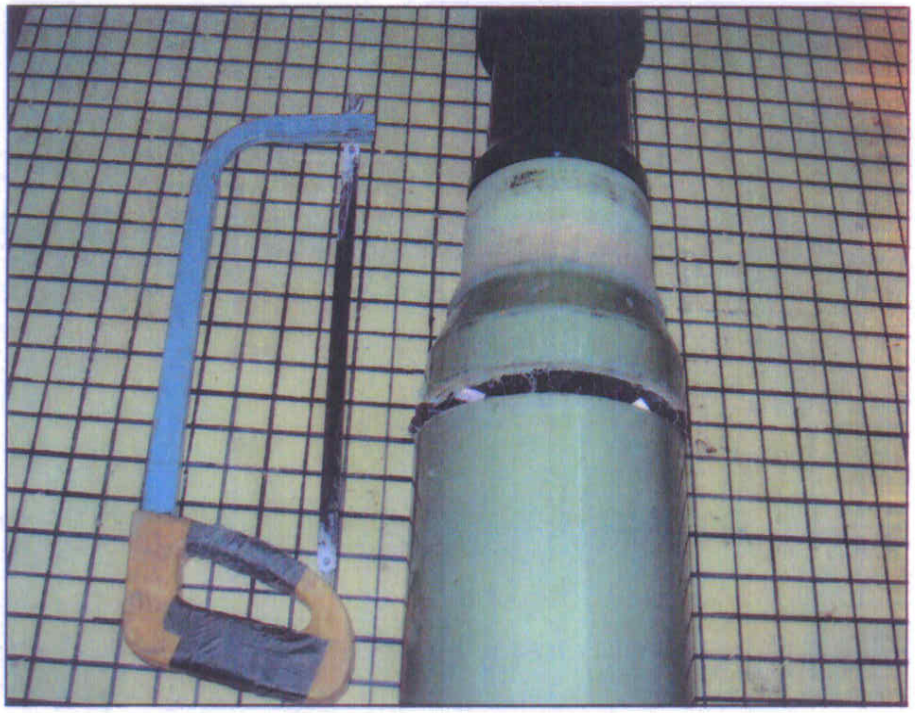

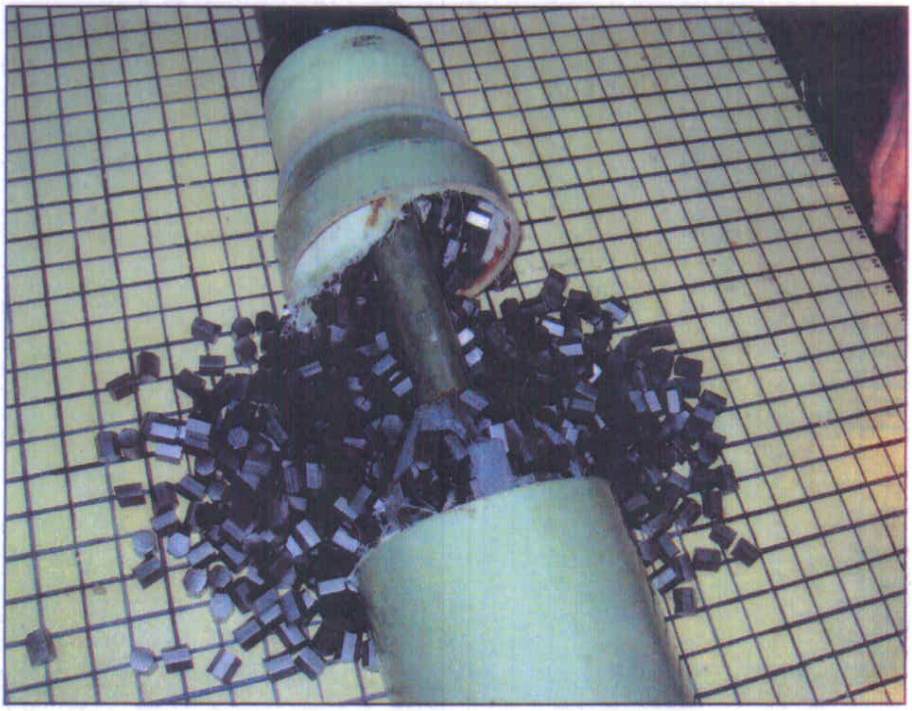

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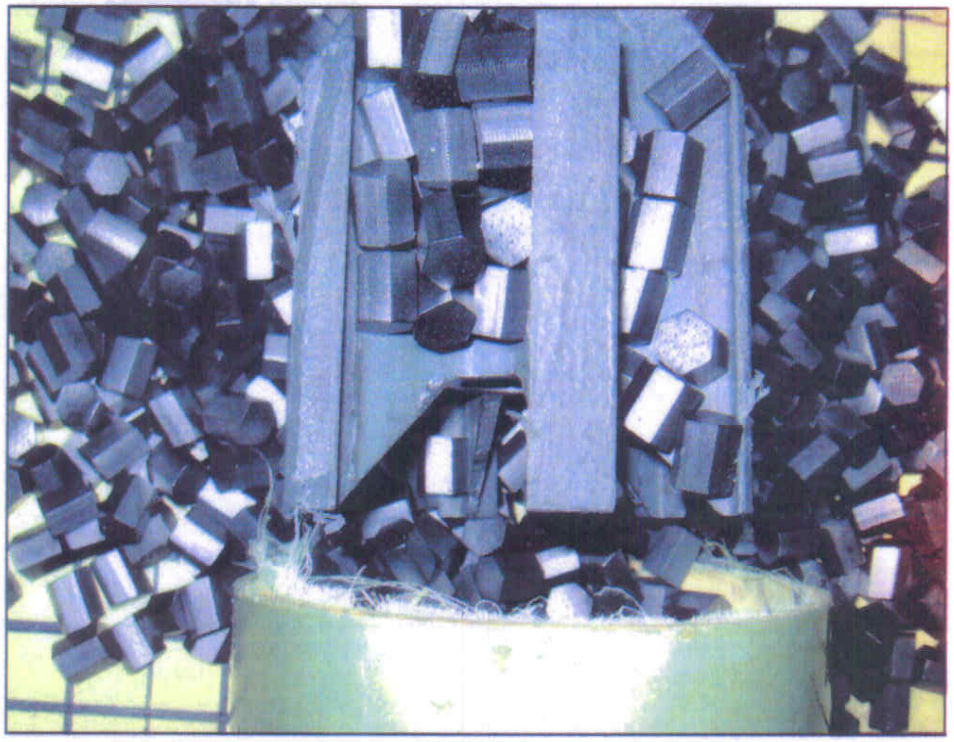

