FIM-92 Stinger - Archived 4/2009

Outlook

- Production completed
- Stinger SAMs operational around the world
- U.S. is investigating follow-on technologies; Stinger SAM replacement could be introduced around 2015
- Potential replacement options for Stinger include kinetic- and directed-energy weapons
- Stinger will remain in service with the U.S. military until 2025
- New restrictions could hurt sales

Orientation

Description. Shoulder-launched anti-aircraft missile.

Sponsor. U.S. Department of Defense through the U.S. Army Aviation & Missile Command (AMCOM), Huntsville, Alabama.

Status. The FIM-92C RMP model missile has been phased out in favor of the upgraded Block I missiles. The Block I entered production in August 1995 and could eventually be followed by a proposed Block II missile.

Total Produced. Approximately 89,647 FIM-92A/B/C/D missiles were completed or were in production by the end of 2007. These figures include all RDT&E missiles. Production in Europe commenced in 1992, with fabrication in Switzerland following in 1993.

Some reports say that EADS switched over to the manufacture of the Stinger Block I. The availability of this enhanced missile could mean an extension in the European Stinger production run.

Application. Developed as part of the U.S. Army's Man-Portable Air Defense System (MANPADS), the Stinger is replacing the Redeye for defense against low-flying aircraft.

Price Range. The FY90/FY91 documents list the unit cost of Stinger at $36,467 for the U.S. Army. Other estimates have placed the per-unit price of the Stinger system at $35,000 each.

Contractors

Prime

Raytheon Missile Systems	http://www.raytheon.com, 1151 E Hermans Rd, Tucson, AZ 85706 United States, Tel: + 1 (520) 794-3000, Fax: + 1 (520) 794-1315, Prime
EADS Defence & Security Systems, LFK Lenkflugkörpersysteme GmbH	PO Box 1661, Unterschleisheim, 85705 Germany, Tel: + 49 89 3179 0, Fax: + 49 89 3179 2219, Licensee Defunct

RUAG Aerospace	http://www.ruag.com, PO Box 301, Emmen, 6032 Switzerland, Tel: + 41 412 684 347, Fax: + 41 412 683 948, Email: marketing.aerospace@ruag.com, Licensee

Subcontractor

Aerojet	http://www.aerojet.com, 5731 Wellington Rd, Gainesville, VA 20155 United States, Tel: + 1 (703) 754-5000 (Mk 12 Rocket Motor)
Lockheed Martin Sippican	http://www.sippican.com, 7 Barnabas Rd, Marion, MA 02738-1421 United States, Tel: + 1 (508) 748-1160, Fax: + 1 (508) 748-3626, Email: uvmktg@sippican.com (M934E6 Fuze)
Raytheon Network Centric Systems	http://www.raytheon.com, 13532 N Central Expy, M/S 87, Dallas, TX 75243 United States, Tel: + 1 (972) 344-4901, Fax: + 1 (972) 344-4910 (PAS-18 Stinger Night Sight (SNS))
Raytheon Network Centric Systems, Radios and Terminals	http://www.raytheon.com, 1010 Production Rd, Fort Wayne, IN 46808 United States, Tel: + 1 (260) 429-6780, Fax: + 1 (260) 429-6736, Email: commsys@raytheon.com (M258 Warhead Body Components)

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to www.forecastinternational.com (see Products & Samples/Governments & Industries) or call + 1 (203) 426-0800.

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

Design Features. The Stinger Weapon System consists of the Stinger missile round, gripstock, IFF interrogator, IFF programmer battery charger, weapon round container, missile round container, and carry rack. When the separable gripstock is mated to the missile round, the assembly is called the Stinger Weapon.

	Metric	**U.S.**
Dimensions		
Missile length	152.40 cm	5.00 ft
Missile diameter	6.98 cm	2.75 in
Missile fin span	9.14 cm	3.60 in
Missile weight	10.13 kg	22.30 lb
Gripstock weight	2.1 kg	4.5 lb
Launcher weight	3.50 kg	7.70 lb
Performance		
Speed	Mach 1.7	Mach 1.7
Altitude (max)[(a)]	14,782.80 m	48,500 ft
Altitude (min)[(a)]	9.15 m	30 ft
Range[(a)]	0.3-5.55 km	1,000-18,204 ft
Storage life	10 yr	10 yr
Reliability	83.7%	83.7%

[(a)] Estimated data for usage altitudes.

