

ARCHIVED REPORT

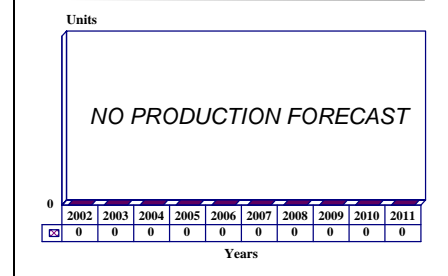
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Multi-Purpose Individual Munition - Archived 3/2003

Outlook

- Program canceled in May 2001
- No further development or production forecast
- Technology may be incorporated in a future weapon of this type

10 Year Unit Production Forecast
2002 - 2011



Orientation

Description. A light anti-armor/multipurpose weapon.

Sponsor. Originally, all three programs that were considered for the Multi-Purpose Individual Munition were privately sponsored, but development was later partially supported by the United States Department of Defense through the US Army, with the US Army Missile Command, at Redstone Arsenal, Alabama, acting as the executive agent.

The initial development of the latest manifestation of the Multi-Purpose Individual Munition, the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition, was based on the development of the Short-Range Anti-Tank Weapon which has been sponsored by the US Marine Corps. Lockheed Martin Electronics and Missiles sponsored some of the early developmental work on the munition, but since late 1994 the program was sponsored by the US Department of Defense through the US Army, with the US Army Close Combat Anti-Armor Weapons Systems Project Office and US Army Missile Command acting as the executive agents.

Contractors. Before its effective termination in Fiscal 1992, this program was being competitively developed in a proof-of-principle program by Brunswick Corporation Defense Division, Costa Mesa, California; the former McDonnell Douglas Missile Systems

Company, Titusville, Florida; and The Marquardt Company, Van Nuys, California, United States. In early 1994, McDonnell Douglas decided to get out of the light anti-armor/assault weapon market.

After the reinstatement of the Multi-Purpose Individual Munition program by Congress, the US Army opted for the Multi-Purpose Individual Munition proposal of then-Loral Aeronutronic which is based on the Short-Range Anti-Tank Weapon, also called Predator. Loral Aeronutronic was subsequently purchased by Lockheed Martin; this firm, Lockheed Martin Aeronutronic, was later reorganized as Lockheed Martin Electronics and Missiles, which was considered the prime contractor before termination.

Subcontractors to the McDonnell Douglas contender were then-Hercules and Orlando Technology; to the Brunswick contender, Aerojet, Atlantic Research and Motorola; and to the Marquardt contender, Talley Defense Systems, Dyna East and Bulova.

The subcontractors to the winning Lockheed Martin design were Aerojet, Alliant Techsystems and Systron Donner.

Licensees. None

Status. The competitive proof-of-principle contracts were awarded on May 19, 1988. The proof-of-principle evaluations were completed in mid-1990 and a downselection was expected by March 1991. The weapon was then expected to become operational in 1996. However, in late 1990, the entire program went back to the technology base research level, and a technology demonstration contract was awarded to then-Loral Aeronutronic in 1994 for the combined Short Range Anti-Tank Weapon/Multi-Purpose Individual Munition. The US Army canceled the program in May 2001. At the time of the cancellation, the program was in the engineering and manufacturing development phase.

Total Produced. As of the time of cancellation, a total of 142 Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition preprototype and prototype weapons had been manufactured for the technology demonstration program.

Application. As it was envisioned before cancellation, the Multi-Purpose Individual Munition would have

been a sort of "magic bullet" weapon capable of defeating a wide range of targets from bunkers and other structures to some armored vehicles; a concurrent anti-personnel capability was also planned. This weapon was planned to replace the AT4/M136, the Mark 150 Shoulder-Launched Multi-Purpose Assault Weapon, and the XM141 Bunker Defeat Munition (the interim Multi-Purpose Individual Munition) in the US armed forces.

Price Range. One of the contractor's submissions noted above, the Rifleman's Assault Weapon, was quoted at \$600 in a production quantity of 400,000 units in 1977. The unit price of the other two designs was expected to be around \$1,350 in Fiscal 1991 dollars, based on the procurement of a half-million rounds.

Before its cancellation and based on the procurement of 20,000 units, the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition had a projected unit price of \$16,239.