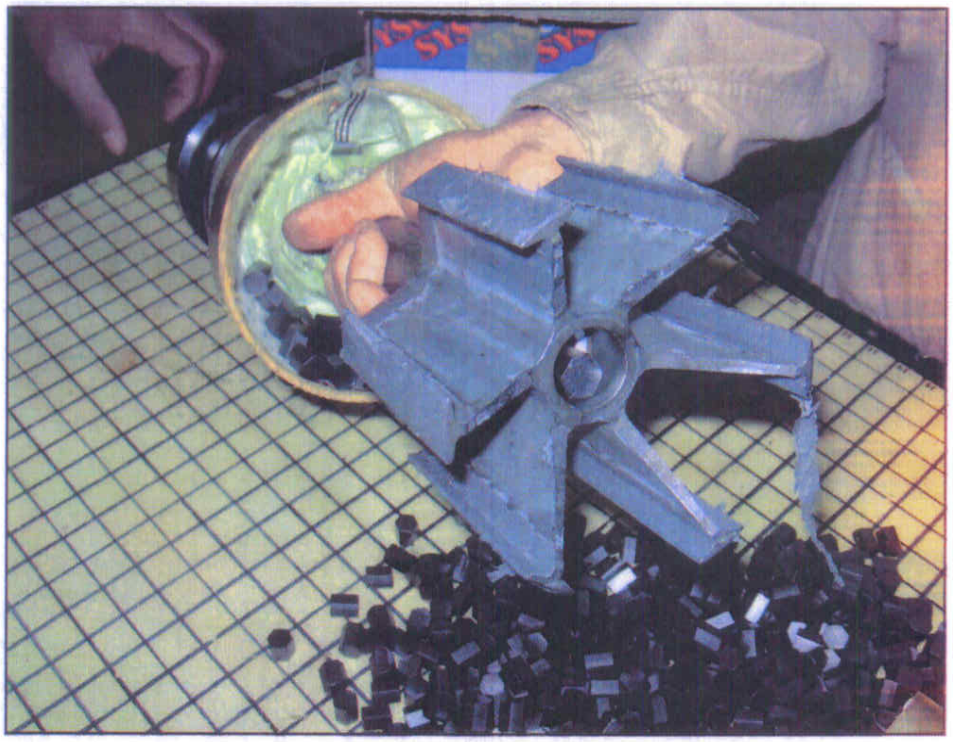

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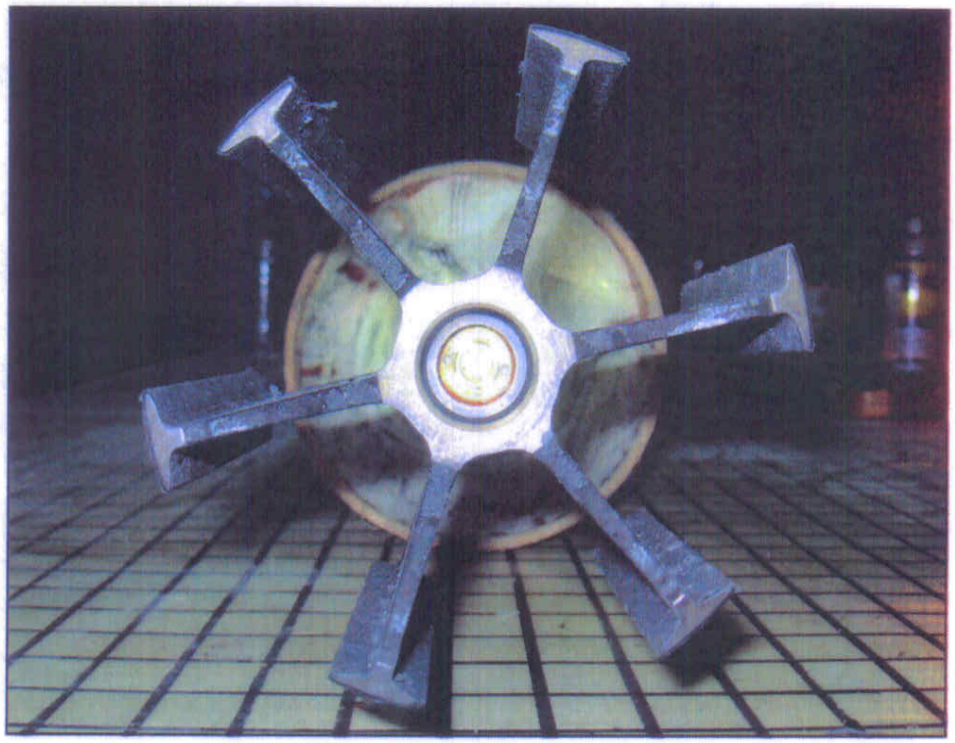

