

# WEAPON SYSTEMS BOOK



ANY WARFIGHTER • ANYWHERE • ALL THE TIME

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## BOOK PURPOSE

The Weapons Systems Book is an Authoritative Source of Descriptions, Characteristics and Essential Programmatic Information for the Programs Managed by the Program Executive Office Missiles and Space (PEO MS).

The PEO's Project Offices have Direct Responsibility and Oversight for the Development, Production, Fielding and Sustainment of these Systems.

This Book is Organized by Project Office. To Facilitate the Users' Ability to Gather System Data, Each System is Treated as Stand-Alone. This Results in Some Information Being Repeated in a Number of System Write-Ups.

## SUPPORT TO THE WARFIGHTER

PEO MS Supports a Variety of Fielded Systems, Identifies Opportunities for Advancing Applicable Technologies and Innovatively Develops the Army's Rocket, Missile and Space Systems of the Future.

Fielded Programs Must Continue to Meet Warfighters' requirements. Technology Advancements Must be Incorporated into Today's Systems in Order to Provide the Most Far-Reaching Capabilities to the Warfighter.

The Future Depends Upon the Successful Development of Army Missile Systems that Leverage State-of-the-Art Technology and Offer a Unique Contribution to Full-Spectrum Operation.

## PEO CHARTER

- ◆ As the Program Executive Officer, you will utilize the Family of Systems concept to ensure integration and interoperability are achieved between Army programs to support a full-spectrum force.
- ◆ You will, as the responsible management official, provide overall direction and guidance for the development, acquisition, testing, product improvement and fielding while ensuring total ownership cost reduction. You will establish processes that facilitate communication, cooperation, information exchange and collective decision-making between and among organizations.
- ◆ You will maintain the Army perspective in managing your programs and will report directly to me. You will keep the leadership fully informed of program status and report any matters that could affect the Army's ultimate commitment to the program. Your responsibilities include planning and executing the transition of programs and systems when appropriate.
- ◆ You will place primary management emphasis and oversight on balancing cost, schedule, performance and supportability while capitalizing on acquisition reform initiatives. You will also ensure compliance with applicable national policies to include environmental protection and socio-economic programs.
- ◆ You will lead and directly control assigned program managers. You will ensure that acquisition workforce career development and competency standards are actively pursued. You will also serve as an advocate to ensure the necessary force structure is in place to support acquisition career development programs.
- ◆ You are hereby designated full-line authority as the Program Executive Officer for the management of assigned programs. Unless rescinded, this designation will remain in effect until your reassignment.

//Signed//  
Army Acquisition Executive

### PEO MISSION

Provide Overall Direction and Guidance for the Development, Acquisition, Testing, Product Improvement and Fielding of Assigned Missile and Space Systems While Ensuring Total Ownership Cost Reduction. To Diligently Work With International Partners to Support Multi-National Programs as Well as Fostering Foreign Military Sales in Support of National and Army Objectives.

### PEO VISION

Be the Trusted Worldwide Provider of Missile and Space Systems for Our Allies and U.S. Warfighter with Uncompromising Service in Development, Procurement and Sustainment.



# PROGRAM EXECUTIVE OFFICE ORGANIZATION

★ Program Executive Officer

🏆 Deputy Program Executive Officer

Director of Integration

Chief of Staff



Chief Engineer

Special Projects

APEO Business Management

APEO International

APEO Info Mgt/ Info Assurance



APEO Logistics

APEO Strategic Planning & Operations



Cruise Missile Defense Systems



Integrated Air & Missile Defense



Lower Tier Project Office



Close Combat Weapons Systems



Counter Rockets Artillery & Mortars



Joint Attack Munitions Systems



Precision Fires Rocket and Missile Systems

# PEO MISSILE AND SPACE PORTFOLIO

Close Combat Weapon Systems (CCWS)	Cruise Missile Defense Systems (CMDS)	Counter-Rocket, Artillery, Mortar (C-RAM)	Integrated Air and Missile Defense (IAMD)	Joint Attack Munition Systems (JAMS)	Lower Tier Project Office (LTPO)	Precision Fires Rocket and Missiles Systems (PFRMS)
 <p>JAVELIN</p>	<p>Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)</p> 	 <p>C-RAM</p>	 <p>IAMD Battle Command System (IBCS) Engagement Operations Center</p>	 <p>Hydra-70</p>	 <p>PATRIOT</p>	 <p>Guided Multiple Launch Rocket Systems (GMLRS)</p>
 <p>Tube-Launched, Optically-Tracked, Wire-Guided (TOW)</p>	<p>Surface Launched Medium Range Air-to-Air Missile System (SLAMRAAM)</p> 	 <p>RAM Warn</p>		 <p>Joint Air-to-Ground Missile (JAGM)</p>	 <p>PATRIOT Advanced Capability (PAC-3)</p>	 <p>High Mobility Artillery Rocket System (HIMARS)</p>
 <p>Improved Target Acquisition System (ITAS)</p>	 <p>SENTINEL</p>	 <p>Air &amp; Missile Defense Planning &amp; Control System (AMDPCS)</p>	 <p>A/B Plug and Fight Interface Kits</p>	 <p>Small Guided Munitions</p>	 <p>Medium Extended Air Defense System (MEADS)</p>	 <p>M270A1</p>
 <p>Improved Bradley Acquisition Subsystem (IBAS)</p>	 <p>STINGER</p>  <p>AVENGER</p>	 <p>Forward Area Air Defense Command &amp; Control (FAAD C2)</p>	 <p>WIN-T Inc 2 Highband Network Radio (HNR)</p>  <p>Integrated Fire Control Network (IFCN) Relay</p>	 <p>Hellfire</p>	 <p>PAC-3 Missile Segment Enhancement (MSE)</p>  <p>Joint Tactical Ground Station (JTAGS)</p>	 <p>Army Tactical Missile Systems (ATACMS)</p>

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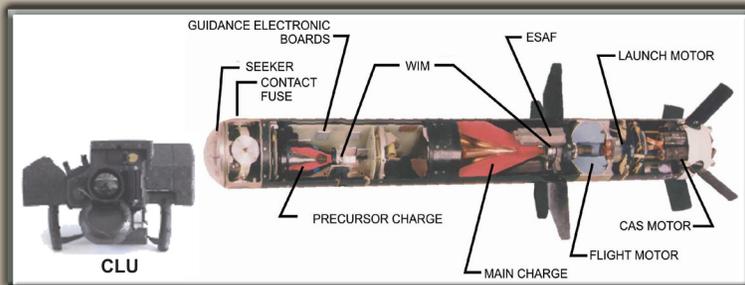
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## JAVELIN BLOCK 0



### SYSTEM DESCRIPTION:

Provides U.S. Army, U.S. Marine Corps and our allies a man-portable, fire-and-forget, medium-range missile with enhanced situational awareness and precision direct-fire effects to defeat armored vehicles, fortifications, and soft targets in full spectrum operations. Javelin has a high-kill rate against a variety of targets at extended ranges under day and night light conditions, battlefield obscurants, adverse weather and multiple counter-measure conditions. The system's soft launch feature permits firing from a fighting position or an enclosure. The system consists of a reusable Command Launch Unit (CLU) with built-in-test, and a modular missile encased in a disposable launch tube assembly. The Javelin provides enhanced lethality through the use of a tandem warhead which will defeat all known armor threats. It is effective against both stationary and moving targets. This system also provides defensive capability against attacking and hovering helicopters.

### SYSTEM CHARACTERISTICS:

The total system weight is 48.3 lb with the round weighing 34.3 lb and the CLU with battery weighing 14 lb. The round has a length of 47.2 inches and an endcap diameter of 11.75 inches. The missile contained inside the launch tube assembly (LTA) has a diameter of 5 inches. Javelin has two attack modes. Top attack, which is the primary mode, allows the missile to impact the less heavily armored top area of the armored vehicle. The direct fire mode allows the weapon to be fired at targets under cover. Missile range is in excess of 2,000 m.

**SENSOR/SEEKER:**

The missile seeker focal plane array (FPA) is an imaging infrared (IIR) 64x64 element consisting of Mercury-Cadmium-Telluride (Hg-Cd-Te) detectors combined with an integrated readout circuit.

**WARHEAD:**

The system's tandem warhead contains both a precursor and a main charge warhead. The precursor is designed to initiate explosive reactive armor (ERA). The main charge warhead has a trumpet copper liner and is designed to penetrate and defeat current base armor and projected armor threats.

**TARGET SETS:**

Battle tanks and armored personnel carriers, fortifications and soft targets in full spectrum operations.

**CONTRACTOR:**

Joint Venture between Raytheon and Lockheed-Martin Corp.



**ACQUISITION PHASE:**

Production for FMS only.

**MILESTONES:**

MS I (DSARC) .....	May 1986
MS II (DAB) .....	Jun 1989
LRIP Decision (OSD).....	Jun 1994
Full Rate Production (ASARC).....	May 1997

**FIELDING:**

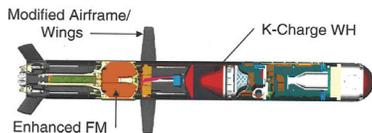
FUE: Jun 96. First OCONUS fielding completed April 00. Fielding complete for all active components, to include: U.S. Army Rangers, U.S. Army Special Forces groups, with the exception of Grow the Force BCTs and certain Engineer Elements. Fielded to U.S. Marine Corps.

**POINTS OF CONTACT:**

PM.....	256-876-5185
DPM .....	256-876-0728
ASA(ALT) DASC.....	703-604-7209

## JAVELIN BLOCK I

### MISSILE



### COMMAND LAUNCH UNIT



### SYSTEM DESCRIPTION:

The improvements in the current production JAVELIN Block I CLUs are improved target detection and acquisition range, increased endurance through a combination of longer lasting batteries and power management, Improved Processing, Digital Display with menu-driven access to features, Electronic Zoom, Black Hot/White Hot, RS-170 video input and output, Forward/Backward FFT compatibility and ruggedization. The performance improvement in current production Javelin Block I missiles are: increased probability of hit/kill at 2500 m, improved warhead lethality, and reduced time of flight.

### SYSTEM CHARACTERISTICS:

The total system weight is 48.8 lb, with the round weighing 33.3 lb and the CLU with battery weighing 15.5 lb. The round is fully compatible with the existing Launch Tube Assembly (LTA). It maintains both top attack and direct fire capability. The CLU Sensor Utilizes a 240x2 FPA that is scanned to provide a 240x480 image. Resolution is enhanced by increasing optics from 9X to 12X magnification along with improved signal processing, electronic zoom, black/hot white/hot, and digitized color flat panel display. RS-170 video output is provided for exporting the video for exploitation. The flight motor case is extended by 1 inch to decrease time of flight to target.

**SENSOR/SEEKER:**

The missile seeker Focal Plane Array (FPA) is an imaging infrared (IIR), 64x64 element consisting of Hg-CD-Te detectors combined with an integrated readout circuit.

**WARHEAD:**

The system's tandem warhead integrates a K-Charge Warhead. The K-Charge maintains current system lethality while reducing total warhead weight by 2 lb.

**TARGET SETS:**

Battle tanks and armored personnel carriers, fortifications and soft targets in full spectrum operations.

**CONTRACTOR:**

Joint Venture between Raytheon and Lockheed-Martin Corp.

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

Program Start .....Aug 2001  
 Program Deliverables..... Jul 2006  
 Full Material Release Block I CLU ..... 3QFY07  
 Full Material Release Block I Missile ..... 4QFY08

**FIELDING:**

FUE: Jun 07.  
 Javelin Block I CLUs are being fielded initially to high priority units (i.e. IBCTs, SOF and SBCTs).

**POINTS OF CONTACT:**

PM..... 256-876-5185  
 DPM ..... 256-876-0728  
 ASA(ALT) DASC..... 703-545-0787



## JAVELIN TRAINING DEVICES



### SYSTEM DESCRIPTION:

The JAVELIN Training System consists of three unique devices for specific training roles; the Enhanced Producibility Basic Skills Trainer (EPBST), the Field Tactical Trainer (FTT) and the Missile Simulation Round (MSR). The EPBST is a classroom trainer designed to provide the soldier instructional exercises for teaching the basic skills required to engage targets with the JAVELIN system. It consists of an instructor station, a student station comprised of a Simulated Command Launch Unit (SCLU) and Missile Simulation Round (MSR), and shipping and storage containers. The FTT is used to refine the gunner's abilities, allowing gunner participation in both range training and force-on-force exercises. It consists of a student station, instruction station, batteries, charger, and interface cables. The MSR is used to familiarize the soldier with the physical characteristics of the JAVELIN round. It is a full-size, non-operational replica of the JAVELIN round in the field-handling mode.

### SYSTEM CHARACTERISTICS:

The system weight and physical dimensions of each of the missile simulated rounds are representative the tactical round. The MSR is also used as the simulated round for the EPBST.

**SENSOR/SEEKER:**

The CLU uses a 240 x 2 Hg-Cd-Te FPA.

The FTT uses CLU imagery to emulate the missile seeker and incorporates the acquisition module of the JAVELIN tactical tracker software. This software has also been ported to the EPBST, allowing an accurate simulation of the tactical system software functions.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

The CLU is used for surveillance and target acquisition. The training devices are used for training the gunners and users.

**CONTRACTOR:**

Joint Venture between Raytheon and Lockheed-Martin Corp. The CLU is produced at Tucson, AZ. Cubic Corporation, as subcontractor to the Joint Venture, produces the FTT and the EPBST. The Training Support Center at Ft. Benning, GA, produces the MSR.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

MS I (DSARC) .....	May 1986
MS II (DAB) .....	Jun 1989
LRIP Decision (OSD).....	Jun 1994
Full Rate Production (ASARC).....	May 1997

**FIELDING:**

FUE: Jun 96. First OCONUS fielding completed April 00. Javelin training devices are being fielded concurrently with the CLU to both AC and RC units.

**POINTS OF CONTACT:**

PM.....	256-876-5185
DPM .....	256-876-0728
ASA(ALT) DASC.....	703-545-0787



## TUBE-LAUNCHED, OPTICALLY-TRACKED, WIRE-GUIDED (TOW) 2A



### SYSTEM CHARACTERISTICS:

The TOW 2A missile is optimized for performance against tanks with reactive armor and is also an effective assault weapon against buildings and field fortifications. Range is 65 to 3,750 m. The TOW 2A configuration weight varies from 47.1 to 49.9 lb (digital vs. analog guidance) and is nominally 6 inches in diameter. Encased, the weights are 61.8 to 64 lb, and the diameter is nominally 8.6 inches. All future production will replace the obsolete wire guidance link with a RF guidance link.

### SYSTEM DESCRIPTION:

The Tube-launched, Optically-tracked, Wire-guided (TOW) missile is a heavy, anti-tank weapon system, consisting of a launcher and a missile. The gunner defines the aimpoint by maintaining the sight cross hairs on the target. The launcher automatically steers the missile along the line-of-sight toward the aimpoint via a pair of wires which physically link the missile and the launcher. The TOW 2A is a direct attack missile capable of defeating modern threat targets. It consists of a single main warhead and a standoff probe. The probe contains a precursor charge which detonates upon contact with the target for pre-emptive removal of reactive armor. The main charge is detonated by a subsequent timed interval or by contact with the target. The missile is fired from the Bradley, High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), Stryker Anti-Tank Guided Missile (ATGM) Vehicle, U.S. Marine Corps AH-1W Cobra helicopter, or a ground mount.

**SENSOR/SEEKER:**

The TOW 2A has two impact sensors. The sensors are crush switches located in the probe tip and the main-charge ogive.

**WARHEAD:**

The TOW 2A main warhead weighs 13.5 lb, and is 6 inches in diameter. It contains a single, copper liner and LX-14 explosive. The precursor warhead is 38 mm in diameter, contains a copper liner, and LX-14 explosive.

**TARGET SETS:**

Tanks, armored vehicles, and field fortifications.

**CONTRACTOR:**

Raytheon Missile Systems.

**ACQUISITION PHASE:**

U.S. systems in Operations and Support. Foreign systems in production and Operations and Support.

**MILESTONES:**

The last U.S. Army TOW 2A missile was produced in Jul 1993. Foreign Military Sales (FMS) production has continued from FY98 through the present.

**FIELDING:**

FUE: FY87. Fielded to U.S. Army Brigade Combat Teams (BCTs), U.S. Marine Corps, and FMS to over 40 other countries. The TOW 2A missile is being retired from the U.S. inventory as shelf life expires.

**POINTS OF CONTACT:**

PM.....	256-876-5185
DPM .....	256-876-0728
ASA(ALT) DASC.....	703-545-0787



## TUBE-LAUNCHED, OPTICALLY-TRACKED, WIRE-GUIDED (TOW) 2B



**TOW 2B  
With Aero Modifications**



27 June 2002

**TOW 2B Aero Missile  
T-72 at 4,200 Meters**

### SYSTEM DESCRIPTION:

The Tube-launched, Optically-tracked, Wire-guided (TOW) 2B Aero Missile is a fly-over, shoot-down missile with the actual missile flight path offset above the gunner's aimpoint. TOW 2B flies over the target and uses a laser profilometer and magnetic sensor to detect and fire two downward-directed, explosively formed penetrator warheads into the target. The TOW 2B Aero modifications incorporate a new aerodynamic nose and additional wire to increase the range to 4,500 m. The missile is fired from the Bradley, High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), Stryker ATGM Vehicle, and ground mount.

### SYSTEM CHARACTERISTICS:

The TOW 2B Missile is optimized for performance against tanks and is also an effective precision assault weapon against buildings and field fortifications. The missile is fired directly from the case. Range is 200 to 4,500 m. The TOW 2B configuration weight is 49.8 lb. It is nominally 6 inches in diameter and 49 inches in length. Encased, the weight is 65 lb, and the diameter is 8.6 inches. All future production will replace the obsolete wire guidance link with a RF guidance link.

**SENSOR/SEEKER:**

The TOW 2B has three sensors: laser, magnetic, and impact (crush switch). Target detection range is from 0.3 to 7.5 m.

**WARHEAD:**

Warhead unit contains two EFP warheads weighing approximately 1.4 lb each. Warhead liners are of tantalum, explosive is LX-14.

**TARGET SETS:**

Tanks, armored vehicles, and field fortifications.

**CONTRACTOR:**

Raytheon Missile Systems.

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

In production for U.S. Army, U.S. Marine Corps, and Foreign Military Sales.

**FIELDING:**

Fielded to all U.S. Army BCTs.