Technical Data

At the time of the May 2001 cancellation, the Short Range Anti-Tank Weapon/Multi-Purpose Individual Munition technology demonstration program was still somewhat fluid in design. As it was then conceived, the munition was expected to weigh between 8.6 and 9.09 kilograms (19 and 20 pounds) and have an overall length of 91.4 centimeters (36 inches). However, due to the mandated integration of the Short-Range Anti-Tank Weapon/Predator technology, the Multi-Purpose Individual Munition weighed 11.13 kilograms (24.5 pounds). For further details on this weight escalation and data on the earlier competing designs, see the **Program Review** section, below.

Launcher Mode. The Short-Range Anti-Tank Weapon/ Multi-Purpose Individual Munition was soft-launched from a glass-fiber/epoxy launch tube, and could be fired from an enclosed space.

Two of the systems that were being developed to meet the Multi-Purpose Individual Munition requirement were launched from the standard M16 rifle, while the third contender was launched from a disposable glass-fiber/epoxy launch tube.

Propulsion. The three earlier systems that were being developed to meet the Short-Range Anti-Tank Weapon/ Multi-Purpose Individual Munition requirement all use

solid-rocket propulsion, although the ignition systems differ. For this component, Alliant Techsystems was the subcontractor.

Control & Guidance. For the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition, Systron Donner was the subcontractor responsible for the inertial guidance component; the weapon was a fire-and-forget type.

The various technologies of the other weapons that were developed to meet the original requirement are detailed in the **Program Review**.

Warhead. All the systems that were being developed to meet the Multi-Purpose Individual Munition requirement used a state-of-the-art, high-explosive warhead optimized for the perforation of concrete and other building materials, sandbags, and light armor. A blast/fragmentation capability was also incorporated in the warheads, the details of which are presented below. All warheads were designed to defeat advanced forms of light vehicle armor. For the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition, Aerojet was the subcontractor responsible for the advanced-design, tandem-type, High Explosive Anti-Tank warhead component, which was based on the top attack warhead of the TOW-2B missile.

Variants/Upgrades

Variants. No variants of the Multi-Purpose Individual Munition were ever developed.

Modernization and Retrofit Overview. This is generally not applicable to this type weapon; any

improvements would be incorporated as production cut-ins.

Program Review

Background. For some three decades, the US Army's man-portable anti-armor and multipurpose assault weapons development effort was fragmented. Even following the adoption, type classification and procurement of the AT4/M136, confusion prevailed, with Congress mandating that new versions of the M72 be man-rated and type classified. Indeed, several specialized units of the US Army have long been on record as preferring the lighter M72 to the heavier AT4/M136. Even as this controversy brewed, various branches of the Department of Defense were funding new, similar programs. One of these is the Multi-Purpose Individual Munition, a program with a complex history.

Program Development. In the mid-1980s, with the initial procurement of the AT4/M136, the US Army began looking at the development of a follow-on weapon that would be truly multimission-capable – a concept often called a “magic bullet.” Even though the US Army had effectively ignored its 4.55 kilogram (10 pound) weight limit for this type of weapon with the procurement of the 6.72 kilogram (14.8 pound) AT4/M136, a multipurpose weapon with that weight limit was still desired. It was repeatedly stated that the AT4/M136 was only an interim solution to this mission area. Of course, it was also realized that such a weapon would have minimal capability against even a 1950s-era tank, but US Army doctrine accepts that the individual infantryman cannot kill a tank head on.

At the Fiscal 1987 budget hearings in 1986, the Army requested funding to initiate a competitive proof-of-principle test and evaluation program for what it designated the Multi-Purpose Individual Munition. Basically, the Army desired a weapon that is capable of busting bunkers, urban structures, and similar fortification-like structures (similar to the US Marine Corps' Mark 150 Shoulder-Launched Multi-Purpose Assault Weapon – see separate report). It was desired that the new weapon also be able to successfully attack advanced infantry fighting vehicles of the Russian Federation (similar to the AT4/M136 – see separate report). Another major requirement was the ability to incapacitate personnel within these targets. Finally, it was desired that the new weapon be capable of being fired from an enclosed space.