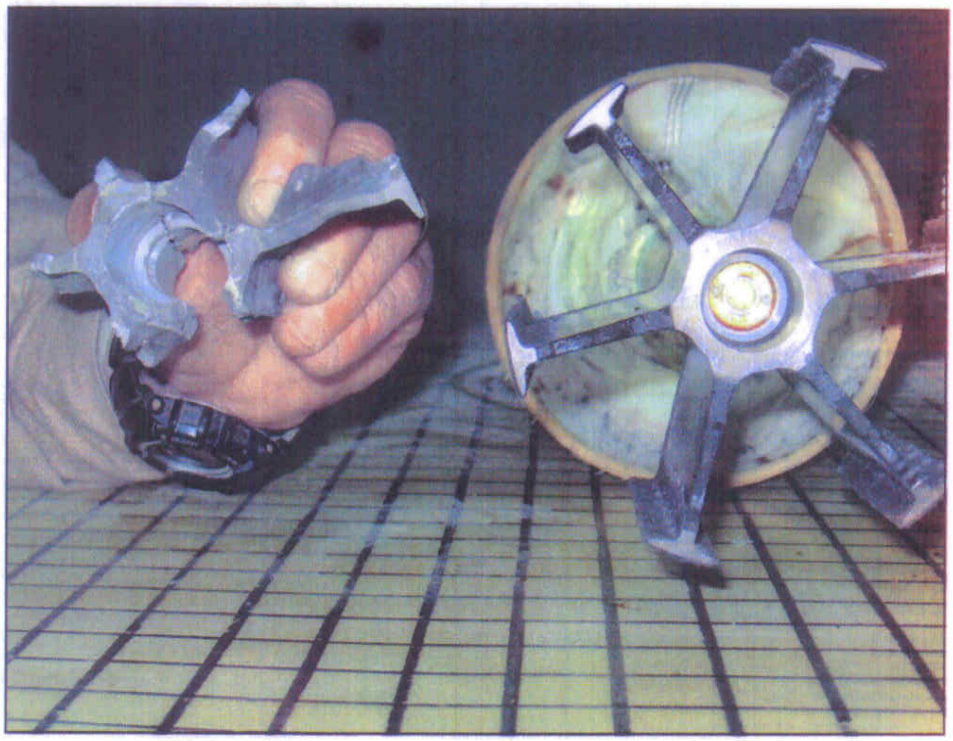

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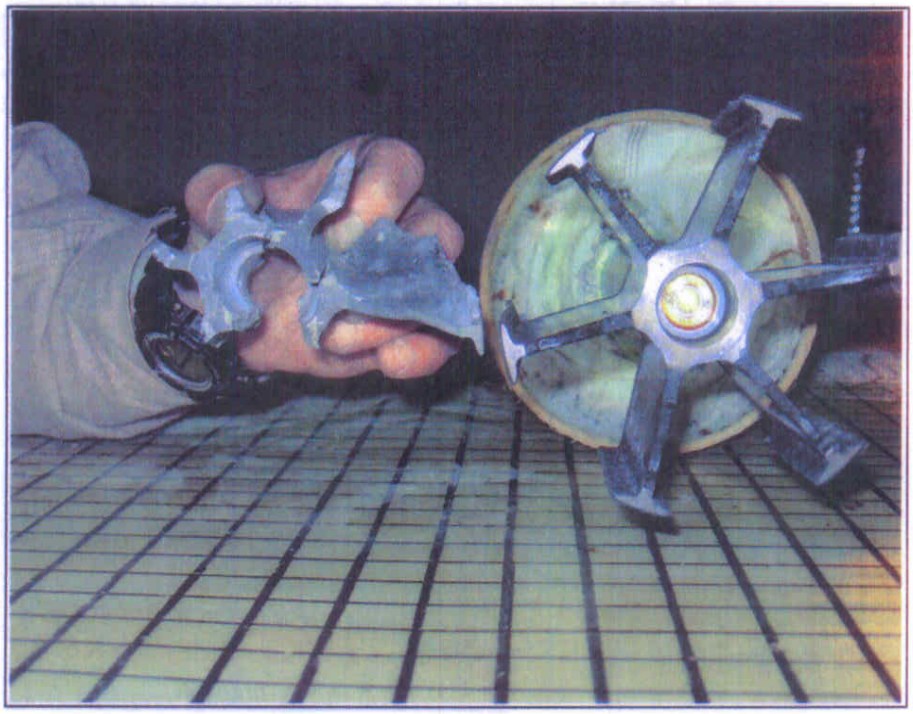

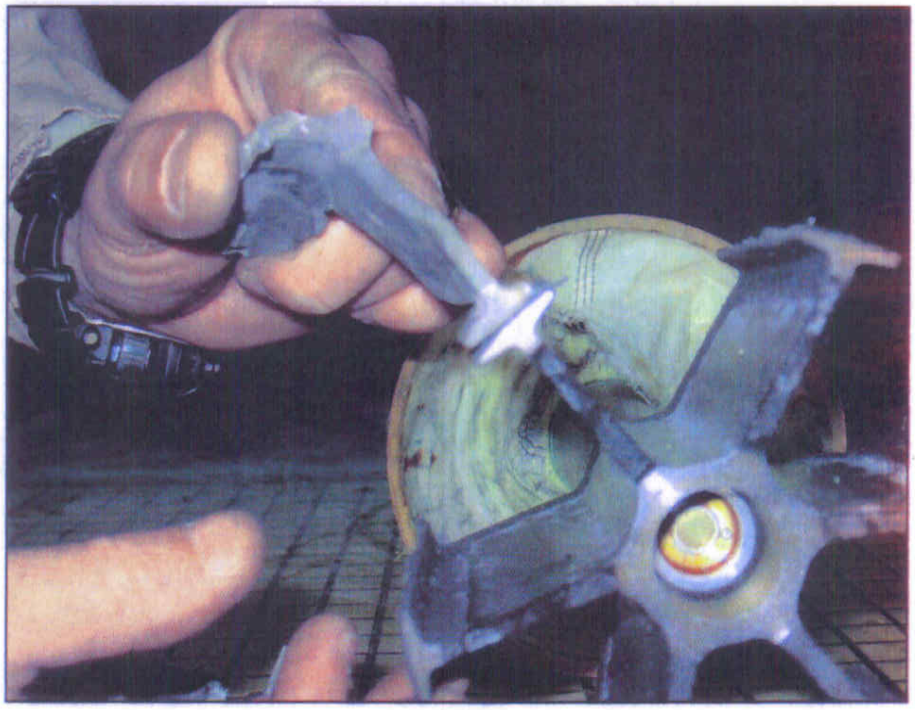

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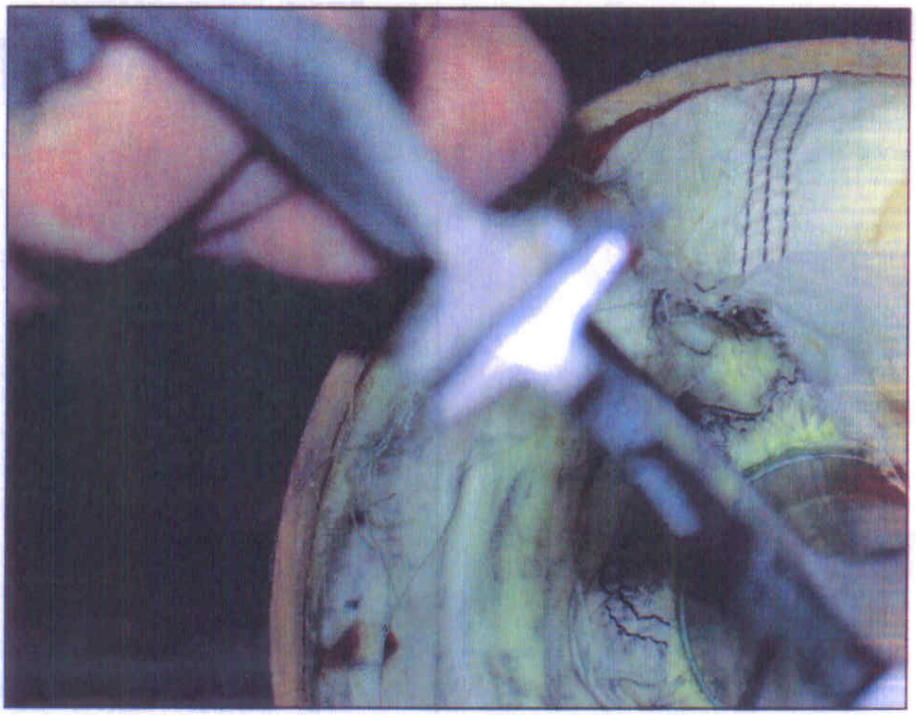

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Lesson 2
CURRENT OPPOSING FORCES antiarmor WEAPONS
OVERVIEW

Lesson Description:

In this lesson, you will learn to identify the characteristics of the following opposing forces antiarmor weapons: RPG-7V Antitank Grenade Launcher; RPG-16D Antitank Grenade Launcher; RPG-18 Antitank Rocket Launcher; RPG-22 Rocket Launcher; SPG-9 Antitank Recoilless Gun; MT-12 Antitank Gun; AT-2/SWATTER; AT-3/SAGGER; AT-4/SPIGOT; AT-5 SPANDREL; AT- 6/SPIRAL; AT-7 SAXHORN; and AT-8/SONGSTER.