Propulsion. Mk 12 Mod 1 solid-propellant rocket motor produced by Atlantic Research Corp, Greenville, Virginia (plant at Gainesville). Atlantic Research Corporation has sold its tactical rocket motor business to Aerojet.

Control & Guidance. Optical aiming, passive infrared homing. Loral Aeronutronics developed a laser beam-riding guidance system that does not require a seeker head, under the name Alternate Stinger. The dual-mode (infrared/ultraviolet) POST (Passive Optical Seeker Technology) is now the primary seeker for Stinger. The Mk 12 Mod 4 Identification Friend or Foe (IFF) units were manufactured by Teledyne Electronics, Newbury Park, California. A reprogrammable microprocessor for Stinger/Stinger POST was deployed and adjusted. ITT Defense Electro-Optical Products has supplied F4960 image-intensified sights to the U.S.

Marine Corps as the interim Stinger Night Sight. The service has since adopted a thermal imaging device developed by Magnavox Electro-Optical Systems as its definitive Stinger Night Sight. Magnavox Electronic Systems Company, Electro-Optical Systems, Mahwah, New Jersey, produces the PAS-18 WASP (Wide Angle Stinger Pointer) thermal imaging sight, which can be mounted on the Stinger launcher. Magnavox has since been purchased by Raytheon.

Launcher Mode. The basic initial version is fired from portable shoulder-mounted launchers by ground troops. The Air-to-Air Stinger (ATAS) is fired from launch rails on the OH-58 and Agusta A129 Mangusta helicopters. The Avenger Pedestal Mounted Stinger is fired from a pedestal mount in the M998 High Mobility Multipurpose Wheeled Vehicle (HMMWV). Other launch applications include a shipboard firing platform designed by Raytheon and Radamec, the U.S. Marine Corps' LAV-AD (Air Defense) vehicle, and the M2/M3 Bradley Fighting Vehicle. This latter platform was called the Bradley Stinger Fighting Vehicle (BSFV), later known as the Linebacker.

Denmark developed a twin naval mounting for the Stinger, as the need to carry the missile in the ready-to-fire position quickly exhausted gunners. Turkey has also developed indigenous launch platforms for Stinger: one based on a wheeled vehicle; another mounted on an M113 armored personnel carrier.

Warhead. Fragmentation type with smooth fragmenting casing. The fuze was developed by Picatinny Arsenal, Dover, New Jersey, under the auspices of U.S. Army Armament Research and Development Command. Both Magnavox Electronic Systems Company (now Raytheon), Fort Wayne, Indiana; and Sippican, Marion, Massachusetts, produced the M934E6 Stinger missile fuze.

FIM-92 STINGER

Source: Atlantic Research Corp

Variants/Upgrades

There are various Stinger missile launcher configurations: FIM-92A Basic Stinger; FIM-92B Stinger POST - Passive Optical Seeker Technology; FIM-92C Stinger RMP; FIM-92D Stinger RMP-1, also known as

Stinger Block I upgrade; and FIM-92E, the proposed Block II Stinger. Launcher configurations include the shoulder launcher, the vehicle-borne Avenger Pedestal Mounted Stinger (PMS), the Air-to-Air Stinger (ATAS), and the Naval Stinger. The Naval Stinger is being developed by Raytheon and Radamec for close-in defense applications. The unit price for the system could be in the area of $1.5 million.

For additional information on these systems, see the pertinent entries in the **Program Review** section.

Program Review

Background. Initially known as the Redeye II, the Stinger is a shoulder-launched replacement for the original Redeye. The Stinger project was initiated when it was found that the Redeye had certain combat deficiencies. The Redeye was limited in its look angle and could only fire at aircraft after they had passed, homing-in on engine exhausts. It also had no Identification Friend or Foe (IFF) capability.

The new system offers an all-aspect intercept capability, in contrast to Redeye's tail-chase-only limitation. Stinger also incorporates a higher performance rocket motor, an upgraded infrared seeker, and an advanced guidance technique, permitting greater range and velocity.