Later, senior Army officials stated that the Multi-Purpose Individual Munition would replace both the AT4/M136 and the Mark 150 Shoulder-Launched Multi-Purpose Assault Weapon in US Army service.

At the same time, Brunswick Defense, well known for innovation and high quality in the munitions field, was developing the Rifleman's Assault Weapon; the US Army provided support for this program, which began in 1977. From 1986 through mid-1987, competing factions in the US Army, Congress and industry wrangled over the method of funding both the Multi-Purpose Individual Munition and the Rifleman's Assault Weapon. While the Rifleman's Assault Weapon has a great deal of potential, some factions believed that it was not within the Army's defined mission requirements as it was incorrectly perceived to have minimal anti-armor capability. The US Army stated that there was no requirement to develop the Rifleman's Assault Weapon for an anti-armor capability. At first, the advocates of the Multi-Purpose Individual Munition and the Rifleman's Assault Weapon strove for separate funding. By 1987, this had evolved into both programs being funded jointly under the single Multi-Purpose Individual Munitions program containing the shoulder-launched and rifle-launched weapons. A formal Request for Proposals was issued in late 1987 and contracts totaling \$13.5 million were awarded in May 1988.

Contenders. The Rifleman's Assault Weapon from Brunswick Defense and the Scorpion from then-McDonnell Douglas Missile Systems (which subsequently withdrew from this market) were competing in the Rifle Launched Munition portion of the Multi-Purpose Individual Munition program. Marquardt, teamed with Talley Defense Systems, the M72A4/A5/A6 prime contractor, was involved in the shoulder-launched portion.

Rifleman's Assault Weapon. Brunswick's Rifleman's Assault Weapon, also called the General Purpose Rifle Launched Munition, has been around for over 20 years with some support from the US Army's Missile Command. This single-shot weapon, also called “Brunswick's flying bowling ball,” was spherical in shape and designed to be launched from an M16 rifle

using standard ball ammunition. Weighing about 3.86 kilograms (8.5 pounds), the 140 millimeter (5.51 inch) diameter weapon is attached to the rifle by a launch bracket. The standard M16 sights are used for aiming. Upon firing, the cartridge propellant gasses ignite the solid-rocket motor, which launches the weapon. The weapon is spun at the rate of 30 revolutions per minute; maximum speed is around 201.17 meters per second (660 feet per second). The teardrop shape and spin imparted to the projectile make it aerodynamically neutral, giving a flat trajectory with no tumbling or directional snaking. The small angle of inclination at launch, with the associated positive G on the projectile, also provides stability and a flat trajectory. The normal range is around 300 meters (328.1 yards), but when firing in an indirect ballistic mode (a lofted trajectory), large area targets up to 2 kilometers (2,187 yards) away can be engaged. The system has essentially no recoil or visual signature and has an acoustic level below that of the rifle. The weapon has the ability to fire from enclosed spaces.

The original warhead of the Rifleman's Assault Weapon consists of about 1.36 kilograms (3 pounds) of high explosive, contact-fuzed. This pattern was shown in tests to be sufficient to penetrate triple brick walls 40.64 centimeters (16 inches) thick and concrete walls 30.48 centimeters (12 inches) thick. In addition, 5.08 centimeters (2 inches) of aluminum and 1.9 centimeters (0.75 inch) of rolled homogenous armor were perforated; both perforations left holes 12.7 centimeters (5 inches) in diameter.

A new combined-effects warhead had been under development for the original Multi-Purpose Individual Mmunition proof-of-principle program. This new warhead incorporated both anti-armor capability and blast fragmentation capability into a single warhead system. The result was a single system that could defeat armor with a proximity fuze, urban structural targets with an impact fuze, and bunker-type field fortifications with a delay fuze. Various specialized warheads were considered, including a combined airburst/fragmentation capability over exposed troops; various chemical/smoke applications and, potentially, fuel/air explosives and flame. Aerojet Ordnance was responsible for warhead development.

