

STINGER-RMP BLOCK II



Army ACAT II Program

Total Number of Systems:	11,045 (Block I) 11,083 (Block II)
Total Program Cost (TY\$):	\$7,281M
Average Unit Cost (TY\$):	\$6M
Full-rate production:	3QFY94 (Block I) 3QFY06 (Block II)

Prime Contractor

Raytheon

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Stinger missile, a *full-dimensional protection* weapon, is the Army's system for short-range air defense, which provides the ground maneuver commander with force protection against low-altitude airborne targets such as fixed-wing aircraft, helicopters, unmanned aerial vehicles, and cruise missiles. The Stinger is launched from a number of platforms: Bradley Stinger Fighting Vehicle, Bradley Linebacker, Avenger (High Mobility Multi-Purpose Wheeled Vehicle) and helicopters, as well as the Man-Portable Air Defense configuration.

There are two upgrades to the Stinger-Reprogrammable MicroProcessor (RMP) missile to correct known operational deficiencies. The first upgrade, called Stinger-RMP Block I, makes software and hardware changes, including a new roll frequency sensor, a small battery, and an improved computer

processor and memory. The second upgrade, Stinger-RMP Block II, improves both hardware and software, including an advanced imaging focal plane array and additional signal processing software. The imaging focal plane array used on the Stinger-RMP Block II missile is the same one used on the Air Force's AIM-9X air-to-air missile. Additional upgrades for the Stinger-RMP Block II missile are being considered.

BACKGROUND INFORMATION

Operational deficiencies were discovered during testing of the Stinger-RMP missile in the late 1980s. The Secretary of Defense directed the Army to correct the deficiencies and then operationally test the fixes. In the 1990 TEMP, DOT&E approved a proposed operational test consisting of 24 missile firings.

The Stinger-RMP missile test program was suspended during Operation Desert Storm, and the missile was rushed into the field in preparation for war. After the war, the Army proposed a two-phased upgrade program, Stinger-RMP Block I and Stinger-RMP Block II. The Stinger-RMP Block I missile consisted of hardware and software modifications designed to solve some of the observed operational deficiencies. The Stinger-RMP Block II consists of additional hardware and software modifications designed to solve the remaining deficiencies.

The Army proposes to field more than 11,000 Stinger-RMP Block I missiles, which will remain in inventory until at least 2014. There are plans to produce approximately 11,000 Stinger-RMP Block II missiles. The Milestone (MS) III decision to authorize production of the Stinger-RMP Block II missiles in 2006 will be supported by OT and LFT&E.

The last Stinger-RMP OSD-approved TEMP is dated March 1, 1991. The Army continued to conduct tests without an OSD-approved TEMP. