

FIM-92 Stinger

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The **FIM-92 Stinger** is a personal portable infrared homing surface-to-air missile developed in the United States and used by all the U.S. armed services, with whom it entered service in 1981. The basic Stinger missile has to date been responsible for 270 confirmed kills of aircraft ^[1].

It is manufactured by Raytheon Missile Systems and also under license by EADS in Germany and in Switzerland. Raytheon designates the missile as a MANPADS (Man-Portable Air-Defense System). It is used by the military of the United States and by 29 other countries. Around 70,000 missiles have been produced.

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Description



Light to carry and relatively easy to operate, the **FIM-92 Stinger** is a passive surface-to-air missile, shoulder-fired by a single operator, although

Stinger



Stinger system

Type	Manportable surface-to-air missile
Place of origin	 United States
Service history	
In service	1981 - Present
Used by	See <i>Operators</i>
Wars	Falklands War, Soviet invasion of Afghanistan, Angolan Civil War, Kargil War
Production history	
Designer	General Dynamics
Designed	1967
Manufacturer	Raytheon Missile Systems
Unit cost	US\$38,000
Produced	1978
Variants	FIM-92A, FIM-92B, FIM-92C, FIM-92D, FIM-92G

Specifications (FIM-92 Stinger)

Weight	15.2 kg
Length	1.52 m
Diameter	70 mm
Crew	1
Effective range	4,800 meters (15,750 ft.)
Warhead weight	3 kg
Engine	Solid Rocket Motor
Guidance system	Infrared homing

Two soldiers preparing to fire a shoulder-mounted Stinger missile launcher

officially it requires two. The FIM-92B can attack aircraft at a range of up to 15,700 feet (4800 m) and at altitudes between 600 and 12,500 feet (180 and 3800 m). The missile can also be fired from the M-1097 Avenger vehicle and the M6 Linebacker, an air

defense variant of the M2 Bradley IFV. The missile is also capable of being deployed from HMMWV Stinger rack, and can be used by airborne paratroopers. A helicopter launched version exists called the ATAS or Air-to-Air Stinger.

The missile is 1.52 m long and 70 mm in diameter with 10 cm fins. The missile itself weighs 10.1 kg, while the missile with launcher weighs approximately 15.2 kg (33.5 pounds). The Stinger is launched by a small ejection motor that pushes it a safe distance from the operator before engaging the main solid-fuel two-stage motor which accelerates it to a maximum speed of Mach 2.2 (750 m/s). The warhead is a 3 kg penetrating hit-to-kill warhead type with an impact fuse and a self-destruct timer.

In order to fire the missile, a BCU (Battery Coolant Unit) must be inserted into the handguard. This shoots a stream of argon gas into the system, as well as a chemical energy charge that enables the acquisition indicators, and missile to get power. The batteries are somewhat sensitive to abuse, and only hold so much gas in them. Over time, and without proper maintenance, they are known to become unserviceable. The IFF antenna receives its power from a rechargeable battery. Guidance to the target is initially through proportional navigation and is then switched to another mode that directs the missile towards the target airframe instead of its exhaust plume.

There are three main variants in use; the Stinger basic, STINGER-Passive Optical Seeker Technique (POST), and STINGER-Reprogrammable Microprocessor (RMP).

The Stinger-RMP is so-called because of its ability to load a new set of software via a ROM inserted in the gripstock at the depot. If this download to the missile fails during power-up, basic functionality runs off the on-board ROM. The four-processor RMP has 4K of RAM for each processor; since the downloaded code runs from RAM, there isn't much space to spare, particularly for the processors dedicated to seeker input processing and target analysis. The RMP has a dual-detector seeker: IR and UV. This allows it to distinguish targets from countermeasures much better than the Redeye, which was IR-only.

History



National Guard soldiers training with a Stinger Missile

Initial work on the missile was begun by General Dynamics in 1967 as the *Redeye II*. It was accepted for further development by the U.S. Army in 1971 and designated FIM-92; the *Stinger* appellation was chosen in 1972. Because of technical difficulties that dogged testing, the first shoulder launch was not until mid-1975. Production of the FIM-92A began in 1978 to replace the FIM-43 Redeye. An improved *Stinger* with a new seeker, the FIM-92B, was produced from 1983 alongside the FIM-92A. Production of both the A and B types ended in 1987 with around 16,000 missiles produced.

The replacement FIM-92C had been developed from 1984 and production began in 1987. The first examples were delivered to front-line units in 1989. C-type missiles were fitted with a reprogrammable electronics system to allow for upgrades. The missiles which received a counter-measures upgrade were designated D and later upgrades to the D were designated G.

The FIM-92E or Block I was developed from 1992 and delivered from 1995 (certain sources state that the FIM-92D is also part of the Block I development). The main changes were again in the sensor and the software, improving the missile's performance against smaller and low-signature targets. A software upgrade in 2001 was designated F. Block II development began in 1996 using a new focal plane array sensor to improve the missile's effectiveness in "high clutter" environments and increase the engagement range to about 25,000 feet (7,600 m). Production was scheduled for 2004, but *Jane's* reports that this may be on hold.

Since 1984 the Stinger has been issued to many US Navy warships for point defense, particularly in Middle Eastern waters. In fact, until it was decommissioned in September of 1993, the U.S. Navy actually had at least one dedicated Stinger Gunnery Detachment attached to Beachmaster Unit Two in Little Creek Virginia. The sailors of this detachment would deploy to various Carrier Battlegroups in teams of 2 to 4 sailors per ship as requested by Battle Group Commanders.

Service

The Stinger's combat debut occurred on 21 May 1982, during the Falklands War fought between Britain and Argentina. Soldiers of the British special forces had been clandestinely equipped with six missiles, although they had received very little instruction in their use. The sole SAS trooper who had received training on the system, and was due to train other troops, was killed in a helicopter crash on the 19 May.^[2] The very first Stinger fired in anger shot down an Argentine Pucará ground attack aircraft.^[3] However, subsequent shots were ineffective due to British troops' unfamiliarity with the weapon's recharging procedure. The main MANPAD used by both sides during the Falklands War was the Blowpipe missile.

The CIA supplied nearly 500 Stingers (some sources claim 1500-2000) to the Mujahideen guerrillas fighting Soviet forces in Afghanistan during Operation Cyclone, the Soviet war in Afghanistan in the 1980s, where they were used quite successfully. After the 1989 Soviet withdrawal the U.S. government collected most of the Stingers it had delivered, but some of them found their way into Iran.^[1] (http://www.nisat.org/weapons%20pages%20linked/US/stinger_missile_system.htm) Also, as part of its effort to overthrow Angola's government, the Reagan administration provided Stingers to UNITA anti-government fighters in the late 1980s. In both cases, efforts to recover missiles after the end of hostilities proved incomplete. There has been speculation that the reason the Stinger has not been used in further attacks is because the batteries that are needed for the launcher to function have expired. However, Stinger missiles were used by the Pakistani Army in the Kargil War and shot down an Indian Air Force Mi-8 Helicopter and a MiG-21 aircraft, as well as damaging a Canberra reconnaissance aircraft. Pakistan now operates an improved local version of the Stinger missile and has begun phasing out its inventory of the original American made models.

After Soviet withdrawal from Afghanistan, the United States attempted to buy back the Stinger missiles, with a 55 million dollar program to buy back around 300 missiles (USD 183,300 each)^[4].

The U.S. inventory contains 13,400 missiles. The total cost of the program is \$7,281,000,000.^[5]

Operators

-  Bosnia and Herzegovina
-  Chile
-  Denmark
-  Egypt
-  Germany - Uses EADS-made Stingers
-  Greece
-  Israel
-  Italy
-  Iraq
-  Japan - Former user, now using Type 91
-  South Korea - Former user, now using KP-SAM and Mistral
-  Latvia
-  Lithuania
-  Myanmar
-  Netherlands
-  Norway
-  Pakistan
-  Portugal
-  Republic of China (Taiwan): Republic of China Marine Corps
-  Slovenia
-  Spain
-  Switzerland - Uses license-made Stingers
-  Turkey
-  UNITA
-  United Kingdom
-  United States

References

- Jane's Land-Based Air Defence 2005-2006, ISBN 0-7106-2697-5
1. ^ (2005) *Jane's Land-Based Air Defence 2005-2006*.
 2. ^ One of their aircraft is missing - Britain's Small Wars (<http://www.britains-smallwars.com/Falklands/argentine-aircraftlosses.html>)
 3. ^ San Carlos Air Battles - Falklands War 1982 (<http://www.naval-history.net/F44airbattles.htm>)
 4. ^ Weiner, Tim. "U.S. Increases Fund To Outbid Terrorists For Afghan Missiles ([http://query.nytimes.com/gst/fullpage.html?res=9F0CEFDD163CF937A15754C0A965958260&scp=1&sq="+U.S.+increases+fund+to+"](http://query.nytimes.com/gst/fullpage.html?res=9F0CEFDD163CF937A15754C0A965958260&scp=1&sq=)), *The New York Times*, 24 July 1993. Retrieved on 2008-01-12.
 5. ^ FIM-92A Stinger Weapons System - Federation of American Scientists (<http://www.fas.org/man/dod-101/sys/land/stinger.htm>)

See also

- FIM-43 Redeye, the ~~MA~~ ~~missile~~ ~~on~~ ~~the~~ ~~Stinger~~ ~~Wiki~~ ~~replaced~~ ~~by~~ ~~US~~ ~~specific~~ ~~knowledge!~~
- AIM-92 Stinger, Air-to-air Stinger.
- Anti-aircraft warfare
- M-1097 Avenger, the Stinger launch vehicle.
- M6 Linebacker M2 Bradley Air defense variant.
- United States Army Aviation and Missile Command
- List of crew served weapons of the US Armed Forces.
- Iгла, during the Cold War, the Soviet Union's equivalent missile.
- Mistral missile
- Starstreak - a British MANPADS

External links

- Raytheon (General Dynamics) FIM-92 Stinger - Designation Systems (<http://www.designation-systems.net/dusrm/m-92.html>)
- Defense Update: Stinger VSHORAD Missile (<http://www.defense-update.com/products/s/stinger.htm>)
- FIM-92A Stinger Weapons System: RMP & Basic (<http://www.fas.org/man/dod-101/sys/land/stinger.htm>)

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