In a previous program, Aerojet Ordnance demonstrated a shaped-charge warhead integrated with an optical target detection device provided by Motorola. The resulting combination destroyed an obsolete M47 tank. For the Multi-Purpose Individual Mmunition competition, Brunswick used an Aerojet flat cone shaped-charge (explosive formed projectile) penetrator warhead. This more advanced warhead technology was thought to be more effective against modern and postulated light

armor than the shaped charge demonstrated in 1986. Later, Brunswick sold the technical data package and all rights for the Rifleman's Assault Weapon to KDI Precision Products. The program has been dormant for many years now and will probably not be resurrected. The Rifleman's Assault Weapon is illustrated at the end of this report.

Scorpion. This is the name for the McDonnell Douglas entry in the rifle-launched portion of the Multi-Purpose Individual Mmunition proof-of-principle program. The Scorpion resembles the M203 grenade launcher in configuration in that it is mounted under the fore-end of the M16 rifle; the standard rifle sights are used. The Scorpion has no recoil and reportedly can be fired from an enclosed space. The disposable weapon is 77 centimeters (30.5 inches) in length and weighs 4 kilograms (9.0 pounds).

The caliber of the fin-stabilized projectile, which has an effective range of 300 meters (328 yards), is 6.6 centimeters (2.60 inches). The warhead is a kinetic energy shaped-charge type with some level of effectiveness against explosive reactive armor. Complete perforation is achieved against brick walls that are 30 centimeters (11.81 inches) thick, and concrete walls 20 centimeters (7.87 inches) thick. This system also incorporates a follow-through grenade. A very flat trajectory aids in the accuracy of the weapon. Prior to its exit from this market area, McDonnell Douglas teamed up with Hercules on the Scorpion program. The Scorpion, the development of which went dormant in the early 1990s, is illustrated at the end of this report.

Lynx. This is the name of the Marquardt/Talley entrant in the Multi-Purpose Individual Mmunition program. The Lynx was the only shoulder-launched entrant in the program. This weapon weighs approximately 4.5 kilograms (9.9 pounds). It employs the recoilless Davis countershot principle but in slightly modified form, allowing it to be fired from enclosed spaces. The warhead probably employs flat cone shaped-charge (explosive formed projectile) and follow-through grenade technology. An advanced fuze selection system allows for instantaneous (soft targets) or delayed (hard targets) detonation. Marquardt teamed up with Talley Defense Systems for the proof-of-principle program, follow-on full-scale development, and production. The development of the Lynx went dormant in the early 1990s.

Other Programs. Prior to 1990, when the program was restructured, the advent of a number of other programs caused some confusion in the Multi-Purpose Individual Mmunition program; these are listed below. Only one of these programs, the AT8, had any relationship to the

original Multi-Purpose Individual Munition development effort prior to 1994.

1. AT4/M136. This is the "interim" man-portable anti-armor weapon that has been procured by the US armed forces. While the basic model does not enter into the Multi-Purpose Individual Munition effort, Alliant Techsystems pushed two enhanced versions of the AT4/M136, the AT4E2 and AT8, as alternatives to the all-new Multi-Purpose Individual Munition.
2. AT4E1/E2. These versions of the AT4 are enhanced in performance over the basic AT4/M136. The AT4E2 is defined as a dual-mode Anti-Bunker and Anti-Armor Weapon.
3. AT8. This is a modified, heavier AT4 system integrated with the warhead from the Mark 150 Shoulder-Launched Multi-Purpose Assault Weapon. It has been proposed as an interim solution to the Multi-Purpose Individual Munition mission requirement.
4. M72A4. This is a product-improved version of the M72A3 with greatly enhanced performance in terms of range and lethality that has been qualified by the Army for its airborne forces as an alternative to the heavier and bulkier AT4/M136.
5. M72A5/A6. These are third-generation versions of the M72A4 with increased behind-armor effects. The M72A5 is in serial production and the M72A6 available for production orders.
6. Short-Range Anti-Tank Weapon (Predator). A joint Defense Advanced Research Projects Agency (DARPA) and US Navy program for a 9.90 kilogram (20 pound) weapon capable of defeating the next-generation Soviet (now Russian) tank over the frontal arc. A new modular weapon based on this program was selected to meet the Multi-Purpose Individual Munition requirement as described below. The Short-Range Anti-Tank Weapon (now called Predator) is covered in the pertinent report in this tab.
7. HEATR. An acronym probably for High Explosive Anti-Tank Rifle, an anti-armor weapon once being developed by Rocket Research, a firm in Seattle, Washington, with support from DARPA. This program went dormant in the early 1990s.
8. DART. An acronym of unknown reference for an anti-armor weapon that was in development. One source stated that DART was an Israeli program run by Israel Military Industries while another stated that it was another DARPA effort. This program has long been dormant.