FUE.....FY91

IOC.....FY93

**POINTS OF CONTACT:**

PM..... 256-876-5185

DPM ..... 256-876-0728

ASA(ALT) DASC..... 703-545-0787



## TUBE-LAUNCHED, OPTICALLY-TRACKED, WIRE-GUIDED (TOW) BUNKER BUSTER



### SYSTEM CHARACTERISTICS:

The TOW Bunker Buster missile is optimized for performance against urban terrain targets and field fortifications. The range of the missile is 65 to 3,750 m. The weight of the TOW Bunker Buster missile is approximately 45.2 lb and is nominally 6 inches in diameter. The encased missile weight is approximately 63.7 lb, and the diameter is 8.6 inches. All future production will replace the obsolete wire guidance link with a RF guidance link.

### SYSTEM DESCRIPTION:

The Tube-launched, Optically-tracked, Wire-guided (TOW) Bunker Buster missile provides the BCT with an optimized precision heavy assault weapon. The missile incorporates a high-explosive, bulk charge warhead onto the existing, reliable TOW 2A missile airframe. The TOW Bunker Buster missile provides the capability to breach 8 inch thick, double-reinforced concrete walls and provides a structural overmatch against earth and timber bunkers. The missile uses existing TOW 2A flight algorithms and can be fired from existing TOW platforms. The TOW Bunker Buster Missile was initially deployed with the Anti-Tank Guided Missile (ATGM) variant of the Stryker Vehicle. Due to its performance in Operation Iraqi Freedom / Operation Enduring Freedom (OIF/OEF), the U.S. Army procured additional TOW Bunker Buster missiles which are now available for issue to all BCTs and are compatible with all TOW platforms.

**SENSOR/SEEKER:**

The TOW Bunker Buster has an impact sensor (crush switch) located in the main-charge ogive and a pyrotechnic detonation delay to enhance warhead effectiveness.

**WARHEAD:**

The TOW Bunker Buster has a 6.25 lb, 6 inch diameter, high-explosive, bulk charge warhead. The PBXN-109 explosive is housed in a thick casing for maximum performance.

**TARGET SETS:**

Urban structures, bunkers, and field fortifications.

**CONTRACTOR:**

Raytheon Missile Systems.

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

In production for the U.S. Army, U.S. Marine Corps and Foreign Military Sales.

**FIELDING:**

The initial fielding of ~500 missiles to the Stryker Brigade Combat Teams (SBCTs) has been exhausted during combat operations in OIF. Additional TOW Bunker Buster missiles have been deployed to OIF and OEF for issue to all BCTs.

**POINTS OF CONTACT:**

PM.....	256-876-5185
DPM .....	256-876-0728
ASA(ALT) DASC.....	703-545-0787



## TUBE-LAUNCHED, OPTICALLY-TRACKED, WIRE-GUIDED (TOW) IMPROVED TARGET ACQUISITION SYSTEM (ITAS)



### SYSTEM DESCRIPTION:

ITAS provides long-range, lethal, anti-armor and precision assault fire capabilities for U.S. Army IBCTs and SBCTs. ITAS doubles target acquisition ranges over first generation systems and enables maximum range engagements with TOW missiles, thus significantly enhancing system lethality and soldier survivability. ITAS' superior surveillance capability enables the soldier to shape the battlefield by detecting targets at long range and either engaging with TOW missiles or directing the employment of other weapon systems to destroy those targets. ITAS will replace all U.S. Army and Marine Corps Ground TOW systems by the end of FY12.

### SYSTEM CHARACTERISTICS:

The ITAS is composed of a Target Acquisition Subsystem (TAS), Fire Control Subsystem (FCS), Lithium-Ion Power Source (LPS), and modified Traversing Unit (TU). The TAS integrates a day and night sight, a laser range finder, and a position attitude determination subsystem (PADS). The laser range finder and PADS combine to provide a far target location capability that gives an accurate ten digit coordinate for targeting of indirect artillery fires and close air support. The FCS includes processing, aided target tracker, and embedded training capabilities. The LPS provides dismounted power and acts as a battery charger and power conditioner. The modified TU includes a brake to dampen TOW launch transients, and pistol grips with switches that link with symbology visible in the TAS on a menu-driven display. ITAS is mounted on the HMMWV and can be transported by helicopter (CH-47 and/or CH-53) and cargo aircraft. Detection range is beyond the maximum range of the TOW missile. The system fires one missile at a time from the current family of TOW missiles and has built-in growth for improved/future missiles.

**SENSOR/SEEKER:**

Second Generation Target Acquisition FLIR. The system also has a video thermal tracker and xenon beacon tracker. Provides GPS based far target location capability.

**WARHEAD:**

Fires all versions of the TOW Missile.

**TARGET SETS:**

Tanks, other vehicles, field fortifications, and other materiel targets.

**CONTRACTOR:**

Raytheon Network Centric Systems Company - Prime Contractor and Contractor Logistics Support (CLS).

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

In production for U.S. Army and U.S. Marine Corps.

**FIELDING:**

ITAS is being fielded to all U.S. Army and U.S. National Guard IBCTs and to the U.S. Marine Corps.

**POINTS OF CONTACT:**

PM.....	256-876-5185
DPM .....	256-876-0728
ASA(ALT) DASC.....	703-545-0787



## TUBE-LAUNCHED, OPTICALLY-TRACKED, WIRE-GUIDED (TOW) WEAPON SYSTEM M220A4



### SYSTEM DESCRIPTION:

The Tube-launched, Optically-tracked, Wire-guided (TOW) is a long-range, heavy anti-tank/assault weapon system, consisting of a launcher and a missile. The automatic missile tracking and control capabilities of the TOW weapon system provide a high first-round-hit probability. To operate the system, the gunner places the cross hairs of the sighting system (either the daysight tracker or the nightsight) on the target, fires the missile, and centers the cross hairs on the target image until missile impact. The optical tracking and command functions within the system guide the missile along the gunner's line-of-sight. The gunner does not apply lead, windage, or elevation. The TOW provides precision assault capability against heavily fortified bunkers, pill boxes, and gun emplacements.

### SYSTEM CHARACTERISTICS:

The M220A4 TOW 2 launcher is compatible with all TOW missile configurations. The traversing units, the digital Missile Guidance Set (MGS), and the thermal nightsight are improved on the M220A4 launcher. The launcher system weighs ~256.5 lb with all of its components and carrying cases. The AN/UAS 12A/C Nightsight is the thermal Nightsight Equipment Set (NSES) used in conjunction with the M220A4 TOW 2 Launcher.

**SENSOR/SEEKER:**

Optical sight with 13 power magnification and First Generation Forward Looking Infrared (FLIR) based on the DT591A common module detector. The detector is an 8 to10 μ Imaging Infrared IIR Mercury- Cadmium-Telluride (Hg-Cd-Te).

**WARHEAD:**

See TOW missile variants.

**TARGET SETS:**

Tanks, armored vehicles, and field fortifications.

**CONTRACTOR:**

Raytheon Missile Systems for launcher and Kollsman for FLIR.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

U.S. and Foreign Military Sales (FMS) systems are in Operations and Support.

**FIELDING:**

Fielded to the U.S. Army National Guard and U.S. Marine Corps light forces, and FMS to over 40 other countries.

**POINTS OF CONTACT:**

PM.....	256-876-5185
DPM .....	256-876-0728
ASA(ALT) DASC.....	703-545-0787







CRUISE MISSILE DEFENSE SYSTEMS

## AVENGER



### SYSTEM DESCRIPTION:

The Avenger Air Defense System is a lightweight, highly mobile, short-range, surface-to-air missile and gun weapon system mounted on an M1097A1 High Mobility Multi-Purpose Wheeled Vehicle (HMMWV). Avenger is designed to counter hostile, low-flying Unmanned Aerial Systems (UASs), cruise missiles, rotary-wing aircraft, and high-performance fixed-wing aircraft. Avenger, operated by two crewmen, is capable of day, night, and adverse weather operations, can be transported by a UH-60L helicopter or C-130 aircraft, is air-droppable (M45 version), and can shoot on the move. The system can also be operated by remote control from a protected position up to 50m away from the fire unit. The system employs a turret consisting of a gunner position, two missile launcher pods containing four STINGER missiles each, a Forward Looking Infrared (FLIR), a Laser Range Finder (LRF), an Identification Friend or Foe (IFF) system, and a very high rate of fire M3P .50 caliber machine gun.

### SYSTEM CHARACTERISTICS:

Fielded configurations include a basic Avenger (M47A1), "Slew-to-Cue" (STC) Avenger (M47A2), an air-drop-capable Avenger (M45A1), Foreign Military Sales versions (M46A1 and M46A2), and a dismounted version used for Homeland Defense of the National Capital Region. Fire units equipped with the STC upgrade are capable of automatically slewing to a specific target reported by the Forward Area Air Defense Command and Control (FAAD C2) system, placing it directly into the gunner's field of view.

**SENSOR/SEEKER:**

- FLIR: Day and Night vision. Wide, Rain (medium), and Narrow Fields of View.
- Optical Sight.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

UASs, Cruise Missiles, Fixed- and Rotary-Wing Threats.

**CONTRACTOR:**

Boeing Aerospace.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

MS IIIA .....	Mar 1986
MS C .....	Apr 1990
IOC .....	Jan 1991
Sustainment Readiness Review (MS D) .....	Sep 2005

**FIELDING:**

Slew-to-Cue (STC) FUE..... Feb 2002  
 Avenger is currently in service with the U.S. Army (Active Component and U.S. Army National Guard) and FMS customers.

**POINTS OF CONTACT:**

PM.....	256-876-4927
DPM .....	256-876-6193
ASA(ALT) DASC.....	703-545-0817



## JOINT LAND ATTACK CRUISE MISSILE DEFENSE ELEVATED NETTED SENSOR SYSTEM (JLENS)



### SYSTEM DESCRIPTION:

The JLENS provides elevated, persistent, Over-The-Horizon (OTH) surveillance and fire control quality data on Army and Joint networks enabling protection of the United States, Allied and Coalition forces, as well as critical geo-political assets from Cruise Missiles and Aircraft, Unmanned Aerial Systems (UASs), Tactical Ballistic Missiles (TBMs), Large Caliber Rockets (LCRs), and Surface Moving Targets (SMTs). A JLENS "Orbit" is comprised of two systems: a Fire Control System (FCS) and a Surveillance System (SuS). Each Orbit is comprised of a 74-meter (74 M) tethered aerostat, a mobile mooring station (MMS), a Communication and Processing Group (CPG) and associated ground support equipment (GSE). JLENS uses its advanced sensor and networking technologies to provide 360-degree wide-area surveillance and sectorized precision tracking of Land Attack Cruise Missiles (LACMs) and other types of aircraft. The FCS data is provided to network participants and supports extended engagement ranges to surface based weapon systems by providing high quality track data on targets that may be terrain masked from surface based radar systems. The SuS and FCS systems are relocatable and can be transported by aircraft, railway, ship, or roadway.

### SYSTEM CHARACTERISTICS:

The JLENS can stay aloft up to 30 days providing 24-hour radar coverage of the assigned areas which provides the only elevated, persistent, long range surveillance and fire control sensor capability for Army and Joint Programs. When configured in its primary mode of operation, the JLENS conducts precision tracking of LACMs and other types of aircraft. The JLENS SuR and FCS can each also be configured to perform secondary missions which are to detect and track either SMTs, TBMs or LCRs. JLENS also performs as a multi-role platform to enable extended range Command and Control (C2) linkages, communications relay, and battlefield situational awareness.

**SENSOR/SEEKER:**

Fire Control Radar and Surveillance Radar.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Not Applicable.

**CONTRACTOR:**

Raytheon.

**ACQUISITION PHASE:**

Engineering and Manufacturing Development.

**MILESTONES:**

MS B ..... 3QFY05

MS C ..... 2QFY12

**FIELDING:**

FUE: ..... FY13

**POINTS OF CONTACT:**

PM..... 256-876-4927

DPM ..... 256-876-6193

ASA(ALT) DASC..... 703-545-0817



## SENTINEL



### SYSTEM DESCRIPTION:

The Improved Sentinel system is used with the Forward Area Air Defense Command and Control (FAAD C2) system, and the Integrated Air and Missile Defense (IAMD) Battle Command System to provide critical air defense surveillance of forward areas. It is deployed in an air defense role as well as a force protection role in support of Counter-Rocket, Artillery, and Mortar missions. Sentinel consists of the M1097A1 HMMWV, the antenna transceiver group mounted on a high-mobility trailer, an Identification Friend or Foe (IFF) system, and a FAAD C2 interface. The sensor is an advanced three-dimensional battlefield, X-band, air defense, phased array radar.

### SYSTEM CHARACTERISTICS:

The Improved Sentinel provides 360-degree air surveillance and acquisition tracking, day or night, in adverse weather conditions, and in battlefield environments of dust, smoke, aerosols and enemy countermeasures. The Improved Sentinel contributes to the digital battlefield by automatically detecting, classifying, identifying and reporting cruise missiles, unmanned aerial systems, rotary and fixed wing threats. The system's Anti-Radiation Missile and Electronic Countermeasures resistant performance supports Brigade Combat Team operations across the full spectrum of conflict. Sentinel modernization efforts include enhanced target range and classification upgrades to support engagement of non-line-of-sight targets, increased detection and acquisition range, enhanced situational awareness, and cruise missile classification capability. The Improved Sentinel will also be upgraded with the new AN/TPX-57 Mode 5 IFF, a modernized Radar Control Terminal with Linux based operating system, and router. Sentinel has been approved to procure 56 new radars in Fiscal Year 2011 for divisional support: 48 radars will be integrated onto a new Family of Medium Tactical Vehicle (FMTV) platform and corresponding trailer. Eight radars will be used as repair cycle floats to support a depot overhaul capability.

**SENSOR/SEEKER:**

X-band, phased-array radar.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Cruise Missiles, rotary- and fixed-wing aircraft and unmanned aerial vehicles.

**CONTRACTOR:**

Thales-Raytheon Systems.

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

MS B .....	Jun 1991
MS C .....	Apr 1995
FUE .....	Aug 1997

**FIELDING:**

Sentinel is fielded to the U.S. Army (Active Component and National Guard) and Foreign Military Sales customers.

**POINTS OF CONTACT:**

PM .....	256-876-4927
DPM .....	256-876-6193
ASA(ALT) DASC .....	703-545-0817



## SURFACE LAUNCHED MEDIUM RANGE AIR-TO-AIR MISSILE (SLAMRAAM) SYSTEM



### SYSTEM DESCRIPTION:

SLAMRAAM is a mobile beyond-line-of-sight system that employs the Air Force active seeker AIM-120C Advanced Medium-Range Air-to-Air Missile. SLAMRAAM provides a critical beyond-line-of-sight and non-line-of-sight overmatch capability against rapidly evolving threats, cruise missiles and Unmanned Aerial Systems (UAS). The SLAMRAAM is armed with four Joint Service AIM-120 C7 missiles per launcher and up to six missiles for static emplacement.

### SYSTEM CHARACTERISTICS:

SLAMRAAM is a highly mobile and transportable, day-or-night, adverse weather system, supporting 360-degree engagements. The SLAMRAAM uses the Improved Sentinel Radar and the net-centric Integrated Fire Control Station (IFCS) to develop state-of-the-art automated battle management and high-fidelity fire control for stressing threat engagements.

**SENSOR/SEEKER:**

Improved Sentinel.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Cruise Missiles, UASs, rotary- and fixed-wing aircraft.

**CONTRACTOR:**

Raytheon.

**ACQUISITION PHASE:**

System Development and Demonstration.

**MILESTONES:**

MS B ..... Sep 2003

MS C .....N/A Production Cancelled

**FIELDING:**

30 Aug 11 Acquisition Decision Memorandum cancelled SLAM-RAAM production and directed prototype vehicles be prepared for storage to provide Emergency Operational Capability (EOC) if required.

**POINTS OF CONTACT:**

PM..... 256-876-4927

DPM ..... 256-876-6193

ASA(ALT) DASC..... 703-545-0817



## STINGER REPROGRAMMABLE MICROPROCESSOR BLOCK I MISSILE



### SYSTEM DESCRIPTION:

The FIM 92 STINGER RMP BLOCK I missile, the fourth generation STINGER missile, is an advanced, fire-and-forget, short-range, man-portable, air defense weapon system. It provides low-altitude defense for ground forces against attack or aerial observation by low-flying Unmanned Aerial Systems (UASs), cruise missiles, rotary wing and high-performance fixed-wing aircraft. STINGER is passive, emitting no signals and employs an infrared (heat seeking) / ultraviolet seeker to guide to the target. STINGER RPM BLOCK I has extensive infrared counter-countermeasure capabilities and can engage targets from any aspect, including head-on. The missile utilizes a high-explosive, hit-to-kill warhead. The STINGER weapon system also employs an IFF device to assist the gunner in identifying friendly aircraft. STINGER can be fired from the shoulder or from a variety of platforms to include vehicles, helicopters, and UASs. The missile is delivered as a certified round and requires no field testing or maintenance. The basic STINGER missile was first fielded in 1981; since then there have been multiple missile configurations and upgrades culminating in the advanced RMP Block I missile upgrade.

### SYSTEM CHARACTERISTICS:

The STINGER RMP Block I adds a new roll sensor and improved hardware which significantly enhances the missile's performance. Stinger uses a solid-propellant, dual-thrust, flight rocket motor with separable launch motor. It is 60 inches in length and the diameter is 2.75 inches. The weight is 35 lb when ready to fire in MANPADS role.

**SENSOR/SEEKER:**

Optical aiming with infrared and ultraviolet homing.

**WARHEAD:**

High explosive, blast over-pressure, contact fuse (Hit-to-Kill).

**TARGET SETS:**

Low-altitude UAS, cruise missile, rotary and fixed-wing threat aircraft.

**CONTRACTOR:**

Raytheon.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

STINGER Basic Missile FUE .....	Feb 1981
STINGER RMP Missile FUE .....	Nov 1989
STINGER RMP Block 1 Missile FUE.....	Aug 1998
Sustainment Readiness Review (MS D) .....	Sep 2005

**FIELDING:**

STINGER has been fielded to U.S. Army, Air Force, Navy, and Marine Corps forces. In addition, the system is employed by 18 allied countries.