Terminal Learning Objective:

Action:	Identify the characteristics of the following opposing forces antiarmor weapons: RPG-7V Antitank Grenade Launcher; RPG-16D Antitank Grenade Launcher; RPG- 18 Antitank Rocket Launcher; RPG-22 Rocket Launcher; SPG-9 Antitank Recoilless Gun; MT-12 Antitank Gun; AT-2/SWATTER; AT-3/SAGGER; AT-4/SPIGOT; AT- 5 SPANDREL; AT-6/SPIRAL; AT-7 SAXHORN; and AT-8/SONGSTER.
Condition:	Given the subcourse material contained in this lesson.
Standard:	Identify the characteristics of the RPG-7V Antitank Grenade Launcher; RPG-16D Antitank Grenade Launcher; RPG-18 Antitank Rocket Launcher; RPG-22 Rocket Launcher; SPG-9 Antitank Recoilless Gun; MT-12 Antitank Gun; AT-2/SWATTER; AT-3/SAGGER; AT-4/SPIGOT; AT-5 SPANDREL; AT-6/SPIRAL; AT-7 SAXHORN; and AT-8/SONGSTER.
References:	The material contained in this lesson was derived from the following publications: FM 1-402 FM 100-2-3 FM 23-33 FM 23-34 FM 1-402

INTRODUCTION

The Soviet arsenal of antitank weapons ranges from grenade and rocket launchers through antitank guns and guided missile systems.

PART A - ANTITANK GRENADE AND ROCKET LAUNCHERS

EXTRACTED TO SAVE SPACE

PART B - ANTITANK GUNS

Soviet antitank guns are

- SPG-9.
- MT-12.

These guns are described in the following paragraphs.

1. 73-mm Recoilless Gun SPG-9.

The following paragraphs discuss the SPG-s Recoilless Rifle (shown in Figure 2-4).

a. Description. The SPG-9 is a tripod-mounted, recoilless antitank gun firing a 73-mm fin-stabilized, rocket-assisted HEAT projectile. The launcher is 2,110 millimeters long and weighs 47.5 kilograms (59.5 kilograms with the tripod). The projectile weighs 3.5 kilograms. Its great length is due to the propellant case attached behind the fins. The SPG-9 is also capable of firing a four-kilogram rocket-assisted HE round.

b. Capabilities. The SPG-9 is man portable, but a truck or armored personnel carrier (APC) usually carries the weapon. It must be dismounted and placed on its tripod for firing. It is normally served by a crew of three. Both infrared (IR) and passive night sights are available. The rocket-assisted HEAT projectile has an effective range of 1,000 meters and can penetrate 400 millimeters of armor. It has a high muzzle velocity (435 meters per second) which is increased to 700 meters per second by rocket assist. The SPG-9 is organic to the antitank platoon of the BTR-equipped motorized rifle battalion (MRB). The Soviets usually employ it with mutually supporting antitank guided missiles (ATGMs).

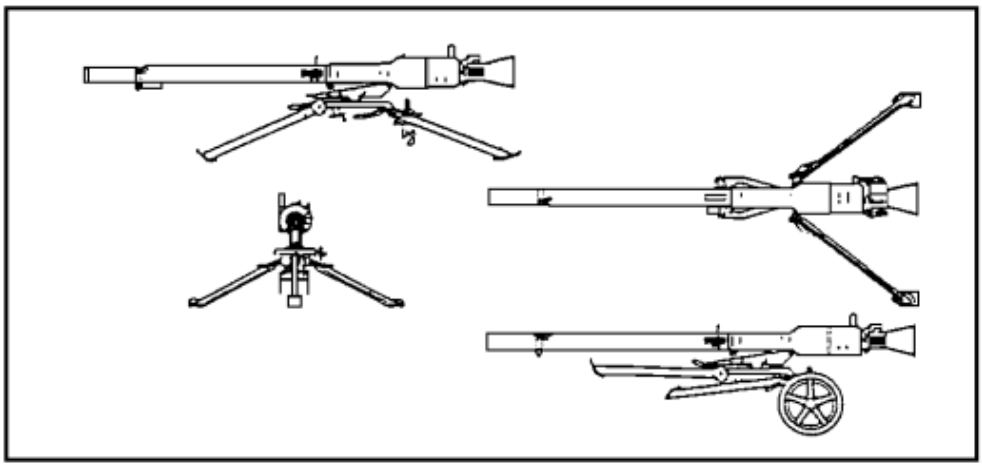

Figure 2-4. 73-mm Recoilless Antitank Gun SPG-9.

TWO MORE BULLETS FOR GENERAL ABRAMS: 120mm Ammunition Upgrades

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Innovation doesn't always require a brand-new design, but a modification of an old one. Check out these two new 120mm shells specialized for reducing targets to rubble, or "shotgunning" enemy infantry with thousands of tungsten pellets.

120mm ammunition are the shells of choice for Abrams battle tanks.

Sometimes all you have to do is give an old idea a new spin, and presto -- technological advancement. Case in point: the 120mm smoothbore cannon, the weapon of choice for U.S. Abrams tanks. The 120mm family of tank ammunition is the most advanced and lethal tank ammunition in the world, divided into two types: (KE) ammunition used to defeat the heavy frontal armor of main battle tanks, and multi-purpose (MP) ammunition used against lightly-armored vehicles, helicopters, buildings, bunkers, and infantry. Any way you slice it, the force of a 120mm projectile (particularly one loaded with depleted uranium in the core) can be a humbling experience -- to the tune of the weight of seven Honda sedans crashing into you at 65 miles per hour.

Must-Have Gear

But times change, and so do needs for weapons and projectiles. Recent developments in South Korea -- namely, the need for a projectile with the ability to reduce enemy structures and targets to rubble, as well as an antipersonnel round to handle closed-in, massive infantry -- have prompted engineers to innovate KE ammunition. The result? Two new projectiles for the 120mm cannon, one of which is already in production and in service with armored

TAB H-4

forces in Iraq. The innovations? How about the ultimate "shotgun" shell with 1,100 pellets, or a steel-capped shell that increases target "fracturing" on impact? Not bad tricks for an old dog.