9. Light Anti-Tank 500. This weapon was developed by the Intertechnik firm of Austria; subsequently, the technical data package and all rights were sold to Deutsche Aerospace/DASA. This disposable weapon, which weighs 7 kilograms (15.4 pounds), offers several warhead options and is capable of being fired from an enclosed space. Although not in the officially funded program, this weapon was promoted for the Multi-Purpose Individual Munition program. However, its weight negated any chance of procurement by the US Army. After being sold to Deutsche Aerospace/DASA in the early 1990s, this program went dormant.

Advent of the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition Program. In 1993, then-Loral Aeronutronic began exploring the possible integration of the warhead technology being developed under the original Multi-Purpose Individual Munition program with its Short-Range Anti-Tank Weapon, which subsequently was given the name Predator. The Predator program entered the engineering and manufacturing development phase in 1994. That phase was in its final stages when the program was terminated in 2001.

Program Restructuring. In 1993, a move began in Congress to integrate the Marine Corps' Short-Range Anti-Tank Weapon Program and the Army's Bunker Defeat Munition and Multi-Purpose Individual Munition programs. Proponents of this plan cited the great similarity among the three programs. They envisioned the integration of the eventually selected Bunker Defeat Munition warhead with the Short-Range Anti-Tank Weapon/Predator weapon. The modular design of the Predator is cited as an aid to this effort. The resulting weapon would also fill the Army's Multi-Purpose Individual Munition requirement. As a result of congressional language in the Fiscal 1994 defense budget, the funding for the two programs was integrated but the contractors involved were less than enthusiastic, the general belief being that the programs could again be separated, which they were. For a full description of the XM141 Bunker Defeat Munition and Predator programs, see the separate reports in this tab.

As a result of Congress' mandate, Loral Aeronutronic's development effort was accelerated and the concept presented to Army officials. By mid-1994, the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition (sometimes called SRAW/MIPM) had become the US Army's favored option to meet its Multi-Purpose Individual Munition requirement. In December 1994, a contract was awarded to Loral Aeronutronic for the technology demonstration phase of weapon development.

The Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition was an integration of the Short-Range Anti-Tank Weapon/Predator flight module section (containing the guidance and control component and the propulsion component) with the warhead technology developed under the original Multi-Purpose Individual Munition program. The warhead technology was based on the advanced-design top attack warhead as used on the TOW-2B missile. While this tandem shaped-charge warhead was designed primarily for anti-armor use, the warhead design was modified somewhat for the perforation of concrete, building materials, and sandbags. In the future, other warheads may well be developed for this weapon.

Predator Planned Procurement Cut. In mid-2000, it was announced that the Marine Corps had slashed its planned procurement of the Predator from 18,190 weapons to 5,700 weapons. The time frame for the procurement was also cut, from 10 years (Fiscal 2001 to Fiscal 2011) to seven years (Fiscal 2001 to Fiscal 2007). The reason cited for the cut was that a reduced number of Predator weapons are needed for training. Only 500 weapons are now expected to be expended in training, with the rest of the training conducted on simulators. The reduction also freed up \$140 million for other programs.

However, the US Army, mandated by Congress to integrate the Predator technology with its Multi-Purpose Individual Munition program, was less than pleased with the cut in the Marines' procurement, as it would have resulted in a higher unit price for the its Multi-Purpose Individual Munition. This is because both weapons would use a common production line. The Army was also displeased over the fact that the changes made by the Marines increased the weight of the Multi-Purpose Individual Munition. Some sources

indicated that the Army was so disenchanted over the weight of the munition that the program could be killed outright.

Program Canceled. As a result of the growing disenchantment over the weapon plus the need to provide funding for other purposes, the Multi-Purpose Individual Munition was canceled by the US Army in May 2001. While there may well be other reasons for the cancellation, they were not known at the time of this writing. The cancellation will most likely impact the XM141 Bunker Defeat Munition, covered separately in this tab.