**POINTS OF CONTACT:**

PM.....	256-876-4927
DPM .....	256-876-6193
ASA(ALT) DASC.....	703-545-0817







## AIR AND MISSILE DEFENSE PLANNING AND CONTROL SYSTEM (AMDPCS)



### SYSTEM DESCRIPTION:

AMDPCS is an Army Objective Force system that provides integration of Air and Missile Defense operations at all echelons. AMDPCS shelter systems are centered around a single baseline shelter known as Air Defense and Airspace Management (ADAM) Cells. Depending on echelon, ADAM Cells are fielded in different quantities at Corps, divisions, Brigade Combat Teams (BCTs), and Multi-functional Support Brigades (MFSBs). The ADAM Cell provides Commanders at divisions and BCTs with air defense situation awareness and airspace management capabilities. AMDPCS configurations are also deployed with Air Defense units including Army Air and Missile Defense Commands, Air Defense Artillery (ADA) Brigades, and ADA Battalions. AMDPCS provides two major software systems used in air defense force operations and engagement operations - the Air and Missile Defense Workstation (AMDWS) and the Air Defense System Integrator (ADSI). The AMDWS operates on a staff laptop and is a staff planning and battlespace situational awareness tool that provides commanders at all echelons with a common tactical and operational air picture.

### SYSTEM CHARACTERISTICS:

The AMDPCS Family of Systems (FoS) provides a type classified and materiel released solution for the Army air defense command and control requirements. The FoS is based on a common set of equipment (shelter, carrier, power generation, tentage, environmental control, etc.) which is configured with standard communications suites, processors and display systems, depending on the capabilities required and the echelon. AMDPCS systems provide common and real time air/ground situation awareness to ADA and maneuver force commanders. AMDWS interoperates with Army AMD and Army Battle Command Systems, as well as joint and allied force air defense systems. ADSI provides access to tactical and strategic communications, tactical data and intelligence data.

**SENSOR/SEEKER:**

Not applicable.

**WARHEAD:**

Not applicable.

**TARGET SETS:**

Not applicable.

**CONTRACTOR:**

Northrop Grumman.

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

Approval as Warfighter Rapid Acquisition Program (WRAP)	Mar 97
AMDPCS ORD	May 97
MS C - for ADAM Variants	Jul 05
AMDPCS ADAM CPD	Aug 07
FRP - AMDPCS ADAM	Oct 08

**FIELDING:**

- ADAMs – 128 of 175 (Army Acquisition Objective) have been fielded to Corps, Divisions, BCTs, Fires Brigades, Combat Aviation Brigades, Battlefield Surveillance Brigades, and Maneuver Enhancement Brigades.
- AMDPCS Shelter Systems - Fielded to 32nd AAMDC, seven ADA BDEs, and four Composite ADA BNs.

**POINTS OF CONTACT:**

PD	256-774-6084
DPD	256-774-6085
ASA(ALT) DASC	703-545-4790



## COUNTER-ROCKET, ARTILLERY, AND MORTAR (C-RAM)



### SYSTEM DESCRIPTION:

The primary mission of the C-RAM program is to develop, procure, field, and maintain a System of Systems (SoS) that can detect RAM launches; locally warn the defended area with sufficient time for personnel to take appropriate action; intercept rounds in flight, thus preventing damage to ground forces or facilities; and enhance response to and defeat of enemy forces. The C-RAM capability utilizes a SoS approach and is comprised of a combination of multi-service fielded and non-developmental item (NDI) sensors, command and control (C2) systems, and a modified U.S. Navy intercept system (Land-based Phalanx Weapon System (LPWS)), with a low cost commercial off-the-shelf (COTS) warning system and wireless local area network. Additional near term directed enhancements include the use of Army tactical communications systems; integration of Warn functionality into the C2 workstation; mounting an up gunned Phalanx on a Heavy Expanded Mobility Tactical Truck (HEMTT); integration with Unmanned Aerial Systems (UAS) Universal Ground Control Station (UGCS); and dynamic clearance of unplanned fires in conjunction with the Advanced Field Artillery Tactical Data System (AFATDS).

### SYSTEM CHARACTERISTICS:

The currently fielded capability uses existing Field Artillery and Air Defense sensors (AN/TPQ-36/37, Lightweight Counter Mortar Radar (LCMR), and Sentinel), a commercial industry produced warning system (Wireless Audio Visual Emergency System (WAVES)), a U.S. Navy-developed interceptor (LPWS), and U.S. Air Force Base Defense Security Systems. It is tied to various response systems via U.S. Air Force, U.S. Marine Corps, and Army Mission Command. The Forward Area Air Defense Command and Control (FAAD C2) system integrates the sensors, weapons, and warning systems for C-RAM. FAAD C2 software correlates RAM sensor data, evaluates that threat, provides early warning, directs engagements, and cues counter fire systems and reaction forces.

**SENSOR/SEEKER:**

Multiple Ground Based Radars.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Rockets, Artillery, and Mortars.

**CONTRACTOR:**

Raytheon.

**ACQUISITION PHASE:**

Not a formal acquisition program.

**MILESTONES:**

OIF ONS 306-04 Validated by Army .....4QFY04  
 Sense & Warn (S&W) Fielded to Initial OIF FOB .....2QFY05  
 1st Combat Intercept.....2QFY06  
 Initial Warn System Installed in OEF .....4QFY09  
 Initial Ka Radar Fielding to OEF .....1QFY12  
 Initial Ku Radar Fielding to OEF .....4QFY12

**FIELDING:**

**OIF:** 13 Sense & Warn, and 3 Sense, Warn & Intercept.  
**OEF:** 22 Sense & Warn FOBs (complete 2QFY12).  
**Intercept Capability to Specified Units:** 28 LPWS - FY13;  
 12 LPWS - FY14; 4 LPWS - FY15.

**POINTS OF CONTACT:**

PD ..... 256-774-6084  
 DPD..... 256-774-6085  
 ASA(ALT) DASC..... 703-545-0821



## COUNTER-ROCKET, ARTILLERY, AND MORTAR (C-RAM) WARN



### SYSTEM DESCRIPTION:

Counter-Rocket, Artillery, and Mortar (C-RAM) Warn is a horizontal technology insertion, using current C-RAM Warning equipment, to provide early, localized warning to the Brigade Combat Teams (BCT). It will employ the Air Defense Airspace Management (ADAM) Cell already resident in the BCT Headquarters as the C2 element, use the Firefinder and Lightweight Counter Mortar Radars (LCMR) already in the Target Acquisition Platoon of the Fires Battalion as the Sense element, and add existing C-RAM Warning devices, controller, and dedicated communications devices between the radars and the ADAM Cell.

### SYSTEM CHARACTERISTICS:

C-RAM Warn meets the immediate needs of the Maneuver forces, by providing an early, localized Warning capability to the BCTs via integration of existing standard systems, with minimal investment in new systems and no impact on personnel. Existing radars at the BCT will Sense incoming RAM, as well as other air and ground threats; additional Warn equipment (e.g., speakers and masts) will Warn localized affected areas via a Commercial Off-The-Shelf (COTS) warning system; and a wireless Local Area Network (LAN), along with the Forward Area Air Defense Command and Control (FAAD C2) system (already existing in the BCT's ADAM Cell), will integrate the sensors and warning equipment, thus providing real-time situational awareness and understanding. The Air and Missile Defense Workstation (AMDWS), also organic to the BCT's ADAM Cell, will pass the RAM events and data to the Battle Command/Mission Command Data Dissemination Service/Publish and Subscribe Services (DDS/PASS) servers to provide situational awareness and understanding at all BCT units/echelons.

**SENSOR/SEEKER:**

Radar.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Rockets, Artillery, and Mortars.

**CONTRACTOR:**

Multiple.

**ACQUISITION PHASE:**

Pre Milestone C.

**MILESTONES:**

C-RAM Warn Capability Production.....	4QFY10
Document (CPD) Approved	
Material Development Decision (MDD).....	1QFY12
Milestone C Low Rate Initial Production.....	4QFY12
(LRIP) Decision Review	
First Unit Equipped (FUE).....	1QFY13
Full Rate Production (FRP) Decision.....	3QFY13

**FIELDING:**

- Army Acquisition Objective (AAO) –
- 73 BCTs - Warn capability to all BCTs.
  - 28 Army Prepositioned Stock (APS) Sets.

**POINTS OF CONTACT:**

PD .....	256-774-6084
DPD.....	256-774-6085
ASA(ALT) DASC.....	703-545-0821



## FORWARD AREA AIR DEFENSE COMMAND AND CONTROL (FAAD C2)



### SYSTEM DESCRIPTION:

The Forward Area Air Defense Command and Control (FAAD C2) System of Systems (SoS) hardware and software provides the engagement operations interface between the Sentinel and the Avenger/Man Portable Air Defense Systems (MANPADS). FAAD C2 software collects, digitally processes, and disseminates real-time target cueing and tracking information; displays the common 3-dimensional air picture; and provides command, control, and intelligence information to the Avenger and the Man-Portable Air Defense System. FAAD C2 software, as a key component of the Air Defense and Airspace Management (ADAM) Cell, provides Maneuver commanders at all echelons with air battle management and airspace situational awareness data. Division and Brigade commanders also receive a single, correlated low altitude air picture from FAAD Sensor C2 nodes. Additionally, FAAD C2 software provides command and control for the Counter-Rocket, Artillery and Mortar (C-RAM) system. The FAAD C2 processor, and other software processors and communication suites, are housed in standard Army shelters.

### SYSTEM CHARACTERISTICS:

FAAD C2 provides interoperability between Air and Missile Defense (AMD) systems and a host of sensors, including the Sentinel radar. Real time engagement operations data is passed from the Sentinel to Avenger and MANPADS. Types of airspace situational awareness information provided include Air Attack Early Warnings and cueing of Air Defense Artillery weapons. Other system characteristics include improving target engagements at maximum range, reducing the possibility of fratricide by positive target identification, and automatically integrating with the Army Battle Command System to synchronize and optimize air defense operations.

**SENSOR/SEEKER:**

Not applicable.

**WARHEAD:**

Not applicable.

**TARGET SETS:**

Not applicable.

**CONTRACTOR:**

Northrop Grumman.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

Full Scale Development Decision .....	Jul 86
Low Rate Initial Production Decision .....	May 93
Operational Requirements Document .....	Mar 95
MS III Full Rate Production Decision .....	Mar 95
Block III Initial Operational capability .....	Dec 08
Block IV Initial Operational capability .....	Nov 10

**FIELDING:**

Maneuver AMD BNs – 9 of 9 Fielded.  
 Composite AMD BNs – 6 of 6 Fielded.  
 Sensor Command and Control Nodes – 11 of 18 Divisions fielded.

**POINTS OF CONTACT:**

PD .....	256-774-6084
DPD.....	256-774-6085
ASA(ALT) DASC.....	703-545-4790







## ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD)



### SYSTEM DESCRIPTION:

The Army IAMD Program represents a shift from a traditional system-centric weapon systems acquisition to a component-based acquisition approach which will provide the most efficient way to acquire and integrate the components of the incremental IAMD architectures. The AIAMD Program is structured to enable the development of an overarching system-of-systems capability with all participating Air and Missile Defense (AMD) components functioning interdependently to provide total operational capabilities not achievable by the individual element systems. The AIAMD Program achieves this objective by establishing the incremental IAMD architecture and developing the following: the IAMD Battle Command System (IBCS) that provides the common AIAMD Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) capability; and Common Plug and Fight (P&F) Interface Kits that will network-enable multiple sensor and weapon components. An Integrated Fire Control (IFC) Network, with established communications protocols, standards, and interface control documents that allow joint access, provides fire control connectivity and enables distributed operations.

### SYSTEM CHARACTERISTICS:

The IBCS provides the basis for the overall program lifecycle status. The major end items of the IBCS are the IBCS Engagement Operations Center (EOC) and the IBCS Common Plug and Fight Interface Modification Kits. The IFC-Net consists of the transport layer (radios) and associated net management software resident in the IBCS EOC and the Plug and Fight Interface Kits. The IBCS Program also includes the integration of Plug and Fight Interface Kits into AIAMD components through A-Kits developed with the appropriate programs of record.

**SENSOR/SEEKER:**

Not applicable.

**WARHEAD:**

Not applicable.

**TARGET SETS:**

Not applicable.

**CONTRACTOR:**

Northrop Grumman and Raytheon.

**ACQUISITION PHASE:**

Engineering and Manufacturing Development.

**MILESTONES:**

ASARC Program Approval.....	9 Feb 2006
MS B Increment 2 .....	15 Dec 2009
MS C Increment 2 .....	3QFY15

**FIELDING:**

IOC Increment 2 ..... Sep 2016

**POINTS OF CONTACT:**

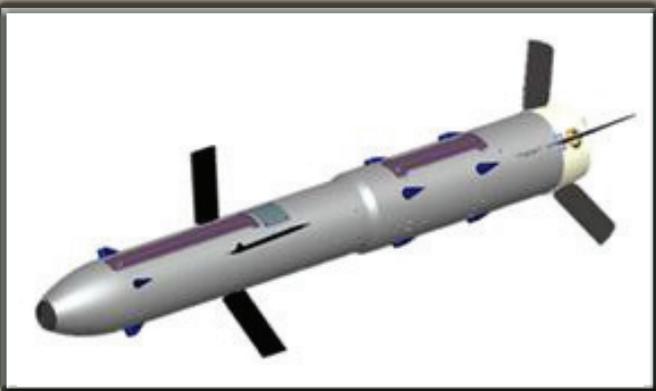
PM.....	256-313-3576
DPM .....	256-842-1376
ASA(ALT) DASC.....	703-545-4760







## GRIFFIN



### SYSTEM DESCRIPTION:

The Griffin Real Time Attack Missile System provides a light-weight, quick reaction, highly accurate capability against soft fixed and moving targets. It can be launched from multiple air, sea, and ground platforms. It uses GPS and INS for guidance to a selected target area. Terminal guidance is achieved with target designated Laser energy with a GPS/INS as backup. GPS/INS only mode can be used. GPS guidance permits non-line-of-sight employment which reduces operational risk.

### SYSTEM CHARACTERISTICS:

The Griffin Real Time Attack Missile System weighs 34 lb. It contains a blast fragmentation warhead and Height of Burst (HOB) is optimized for soft target lethality. There are three selectable fuze settings. The Griffin is capable of multiple launch options, it can be ground launched or air launched (either forward firing or dropped). It is easily adaptable and currently being integrated onto multiple ground and air platforms. The Griffin has been demonstrated in GPS-only mode. The Griffin has been made compatible with the Common Launch Tube.

**SENSOR/SEEKER:**

Semi-Active Laser (SAL) seeker with integrated GPS.

**WARHEAD:**

Blast fragmentation.

**TARGET SETS:**

Light armor, personnel, moving and stationary targets, soft targets, think-skinned vehicles (SUV).

**CONTRACTOR:**

Raytheon Missile Systems.

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

Fielding and Deployment and Operational Support.

**FIELDING:**

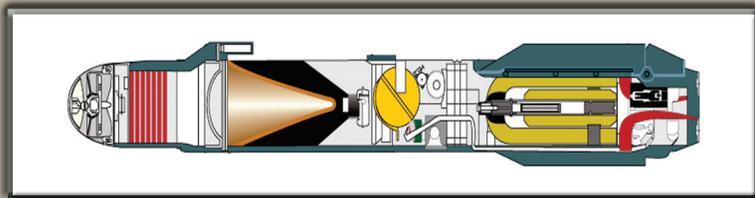
U.S. Marines and Special Operations Command (SOCOM) Platforms.

**POINTS OF CONTACT:**

PM.....	256-876-5900
DPM .....	256-876-0700
ASA(ALT) DASC.....	703-545-0736



## HELLFIRE: AGM-114A, B, C (BASIC)



### SYSTEM DESCRIPTION:

HELLFIRE is a laser-guided, air-to-ground missile system designed to defeat individual hard-point targets and minimize exposure of the delivery vehicle to enemy fire. HELLFIRE is the primary armament for the U.S. Army's AH-64 Apache and the U.S. Marine Corps' AH-1 Super Cobra Helicopters. HELLFIRE has also been qualified for use on the UH-60 Black Hawk and the OH-58D Kiowa Warrior helicopters.

### SYSTEM CHARACTERISTICS:

Laser HELLFIRE is a laser-guided, anti-armor weapon that homes on a laser spot that can be projected by ground observers, the launching aircraft, or other aircraft. HELLFIRE's ability to engage single or multiple targets directly or indirectly and to fire single, rapid, or ripple (salvo) rounds gives combined arms forces a decisive battlefield advantage. The AGM-114A Model Missile is tactically obsolete and used for training. The AGM-114C Model contains an improved, low-visibility (ILV) missile autopilot, which enhances performance in periods of low cloud cover, and a minimum smoke motor, which improves helicopter survivability by reducing primary missile smoke. The AGM-114B is the Navy version and contains a motor safe and arm device for shipboard compatibility. Basic Laser HELLFIRE is 64 inches in length and weighs 100 lb. Weapon range is approximately 8 km.

**SENSOR/SEEKER:**

The seeker is designed to acquire and track targets with laser energy by using the energy reflected from the target.

**WARHEAD:**

High-Explosive Anti-Tank (HEAT) warhead.

**TARGET SETS:**

Primary -Tanks. Secondary - Radar installations, communications posts, bunkers, buildings, air defense units, armored personnel carriers, oil rigs, and bridges.

**CONTRACTOR:**

Martin Marietta and Rockwell International. During the first (FY82) and second (FY83) production buys, seekers were produced by Martin Marietta Orlando Aerospace and provided to Rockwell International as government-furnished equipment for assembly into all-up rounds. Dual-source competition with a split of the award quantity was the acquisition strategy from FY84 through FY89.

**ACQUISITION PHASE:**

Operations and Support. The AGM-114A missile is tactically obsolete and used for training purposes only. Out of production.

**MILESTONES:**

FUE..... Dec 1995

**FIELDING:**

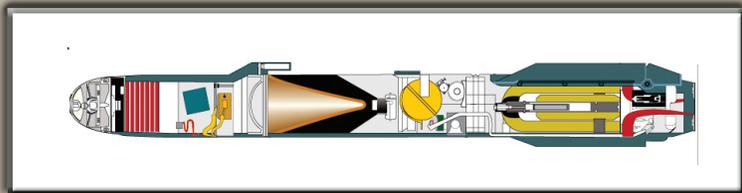
114A is used for training only. 114B/C is used for training and operational needs. 114B is used for U.S. Navy training.

**POINTS OF CONTACT:**

PM..... 256-876-1141  
DPM ..... 256-876-1142  
ASA(ALT) DASC..... 703-545-0736



## HELLFIRE: AGM-114F (INTERIM)



### SYSTEM DESCRIPTION:

HELLFIRE is a laser-guided, air-to-ground missile system designed to defeat individual hard-point targets and minimize exposure of the delivery vehicle to enemy fire. HELLFIRE is the primary armament for the U.S. Army's AH-64 Apache and the U.S. Marine Corps' AH-1 Super Cobra Helicopters. HELLFIRE has also been qualified for use on the UH-60 Black Hawk and the OH-58D Kiowa Warrior helicopters.