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Return of the Flying Dustbin

The M908 120mm Obstacle Defeating round -- a formidable name for a formidable projectile -- was initially developed to meet a critical shortcoming identified by U.S. Forces Korea (USFK) in 1996. The problem? A replacement was needed for the M123 HEP (High Explosive Plastic) demolition projectile fired from the 165mm cannon on the M728 Combat Engineer Vehicle (CEV). With the withdrawal of the CEV from service in 1996, Army combat engineers no longer had a means to destroy (or "rubble") concrete structures and obstacles at range.

A twist on an old favorite: the M908 uses the M830A1 round for maximum "rubbling" capability.

To reintroduce this capability, the Armament Research, Development and Engineering Center (ARDEC) took a look at the concrete penetrating and obstacle defeating capabilities of existing 120mm cartridges, namely the M830A1 MPAT (Multi-Purpose Anti Tank) round. It was found that modifying the cartridge (which weighed in at a relatively light 2 pounds) did as well as, if not better than the 35-pound M123 warhead at "reducing" obstacles.

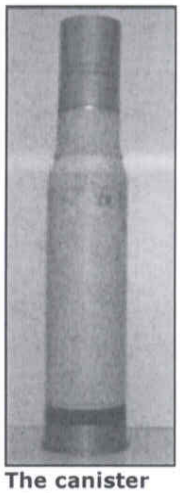
The M830A1 is equipped with a two position fuse in the nose of the 2 pound shaped charge warhead, to enable it to be used against both helicopters (proximity mode) as well as ground threats (contact mode.) To improve the round's concrete-penetrating capabilities, the two-position fuse was removed and replaced with a hardened steel cap. This cap allows the modified M830A1 warhead to "imbed" itself in the concrete before detonating. In the resulting explosion, not only would the shaped charge be a more efficient penetrator than the original 35-pound M123 cartridge it replaced, but the internal radial detonation of the M830A1 warhead would cause additional fracturing of the concrete.

Though the M908 was specifically developed to reduce obstacles and rubble concrete structures and fortifications, it is also effective against soft-skinned and light-armored vehicles, such as trucks, armored personnel carriers and light tanks. General Dynamics and Alliant Techsystems have reconfigured some 19,000

TAB H-4

existing M830A1 projectiles to the new M908. The round certainly did its job during Operation Iraqi Freedom, as thousands of rounds were shipped over from Korea for Army operations.

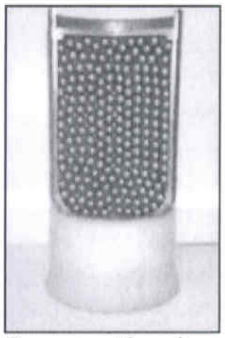
XM1028: The "Room Broom"



The canister of the XM1028.

The genesis of the XM1028 120mm Canister Tank Cartridge also comes from recent developments in Korea -- - with the removal of 105mm equipped M-60 and M-1 tanks, USFK has an urgent need to field a 120mm-based antipersonnel projectile to replace the 105mm M494E3 APERS round these tanks fired. In 1999, ARDEC responded with the introduction and testing of the 120mm XM1028 canister round, which fulfills the requirement for a dedicated antipersonnel round used against close-in (up to 500 meters) massed infantry armed with automatic weapons and hand-held anti tank munitions or devices.

Lacking an explosive component, the XM1028 is, in effect, a 120mm shotgun shell. But it's no ordinary shotgun shell, for sure: a typical OO buckshot round 2 ¾" long contains 9 pellets. But the XM1028 cartridge contains 1,100 tungsten steel balls that are expelled and immediately begin dispersing once they exit the cannon muzzle. Since the balls lack guidance, the pattern of dispersion increases with range, but the dense tungsten helps maintain kinetic energy.



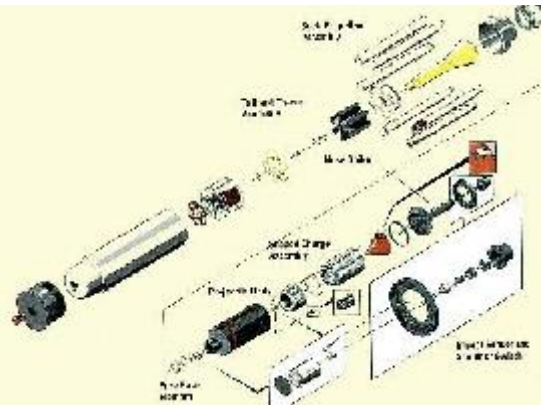
Cross-sectional view of the XM1028, with its tungsten ball payload (over 1000 of them).

This XM1028 cartridge is thus a milestone: as the Army's first antipersonnel projectile for the Abrams tank, it can be used in lethal and non-lethal situations, allows Abrams tanks to survive rocket-powered grenade (RPG) ambushes, and enables them to support friendly infantry assaults.

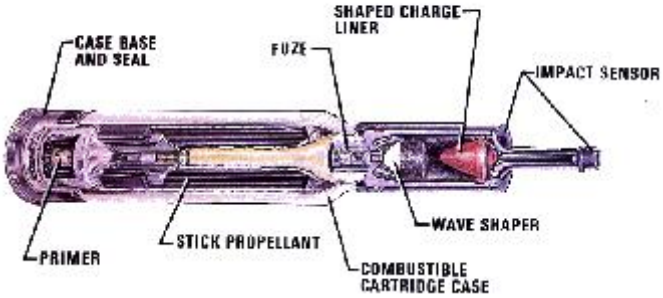
Given this lethality (against infantry and other non-armored and soft targets), the XM1028 is an excellent round for use in Low Intensity Conflicts (where the threat of enemy armored forces such as tanks is slight) and in urban or built-up areas, (where ranges are typically less than 200 meters). In these conditions, the XM1028 can be used against anti-armor ambushes (RPG teams) where immediate return fire is critical or in situations where a conventional breaching round, such as the M908 or the M830A1, would result in over-penetration, or unacceptable levels of collateral damage. In addition, since the XM1028 is not designed for use against heavily armored targets, it makes it the ideal round for clearing friendly vehicles overrun by enemy infantry (provided the crew of the overrun vehicle has "buttoned up").

So in the apples and oranges world of ground assault operations -- - whether the task at hand is to inflict heavy damage on enemy structures, or stem the tide of an enemy infantry advance -- - the M908 and the XM1028 are both representative of the new breed of specialized projectiles, putting a new spin on the good old standbys. The nearly 10,000 Abrams tanks in service around the world must be smiling.