More Effective Man-Portable SAM Needed

The Stinger is designed so that one man can shoulder-launch the weapon. Upon acquiring the target visually, the gunner aligns the target in an open sight. After IFF interrogation has established hostile identity, missile functions are automatically completed through interception. Stinger is a fire-and-forget missile. Once the missile-firing sequence has been completed, the gunner can reload and track other targets. System design was completed in December 1972. Low-rate production began in April 1981, and Initial Operational Capability was reached on February 27, 1981.

The Army set up a requirement that five out of six Stingers taken at random from the production line must hit their targets. Such tests were scheduled to continue every two months. During 1984, General Dynamics delivered 2,985 Stinger missiles. The company produced 10,000 Stinger missiles between 1978 and March 1985.

Stinger Replacement Program. The Pentagon is examining its options for replacing the Stinger missile system. While the SLAMRAAM (Surfaced-Launched Advanced Medium Range Air-to-Air Missile) is to meet part of this requirement, the U.S. military wants a complementary system that can also meet its need for a man-portable SAM (Surface-to-Air Missile).

The U.S. Marine Corps Systems Command issued a Request for Information on a Stinger Missile Replacement (SMR) in July 2003. Potential technologies to be considered included kinetic energy, missile, and directed energy.

Unlike the SLAMRAAM, the SMR is to be man-portable, with a weight less than 25 pounds and a length of 60 inches or less. This missile is to be capable of engaging aircraft, cruise missiles, and unmanned air vehicles. The SMR is also to have a secondary surface attack capability for use against trucks, light armored vehicles, and certain structures. The missile is to have a range equivalent to or better than the current Stinger and to have multiple warhead options. The SMR is to have a per-unit cost of less than $95,000.

The Pentagon could have begun development of a Stinger follow-on as soon as FY06. This new system could enter service in 2015, but no later than 2025.

Missile Models

FIM-92A Stinger. This was the initial development version of the Stinger anti-aircraft missile. The FIM-92A replaced the FIM-43 Redeye within the U.S. Army. Most of the export sales of the Stinger are accounted for by the FIM-92A.

FIM-92B POST. The POST (Passive Optical Seeker Technology) seeker, a dual infrared/ultraviolet seeker, is the most advanced passive electro-optical device currently available. It has replaced the original infrared seeker in production on the FIM-92A missile.

Similar to the basic Stinger, the POST-equipped missile employs an advanced guidance system that uses a rosette scan inside a small computer instead of the two rotating mirrors employed by the basic Stinger. The image scan method enhances target detection with the two-color seeker, providing an option to track with either the infrared or ultraviolet spectral band. The POST seeker incorporates two detector materials, one sensitive to infrared, the other to ultraviolet energy. The advantages gained with the image scan, two-color system are further enhanced by signal processing using two microprocessors integrated into advanced micro-electronic circuitry. The two-channel Stinger POST is

said to be able to compare and lock-on to the larger of two heat sources. Inherent in the POST design is the flexibility to counter current and anticipated infrared countermeasures.

The initial POST system performance evaluation contract was awarded to Electro-Optical Research Co, Los Angeles, California, for $91,536 in May 1979. Additionally, General Dynamics received a four-month contract in May 1979 to support flight tests of the seeker. Full-scale development commenced on June 28, 1979, with a $39.5 million contract to General Dynamics. A 13-round contractor flight-test program for the Stinger POST in FY81 was followed by a 16-round government prototype qualification flight-test program in FY82. The milestone date for initial hardware availability for the POST seeker was delayed from March 1983 to December 1983 to allow additional time to complete testing related to the production, integration, and assembly of the sealed head with the guidance electronics.

The U.S. Army originally planned to equip 75 percent of its total Stinger inventory with the POST seeker; production deliveries began in 1987. However, only 560 Stinger POST systems were delivered to the U.S. Army. According to General Dynamics, this was because the technology for the Stinger POST was quickly surpassed by the latest model, the Stinger RMP (see below). The Stinger POST is no longer in production for the U.S. Army. The model was last procured in FY84, and final deliveries were completed in FY88.