Explosive Reactive Armor. Specialized and wholly dedicated anti-armor missions were not the primary projected mission areas of the original Multi-Purpose Individual Munition candidates. Nonetheless, the Multi-Purpose Individual Munition program all along called for effectiveness against some enhanced armors. Further development is needed in order to determine which technology can best address the US Army's mission need. The caveat that must be made with all the single warhead technologies associated with the Multi-Purpose Individual Munition program is that the use of explosive reactive armor essentially renders High Explosive Anti-Tank warheads *ineffective* in any possible caliber. Several special avenues of High Explosive Anti-Tank warhead technology are available or in continued development to address this latest swing in the defense-offense weapons seesaw. The Multi-Purpose Individual Munition weapon that was in development did indeed employ one of these technologies – specifically, a tandem High Explosive Anti-Tank warhead. This would have made the Multi-Purpose Individual Munition/Short-Range Anti-Tank Weapon effective against *at least some level* of non-explosive reactive armor.

Funding

The funding shown below is from the original Fiscal 1988/89 Justifications for Estimates. Only a minimal amount of updated information was released in the modified Fiscal 1989 R-1 document or following justifications. This earlier manifestation of the program was effectively terminated by the fact that the US Army requested no funding beyond the proof-of-principle program. Since the 1991 restructuring took it back to the technology base level, the program subsequently turned up as a new research and development line item. The contract awarded to Loral Aeronutronic in 1994 was granted by Congress and was not a result of a line item in the Fiscal 1993 or Fiscal 1994 defense budget. Procurement is as it was listed before the May 2001 cancellation.

US FUNDING

	FY87		FY88		FY89		FY90	
	QTY	AMT	QTY	AMT	QTY	AMT	QTY	AMT
<u>Research and Development</u>								
PE#0603802A(a)	-	11.9	-	-	-	-	-	5.0
	FY97		FY98		FY99		FY00	
	QTY	AMT	QTY	AMT	QTY	AMT	QTY	AMT
<u>PE#0604802A(b)</u>								
Project number D284	-	7.4	-	3.9	-	16.6	-	17.1
<u>Procurement</u>								
Advance procurement	-	-	-	-	-	-	-	-
Procurement	-	-	-	-	-	-	-	-
	FY01		FY02		FY03		FY04	
	QTY	AMT	QTY	AMT	QTY	AMT	QTY	AMT
<u>PE#0604802A(b)</u>								
Project number D284	-	10.4	-	TBD	-	TBD	-	TBD
<u>Procurement</u>								
Advance procurement	-	0.0	-	TBD	-	TBD	-	TBD
Procurement	-	-	-	TBD	-	TBD	-	TBD

- (a) Weapons and Munitions - Advanced Development, Project D532 as reflected under this program element. The Fiscal 1991 request for Project D532 was \$13 million.
- (b) In the Fiscal 1996 justifications for the research and development portion (engineering and manufacturing development phase) of the budget, Program Element number 0604802A Project D284, \$12.309 million was requested, while \$8.17 million was approved. The Fiscal 2001 request is \$10.4 million, which will be used to complete the developmental effort.

Program Element number 0604802A, Project D284 provides for the engineering and manufacturing development of a lightweight, shoulder-fired, multipurpose weapon. This weapon provides the infantry with a fire-and-forget weapon capable of defeating enemy forces in buildings, bunkers, and lightly armored vehicles. The Multi-Purpose Individual Munition/Short-Range Anti-Tank Weapon is capable of being fired quickly from its carrying configuration and can be safely fired from an enclosure for the close battle. It is more versatile and lethal than the AT4/M136 system because it can be fired from enclosures and defeat bunkers and various field fortifications.

The system will be designed for growth, service life extension and technology insertion to support the US Army mission of crisis response to regionally based threats. The Army and US Marine Corps have signed a Memorandum of Agreement for a horizontal technology integration effort utilizing the Marines' Short-Range Anti-Tank Weapon flight module/launcher as the carrier for the Multi-Purpose Individual Munition warhead.

Acquisition Strategy: The Multi-Purpose Individual Munition/Short-Range Anti-Tank Weapon is a 65-month, two-phase engineering and manufacturing development program which will leverage off the US Marine Corps' 42-month Short-Range Anti-Tank Weapon engineering and manufacturing development contract awarded in June 1994 and the 18-month US Army technology demonstration Multi-Purpose Individual Munition/Short-Range Anti-Tank Weapon contract awarded in January 1995. The engineering and manufacturing development Phase 1 contract (18-month risk mitigation effort) was awarded in October 1996, with an engineering and manufacturing development Phase 2 (maturation) contract (option) awarded in April 1998. Funding for initial production and long-lead items procurement was originally planned to begin in Fiscal 2001. Low-rate initial production was to begin in Fiscal 2002 and full-rate production was planned to begin in Fiscal 2004. However, prior to its cancellation, technical problems caused this schedule to slip about a year.

Under the Advanced Technology Development phase, Program Element number 0603313A, Project D387, \$5.458 million was shown for Fiscal 1995 and \$4.9 million for Fiscal 1996, while \$609,000 was authorized for Fiscal 1997, ending this development effort.

Recent Contracts

Other than the three contracts noted above, only two additional contracts have been issued for the Multi-Purpose Individual Munition program to date. On December 12, 1994, Loral Aeronutronic was awarded contract number DAAH01-95C-R049, an incremental contract worth \$3.7 million of a \$7.85 million cost-plus-incentive-fee contract for the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition technology demonstration program. In October 1996, Lockheed Martin Aeronutronic was awarded a \$7 million contract for engineering and manufacturing development of the Multi-Purpose Individual Munition.

Timetable

This timetable reflects the restructuring in 1990 and the renewed effort under the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition technology demonstration program.

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1977	Rifleman's Assault Weapon development begins
Early	1980s	Scorpion development begins
	1982	Marquardt begins development work
Mid	1980s	Multi-Purpose Individual Munition program defined
	1985	Multi-Purpose Individual Munition technical parameters defined
	1986-1987	Program and funding manipulation in Congress
July	1987	Program and funding structure agreed upon
November	1987	Request for quotations for Multi-Purpose Individual Munition proof-of-principle phase issued
May	1988	Three contracts awarded
	1988-1989	US Army evaluations conducted
August	1989	Proof-of-principle program begins
March	1990	Proof-of-principle program ends
August	1990	Multi-Purpose Individual Munition program restructured, essentially terminated
December	1994	Contract awarded to Loral Aeronutronic for the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition technology demonstration program
May	2001	Program terminated

Worldwide Distribution

Export Potential. The Short Range Anti-Tank Weapon/Multi-Purpose Individual Munition was not in development long enough to judge its potential impact of the on the export market.

Countries. **United States** (preprototype and prototype munitions only).

Forecast Rationale

There is still strong interest in the Short-Range Anti-Tank Weapon/Multi-Purpose Individual Munition, despite the cancellation of the program in May 2001. However, the program is unlikely to be resurrected.

While the reasons for its termination are still unknown, it is known that the weight of the weapon had greatly concerned US Army officials. Also causing concern

was the fact that the Marines had slashed the planned procurement of the Predator, which would have undoubtedly had a negative impact on the unit price of the Multi-Purpose Individual Munition. Therefore, the new Multi-Purpose Individual Munition program can be considered defunct. We will nevertheless continue to monitor developments in this area, especially the XM141 Bunker Defeat Munition program.

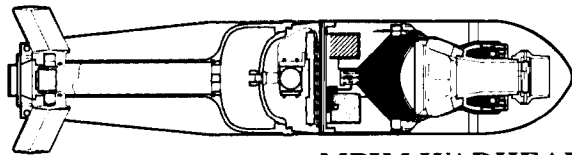
Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Munition	through 00	High Confidence Level			Good Confidence Level			Speculative			Total 01-10	
		01	02	03	04	05	06	07	08	09		10
LOCKHEED MARTIN AERONUTRONIC MULTIPURPOSE INDIVIDUAL MUNITION (a)	142	0	0	0	0	0	0	0	0	0	0	0
Total Production	142	0	0	0	0	0	0	0	0	0	0	0

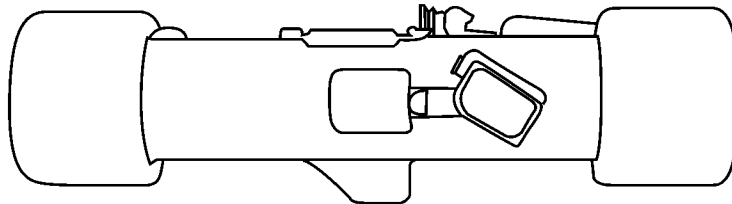
(a) This program was terminated in May 2001. All production is for the fabrication of developmental and operational test munitions.