### SYSTEM CHARACTERISTICS:

Laser HELLFIRE is a laser-guided, anti-armor weapon which homes on a laser spot that can be projected by ground observers, the launching aircraft, or other aircraft. HELLFIRE's ability to engage single or multiple targets directly or indirectly and to fire single, rapid, or ripple (salvo) rounds gives combined arms forces a decided battlefield advantage. The AGM-114F model was initiated as an interim solution to increase the lethality of the basic missile against reactive armors until a fully optimized missile could be developed. This model incorporates a forward precursor warhead in addition to the main warhead. Interim Laser HELLFIRE is 71 inches in length and weighs 107 lb. Weapon range is approximately 8 km.

**SENSOR/SEEKER:**

The seeker is designed to acquire and track targets with laser energy by using the energy reflected from the target.

**WARHEAD:**

The HEAT warhead is a tandem warhead design consisting of a smaller, precursor shaped charge warhead and a main shape charge warhead.

**TARGET SETS:**

Primary - Tanks. Secondary - Radar installations, communications posts, bunkers, buildings, air defense units, armored personnel carriers, oil rigs, and bridges.

**CONTRACTOR:**

Rockwell International Corp.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

FUE..... FY 1995

**FIELDING:**

Currently fielded to U.S. Army Aviation and international customers.

**POINTS OF CONTACT:**

PM.....	256-876-1141
DPM .....	256-876-1142
ASA(ALT) DASC.....	703-545-0736



## HELLFIRE: AGM-114K (HELLFIRE II)



### SYSTEM DESCRIPTION:

HELLFIRE II (AGM-114K Model) incorporates many improvements over basic HELLFIRE, including electro-optic countermeasure hardening, increased warhead lethality, electronic fusing, and software-controlled digital seeker and autopilot electronics. HELLFIRE II is the primary armament for the U.S. Army's AH-64 Apache and the U.S. Marine Corps' AH-1 Super Cobra Helicopters. HELLFIRE II has also been qualified for use on the UH-60 Black Hawk, MH-6, and the OH-58D Kiowa Warrior helicopters.

### SYSTEM CHARACTERISTICS:

HELLFIRE II is a laser-guided, anti-armor weapon which homes on a laser spot that can be projected by ground observers, the launching aircraft, or other aircraft. HELLFIRE's ability to engage single or multiple targets directly or indirectly and to fire single, rapid, or ripple (salvo) rounds gives combined arms forces a decided battlefield advantage. Starting with the FY95 buy, an Insensitive Munitions Warhead was incorporated, which improves helicopter survivability. Laser HELLFIRE II is 64 inches in length and weighs 100 lb. Weapon range is approximately 8 km.

**SENSOR/SEEKER:**

The seeker is designed to acquire and track targets with laser energy by using the energy reflected from the target.

**WARHEAD:**

The HEAT warhead is a tandem warhead design consisting of a smaller, precursor shaped charge warhead and a main shape charge warhead.

**TARGET SETS:**

Primary - Tanks. Secondary - Radar installations, communications posts, bunkers, buildings, air defense units, armored personnel carriers, oil rigs, and bridges.

**CONTRACTOR:**

HELLFIRE Systems Limited Liability Company.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

MS III .....	Mar 1993
FUE.....	FY 1994

**FIELDING:**

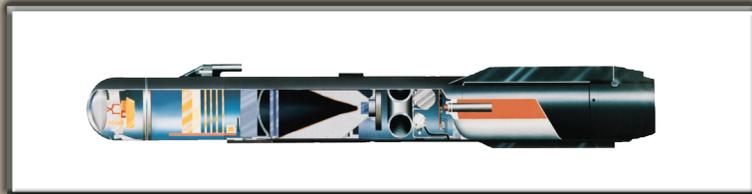
Currently fielded to U.S. Army Aviation and international customers.

**POINTS OF CONTACT:**

PM.....	256-876-1141
DPM .....	256-876-1142
ASA(ALT) DASC.....	703-545-0736



## HELLFIRE: AGM-114L (LONGBOW)



### SYSTEM DESCRIPTION:

The Longbow HELLFIRE (LBHF) missile is a fire-and-forget missile which uses radar-aided inertial guidance. It is part of the Apache AH-64D Longbow system which also includes mast-mounted, millimeter-wave, fire control radar with associated electronics designed to greatly increase the survivability of the host helicopter. LBHF will provide the capability to conduct battle both day and night, in adverse weather conditions, and with battlefield obscurants present.

### SYSTEM CHARACTERISTICS:

The Longbow HELLFIRE missile utilizes millimeter-wave, radar-aided, inertial guidance to provide a lock-on before launch (LOBL) or lock-on after launch (LOAL) capability, depending on target range and velocity. Starting with the FY97 buy, an Insensitive Munitions Warhead was incorporated, which improves survivability. Longbow HELLFIRE is 69.2 inches in length and weighs 108 lb. Weapon range is approximately 8 km.

**SENSOR/SEEKER:**

The Longbow HELLFIRE missile incorporates a Ka-band millimeter-wave seeker comprised of a transmitter/receiver, inertial measurement unit, and digital signal processing electronics.

**WARHEAD:**

The HEAT warhead is a tandem warhead design consisting of a smaller, precursor shaped charge warhead and a main shaped charge warhead, each with an insensitive munition explosive fill.

**TARGET SETS:**

Primary - Tanks, infantry combat vehicles, and air defense units.

**CONTRACTOR:**

Longbow Limited Liability Company (Joint Venture between Lockheed Martin Corp. and Northrop Grumman Corp.).

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

IOC.....Oct 1998

**FIELDING:**

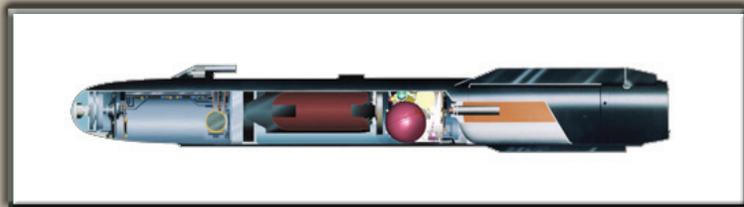
Currently fielded to the U.S. Army Aviation and international customers.

**POINTS OF CONTACT:**

PM..... 256-876-1141  
DPM ..... 256-876-1142  
ASA(ALT) DASC..... 703-545-0736



## HELLFIRE: AGM-114M (BLAST FRAGMENTATION WARHEAD)



### SYSTEM DESCRIPTION:

The Blast Fragmentation Warhead Missile (Blast Frag) incorporates many improvements over the basic HELLFIRE, including electro-optic countermeasure hardening, electronic digital fusing, and a penetrator warhead. The Blast Frag is a supplemental armament for the AH-1 Super Cobra, AH-64A/D, OH-58D, MH6 Helicopters and the Euro Tiger aircraft.

### SYSTEM CHARACTERISTICS:

HELLFIRE Blast Frag Missile is a laser-guided, penetrator weapon which homes on a laser spot that can be projected by ground observers, the launching aircraft, or other aircraft. The missile's ability to engage single or multiple targets directly or indirectly and to fire single, rapid, or ripple (salvo) rounds gives combined arms forces a decided battlefield advantage. The Blast Frag Missile incorporates an IM Warhead, which improves helicopter survivability. The HELLFIRE Blast Frag Missile is 64 inches in length and weighs 106 lb. Weapon range is approximately 8 km.

**SENSOR/SEEKER:**

The seeker is designed to acquire and track targets with laser energy by using the energy reflected from the target.

**WARHEAD:**

The blast fragmentation is a penetrator warhead design consisting of a hardened casing, zirconium incendiary pellets with an insensitive explosive fill. The warhead has a hardened-steel casing with scoring that provides a very-effective target penetration and fragment saturation.

**TARGET SETS:**

Ships, patrol boats, radar and communications installations, bunkers, air defense units, armored personnel carriers, oil rigs, and bridges.

**CONTRACTOR:**

HELLFIRE Systems Limited Liability Company.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

FUE..... FY 2001

**FIELDING:**

Currently fielded to the U.S. Army Aviation, U.S. Navy and international customers.

**POINTS OF CONTACT:**

PM.....	256-876-1141
DPM .....	256-876-1142
ASA(ALT) DASC.....	703-545-0736



## HELLFIRE: AGM-114N (METAL AUGMENTED CHARGE)



### SYSTEM DESCRIPTION:

The Metal Augmented Charge (MAC) Warhead Missile improves upon the Blast Frag Missile by incorporating a metal fuel to enhance the blast overpressure effects inside bunkers, ships, and multi-room facilities and minimizing any degradation to the fragmentation effects obtained in the Blast Frag missile.

### SYSTEM CHARACTERISTICS:

HELLFIRE MAC Missile is a laser-guided penetrator weapon which homes on a laser spot that can be projected by ground observers, the launching aircraft, or other aircraft. The missile's ability to engage single or multiple targets directly or indirectly and to fire single, rapid, or ripple (salvo) rounds gives combined arms forces a decided battlefield advantage. The HELLFIRE MAC Missile is 64 inches in length and weighs 106 lb. Weapon range is approximately 8 km.

**SENSOR/SEEKER:**

The seeker is designed to acquire and track targets with laser energy by using the energy reflected from the target.

**WARHEAD:**

The MAC warhead is a sub-caliber, penetrating warhead consisting of a hardened casing, aluminum fuel, and PBXN-112 primary explosive. The lethal mechanisms formed after target penetration consist of blast, overpressure, and fragmentation.

**TARGET SETS:**

Larger, multi-room facilities; bunkers, ships, patrol boats, radar and communications installations; air defense units, armored personnel carriers, oil rigs and bridges.

**CONTRACTOR:**

HELLFIRE Systems Limited Liability Company.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

FUE..... FY 2006

**FIELDING:**

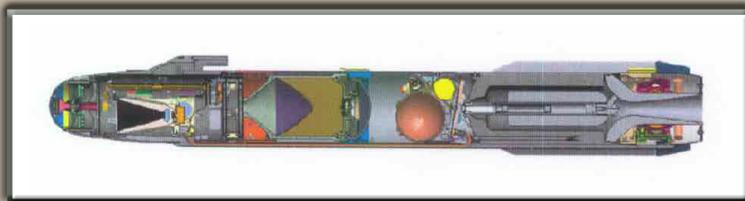
Currently fielding to U.S. Army Aviation, U.S. Navy and U.S. Air Force units and international customers.

**POINTS OF CONTACT:**

PM..... 256-876-1141  
 DPM ..... 256-876-1142  
 ASA(ALT) DASC ..... 703-545-0736



## HELLFIRE: AGM-114R (MULTI-PURPOSE WARHEAD)



### SYSTEM DESCRIPTION:

HELLFIRE II (AGM-114R Model) Multi-Purpose Warhead Missile provides the Warfighter with the flexibility to carry one multi-purpose missile providing the anti-armor, anti-personnel, and MOUT lethality of the previous HELLFIRE missiles variants. Improvements over legacy HELLFIRE II models include variable-delay fuse settings, target-specific flight trajectories, and a Microelectromechanical System (MEMS) Inertial Measurement Unit (IMU) for increased navigation & flight controls. The AGM-114R provides the U.S. Army with a Multi-Purpose Warhead, Fully Qualified Rotary Wing and UAS HELLFIRE II Missile that is also backwards compatible with currently fielded aircraft.

### SYSTEM CHARACTERISTICS:

HELLFIRE II AGM-114R is a laser-guided, anti-armor weapon which homes on a laser spot that can be projected by ground observers, the launching aircraft, or other aircraft. HELLFIRE's ability to engage single or multiple targets directly or indirectly and to fire single, rapid, or ripple (salvo) rounds gives combined arms forces a decided battlefield advantage. The HELLFIRE II AGM-114R Missile is 64 inches in length and weighs 108 lb. Weapon range is approximately 8 km.

**SENSOR/SEEKER:**

The seeker is designed to acquire and track targets with laser energy reflected from the target.

**WARHEAD:**

The Multi-purpose warhead is a dual mode warhead consisting of a shaped-charge packaged within a fragmenting case. The hardened case provides structural penetration capability and fragmentation against personnel in the open.

**TARGET SETS:**

Primary — tanks, personnel in the open, buildings and structures; Secondary — bunkers, ships, patrol boats, radar and communication installations, air defense units, armored personnel carriers, oil rigs, and bridges.

**CONTRACTOR:**

HELLFIRE Systems Limited Liability Company.

**ACQUISITION PHASE:**

Pre-Production.

**MILESTONES:**

Cut-in begins in FY13.

**FIELDING:**

Fielding will begin in FY13 to U.S. Army UAS and Aviation Units. Future fielding international customers.

**POINTS OF CONTACT:**

PM.....	256-876-1141
DPM .....	256-876-1142
ASA(ALT) DASC .....	703-545-0736



## HELLFIRE LAUNCHER M299



### SYSTEM DESCRIPTION:

The M299 Longbow HELLFIRE Launcher is a MIL-STD-1760 compatible mission store tailored for carriage and launch of all configurations of the AGM-114 HELLFIRE missile. It provides carriage and launch capability of any combination of up to four AGM-114 HELLFIRE missiles. The launcher provides electronic functions required for the missile and launcher to communicate with the platform with multiple bus commands, missile launch sequencing, missile Built-In-Test (BIT) capability and sequencing, seeker type identification, missile "Hangfire/Misfire" determination and seeker coding, activation of missile environmental (de-ice) covers, and missile DC power. The launcher also contains an embedded Longbow HELLFIRE training missile emulator.

### SYSTEM CHARACTERISTICS:

The empty M299 Launcher weight is 145 lb. The Launcher dimensions are: 57.5 inches in length, 20 inches in width, and 21.5 inches in height.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Not Applicable.

**CONTRACTOR:**

Lockheed Martin.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

FUE.....FY 1998

**FIELDING:**

Fielding on-going to support the U.S. Army, U.S. Navy, U.S. Marine Corps, U.S. Air Force and international customers' requirements.

**POINTS OF CONTACT:**

PM.....	256-876-1141
DPM .....	256-876-1142
ASA(ALT) DASC.....	703-545-0736



## JOINT-AIR-TO-GROUND MISSILE (JAGM)



### SYSTEM DESCRIPTION:

The Joint Air-to-Ground Missile (JAGM) system will be a common air-to-ground precision guided missile for use by Joint Service manned and unmanned aircraft to destroy high-value stationary; moving and maneuvering; and relocateable land and naval targets. JAGM will be required to provide a common, multi-mode weapon capable of providing both current and future aviation platforms with reactive targeting capabilities satisfying the sum of needs across the joint platforms, and eliminate the requirement for separate upgrades to multiple existing missile systems. The JAGM will replace HELLFIRE, air-launched TOW and Maverick families of missiles. The JAGM is a joint program with the U.S. Navy and U.S. Marine Corps for the Super Hornet (F/A-18E/F), the Seahawk (MH-60R), and Super Cobra (AH-1Z), U.S. Army's Apache (AH-64D), OH-58 (CASUP) and Unmanned Aerial Vehicles (UAV).

### SYSTEM CHARACTERISTICS:

JAGM will employ a multi-mode seeker to acquire and destroy high-value threat targets from standoff range in day, night, adverse weather, and obscured battlefield conditions. The missile's inherent ability to be employed from multiple platforms provides increased operational flexibility and increased survivability (both missile and platform), while reducing the logistic footprint in theater. JAGM will utilize modularity in software and subsystem design to provide for shelf-life extension and enable technology insertion for future required capabilities and eventual demilitarization. The multi-purpose warhead and Health Monitoring Unit (HMU) will enable JAGM to engage multiple target sets while ensuring enhanced supportability and increased reliability.

**SENSOR/SEEKER:**

A multi-mode seeker is planned. The modes will meet potential platform requirements, provide precision strike, passive, and fire-and-forget targeting.

**WARHEAD:**

A multi-purpose warhead to provide improved lethal effects against both heavy armored vehicles and an expanded, non-traditional target set as listed below.

**TARGET SETS:**

Combat Vehicles (Tanks, Armored Personnel Carriers), Air Defense Units (ADUs), Transportable Erector Launchers (TELS), buildings, bunkers, maritime patrol craft, and Command, Control, Communications, and Intelligence (C3I) nodes.

**CONTRACTOR:**

For Technology Demonstration: Lockheed Martin/Orlando, FL and Raytheon Missile Systems/Tucson, AZ.



**ACQUISITION PHASE:**

Technology Development completed.

**MILESTONES:**

PDR ..... 3QFY10  
MS B ..... 2QFY12

**FIELDING:**

MS C Threshold Platforms: U.S. Army Apache AH-64D / U.S. Navy Super Cobra AH-1Z and Super Hornet F/A. 18E/F; Other Threshold Platforms: U.S. Navy MH-60R, U.S. Army OH-58 (CA-SUP) and U.S. Army Gray Eagle MQ-1C UAS.

**POINTS OF CONTACT:**

PM..... 256-876-1141  
DPM ..... 256-876-1142  
ASA(ALT) DASC..... 703-545-0736

## HYDRA 70 ROCKET LAUNCHERS



### SYSTEM DESCRIPTION:

The U.S. Army Light Weight Launchers (LWL) are the M260 (7-tube) and the M261 (19-tube) launchers. The aluminum launchers are inexpensive enough to be disposable yet durable enough to be reused after as many as 32 firings. The weight savings over the previous Army launchers allow the Army to add other features to the aircraft's rocket system for improved performance. The launcher permits fuze-timing selection from the cockpit and will launch rockets using either the MK40 or the MK66 motors.

### SYSTEM CHARACTERISTICS:

The empty M260 launcher weight is approximately 35 lb. The weight of a fully loaded M260 launcher varies from 196.2 lb to 317.7 lb as a function of which warhead is carried. A M261 LWL weighs approximately 82 lb empty. A fully loaded M261 LWL weighs between 493 lb and 660 lb, depending on the configuration. The firing interval that the launcher normally experiences from the fire control is 0.06 sec.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Not Applicable.

**CONTRACTOR:**

Arnold Defense and Electronics LLC.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

Not Applicable.

**FIELDING:**

U.S. Army and international customers.

**POINTS OF CONTACT:**

PM.....	256-876-5900
DPM .....	256-876-0700
ASA(ALT) DASC.....	703-545-0736



## HYDRA 70 ROCKET SYSTEM



### SYSTEM DESCRIPTION:

The family of HYDRA 70 rockets performs a number of roles, including anti-materiel, anti-personnel, and air-to-ground suppression missions. The rockets also provide smoke-screening and illumination functions. The family of HYDRA 70 rockets are fired from Apache and Kiowa Warrior helicopters by the Army and are fired from various other fixed and rotary-wing platforms by Special Operations Forces, the U. S. Marine Corps, the U.S. Navy, and the U.S. Air Force.

### SYSTEM CHARACTERISTICS:

The 2.75-inch rocket is a free-flight rocket that has become the standard ground-attack rocket and was used extensively in the Korean War, Vietnam, and Desert Storm. The warheads contained on the HYDRA 70 rocket fall into three categories: (1) Unitary warheads with an impact-detonating fuze or a remote-set, multi-option fuze; (2) Cargo warheads with an airburst, range-settable fuze using the "wall-in-space" concept or a fixed-standoff fuze; and (3) Practice warheads.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

M261 MPSM - Tactical..... M439/M230  
 M267 MPSM - Practice ..... M439/M231  
 M151 HEPD - Anti-personnel, 10 lb ..... M423, M427  
 M151 HERS - Canopy/soft bunker, 10 lb..... M433  
 M229 HEPD - Anti-personnel, 17 lb..... M423  
 M274 Smoke Signature - Practice ..... M423 S and A  
 M257 Illumination - Battle target illumination ..... M442  
 M264 Smoke (RP) - Air-to-ground..... M439  
 M255A1 Flechette - Air-to-air, air-to-ground..... M439  
 M278 Illuminating IR Flare-Battle target illumination..... M442

**FUZE:**

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

Not Applicable.

**FIELDING:**

Fielded to U.S. Army, U.S. Navy, U.S. Marines, U.S. Air Force and international customers.

**TARGET SETS:**

Anti-materiel, anti-personnel, air defense systems (mobile and fixed), and light armor (wheeled and track).

**CONTRACTOR:**

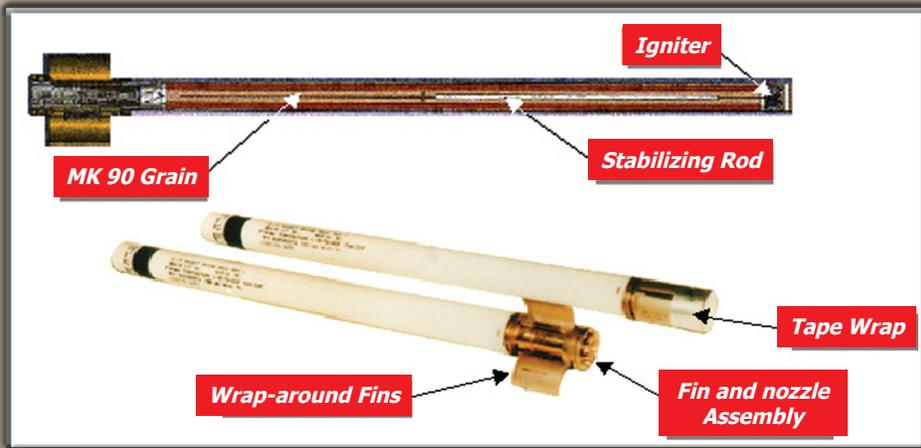
General Dynamics, Armament and Technical Products, (GDATP).

**POINTS OF CONTACT:**

PM..... 256-876-5900  
 DPM ..... 256-876-0700  
 ASA(ALT) DASC..... 703-545-0736



## HYDRA 70 ROCKET MOTOR, MK66



### SYSTEM DESCRIPTION:

The MK66 motors have a substantially higher thrust at 1,335 lb and a longer range (8.8 km) with a 10 lb warhead. The HYDRA 70 rocket system currently uses the MK66 motor. The current motor version is the MK66 MOD 4. It is used by all of the services. Earlier versions of the MK66 motor remain in the inventory. When compared to the older MK40/KM4 motors, the MK66 motors use a longer motor tube that is comprised of a different aluminum alloy and utilizes a new fin and nozzle assembly. The fins are a spring-loaded, wrap-around design. The propellant grain burns outward radially from the inside bore facilitated by a 7-point star pattern.

### SYSTEM CHARACTERISTICS:

The MK66 motors use a longer motor tube (than the MK40/MK4) made of a different aluminum alloy and assembled with a new fin and nozzle assembly. The fins are of a spring-loaded, wrap-around design and are attached around the circumference of the single nozzle. Upon exit from the launcher, the fins lock in place. The propellant grain is longer and of a different formation than for the MK40/MK4; however, the stabilizing rod and igniter are essentially the same design.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Anti-materiel (command and control facilities, logistics facilities), anti-personnel, air defense systems (mobile and fixed), and light armor (wheeled and track).

**CONTRACTOR:**

General Dynamics, Armament and Technical Products, GDATP.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

FUE..... 1Q FY2000

**FIELDING:**

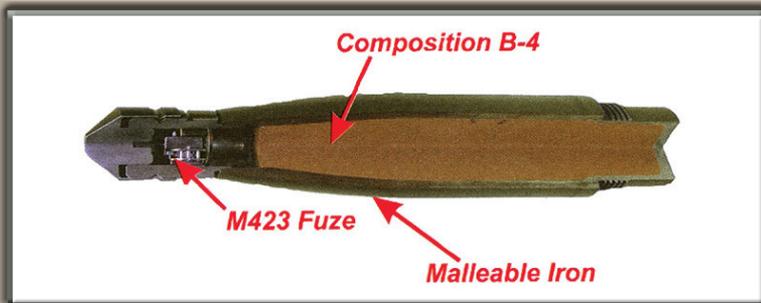
U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marines, and the international customer.

**POINTS OF CONTACT:**

PM..... 256-876-5900  
DPM ..... 256-876-0700  
ASA(ALT) DASC..... 703-545-0736



## M 151 HIGH EXPLOSIVE POINT DETONATING (HEPD)



### SYSTEM DESCRIPTION:

The M151 HEPD is a 10 lb high-explosive, anti-personnel, anti-material warhead and is traditionally referred to as the 10-Pounder. The bursting radius is 10 m; however, high-velocity fragments can produce a lethality radius in excess of 50 m. This warhead is normally employed against personnel, materiel, and lightly armored vehicles.

### SYSTEM CHARACTERISTICS:

The nose section is constructed of malleable cast iron that is threaded to receive the fuze. The base section is constructed of steel or cast iron and is threaded so that it can be attached to the rocket motor. Total weight of the loaded, unfuzed warhead is 8.7 lb of which 2.3 lb are composition B4. The M151 warhead weighs 9.3 lb when fuzed with the M423/M427 point detonating fuze. Rocket live weight is 23 lb while the fired weight is 15.7 lb. The total rocket length is 55.1 inches.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The M151 typically uses the M423 Fuze for helicopter applications and the M427 Fuze for fixed-wing applications. The M151 uses 2.3 lb of composition B-4 High Explosive. The 10 lb warhead gains lethality from the nose section, which is fabricated using nodular, pearlitic malleable or ferritic malleable cast iron.

**TARGET SETS:**

Anti-materiel (command and control facilities, logistics facilities), anti-personnel, air defense systems (mobile and fixed), and light armor (wheeled and track).

**CONTRACTOR:**

General Dynamics, Armament and Technical Products, GDATP.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

Fielded.

**FIELDING:**

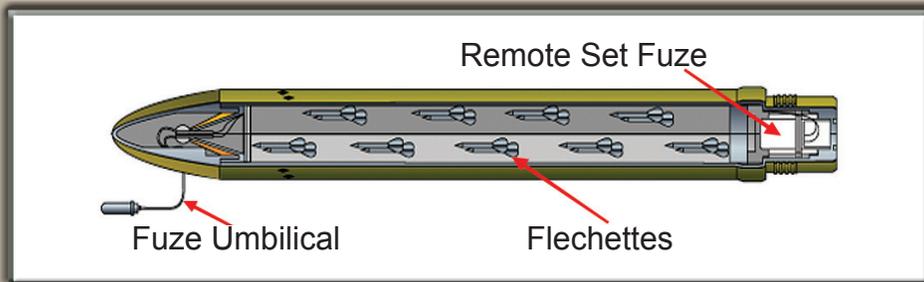
U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marines, and international customers.

**POINTS OF CONTACT:**

PM.....	256-876-5900
DPM .....	256-876-0700
ASA(ALT) DASC.....	703-545-0736



## M255A1 (FLECHETTE)



### SYSTEM DESCRIPTION:

The M255A1 flechette warhead is used primarily against antipersonnel targets; this warhead contains 1,179 sixty-grain, hardened-steel flechettes and uses the M439 fuze. At fuze time, the fuze functions at a point before the target (optimized for flechette pattern) and the expulsion charge is initiated. At expulsion, 1,179 flechettes separate and form a disk-like mass which breaks up with each flechette assuming an independent trajectory and forming a repeatable dispersion pattern. The flechette uses kinetic energy derived from the velocity of the rocket to produce the desired impact and penetration effect on the target.

### SYSTEM CHARACTERISTICS:

The M255A1 Warhead is a cargo warhead consisting of a nose cone assembly, a warhead case, an integral fuze, 1,179 sixty-grain flechettes, and an expulsion charge assembly. The primary warhead fuze (M439) is remotely set with the Aerial Rocket Control System (ARCS), Multi-function Display (MFD), or Rocket Management System (RMS) to provide range (time of flight) from 500 to 7,200 m. The warhead weight is 13.9 lb. When mated to the MK66 motor, the live weight is 27.5 lb while the fired weight is 20.3 lb. The overall M255A1 Rocket length is 66.10 inches.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The warhead is functionally equivalent to the M261 cargo warhead. Initial forward motion of the rocket at firing initiates fuze timing.

**TARGET SETS:**

Anti-materiel (command and control facilities, logistics facilities), anti-personnel, air defense systems (mobile and fixed), and light armor (wheeled and track).

**CONTRACTOR:**

General Dynamics, Armament and Technical Products, GDATP.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

Fielded.

**FIELDING:**

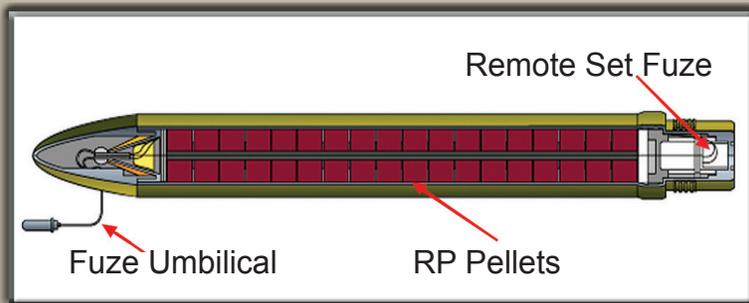
U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marines, and international customers.

**POINTS OF CONTACT:**

PM.....	256-876-5900
DPM .....	256-876-0700
ASA(ALT) DASC.....	703-545-0736



## M264 RP (SMOKE)



### SYSTEM DESCRIPTION:

The M264 Warhead is used for smoke obscuration in the visible light spectrum. The pellets can be easily modified for fill content to obscure Infrared (IR) and millimeter-wave spectrums should a requirement materialize. The warhead is used as a Red Phosphorus (RP) filled smoke rocket propelled by the MK 66 motor and functions at a remote settable range from 1,000 to 6,000 m. Upon functioning, the M439 Fuze ignites the BKNO<sub>3</sub> expulsion mix which, using a vented pusher plate, simultaneously ignites and ejects the 5 lb RP payload through the shear-pinned nose cone. The burning RP drops to the ground, producing a voluminous cloud of white smoke. Fourteen M264 rockets will screen a 300 to 400 m front with a 5 to 10 kt wind from the unaided eye for a minimum of 5 minutes.

### SYSTEM CHARACTERISTICS:

The RP pellet stack assembly consists of 72 RP pellets arranged in 18 rows of 4 each and are separated by felt pieces impregnated with a phosphine gas-adsorbent mixture comprised of manganese dioxide cuprous oxide. The warhead weight is 8 lb. The M264 Rocket weight is 21.6 lb live and 14.4 lb fired. Overall length of the rocket is 66.1 inches.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The M264 RP Smoke is also a cargo warhead.

**TARGET SETS:**

Not Applicable.

**CONTRACTOR:**

General Dynamics, Armament and Technical Products, GDATP.

**ACQUISITION PHASE:**

Production/Operations and Support.

**PRODUCTION:**

Production on-going.

**MILESTONES:**

Fielded.

**FIELDING:**

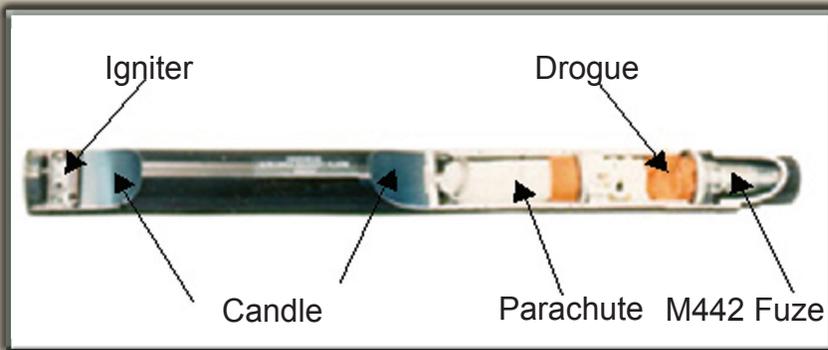
U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marine Corps and international customers.

**POINTS OF CONTACT:**

PM.....	256-876-5900
DPM .....	256-876-0700
ASA(ALT) DASC.....	703-545-0736



## M257 AND M278 (ILLUMINATION AND IR FLARE)



### SYSTEM DESCRIPTION:

These warheads were designed for battlefield target illumination; the M278 in conjunction with IR goggles. The only difference between the warheads is the candle composition. The flare warheads are assembled to the MK66 Rocket Motor in the field. The flare rockets can be launched from either fixed-wing or rotary-wing aircraft. The M442 motor burnout fuze functions after a 9 seconds delay. The M278 is Type Classified (TC) Standard for Special Operations Forces and the Navy.

### SYSTEM CHARACTERISTICS:

The M278 provides an average near IR light output of 250 watts per steradian (w/sr) and less than 2 K candle power of visible light with a desired goal of 1 K candle power. The IR flare will provide IR light for 3 minutes. Time to candle ignition from launch is 13.5 seconds. The M257 candle descends at 15 ft/sec. and burns for approximately 100 seconds, with a minimum light output of 1 M candle power. Warhead weight is 10.6 lb. M278 Rocket weight is 24.2 lb live and 17 lb fired. Overall rocket length is 70.4 inches.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

Illuminant.

**TARGET SETS:**

Not Applicable.

**CONTRACTOR:**

General Dynamics, Armament and Technical Products, GDATP.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

Fielded.

**FIELDING:**

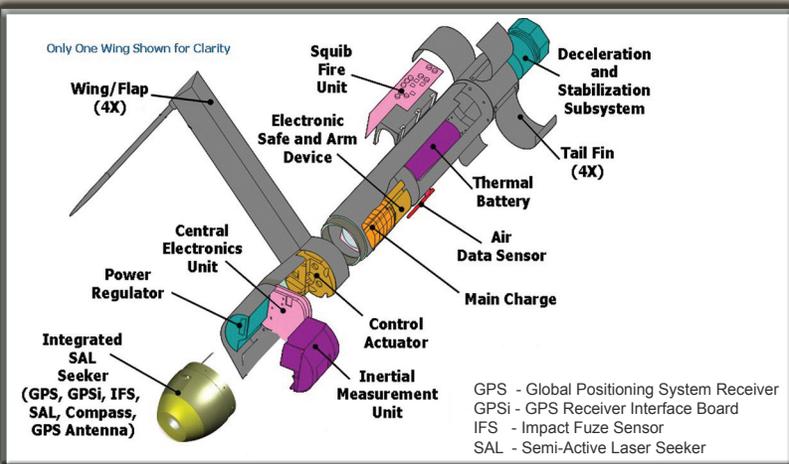
U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marines Corps, and international customers.

**POINTS OF CONTACT:**

PM.....	256-876-5900
DPM .....	256-876-0700
ASA(ALT) DASC.....	703-545-0736



## VIPER STRIKE



### SYSTEM DESCRIPTION:

Viper Strike is a retrofit of the legacy ATACMS BAT Submunition. The legacy BAT is modified with GPS and a terminal semi-active laser seeker to provide a capability to attack moving and stationary targets from aviation platforms. The Viper Striker has been deployed from an Army Hunter UAS as well as other service platforms.

### SYSTEM CHARACTERISTICS:

The objective of the Viper Strike Seeker System is to destroy, with minimal collateral damage, moving or stationary targets using a semi-active laser seeker with GPS aided guidance. Recent product improvements include a new wide field of view seeker and improved fuze sensor. Diameter: 0.14 m (5.5 in.) Length: 0.914 m (36 in.) Weight: 20 kg (44 lb).

**SENSOR/SEEKER:**

Semi-Active Laser Seeker with integrated GPS.

**WARHEAD:**

Shaped Charge.

**TARGET SETS:**

Armored combat vehicles, moving and stationary targets, thin-skinned vehicles (pick-up trucks), and soft targets.

**CONTRACTOR:**

Northrop Grumman - Electronic Systems.

**ACQUISITION PHASE:**

Production/Operations and Support.

**MILESTONES:**

- The Direct Attack variant of Viper Strike was fielded on Hunter in Mar 2007.
- The first tactical employment of Viper Strike off of the Hunter UAS was Sep 2007.
- Fielding of the GPS variant occurred 2nd QTR 2010.

**FIELDING:**

U.S. Army (Hunter); Special Operations Command (SOCOM) Platforms.

**POINTS OF CONTACT:**

PM..... 256-876-5900  
 DPM ..... 256-876-0700  
 ASA(ALT) DASC..... 703-545-0736







## JOINT TACTICAL GROUND STATION (JTAGS)



### SYSTEM DESCRIPTION:

JTAGS is a theater deployed, transportable missile warning system that receives and processes space based infrared satellite data directly from USAF geosynchronous sensors. Once processed, soldiers release ballistic missile warning messages and other infrared events to theater warfighters over multiple communications systems. Ongoing JTAGS upgrades include: adding data from the Space Based Infrared System (SBIRS) Sensors, use of commercial antennas, improved communication methods, and relocating operations out of JTAGS shelters to integrate with theater command and control centers.

### SYSTEM CHARACTERISTICS:

The JTAGS system consists of a standard 20-foot military shelter, housing three operator workstations, several racks of computer processing and communication equipment, and a variety of support hardware. Externally, JTAGS includes three satellite downlink antennas, other communication and GPS antennas, as well as other support and power equipment. JTAGS operators are soldiers from the U.S. Army Space & Missile Defense Command.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Not Applicable.