FIM-92C RMP. In 1984, MICOM awarded $35.5 million to General Dynamics for the engineering development of a reprogrammable microprocessor (RMP) for Stinger. The system is designed to be retrofitted to existing Stinger missiles with no physical changes. New production missiles with this capability began delivery in 1988.

The RMP version of the Stinger POST missile provides the capability to easily change the missile software logic as the IR countermeasures threat changes. The Stinger POST was controlled by microprocessors, with the software logic permanently affixed to the hybrid microelectronic assembly internal to the missile. Changing the permanent software would involve an extensive retrofit program estimated to cost $8,000 to $10,000 per missile.

In the RMP version of Stinger, the software logic is located external to the missile through a plug-in module. As the threat evolves, the missile software can be updated through the module. Development costs of the RMP are estimated at $39.8 million, with procurement costs placed at $3.7 million. The RMP is estimated to add about $1,500 per missile to the average fly-away unit cost of the Stinger POST.

In 1988, General Dynamics was awarded the first multiyear contract for the delivery of the Stinger RMP. A total of 19,500 missiles were to be delivered through 1991, with an option for an additional 1,050. Including all options, total worth of this contract was $695 million. The Army awarded the first and second increments to these contracts, $105.9 million for 5,258 missiles, and $244 million for 7,012 units. Work on these contracts was completed by 1992.

Problems cropped up regarding the electronic components in the RMP program, and the U.S. Army announced plans to delay fielding the advanced version of the missile until General Dynamics corrected the situation. U.S. Army officials stated that the RMP was not detecting certain targets as specifications required. The problem seemed to center on the missile's ability to discriminate between certain types of flares and the target aircraft dispensing them. The service stressed, however, that these problems did not affect the missile's overall performance. U.S. Army officials said that the problem arose only in a certain situation involving a particular target. This situation might have been helicopters (possibly equipped with infrared suppressors) flying at tree-top levels and dispensing airborne high-intensity flares. New software was tested, and General Dynamics and the Army attempted to correct the problem.

Stinger Makes Name for Itself in Afghanistan

Deliveries of the missiles were suspended by the U.S. Army in June 1988, although the service continued to provide General Dynamics with partial payments. In June 1989, the U.S. Army agreed to start accepting the missile, pending the outcome of a strict acceptance process. The process testing demonstrated that the missile had overcome some of the initial problems, but several remained. The weapon's maker had set out to equip the missile with new software that would allow it to discriminate between enemy jamming and high-speed, low-flying attack helicopters. This was the fourth modification to the programming module. Retrofit began in 1990.

According to U.S. Army officials, the RMP version had scored direct hits in the majority of tests conducted. As a result, the Army resumed taking delivery of the system. General Dynamics agreed to retrofit the remaining faulty Stinger RMP modules at no cost to the government. During tests in April and May 1989, the Stinger RMP hit targets 18 out of 26 times, a ratio the U.S. Army calls acceptable.

FIM-92 Stinger

Approximately 2,500 Stinger RMP missiles were produced between 1988 and 1991. General Dynamics had a multiyear contract for 20,000 Stinger RMPs, out of a total American requirement for 30,000 missiles. Raytheon qualified as a second source and produced its first Stinger RMPs in 1990. The U.S. Army in Europe began receiving the latest Stinger version in November 1989. This version is fitted with the Stinger RMP Mod 3 unit, which is located in the hand grip. Low-rate initial production was started in 1992 by the European Stinger Project Group (SPG), which is to deliver 4,800 missiles to Turkey, 4,500 to Germany, and 1,709 to the Netherlands. In a second European production program, Switzerland is to manufacture 2,500 Stinger RMPs.

FIM-92D Block I. The U.S. Army has introduced additional improvements to the Stinger missile as part of an overall upgrade program. The initial upgrades are part of an extensive package involving several new block enhancements that could provide the service with a more capable surface-to-air and air-to-air missile, the latter being earmarked for U.S. Army attack helicopters. Eventually, this program could provide an all-new missile known as Advanced Stinger.

Further Modifications Developed

The Block I upgrade, also called RMP-1 and designated FIM-92D by Forecast International, will significantly improve overall performance by incorporating a number of hardware and software changes to the Stinger RMP guidance section. These enhancements improve accuracy and reliability, especially against countermeasures, and extend the missile's shelf life. One Block I hardware change will be integration of the smallest ring laser gyro currently in production. The new gyro, developed by Honeywell, will allow trajectory shaping and will further improve the missile's accuracy while making it very effective against low-aspect targets. The following are also to be included as part of the Block I upgrade: new wiring harnesses, computer memory and software upgrades, and a smaller, longer-lasting lithium battery to replace the RMP's calcium chromate battery.

Production of the Block I missile commenced in August 1995. Hughes manufactured 539 new Block I missiles to qualify the design. The company is now retrofitting the existing U.S. Stinger inventory to the new Block I standard. The Block I missile will be procured as an interim system until the more capable Block II is available. The United States could begin fielding the Block II around 2005.

FIM-92E Block II. The Block II upgrade, designated FIM-92E, was a result of the U.S. decision to forgo procurement of the ADATS (Air Defense Anti-Tank System). In the wake of the ADATS cancellation, the U.S. Army was left with a gap in its air defense capabilities. To rectify this, the service began considering the integration of new seeker technology into the Stinger. The options included a semi-active guidance package that would provide a laser beam-riding capability for a portion of the missile's flight. Once the missile was close enough to the target, it would switch over to its infrared seeker. The other option was the employment of a 128x128 staring focal plane array. Both options would have improved Stinger's capabilities against targets in clutter and extended its engagement range. The focal plane array technology was the preferred option, although it was considerably more expensive. A lightweight, hit-to-kill design and increases in warhead lethality were also being studied.

The Block II product improvement program received a modest amount of funding. Raytheon was awarded a demonstration and validation contract for the Block II. Optimally, an engineering and manufacturing development phase contract would have been awarded in FY00, with the Block II missile production decision being made four to five years later. The majority of the improved units projected for U.S. procurement would have been employed as retrofits to existing RMP missiles. Unfortunately, no money has been provided to fund the Block II program.

Significant News

Man Offers to Exchange SAM Launcher for Shoes – A man offered to turn in a surface-to-air missile (SAM) launcher in exchange for a pair of sneakers. The Orlando police were running a campaign to get people to turn in guns. The "Kicks for Guns" program provided a pair of sneakers for anyone turning in a firearm. The man showed up with a 4-foot-long launcher, which he wanted to exchange for a pair of size-three Reebok sneakers for his daughter. The man said he tried to take the launcher to the dump, but the attendants told him to leave. (WFTV, 8/07)

Hmong Coup Plotters Wanted Stinger SAMs – Those planning to overthrow the communist government of Laos were seeking FIM-92 Stinger man-portable surface-to-air missiles (SAMs). Federal agents arrested 10 men

involved in this plot. Nine of those apprehended were Hmong, an ethnic minority in Laos. The group was also attempting to acquire AK-47 assault rifles and other automatic weapons. The arms dealer in question was actually an undercover agent from the Bureau of Alcohol, Tobacco, Firearms, and Explosives.

Vang Pao, 77, is identified in the criminal complaints as the leader of the group planning the invasion of Laos. He was a Hmong general in a CIA-sponsored army that fought Lao and Vietnamese communists during the 1960s and 1970s. The plotters may have been working with the Neo Hom, also known as United Lao Liberation Front. (*The Sacramento Bee*, 6/07)

Funding

The Pentagon has decided to forgo procurement of the Stinger Block II. Procurement of the Stinger Block I ended with the Pentagon's FY03 buy. The Pentagon plans to use its existing inventory of Block I missiles. Money is available to maintain the Pentagon's existing Stinger inventory.

U.S. FUNDING

	FY03 QTY	FY03 AMT	FY04 QTY	FY04 AMT	FY05 QTY	FY05 AMT	FY06 QTY	FY06 AMT
Procurement								
U.S. Army								
Stinger	139	25.4	-	2.9	-	-	-	-
Stinger Mods	-	1.5	-	1	-	-	-	-
USMC								
Stinger Mods*	-	-	-	0.2	-	-	-	-
Stinger PMS	-	-	-	0.8	-	10	-	-
RDT&E								
Proj – 1	-	-	-	-	-	-	-	-
Total	**139**	**26.9**	**-**	**4.9**	**-**	**10**	**-**	**-**

All $ are in millions.