U.S. ARMY'S MPIM/SRAW

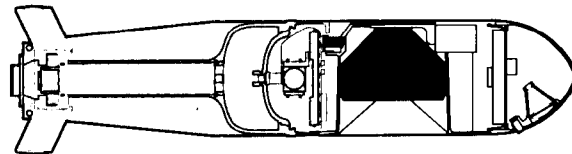


MPIM WARHEAD

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AND
LAUNCHER**



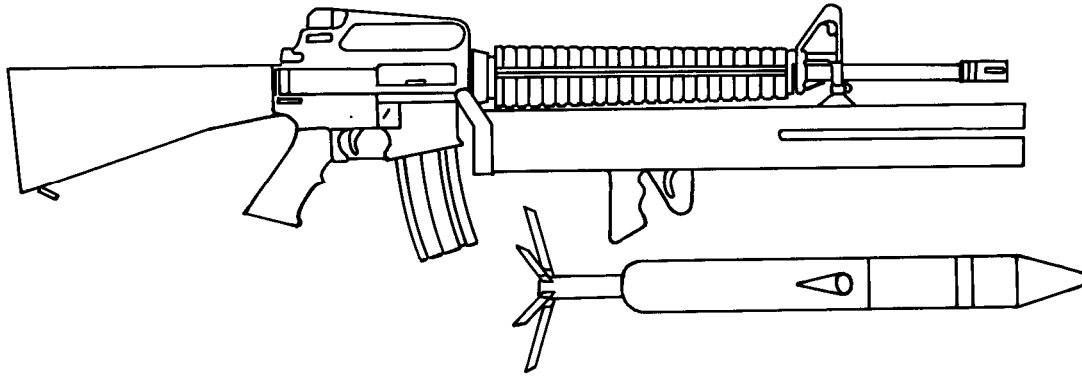
U.S. MARINE CORPS' PREDATOR/SRAW



ANTITANK WARHEAD

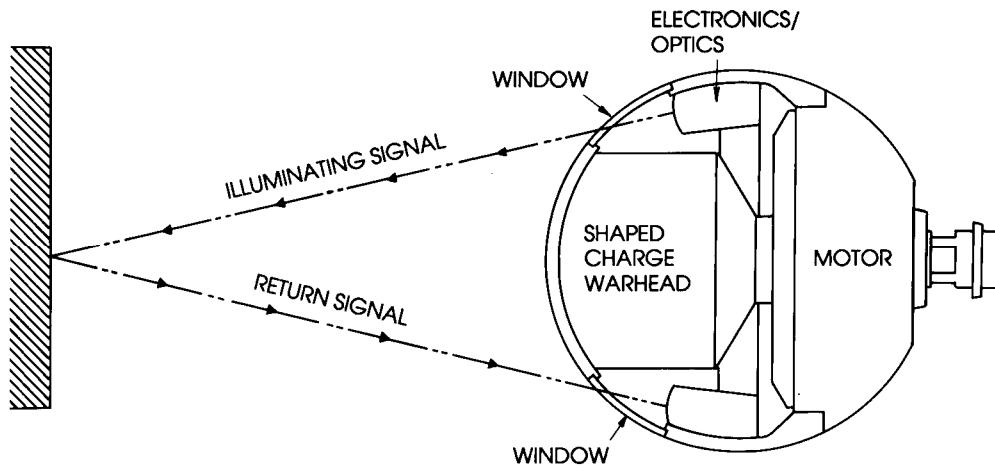
Multi-Purpose Individual Munition

Source: Lockheed Martin



SCORPION

Source: Forecast International



RIFLEMAN'S ASSAULT WEAPON

Source: Brunswick Defense