**CONTRACTOR:**

Northrop Grumman.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

MS II.....	Mar 1994
MS III .....	Oct 1996

**FIELDING:**

Fielded.

**POINTS OF CONTACT:**

PM.....	256-955-3240
DPM .....	256-955-3242
ASA(ALT) DASC.....	703-545-0836



## MEDIUM EXTENDED AIR DEFENSE SYSTEM (MEADS)

### SYSTEM DESCRIPTION:

MEADS is a Tri-National co-development program between the U.S., Germany and Italy to replace the PATRIOT and HAWK Systems in Germany and NIKE Hercules Systems in Italy. MEADS will provide joint and coalition forces critical asset and defended area protection against multiple and simultaneous attacks by short-to-medium range ballistic missiles, cruise missiles, unmanned aerial vehicles, and tactical air-to-surface missiles. MEADS will have netted and distributed architecture with modular components to increase survivability and employment flexibility in operational configurations. While MEADS will be scalable and tailorable to operational requirements, the objective MEADS Fire Unit will consist of the following: two Battle Management Command, Control, Communication, Computers and Intelligence (BMC4I) tactical operations centers, enabling distributed system operations and beyond-line-of-sight engagements for maximum protection of supported forces by engaging at longer ranges; six near-vertical Launchers capable of transporting and launching up to eight PAC-3 Missile Segment Enhancement (MSE) missiles; one ultra-high frequency Surveillance Radar, providing 360 degree coverage and near-range detection of low radar cross-section targets; two X-band Multi-Function Fire Control Radars, providing 360 degree coverage designed for high-precision handover to the in-flight missile, discrimination capabilities, and short-range target detection and horizon search.



### SYSTEM CHARACTERISTICS:

MEADS will provide significant improvements in strategic deployability, transportability, mobility and maneuverability. MEADS delivers immediate C-17 deployment for early entry operations. The system's improved sensor components and its ability to link other airborne and ground-based sensors enhance the fidelity of its battlefield awareness. The PAC-3 MSE missile is the baseline missile for MEADS.

**SENSOR/SEEKER:**

Surveillance Radar and Multifunction Fire Control Radars providing 360-deg coverage.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Short-to-medium range ballistic missiles, low radar cross-section cruise missiles, and other air-breathing threats.

**CONTRACTOR:**

MEADS International.

**ACQUISITION PHASE:**

Design and Development.

**MILESTONES:**

Risk Reduction Effort .....	Oct 2001
MS B .....	Aug 2004
MS C .....	N/A

**FIELDING:**

Not applicable.

**POINTS OF CONTACT:**

PM.....	256-955-3240
DPM .....	256-955-3242
ASA(ALT) DASC.....	703-545-0836



## PATRIOT



### SYSTEM DESCRIPTION:

The PATRIOT system is an extremely capable, long-range, very low-to-very high altitude, air-defense, guided missile system which provides protection of ground combat forces and high-value assets. The PATRIOT system can conduct multiple simultaneous engagements in all weather conditions and environments against tactical ballistic missiles, cruise missiles, and high-performance aircraft. The PATRIOT system is deployed by Fire Unit organized within a Battalion. Each Fire Unit consists of the Engagement Control Station (ECS), a Radar Set (RS), an Electronic Power Plant (EPP), up to sixteen M901 and M902 Launching Stations (LSs), and the Battery Command Post (BCP), including ancillary support equipment. The PATRIOT Battalion is organized by a Headquarters and Headquarters Battery (HHB), exercising command and control through the Information and Coordination Central (ICC) vehicle, with communications support enabled through the Communications Relay Group (CRG) and Antenna Mast Group (AMG). Both the Fire Unit and the Battalion have dedicated support, communications, and maintenance vehicles, with missile reload trailer transport capability.

### SYSTEM CHARACTERISTICS:

The combat element of the PATRIOT missile system is the Fire Unit, consisting of the phased-array RS, ECS, EPP, and typically six LSs, or more as required. The RS executes tactical functions of airspace surveillance, target detection, identification, classification, tracking, and missile guidance/engagement support. The ECS provides the human interface for command and control. The M901 LS (Configuration 2) supports PAC-2 through GEM+ missile variants while the M902 LS (Configuration 3) with Enhanced Launcher Electronics System (ELES) supports either PAC-2 or PAC-3 missiles. Each M902 LS contains either four PAC-2 or 16 PAC-3 missiles sealed in canisters that serve as shipping containers and launch tubes.

**SENSOR/SEEKER:**

- Ground support radar performing surveillance and fire control functions.
- PAC-3 Missile uses on-board Ka-band seeker.

**WARHEAD:**

PAC-2/GEM Missile configurations use a blast fragmentation warhead; PAC-3 Missile lethality is achieved through guidance as kinetic interceptor with Lethality Enhancer.

**TARGET SETS:**

Tactical Ballistic Missiles (TBM), Cruise Missiles, and high performance aircraft.

**CONTRACTOR:**

Fire Unit (Ground Support Equipment): Raytheon.  
PAC-3 Missile Segment: Lockheed Martin Missiles and Fire Control.

**ACQUISITION PHASE:**

Operation and Support of legacy missiles and PAC-2, including PATRIOT Ground Support Equipment, to current production of the PAC-3 Missile.

**MILESTONES:**

MS I.....	May 1967
MS II.....	Mar 1972
MS III .....	Sep 1980
FUE.....	Jun 1983

**FIELDING:**

A total of fourteen PATRIOT Battalions have been fielded to CORPS and Echelons above Corps (EAC). PATRIOT Pure-Fleet and Grow-The-Army Initiatives will upgrade all current battalions to the PAC-3 Configuration and procure two additional PAC-3 battalions. Fielding continues to the U.S. Army and multiple Foreign Military Sales (FMS) countries.

**POINTS OF CONTACT:**

PM.....	256-955-3240
DPM .....	256-955-3242
ASA(ALT) DASC.....	703-545-0836



# PATRIOT GROUND SUPPORT EQUIPMENT



## SYSTEM DESCRIPTION:

At the Fire Unit level, the PATRIOT missile system consists of an ECS, an RS, an EPP, typically six LSs, or more per requirement, and the BCP coordinated among associated communications equipment of the Battalion. A Fire Unit is also composed of ancillary support equipment: the small and large repair parts trailer (one each), one Battery Maintenance Center (BMC) vehicle, and nine Heavy Expanded Mobility Tactical Trucks (HEMTT). The ECS is the operational control center of the PATRIOT Fire Unit. The ECS contains the Expanded Weapons Control Computer (EWCC), man/machine interfaces, various data and communications terminals, and controls the RS and LS. The RS provides the tactical functions of airspace surveillance, target detection, identification, classification, tracking, and missile guidance and engagement support, with the capacity to track numerous targets and provide missile guidance data among one or more launching stations. The LS performs transport, point, and missile launch functions and is remotely operated from the ECS which provides missile pre-launch data and fire command signal.

## SYSTEM CHARACTERISTICS:

The RS is automatically controlled by the ECS, providing the human interface for control of automated operations. The radar is capable of low and high altitude surveillance, classifying incoming targets at ranges sufficient for early warning, engagement and missile guidance. The ECS EWCC determines targets to be tracked, and once an engagement decision is made, one or more LSs are selected for missile firing. Pre-launch data, transmitted to the PAC-3 missile, assists in target acquisition. Once in flight, the missile is acquired by the RS, and communications downlink permit flight path monitoring/commands via the ECS until on-board missile end-game target acquisition is initiated.

**SENSOR/SEEKER:**

Ground Support Equipment with airspace (radar) surveillance enabling target detection/acquisition to perform missile fire control functions.

**WARHEAD:**

Not applicable.

**TARGET SETS:**

Not Applicable.

**CONTRACTOR:**

Fire Unit and Battalion Ground Support Equipment: Raytheon.

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

FUE..... Dec 2000

**FIELDING:**

Fielding is ongoing to U.S. Army and multiple Foreign Military Sales (FMS) countries.

PATRIOT Pure-Fleet and Grow-The-Army Initiatives will upgrade all current battalions to the PAC-3 Configuration and procure two additional PAC-3 battalions.

**POINTS OF CONTACT:**

PM..... 256-955-3240  
DPM ..... 256-955-3242  
ASA(ALT) DASC..... 703-545-0836



## PATRIOT MIM-104C PAC-2 MISSILE



### SYSTEM DESCRIPTION:

The PAC-2 is long range, all-weather air defense missile. The PAC-2 is equipped with a track-via-missile (TVM) guidance system and carries a high explosive warhead. Propulsion is provided by a single stage solid fuel rocket motor. The MIM-104C is an upgrade of the earlier version of the PAC-2 missile with an improved (blast fragmentation) warhead and pulse-doppler proximity fuze. The pulse-doppler subsystem optimizes target acquisition by discriminating among the widely varying incoming velocities characteristic of the objective target set. The MIM-104C Engineering Change Proposal (ECP)/Production Decision was approved on 19 December 1988 with FUE on 1 September 1990. Fielding is complete to the U.S. Army and FMS customers.

### SYSTEM CHARACTERISTICS:

The PATRIOT PAC-2 missile guidance is achieved through the missile command uplink and the TVM downlink between the PATRIOT missile and the phased array AN/MPQ-65 radar. This guidance method allows the missile's flight to be continuously monitored and controlled by the AN/MSQ-104 ECS's Weapon Control Computer which transmits mid-course guidance corrections. As the missile approaches the target, TVM is employed and is used to steer the missile to an intercept point whereupon the proximity fuze detonates the missile's warhead and destroys the target.

**SENSOR/SEEKER:**

Monopulse seeker, radar-proximity fuze.

**WARHEAD:**

High-Explosive, Blast Fragmentation.

**TARGET SETS:**

Low-flying aircraft, cruise missiles, and short-range ballistic missiles.

**CONTRACTOR:**

Raytheon.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

Production Decision .....Dec 1988

FUE MIM-104C.....Sep 1990

**FIELDING:**

Fielding complete to the U.S. Army and FMS customers.

**POINTS OF CONTACT:**

PM..... 256-955-3240

DPM ..... 256-955-3242

ASA(ALT) DASC..... 703-545-0836



## PATRIOT MIM-104D AND MIM-104E (GEM/GEM+) MISSILES



### SYSTEM DESCRIPTION:

The MIM-104D GEM (Guidance Enhanced Missile) represents a further improvement of the MIM-104C. The MIM-104D missile was approved for production through an ECP, effective 1 September 1993. The First Unit Equipped (FUE) date was 28 February 1995 and production and fielding are complete to the U.S. Army. The MIM-104E, the "GEM+", (designated as the MIM-104E and MIM-104-D1/GEM+) ECP/Production Decision was approved on 12 July 2001 with an FUE date of 30 November 2002. The GEM+ missile is currently in delivery to the U.S. Army through modernization of existing PAC-2 (MIM-104C/D) missiles.

### SYSTEM CHARACTERISTICS:

The MIM-104D GEM missile is an improvement to the earlier PAC-2 and MIM-104C missiles. The MIM-104D GEM missile incorporates an upgraded fuze and an upgraded receiver primarily oriented toward improving performance against Tactical Ballistic Missiles (TBMs). A subsequent improvement to the GEM missile, GEM-T, further enhances performance against stressing TBM and cruise missile threats.

**SENSOR/SEEKER:**

Monopulse seeker, proximity fuze.

**WARHEAD:**

High-Explosive, Blast Fragmentation.

**TARGET SETS:**

Low-flying aircraft, cruise missiles, and short-range ballistic missiles.

**CONTRACTOR:**

Raytheon.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

MIM-104D FUE .....	Feb 1995
MIM-104E FUE .....	Nov 2002

**FIELDING:**

Fielding to the U.S. Army and FMS customers.

**POINTS OF CONTACT:**

PM.....	256-955-3240
DPM .....	256-955-3242
ASA(ALT) DASC.....	703-545-0836



## PATRIOT MIM-104F ADVANCED CAPABILITY - 3 (PAC-3) MISSILE



### SYSTEM DESCRIPTION:

The PAC-3 missile is a high velocity hit-to-kill, surface-to-air missile capable of intercepting and destroying tactical missiles and air-breathing threats. The PAC-3 missile provides the range, accuracy, and lethality to effectively defend against tactical missiles armed with weapons of mass destruction. The PAC-3 missile's leading edge technology uses kinetic energy to destroy targets through its hit-to-kill capability. The combination of a fast missile airframe response and high impulse side thrusters generates a more rapid missile angle of attack than is possible with actuator-driven aerodynamic control surfaces alone. The PAC-3 Missile Segment Enhancement (MSE) represents the next generation PAC-3 missile which will provide expanded battle space performance against evolving threats and is currently being developed for the PATRIOT and MEADS Systems.

### SYSTEM CHARACTERISTICS:

The PAC-3 missile uses a solid propellant rocket motor, aerodynamic controls, attitude control motors (ACMs), and inertial guidance to navigate. The missile flies to an intercept point specified by its ground-based fire solution computer embedded in the ECS. Target trajectory is updated during missile flyout through means of a radio frequency uplink/downlink. Shortly before arrival at the intercept point, the missile's on-board Ka-Band seeker acquires the target and selects optimal aimpoint initiating terminal homing guidance. The PAC-3 missile's destructive capability is significantly increased against air-breathing threats through employment of a Lethality Enhancer.

**SENSOR/SEEKER:**

High resolution Ka-Band active seeker.

**WARHEAD:**

Not Applicable. Direct missile to target Hit-to-Kill lethality.

**TARGET SETS:**

TBMs, cruise missiles, and high performance aircraft.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control.

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

MS II.....	May 1994
MS III .....	Oct 1999
FUE.....	Sep 2001

**FIELDING:**

Ongoing. The PATRIOT System, fielded with the PAC-3 Missile, is deployed worldwide in defense of U.S. forces and FMS partners.

**POINTS OF CONTACT:**

PM.....	256-955-3240
DPM .....	256-955-3242
ASA(ALT) DASC.....	703-545-0836







## HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS)

### SYSTEM DESCRIPTION:

The M142 High Mobility Artillery Rocket System (HIMARS) is a full spectrum, combat proven all-weather, 24/7, lethal and responsive, wheeled Precision Strike weapons system organic/assigned to Fires Brigades supporting Brigade Combat Teams (BCT). HIMARS is a C-130 roll on and roll off transportable wheeled variant of the Multiple Launch Rocket System (MLRS) M270A1 launcher, and is mounted on a 5-ton Family of Medium Tactical Vehicles (FMTV) XM1140A1 truck chassis. Current HIMARS production incorporates an increased crew protection (ICP) armored cab. HIMARS supports a more deployable, lethal, survivable, affordable, and tactically mobile force. It will launch all MLRS Family of Munitions (MFOM) rockets and missiles. It integrates into the same command, control, and communications (C3), as well as has the same crew size, as the M270A1 launcher, and carries one rocket or missile launch pod/container, containing six Guided MLRS (GMLRS)/MLRS rockets or one Army Tactical Missile System (ATACMS) missile. HIMARS is designed to support Joint Early and Forced Entry Expeditionary Operations with high-volume destructive, suppressive, and counter-battery fires. When firing GMLRS-Unitary precision rockets, HIMARS can support forces to a range of 70 km with low-collateral damage, enabling danger-close fires (within 200 m) in support of friendly Troops in Contact (TIC), as well as engaging high valued point targets in open, urban and complex environments.

### SYSTEM CHARACTERISTICS:

When combat loaded for C-130 tactical transport, the HIMARS weighs approximately 15,875 kg (35,000 lb). It will roll on and off C-130, C-17, and C-5 transport aircraft and be ready to operate within minutes of landing. The HIMARS fleet is currently being retrofitted with ICP armored cabs. In FY12, the fleet will also be retrofitted with the Driver's Vision Enhancement, Blue Force Tracker and Long Range Communications Modifications. The launcher has an on-board, self-loading and self-locating capability. The HIMARS launcher has a maximum speed of 94 km/hr with a range of 483 km.



**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Time sensitive targets reported by Troops in Contact (threat-network targeting, prosecution-based targeting, and urban time-sensitive targeting including insurgents emplacing IEDs) Also: Counterbattery, Enemy Air Defense, Logistics Sites, Command and Control Sites, High Payoff Targets, light material and personnel, etc.

**CONTRACTOR:**

- Lockheed Martin Missile Fire Control (LMMFC)- Launcher.
- BAE Systems-Land & Armaments/Global Tactical Systems - Chassis.

**ACQUISITION PHASE:**

Full Rate Production and Deployment.

**MILESTONES:**

MS II / Maturation..... Nov 1999  
 MS C..... Mar 2003  
 FUE..... 2QFY05  
 Full Rate Production decision..... 3QFY05

**FIELDING:**

HIMARS Launcher Units are organic/assigned to modular fires brigades supporting BCT. Thirteen HIMARS Battalions have been fielded and serve both active and reserve forces. Two more Battalions will be fielded in FY12, along with launchers for use in National Guard Regional Training Center.

**POINTS OF CONTACT:**

PM..... 256-876-1195  
 DPM ..... 256-876-8121  
 ASA(ALT) DASC..... 703-545-0787



## MULTIPLE LAUNCH ROCKET SYSTEM (MLRS) M270A1 LAUNCHER



### SYSTEM DESCRIPTION:

The M270A1 Multiple Launch Rocket System (MLRS) is a full spectrum, combat proven all-weather, 24/7, lethal and responsive, tracked Precision Strike weapons system organic/assigned to Fires Brigades. The MLRS M270A1 supported Army Modernization with the selected upgrade and recapitalization of the M270 Launcher adding capability and extending the service life. The M270A1 program rebuilt the M993 Carrier and M269 Launcher Loader Module, and added the Improved Fire Control System (IFCS) and the Improved Launcher Mechanical System (ILMS) modifications. Recent upgrades included an Auxiliary Power Unit (APU) and Environmental Control Unit (ECU). In FY12 the fleet will also be retrofit with the Driver's View Enhancement, Blue Force Tracker and Long Range Communications Modification. In FY12, development begins on the Improved Armed Cab (IAC) which will provide increased crew survivability capability. Unlike the M270 launcher, the M270A1 fires GMLRS rockets and all ATACMS future variants. The M270A1 is transportable by C-5 and C-17 aircraft.