*Title is Expeditionary Air Defense System (LAAD Sustainment).

Proj - 1 PE#0203801A Missile/Air Defense Product Improvement Project D303 Stinger RMP PIP.

Contracts/Orders & Options

In June 2003, Raytheon Company was awarded a $16.4 million contract for the production of 139 Block I Stinger missiles. Delivery of these missiles was scheduled to commence in January 2005 and be completed by the following April.

In January 2001, Raytheon Company received a $44.7 million contract (which is not to exceed $89.4 million) for the procurement of 1,007 Stinger Block I missiles and associated hardware. This contract combines purchases by Greece, Italy, and the United Kingdom. Work was completed in January 2004. Contract Number DAAH01-01-C-0042

In June 2000, Raytheon Company was awarded a $21.4 million modification to a firm fixed-price contract for 511 Stinger RMP missiles, 14 captive flight trainers, and four telemeters. Work was completed by October 2002. Contract Number DAAH01-97-C-0097

Timetable

Month	Year	Major Development
	1968	Design conceived
	1971	Advanced R&D initiated

FIM-92 Stinger

Month	Year	Major Development
	1972	Engineering development started
Aug	1973	Launch tests
Oct	1976	Contractor prototype qualification tests
Apr	1977	Government prototype qualification tests
Jun	1977	Initiation of engineering development of POST seeker
Oct	1977	Production prototype tests
	1978	Initial production begun
	FY78	Engineering development completed
	78-79	Operational evaluation begun
Late	1979	Operational deployment begun
	1979	Full-scale engineering development of POST
Aug	1980	Stinger qualification tests completed
Jan	1981	Stinger entered service in U.S. Army
Feb	1981	Stinger deployed in Europe
Late	1981	Full-scale engineering development of POST completed
Sep	1984	RMP development begun
Mar	1985	10,000th Stinger produced
Jul	1985	POST full-scale production
	1986	Stinger POST deliveries begun
Oct	1988	Production reaches 600 per month
	1989	First Avenger Pedestal Mounted Stinger delivered
Late	1989	RMP first delivery scheduled
	1990	Initial low-rate production by EADS begun with full-scale fabrication following in 1991-1992
	1991-92	Initial low-rate production begun in Switzerland
	1992	Stinger cut from U.S. procurement budget
	1993	Serial production in Europe begun
	1996	Block I Stinger ordered
	2000	Block II Stinger program suspended
	2001-2007	Stinger production continuing
	2015-2025	Stinger replacement possibly available

Worldwide Distribution/Inventories

In 2001, **Denmark** announced that it was interested in acquiring Stinger fire units. Denmark could procure an initial batch of 24 fire units, with another 12 to 24 systems to be acquired in the future.

Estonia could receive the Stinger via a purchase of the Avenger air defense system. In late 2000, Estonia said that acquiring a mobile air defense system like the Avenger was at the top of its priority list. The contract could be worth $27 million. Other options include the RBS70. The U.S. has also reportedly offered surplus MIM-72 Chaparral systems.

In 2002, **Lithuania** signaled its interest in acquiring FIM-92 Stinger man-portable surface-to-air missiles from the United States. This possible Foreign Military Sale could be worth $34 million. The Lithuanian government wants to acquire eight vehicle-mounted Stinger launch systems along with 69 Stinger RMP Block I missiles (54 complete tactical missiles, 9 captive flight trainers, and 6 lot acceptance test missiles). Other equipment to be provided includes two portable search and target acquisition radars, two tactical operations centers, and inert training missiles.

Portugal is considering a purchase of the FIM-92 as part of an overall upgrade of its army's air defense capabilities, and Spain may place an order after the conclusion of the ongoing competition (Stinger is competing against the French Mistral).

Spain could procure a new air defense system in 2006. The Spanish military is said to be interested in purchasing man-portable SAMs, but other reports say Madrid wants a mobile system that can deal with close- to short-range airborne threats. One article said Spain planned to purchase 3,000 man-portable SAMs. Competitors for this contract include MBDA and its Mistral; Lockheed Martin and Raytheon, which could be offering the FIM-92 Stinger or a ground-launched AMRAAM; and Rafael and General Dynamics, with a system based on the Barak missile.