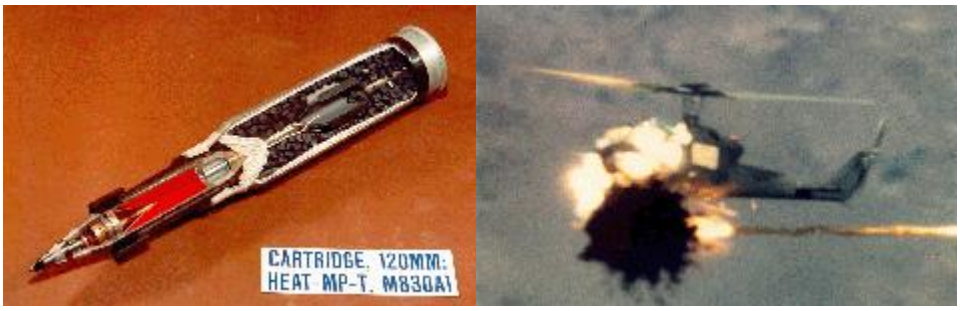
TAB H-4

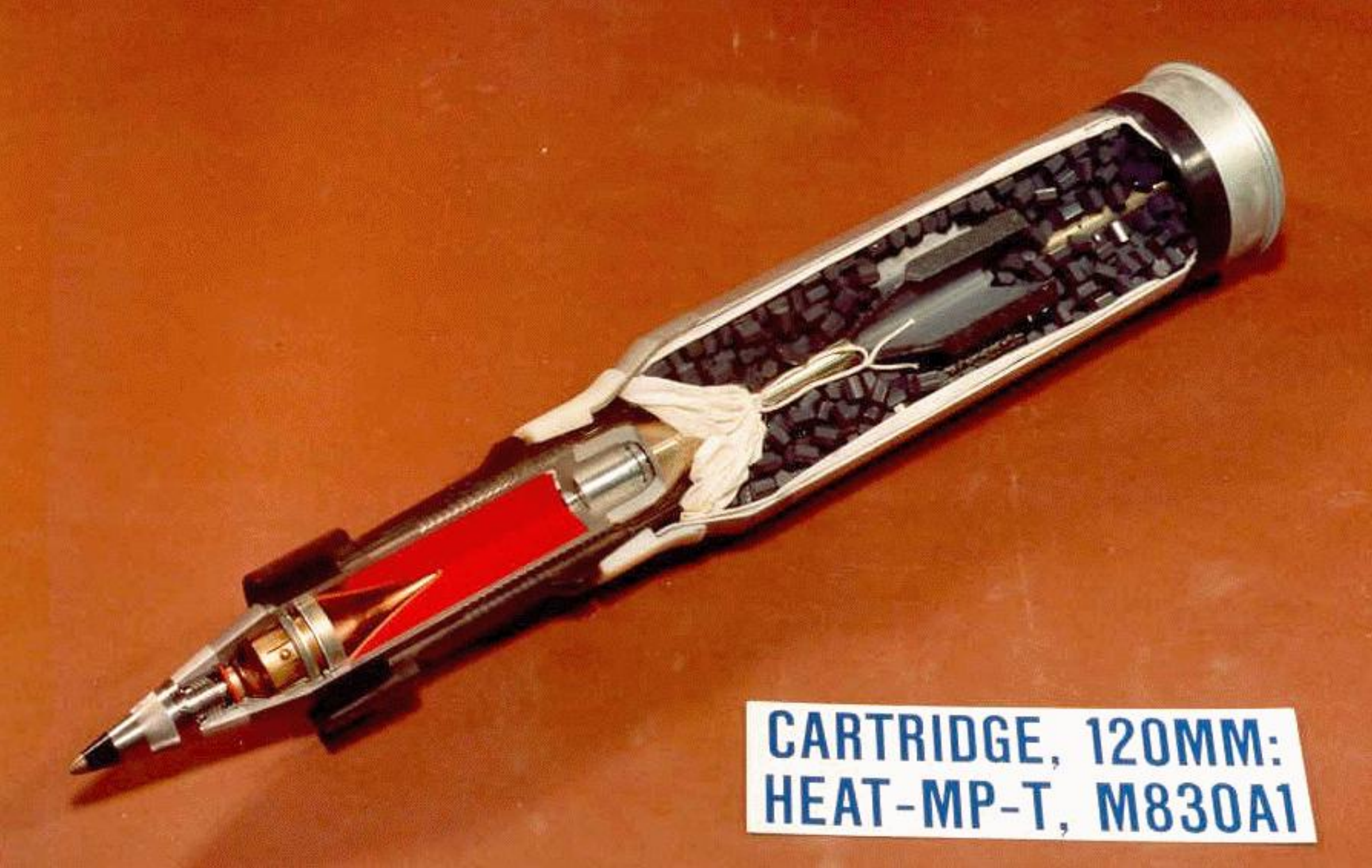


Cartridge, 120MM, HEAT-MP-T, M830



The M830A1 HEAT (High Explosive Anti-Tank) round, recently fielded for the M1A1 and M1A2 Main Battle Tank, is a major advancement over its predecessor, the M830, which has been in the US inventory since the early '80s. HEAT rounds have multi-purpose warheads which are used to defeat armored vehicles, helicopters and soft targets such as bunkers. The M830A1 adds higher velocity launch, increased armor penetration capability and selectable fuzing which allows for the engagement of a variety of targets. The M830A1 is unique in that it features a three-piece discarding aluminum sabot, a feature normally associated with kinetic energy projectiles. The sabot allows a lighter flight projectile which can be flown to greater ranges than could the M830. The M830A1 also mounts a proximity switch on the flight projectile nose. Manually set upon gun loading, this allows the M1A1/M1A2 tank to self-defend against attacking helicopters with the 120mm main gun, a capability never before possessed by a Main Battle Tank. The multi-purpose cartridge is also extremely effective against buildings, bunkers, and light armored vehicles. The M830A1 was fielded in 1994 and is currently still in production.