### SYSTEM CHARACTERISTICS:

The M270A1 IFCS provided growth for future munitions. The IFCS interfaces with all the sub-systems to provide overall control of the M270A1 Launcher. The IFCS is equipped with a Global Positioning System (GPS) providing the launcher with precise location information, and fully supports munitions with embedded GPS receivers. The ILMS provides rapid response to time-sensitive targets by reducing aim time by 81% and reducing reload time by 40%. It fires a 12-rocket ripple within one minute and carries two launch pod containers (LP/C). The M270A1 engagement range is 8 to 300 km. The M270A1 Launcher has a maximum speed of 65 km/hr, with a maximum range of 483 km. It is capable of climbing a 60-deg slope and a 1 m wall. Launcher curb weight is 20,493.7 kg (45,086.2 lb). Curb weight with a payload and crew is 25,214 kg (55,536 lb).

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

Not Applicable.

**TARGET SETS:**

Time sensitive targets reported by Troops in Contact, Counterbattery, Enemy Air Defense, Logistics Sites, Command and Control Sites, High Payoff Targets, light material and personnel, etc.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control (LMMFC) - Launchers and Rockets.

BAE Systems-Land & Armaments/Global Tactical Systems - Chassis.

Red River Army Depot – Overhaul/Rebuild.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

MS III .....	2QFY02
FUE .....	2QFY02

**FIELDING:**

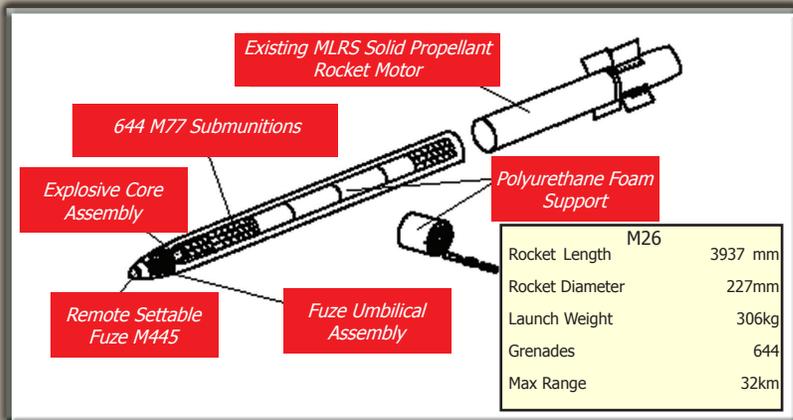
Complete. Ten M270A1 battalions have been fielded and serve both active and reserve forces. M270A1 launcher units are organic and assigned to modular fires brigades supporting BCTs.

**POINTS OF CONTACT:**

PM.....	256-876-1195
DPM .....	256-876-8121
ASA(ALT) DASC.....	703-545-0787



# M26 DPICM TACTICAL ROCKET



## SYSTEM DESCRIPTION:

The M26 DPICM rocket is an unguided, free-flight, tactical munition that provides all-weather, 24/7, indirect fire capability designed to complement cannon weapons in the tactical fires arena. Initially fielded in 1983, it produces devastating effects by rapidly attacking critical and time-sensitive targets with large volumes of fire. Dubbed 'Steel Rain' by Iraqi soldiers, it had a major impact in the Desert Storm and OIF ground wars. It was the primary munition for the older, MLRS M270 rocket launcher. Each launch pod/container (LP/C) holds six rockets.

## SYSTEM CHARACTERISTICS:

The M26 rocket is fin-stabilized with folding fins that open during the boost phase. The DPICM submunitions in each rocket cover a 0.23 km<sup>2</sup> area. Initially fielded in 1983, the shelf life has been extended to 25 years. Minimum range: 10 km. Maximum range: 32 km.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The warhead has a remotely settable fuze and contains 644 individually exploding M77 DPICM submunitions. Each submunition has a steel fragmentation case and a shaped charge. A ribbon stabilizes the submunition during free fall and rotates a threaded arming device to arm the fuze. The armed M77 detonates upon impact.

**TARGET SETS:**

Counterbattery, Enemy Air Defense, Logistics Sites, Command and Control Sites, light materiel and personnel targets, etc.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

OC .....	FY83
MS III .....	FY83

**FIELDING:**

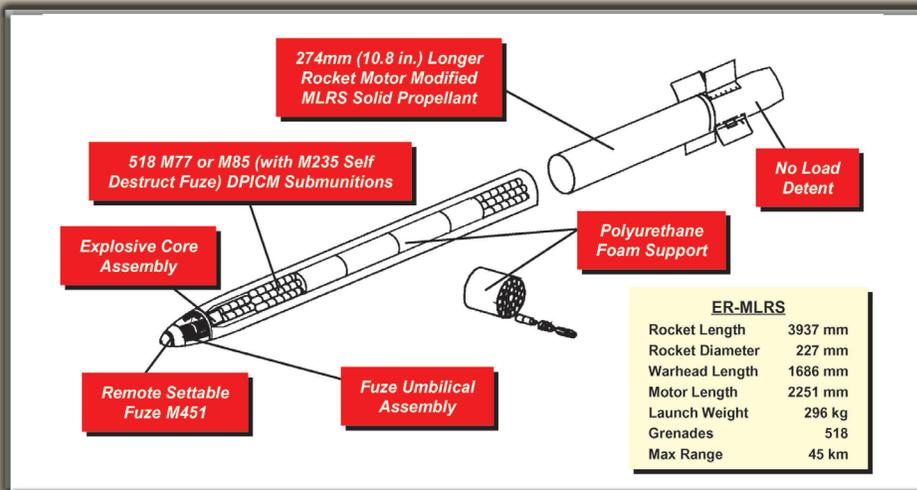
Fielding of the MLRS M26 basic tactical rocket has been completed. The Army Acquisition Objective (AAO) has been met.

**POINTS OF CONTACT:**

PM.....	256-876-1195
DPM .....	256-876-8121
ASA(ALT) DASC.....	703-601-0356



# M26A1 / M26A2 EXTENDED RANGE MLRS (ER-MLRS)



## SYSTEM DESCRIPTION:

The M26A1/M26A2 Extended Range MLRS (ER-MLRS) rocket is an all-weather, unguided free-flight munition designed to engage targets out to a range of approximately 45 km. Compared to the M26 rocket, ER MLRS has a lengthened rocket motor and smaller warhead section with fewer submunitions. The M26A1 version has submunitions equipped with a self-destruct fuze to reduce hazardous duds and the potential for fratricide or collateral damage; the M26A2 version has the same M77 submunitions found in the M26 rocket. Each launch pod/container (LP/C) holds six rockets. ER MLRS was procured in a very limited quantity. The shortened payload section holds either 518 new M85 DPICM grenades equipped with mechanical/electronic self-destruct fuzes (SDF) or 518 M77 DPICM grenades.

## SYSTEM CHARACTERISTICS:

The ER MLRS rocket is a non-precision ballistic munition which is similar in design to the M26 MLRS rocket. Greater range is obtained by lengthening the motor section to accommodate more propellant and higher-altitude flight is attainable with improvements to the nose fuze. Accuracy is optimized by incorporating a new, no-load detent system in the rocket pod to reduce launch tip-off errors. The center core burster was modified to enlarge the size of the grenade pattern on the ground, enhancing effectiveness.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The M26A1 ER MLRS warhead section contains 518 M85 DPICM submunitions (with M235 self-destruct fuzes). The M85 uses the same grenade body as the existing M77 DPICM submunition used in the basic MLRS. The M26A2 ER MLRS warhead section contains 518 M77 DPICM submunitions.

**TARGET SETS:**

Counterbattery, Enemy Air Defense, Logistics Sites, Command and Control Sites, light materiel and personnel targets, etc.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

Materiel Release.....	FY99
IOC.....	FY99

**FIELDING:**

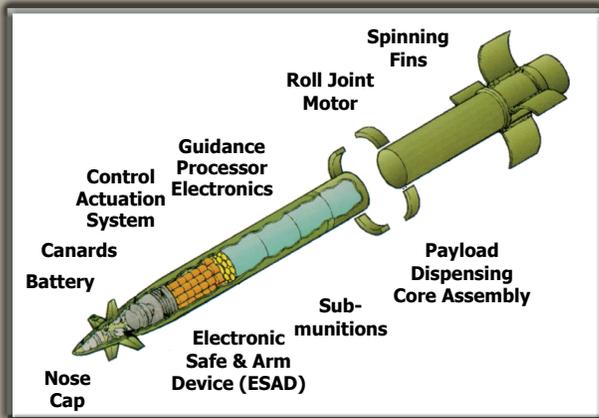
Completed.

**POINTS OF CONTACT:**

PM.....	256-876-1195
DPM .....	256-876-8121
ASA(ALT) DASC.....	703-601-0356



## M30 GUIDED MLRS (GMLRS) DUAL PURPOSE IMPROVED CONVENTIONAL MUNITION (DPICM) ROCKET



### SYSTEM DESCRIPTION:

The M30 GMLRS DPICM rocket is an all-weather, 24/7, precision-guided munition fired from the MLRS M270A1 and HIMARS launchers (M30 GMLRS cannot be launched from older MLRS M270 launchers). It replaces the M26 tactical and M26A1/A2 ER-MLRS ballistic rocket stockpile that is quickly approaching its 25-year extended shelf-life. M30 GMLRS increases engagement range with approximately 100% accuracy (<1 mil Circular Error Probable (CEP)) at all ranges, reduces the number of rockets to defeat current target sets by 80%, greatly reduces collateral damage and logistics burden, and adds capability to engage targets inaccessible due to various constraints. Each launch pod/container (LP/C) holds six rockets.

### SYSTEM CHARACTERISTICS:

M30 GMLRS integrates a Guidance and Control (G&C) package and a new rocket motor to achieve greater range and precision accuracy. Guidance is performed by a tactical-grade Inertial Measurement Unit (IMU) aided by a Global Positioning System (GPS) receiver. Required accuracy can be met by the IMU independent of the GPS. Control is accomplished by four canards driven by electromechanical actuators. Minimum range: 15 km. Maximum range: 60+ km.

**SENSOR/SEEKER:**

Not applicable.

**WARHEAD:**

The M30 GMLRS warhead contains a reduced payload of 404 M101 DPICM submunitions.

**TARGET SETS:**

Cannon, rocket, and missile artillery; enemy air defense; light armor, materiel and personnel; command and control positions; logistics sites; and other high value and high payoff targets.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control; Atlantic Research Corp. (Rocket Motor); Litton (Guidance Set).

Lucas (Control Actuator system).

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

MS B / SDD.....	FY99
MS C / LRIP I.....	FY03
LRIP II .....	FY04
LRIP III .....	FY05
IOC.....	FY05
FRP.....	FY06

**FIELDING:**

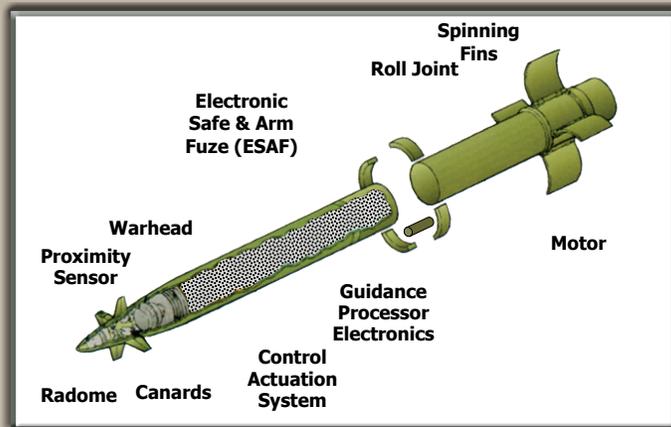
Employed by MLRS M270A1 and HIMARS Fires Battalions in Modular Fires Brigades supporting the BCT.

**POINTS OF CONTACT:**

PM.....	256-876-1195
DPM .....	256-876-8121
ASA(ALT) DASC.....	703-601-0356



## M31/M31A1 GUIDED MLRS UNITARY (GMLRS UNITARY)



### SYSTEM DESCRIPTION:

The GMLRS Unitary rocket is a highly accurate, all-weather, low collateral damage, 15-70+ km range precision munition which expanded the MLRS target set to include hard-point targets and targets within urban and complex environments. It integrates a multi-mode fuze and high explosive warhead which retains the dimensions of the MLRS family of munitions. GMLRS Unitary is the Army's primary guided rocket. The Unitary rocket was utilized extensively in OIF/OEF, and continues to provide field artillery support in Overseas Contingency Operations. As of October 2011, over 2100 rockets have been fired by U.S. Army/Marines, and United Kingdom forces. Each launch pod/container (LP/C) holds six rockets.

### SYSTEM CHARACTERISTICS:

GMLRS Unitary guidance is performed by a tactical-grade Inertial Measurement Unit (IMU) aided by a GPS receiver. Control is accomplished by four canards driven by electromechanical actuators. Required accuracy can be met with the GPS independent of the IMU. Multi-mode fuzing options include airburst (M31A1 only), point detonation, and delay. Shelf life projection has been extended to 12 years. GMLRS Unitary is a near-pinpoint artillery rocket for use in contiguous and noncontiguous areas of operation. Minimum range: 15 km. Maximum range: greater than 70 km.

**SENSOR/SEEKER:**

Proximity Sensor only.

**WARHEAD:**

The GMLRS Unitary warhead is a 200 lb class, insensitive munitions compliant design, high-explosive unitary warhead with fragmentation effect.

**TARGET SETS:**

Hard stationary point targets; collateral damage sensitive soft area targets; and extends GMLRS (Dual Purpose Improved Conventional Munition (DPICM)) target set into complex and urban environments.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control (LMMFC).

**ACQUISITION PHASE:**

Production and Deployment.

**MILESTONES:**

ORD Approved .....	FY01
MS B / SDD.....	FY03
MS C / LRIP .....	FY07
IOC.....	FY09
FRP .....	FY09

**FIELDING:**

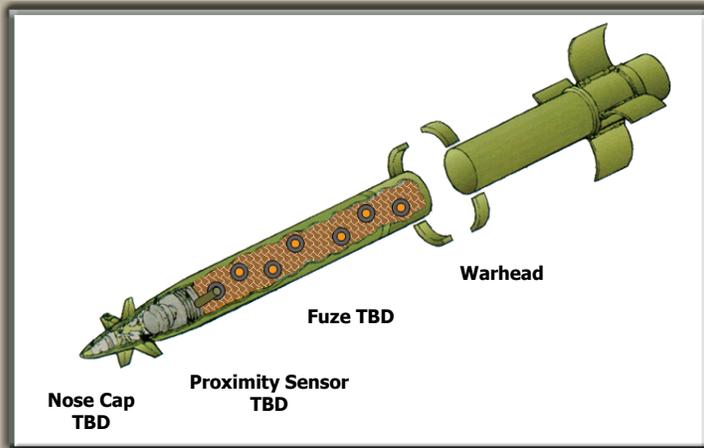
Fielded to HIMARS and M270A1 launcher units.

**POINTS OF CONTACT:**

PM.....	256-876-1195
DPM .....	256-876-8121
ASA(ALT) DASC.....	703-601-0356



## XM30E1 GUIDED MLRS ALTERNATE WARHEAD (AW)



### SYSTEM DESCRIPTION:

The XM30E1 GMLRS Alternative Warhead (AW) rocket is a material replacement for the M26, M26A2, and M30 Dual Purpose Improved Conventional Munition (DPICM) rockets. The AW program is being developed to reduce or eliminate the risk of Unexploded Ordnance (UXO) with a threshold requirement of no more than 1% (Objective: 0%) UXO in accordance with Department of Defense (DoD) policy. The AW rocket will be effective against the DPICM target set while meeting UXO constraints. Each launch pod/container (LP/C) holds six rockets.

### SYSTEM CHARACTERISTICS:

GMLRS AWP will build upon the technology improvement in the M30 and M31A1 rocket systems. The payload and other technical details of the warhead are TBD. Due to commonality in the GMLRS system, rocket characteristics will remain the same.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The GMLRS AW warhead is a conventionally shaped enhanced fragmentation warhead with insensitive munitions compliant design. Warhead integration into GMLRS utilizes common metal parts and fuzing.

**TARGET SETS:**

Area and imprecisely located targets: material, personnel, mission command positions, and other high value and high payoff targets.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control (LMMFC) (Prime Integrator).

Warhead Vendor: Alliant Techsystems, Inc. (ATK).

**ACQUISITION PHASE:**

Pre-Milestone B.

**MILESTONES:**

MS A .....	FY09
MS B .....	FY12
MS C .....	FY15
FRP .....	FY17

**FEILDING:**

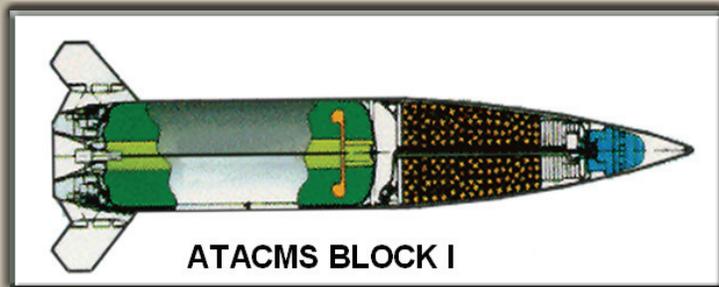
Will be employed by MLRS M270A1 and HIMARS Fire Battalions in Modular Fires Brigages support the BCT.

**POINTS OF CONTACT:**

PM.....	256-876-1195
DPM .....	256-876-8121
ASA(ALT) DASC.....	703-601-0356



## M39 BLOCK I ARMY TACTICAL MISSILE SYSTEM (ATACMS)



### SYSTEM DESCRIPTION:

The M39 Block I ATACMS is a 24/7, all-weather, surface-to-surface, inertial-guided, semi-ballistic missile used to engage targets in the Corps/Army area of influence. Fired from MLRS M270, M270A1 and HIMARS launchers, Block I ATACMS was used extensively in both Desert Storm (1991) and in OIF (2003) ground wars for shaping operations by the Joint Force, Joint Special Operations Forces (SOF), and Army Land Component Command operational levels. There is one missile per launching assembly (missile pod) with two missiles per launcher load in the M270/M270A1 and one missile in the HIMARS launcher.

### SYSTEM CHARACTERISTICS:

The M39 Block I ATACMS missile delivers an APAM warhead that contains approximately 950 M-74 bomblets. Thrust is provided by a solid-propellant rocket motor. The Block I shelf-life has been extended to 16 years. Payload weight: 560 kg (1,235 lb), Missile length: 3.975 m (156.5 in.), Diameter: 0.61 m (23.9 in.), Weight: 1673 kg (3,687 lb). Maximum range: 165 km. Minimum range: 25 km.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The M39 Block I warhead contains approximately 950 M-74 APAM bomblets. The M-74 is a spin-armed, self-dispersing fragmentation bomblet, 58.9 mm (2.32 in.) in diameter, weighing 0.59 kg (1.3 lb).