Turkey could acquire the Air-to-Air Stinger as part of a deal to purchase the AH-1Z King Cobra attack helicopter. Turkey selected the King Cobra as the winner of its helicopter competition in 2000. In July 2000, Turkey placed a new order with the European Stinger Project Group for about 1,000 Stinger missiles.

User Countries. The Stinger is currently in use with U.S. armed forces and at least 14 other nations worldwide. They include **Afghanistan** (former rebels), **Angola** (rebels), **Bahrain**, **Chad**, **Chechnya** (reportedly operated by Chechen rebels), **Republic of China** (on Taiwan), the **Federal Republic of Germany**, **Greece**, **Iran** (some examples), **Italy** (man-portable and air-to-air), **Japan**, **Lithuania**, the **Netherlands**, **Qatar**, **Saudi Arabia**, **Sri Lanka** (reportedly in Tamil rebel hands), **Switzerland**, **Turkey**, the **United Kingdom**, and the **United States**.

Forecast Rationale

The market for man-portable surface-to-air missiles (SAMs) is undergoing change. Governments are worried that these missiles might fall into the hands of terrorists for use against military aircraft and civilian airliners. Consequently, new restrictions on the sale of man-portable SAMs may soon appear.

This is not good news for missile companies, but may have little impact on Raytheon. Raytheon's FIM-92 Stinger is in the twilight of its production run.

First introduced in the 1970s, the Stinger won fame during the Soviet occupation of Afghanistan. The Soviet Union had invaded Afghanistan in December 1979 to keep the country's faltering communist regime in power. The communists faced mounting problems, though their reign was still new. Communist policy alienated the population and fueled armed resistance. Infighting among communist factions weakened the government.

Winning Fame in Afghanistan

Soviet troops committed to Afghanistan numbered around 120,000. Yet airpower, especially helicopters, was the most devastating weapon used by the Soviets. The resistance forces, called the Mujahideen, had little defense against these weapons. That is until the United States, at the strong urging of a Texas congressman, decided to supply Stinger SAMs. The missile's arrival opened a new phase in the war. With air dominance lost and ground troops too few to occupy the entire country, the Soviets were forced into a continuous holding action. Operations succeeded in breaking up larger resistance formations, but the Soviet and communist Afghan forces were not sufficient to hold on to the ground won. The Stinger did not win the Afghan War for the resistance and its foreign allies, but it was a major contributing factor to this victory.

New restrictions on the sale of these missiles could seriously limit the size and scope of future export contracts. Tighter controls could help stop some illegal sales and transfers of man-portable SAMs to terrorist groups, but not all of them. A greater threat to systems like the Stinger is new technology, which could make man-portable SAMs obsolete.

The man-portable surface-to-air missile could become a thing of the past in the not-so-distant future. The United States is already investigating possible replacement systems for its man-portable SAM – the venerable FIM-92 Stinger, despite the key role Stinger played in the U.S.-supported insurgency against the Soviet occupation of Afghanistan. Now, the Pentagon could begin replacing this missile system as early as 2015.

The form a Stinger replacement will take may bear little resemblance to the existing weapon. The Pentagon is studying various approaches, including kinetic- and directed-energy weapons, as well as missile-like concepts. Ground troops will likely need lighter and more capable air defense weapons to protect themselves from the growing threat posed by sophisticated manned and unmanned aircraft, cruise missiles, and perhaps even precision guided munitions (PGMs). Also, any new man-portable anti-aircraft system may have to include a limited capability against ground targets.

Whether new technologies will cause the man-portable SAM market to disappear completely is uncertain, but a possibility. For the time being, the United States plans to make due with its existing inventory of Stinger man-portable SAMs.

Procurement of all-new missiles by the Pentagon has ceased. Money that would have once been spent on the Stinger will instead be directed to "transformational programs." Export orders had helped sustain production of the Block I. Now, fabrication of this missile has ended.

Ten-Year Outlook

The **Ten-Year Outlook** chart has been omitted since no further production is anticipated. This report will be archived in the future.

* * *