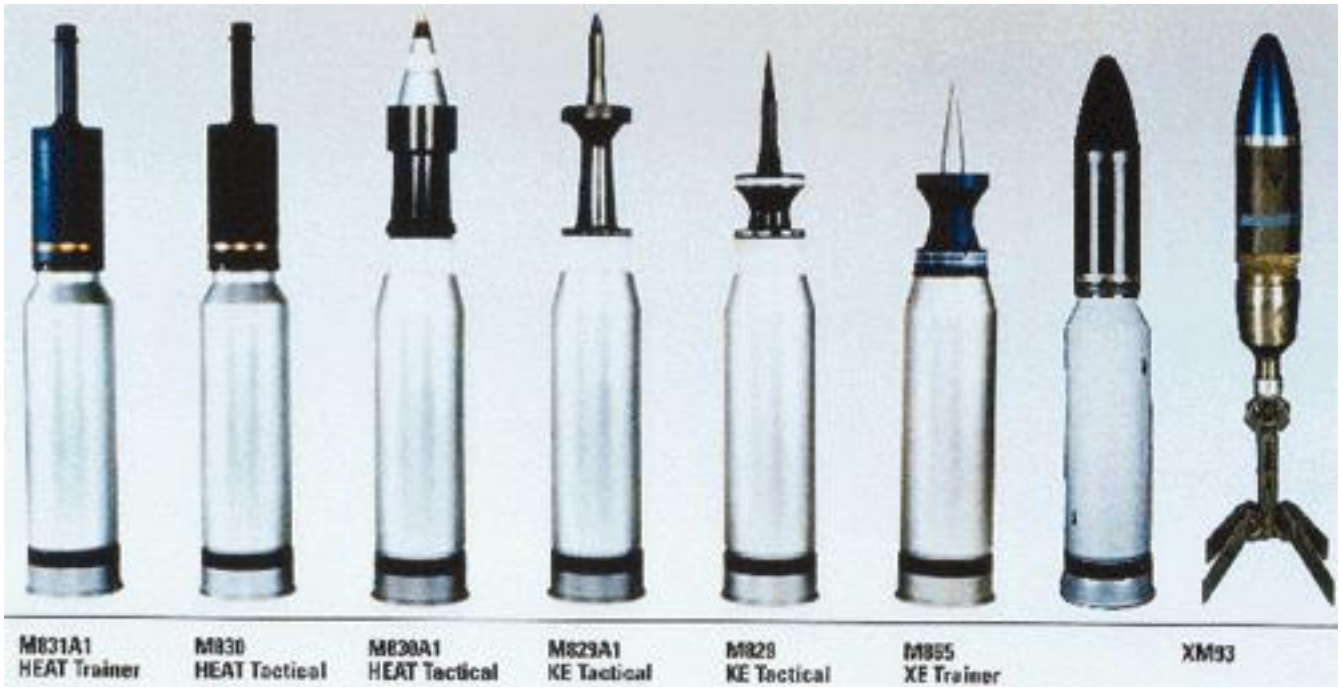



CARTRIDGE, 120MM:
HEAT-MP-T, M830A1

120mm Ammunition

M829A1 APFSDS-T
M830A1 HEAT
M831A1 TP-T
M865 TPCSDS-T
XM943 STAFF
XM1007 ERM/TERM - Tank Extended Range Munition
X-ROD
Advanced Tungsten KE Cartridge

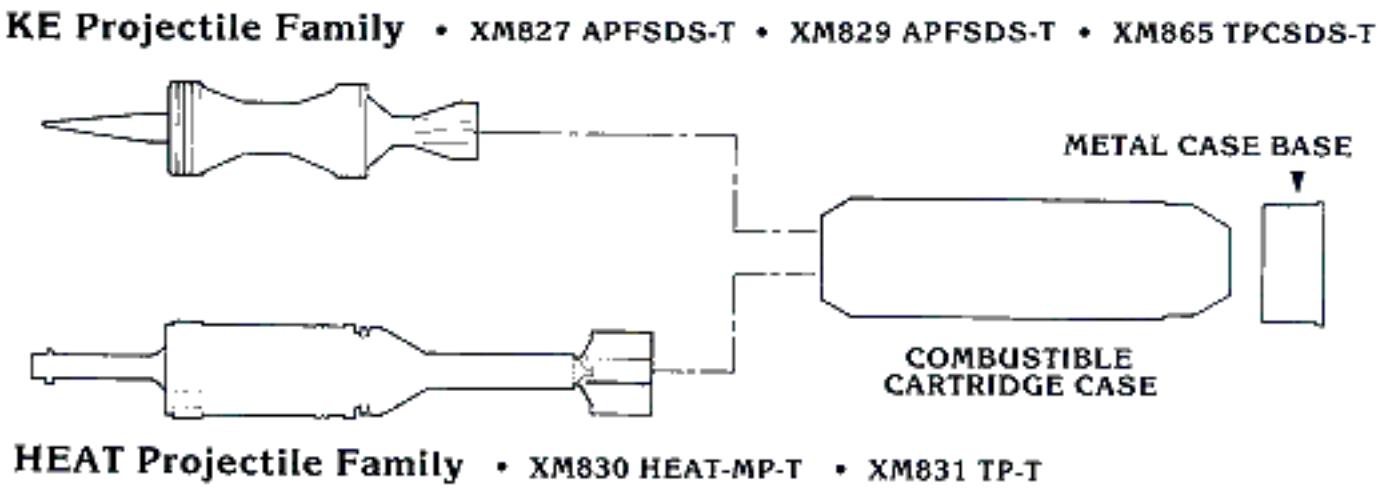
The 120mm ammunition system equips the MlE1 (Abrams) tank with a 120mm main armament. It consists of a family of kinetic energy (KE) rounds and a family of high explosive anti-tank (HEAT) rounds. The KE rounds use a high length over diameter ratio subcaliber projectile with a depleted uranium (DU) fin-stabilized rod as the penetrator element. Traveling at supersonic speed, this penetrator concentrates an extremely high level of kinetic energy over a relatively small surface area of the target. The high specific energy on target enables the KE round to penetrate even the most resistive armor plates. The HEAT rounds, on the other hand, take a shaped charge warhead to targets. This shaped charge warhead, with its inherent blast and fragmentation capability, also provides additional weapon defeat capability