**TARGET SETS:**

Air defense artillery sites, surface-to-surface missile units, logistics sites, command and control complexes, and helicopter forward operating bases.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

MS II.....	FY86
IOC.....	FY90
MS III .....	FY99

**FIELDING:**

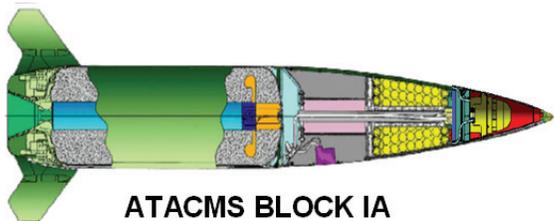
U.S. production completed. Employed by MLRS M270A1 and HIMARS Fires Battalions in Modular Fires Brigades supporting the BCT.

**POINTS OF CONTACT:**

PM.....	256-876-1195
DPM .....	256-876-8121
ASA(ALT) DASC.....	703-545-0706



## M39A1 BLOCK IA ARMY TACTICAL MISSILE SYSTEM (ATACMS)



### SYSTEM DESCRIPTION:

The M39 A1 Block IA ATACMS is a 24/7, all-weather, more accurate, extended range variant of the Block I ATACMS missile. It can engage targets throughout the Corps and Army area of influence. Block IA ATACMS is fired from MLRS M270A1 and HIMARS launchers. The Block IA ATACMS was used extensively in 2003 by the Joint Force, Joint Special Operations Forces (SOF), and Army Land Component Command strategic/operational levels to conduct shaping operations during the OIF ground war. There is one missile per launching assembly (missile pod) with two missiles per launcher load in the M270A1 and one missile in the HIMARS launcher.

### SYSTEM CHARACTERISTICS:

The M39 Block IA ATACMS uses the guided missile control and propulsion systems and a majority of the Block I warhead components. The reduced payload of 300 anti-personnel/anti-materiel (APAM) M-74 bomblets extends its range. Block IA uses an improved version of the Block I ATACMS Missile Guidance Set to achieve the improved accuracy needed to meet the system requirements. The Improved Missile Guidance Set uses an embedded GPS receiver to receive and process GPS satellite navigation signals and integrates the GPS data into the inertial guidance scheme to improve navigational accuracy. Thrust is provided by a solid-propellant rocket motor. Payload weight: 174 kg (382 lb). Missile length: 3.975 m (156.5 in.). Diameter: 0.61 m (23.9 in.) Weight: 1,318 kg (2,906 lb). Maximum range: 300 km. Minimum range: 70 km.

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The M39 Block IA contains approximately 300 APAM M-74 bomblets. The M-74 is a spin-armed, self-dispersing fragmentation bomblet, 58.9 mm (2.32 in.) in diameter, and weighing 0.59 kg (1.3 lb).

**TARGET SETS:**

Air defense artillery sites, surface-to-surface missile units, logistics sites, command and control complexes, and helicopter staging areas.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

MS II..... FY94  
 IOC..... FY98  
 MS III ..... FY98

**FIELDING:**

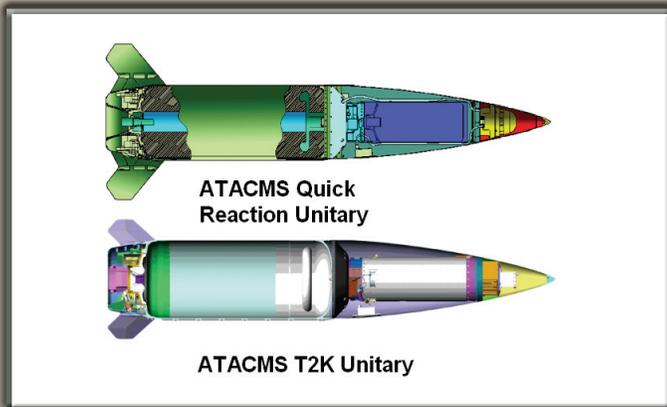
U.S. production completed. Employed by MLRS M270A1 and HIMARS Fires Battalions in Modular Fires Brigades supporting the BCT.

**POINTS OF CONTACT:**

PM..... 256-876-1195  
 DPM ..... 256-876-8121  
 ASA(ALT) DASC..... 703-601-0356



## M48/M57 ARMY TACTICAL MISSILE SYSTEM (ATACMS)



### SYSTEM DESCRIPTION:

The ATACMS Unitary variants are 24/7; all-weather, low-collateral-damage, precision missiles that expand the current ATACMS target set to stationary point targets and targets within urban and complex environments. Variants of the ATACMS Block IA missile replace the payload of bomblets with the Navy's WDU-18/B (Harpoon) unitary high explosive (HE) warhead to achieve effectiveness against point targets while limiting collateral damage. ATACMS Unitary missiles are fired from MLRS M270A1 and HIMARS launchers. The ATACMS Unitary was used in 2003 by the Joint Force, Joint Special Operations Forces (SOF), and Army Land Component Command strategic/operational levels to conduct shaping operations during the OIF ground war. There is one missile per launching assembly (missile pod) with two missiles per launcher load in the M270A1 and one missile in the HIMARS launcher.

### SYSTEM CHARACTERISTICS:

The ATACMS Unitary variants use the propulsion systems of the Block IA ATACMS missile. The Missile Guidance Set has an embedded GPS receiver which receives and processes GPS satellite navigation signals and integrates the GPS data into the inertial guidance scheme to improve navigational accuracy. The latest variant, the M57 Quick Reaction Unitary (QRU), integrates the T2K SAASM compliant guidance system and has a near vertical target engagement capability. Thrust is provided by a solid-propellant rocket motor. Payload weight: 214 kg (470 lb). Missile length: 3.975 m (156.5 in.). Diameter: 0.61 m (23.9 in.). Maximum range: 300 km, 270 km (QRU).

**SENSOR/SEEKER:**

Not Applicable.

**WARHEAD:**

The ATACMS Unitary variants utilize the WDU-18/B Navy unitary warhead redesignated as the WAU-23/B. It has a total weight of 470 lb of which 215 lb is high explosive.

**TARGET SETS:**

Petroleum, oil, and lubricant (POL) sites, multi-story buildings, transformers, surface-to-surface missile units, and time sensitive high value targets.

**CONTRACTOR:**

Lockheed Martin Missiles and Fire Control.

**ACQUISITION PHASE:**

Operations and Support.

**MILESTONES:**

Directed Production Decision..... FY01  
 IOC ..... FY02  
 ORD Approved ..... 4QFY06

**FIELDING:**

U.S. production completed. Employed by MLRS M270A1 and HIMARS Fires Battalions in Modular Fires Brigades supporting the BCT.

**POINTS OF CONTACT:**

PM..... 256-876-1195  
 DPM ..... 256-876-8121  
 ASA(ALT) DASC..... 703-601-0356



# ABBREVIATIONS AND ACRONYMS



### ABBREVIATIONS & ACRONYMS

AAMDC.....	Army Air and Missile Defense Command
AAO .....	Army Acquisition Objective
ABT .....	Air-Breathing Threat
ACM .....	Attitude Control Motor
ADA .....	Air Defense Artillery
ADAM.....	Air Defense Airspace Management
ADSI .....	Air Defense System Integrator
ADU .....	Air Defense Unit
AFATDS .....	Advanced Field Artillery Tactical Data System
AGM.....	Air-to-Ground Missile
AH .....	Attack Helicopter
AIAMD.....	Army Integrated Air and Missile Defense
AMD.....	Air and Missile Defense
AMDPCS .....	Air and Missile Defense Planning and Control Systems
AMDWS .....	Air and Missile Defense Workstation

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

AMG.....	Antenna Mast Group
APAM.....	Anti-Personnel/Anti-Materiel
APEO.....	Assistant Program Executive Officer
APM.....	Assistant Program Manager
APS.....	Army Prepositioned Stock
APU.....	Auxiliary Power Unit
ARCS.....	Aerial Rocket Control System
ATACMS.....	Army Tactical Missile System
ATGM.....	Anti-Tank Guided Missiles
ASA(ALT).....	Assistant Secretary of the Army (Acquisition, Logistics and Technology)
ASARC.....	Army Systems Acquisition Review Council
ATGM.....	Anti-Tank Guided Missile
AW.....	Alternate Warhead
AZ.....	Arizona
BAE.....	British Aerospace
BCP.....	Battery Command Post

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

BCT.....	Brigade Combat Team
BDE.....	Brigade
BIT .....	Built-In-Test
BITE .....	Built-In-Test Equipment
Blast Frag .....	Blast Fragmentation
BMC.....	Battery Maintenance Center
BMC4I.....	Battle Management Command, Control, Communications, Computers, and Intelligence
BN .....	Battalion
BST.....	Basic Skills Trainer
C.....	Celsius
C2.....	Command and Control
C3.....	Command, Control, and Communications
C3I .....	Command, Control, Communications, and Intelligence
CASUP.....	Cockpit and Sensor Update Program
CCWS.....	Close Combat Weapon Systems

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

CDID.....	Capabilities Development Integration Directorate
CEC.....	Cooperative Engagement Capability
CEP .....	Circular Error Probable
CLE.....	Command Launch Equipment
CLS.....	Contractor Logistic Support
CLU.....	Command Launch Unit
CMDS.....	Cruise Missile Defense Systems
Corp.....	Corporation
COTS.....	Commercial-Off-The-Shelf
CPD.....	Capability Production Document
CPG.....	Command and Processing Group
CPP.....	Command Post Platform
C-RAM.....	Counter - Rocket, Artillery, Mortar
CRG .....	Communications Relay Group
DAB .....	Defense Acquisition Board

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

DASC.....	Defense Armed Services Committees
DASC.....	Department of the Army Systems Coordinator
DC .....	Direct Current
DDS .....	Data Dessimination Service
DEG .....	Degree
DoD .....	Department of Defense
DPD .....	Deputy Product Director
DPEO .....	Deputy Program Executive Officer
DPICM .....	Dual-Purpose Improved Conventional Munition
DPM .....	Deputy Project Manager
DSARC .....	Defense System Acquisition Review Council
EAC.....	Echelons Above Corps
ECP .....	Engineering Change Proposal
ECS.....	Engagement Control Station
ECU.....	Environmental Control Unit

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

EFP .....	Explosively Formed Penetrator
ELES .....	Enhanced Launcher Electronics System
EMD .....	Engineering Manufacturing and Development
EO .....	Engagement Operation
EPBST .....	Enhanced Producibility Basic Skills Trainer
EPP .....	Electric Power Plant
ER-MLRS .....	Extended Range Multiple Launch Rocket System
ERA .....	Explosive Reactive Armor
ESAF .....	Electronic Safe, Arm, & Fuse
EWCC.....	Expanded Weapon Control Computer
F.....	Fahrenheit
FAAD.....	Forward Area Air Defense
FAAD C2.....	Forward Area Air Defense Command and Control
FCS .....	Fire Control Subsystem
FDV.....	Fault Detection Verification

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

FL .....	Florida
FLIR .....	Forward Looking Infrared
FMS .....	Foreign Military Sales
FMTV .....	Family of Medium Tactical Vehicles
FOB.....	Forward Operating Base
FoS .....	Family of Systems
FPA .....	Focal Plane Array
FRP .....	Full Rate Production
FTT .....	Field Tactical Trainer
FUE .....	First Unit Equipped
FY .....	Fiscal Year
G .....	Gram
GA .....	Georgia
GDATP.....	General Dynamics, Armament and Technical Products
GEM.....	Guidance Enhanced Missile

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

GMLRS .....	Guided Multiple Launch Rocket System
GPS .....	Global Positioning System
GPSi .....	GPS Receiver Interface Board
GSE.....	Ground Support Equipment
HE .....	High Explosive
HEMTT .....	Heavy Expanded Mobility Tactical Truck
HEAT .....	High Explosive Anti-Tank
HHB .....	Headquarters and Headquarters Battery
HIMARS .....	High Mobility Artillery Rocket System
HMMWV .....	High Mobility Multi-Purpose Wheeled Vehicle
HMU.....	Health Monitoring Unit
IA .....	Information Assurance
IAC .....	Improved Armored Cab
IAMD.....	Integrated Air and Missile Defense
IBAS.....	Improved Bradley Acquisition Subsystem

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

IBCS.....	IAMD Battle Command System
IBCT .....	Infantry Brigade Combat Teams
ICC .....	Information and Coordination Central
ICP.....	Increased Crew Protection
IFC.....	Integrated Fire Control
IOC .....	Initial Operational Capability
IFCS .....	Improved Fire Control System
IFF.....	Identification Friend or FOE
IFS.....	Impact Fuze Sensor
IIR .....	Imaging Infrared
ILMS .....	Improved Launcher Mechanical System
ILV .....	Improved, Low-Visibility
IM.....	Information Management
IM.....	Insensitive Munitions
IMU .....	Inertial Measurement Unit

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

IN/in. ....	Inches
IR .....	Infrared
ITAS .....	Improved Target Acquisition System
JAGM .....	Joint Air-to-Ground Missile
JAMS.....	Joint Attack Munition Systems
JDN.....	Joint Defense Network
JLENS.....	Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System
JTAGS .....	Joint Tactical Ground Station
K.....	Thousand
Ka .....	Radar Band Designation (Millimeter Wave) KG/kg Kilogram
KM/km .....	Kilometer
KT.....	Knots
KW/kw .....	Kilowatt
LAN.....	Local Area Network
LACM .....	Land Attack Cruise Missile

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

LB/lb .....	Pounds
LBHF .....	Longbow HELLFIRE
LCMR .....	Lightweight Counter Mortar Radar
LCRs .....	Large Caliber Rockets
LLC .....	Limited Liability Company
LMMFC .....	Lockheed Martin Missiles and Fire Control
LOAL .....	Lock-On After Launch
LOBL .....	Lock-On Before Launch
Log .....	Logistics
LP/C .....	Launch Pod/Container
LPS .....	Lithium-Ion Power Source
LPWS .....	Land-based Phalanx Weapon System
LRF .....	Laser Range Finder
LRIP .....	Low Rate Initial Production
LRU.....	Line Replaceable Unit

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

LS .....	Launching Station
LSS .....	Launch Support System
LTA .....	Launch Tube Assembly
LTPO .....	Lower Tier Project Office
LWL .....	Light Weight Launcher
M .....	Mile
M .....	Million
MAC .....	Metal Augmented Charge
MANPADS .....	Man-Portable Air Defense System
MDA .....	Missile Defense Agency
MDD .....	Materiel Development Decision
MEADS .....	Medium Extended Air Defense System
MFD .....	Multifunctional Display
MFOM .....	MLRS Family of Munitions
MFSB.....	Multi-Functional Support Brigade

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

MGS .....	Missile Guidance Set
Mgt .....	Management
MILES .....	Multiple Integrated Laser Engagement System
MIL-STD .....	Military Standard
MLRS .....	Multiple Launch Rocket System
MM/mm.....	Millimeter
MMS.....	Mobile Mooring Station
MOD .....	Modification
MOUT.....	Military Operations on Urban Terrain
MPSM.....	Multipurpose Submunition
MS .....	Milestone
MS .....	Missiles and Space
MSE .....	Missile Segment Enhancement
MSR .....	Missile Simulation Round
N/A .....	Not Applicable

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

NAMEADSMA .....	NATO MEADS Management Agency
NDI .....	Non-Developmental Item
NSES .....	Night Sight Equipment Set
O&S .....	Operation and Support
OCONUS .....	Outside Continental United States
ODS .....	Operation Desert Storm
OEF .....	Operation Enduring Freedom
OIF .....	Operation Iraqi Freedom
ONS .....	Operational Needs Statement
ORD .....	Operational Requirements Document
OSD .....	Office of the Secretary of Defense
OTH .....	Over-the-Horizon
P&F .....	Plug and Fight
PAC-2 .....	PATRIOT Advanced Capability-2
PAC-3 .....	PATRIOT Advanced Capability-3

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

PADS.....	Position Altitude Determination Subsystem
PASS .....	Publish and Subscribe Services
PD .....	Product Director
PdtMgr .....	Product Manager
PEO .....	Program Executive Office/Program Executive Officer
PEO MS .....	Program Executive Office Missiles and Space
PFRMS .....	Precision Fires Rocket and Missile Systems
PM .....	Program Manager/Project Manager/Product Manager
POL.....	Petroleum, Oil and Lubricants
PoR.....	Program of Record
Q .....	Quarter
QE .....	Quadrant Elevation
QRU .....	Quick Reaction Unitary
RMP .....	Reprogrammable Microprocessor
RP.....	Red Phosphorus

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

RMS .....	Rocket Management System RS..
Radar Set	
S&W.....	Sense and Warn
SADA.....	Standard Advanced Dewar Assembly
SAL .....	Semi-Active Laser
SBCT .....	Stryker Brigade Combat Team
SBIRS.....	Space Based Infrared System
SCLU .....	Simulated Command Launch Unit
SEC/sec.....	Second
SDD .....	System Development and Demonstration
SDF .....	Self-Destruct Fuse
SIAP.....	Single Integrated Air Picture
SMT .....	Surface Moving Targets
SOCOM.....	Special Operations Command
SOF .....	Special Operations Forces

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

SoS .....	System of Systems
SPO.....	Strategic Planning and Operation
STC.....	Slew-to-Cue
SuR.....	Surveillance Radar
SuS.....	Surveillance System
SUV.....	Think-Skinned Vehicles
TACMS .....	Tactical Missile System
TADL.....	Tactical Data Link
TAS .....	Target Acquisition Subsystem
TBD .....	To Be Determined
TBM.....	Tactical Ballistic Missile
TC .....	Type Classified
TCM.....	TRADOC Capabilities Manager
TEL .....	Transportable Erector Launcher
THAAD.....	Terminal High Altitude Area Defense

**ABBREVIATIONS & ACRONYMS (CONTINUED)**

TIC .....	Troops in Contact
TOW .....	Tube-launched, Optically-tracked, Wire-guided
TU .....	Traversing Unit
TVM .....	Track-via-Missile
UAS.....	Unmanned Aerial System
UAV .....	Unmanned Aerial Vehicle
UGCS .....	Univeral Ground Control Station
UH .....	Utility Helicopter
U.S.....	United States
USAF.....	United States Air Force
UTPO .....	Upper Tier Project Office
UXO .....	Unexploded Ordnance
w/sr .....	watts per steradian
WAVES .....	Wireless Audio Visual Emergency System
WRAP.....	Warfighter Rapid Acquisition Program

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ANY WARFIGHTER • ANYWHERE • ALL THE TIME

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