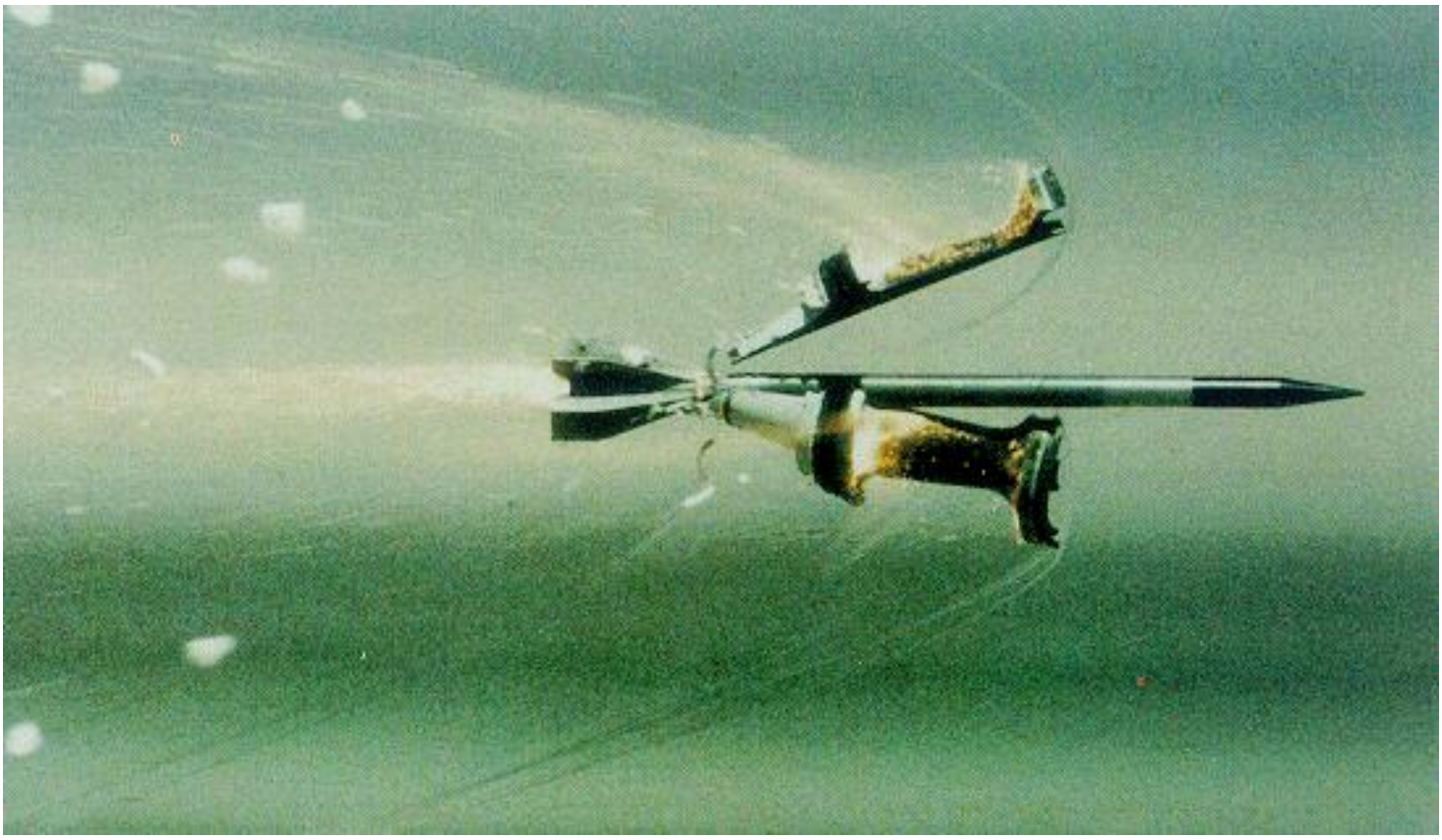


All 120mm rounds use a common combustible case which structurally combines the ammunition'scomponents prior to firing and is completely consumed during firing. The combustible case is the primary reason for the superior interior ballistics performance of the 120mm ammunition. This breakthrough in cannon ammunition technology allows both a greater chamber volume for the propellant and a higher working chamber pressure, thus giving the rounds greater muzzle velocities and higher ballistic efficiencies. The combustible case also minimizes round weight and, because the metal base is the only element ejected, the armount of spent cartridge case material and propellant gas within the tank is is greatly reduced.

While the combustible case is thoroughly consumed during firing, further assurance of a clean tube and chamber for each successive round is provided by a cannon bore evacuator. The evacuator functions as a large vacuum device, sweeping all portions of the barrel interior free of the most minute particles. All 120mm rounds have a propellant containment device that prevents propellant spillage if the combustible cartridge case is damaged.

The 120mm smooth bore cannon system was developed by West Germany for the Leopard II tank. The ammunition produced by both countries is interoperable and interchangeable between the Abrams and the Leopard, thus ensuring maximum commonality within the NATO community.





Sources and Resources

- What Makes Our 120mm Tank Ammo The Best on the Battlefield? by Master Sergeant Wakeland K. Kuamoo ARMOR — May-June 1998

COMMERCE BUSINESS DAILY ISSUE OF FEBRUARY 18,2000 PSA#2540

US Army ARDEC, AMSTA-AR-PC, Picatinny Arsenal, New Jersey 07806-5000

13 -- XM908 HIGH EXPLOSIVE OBSTACLE REDUCTION WITH TRACER (HE-OR-T) CARTRIDGES SOL DAAE30-00-R-0608 DUE 030200 POC Kelly A. Struckmeyer, Contract Specialist, 973-724-2244 WEB: US ARMY TACOM-ARDEC Procurement Network, http://procnet.pica.army.mil/cbd/SRCSgt/021620002/021620002.htm. E-MAIL: Kelly A. Struckmeyer, kstruck@pica.army.mil. The US Army ARDEC is seeking sources for the conversion and delivery of 3000 each with two options for 3000 each, 120mm Tank Tactical Ammunition, XM908 High Explosive Obstacle Reduction w/Tracer (HE-OR-T) cartridges, in accordance with ARDEC supplied drawings. The conversion consists of removing the M74 proximity switch (12912217) from existing M830A1 Cartridge, High Explosive, Anti-Tank, Multi- Purpose w/Tracer (HEAT-MP-T) cartridges (12912208), replacing the proximity switch with a steel nose, remarking the cartridges, remarking the packaging and repackaging the cartridges. The M830A1 TDP is not needed to accomplish this conversion; select M830A1 drawings necessary to perform the conversion will be supplied with the XM908 drawing package. The effort will include cleaning thread sealant from the threads of the removed M74s and packaging the sensors for storage and transportation. The M74 proximity sensors are classified CONFIDENTIAL after removal from the M830A1 cartridge. The M830A1 cartridges will be supplied by the government as GFM and will be available for pick-up by the contractor at a CONUS depot. XM908 cartridges will be delivered to Tooele Army Depot, Tooele, UT . Transportation to and from the depot(s) will be the responsibility of the bidding contractor. The contractor must possess clearances and facilities, if applicable, capable of handling and storing hardware classified CONFIDENTIAL. Firms interested in participating in this production acquisition should submit a capability statement adequately describing their qualifications and indicating the level of security clearance possessed. Responses shall be evaluaed by the Government and shall be used to augment the Bidder's Mailing List. A Commerce Business Daily announcement will be issued prior to the release of the solicitation. Any responsible/interested sources shall submit their qualifications and capabilities, within 15 days of this notice to: Commander, US Army ARDEC, ATTN: AMSTA-CM-CPF, Kelly A. Struckmeyer, Bldg. 9, Picatinny Arsenal, NJ 07806- 5000 or e-mail: kstruck@pica.army.mil. E-mail responses are preferable. All information provided in response to this notice is at no cost or obligation to the Government. THIS IS A SOURCES SOUGHT NOTICE ONLY. This is not a solicitation and does not obligate the Government to issue a solicitation. See Number Notes 25 and 26. Posted 02/16/00 (D-SN426118). (0047)

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TAB H-4A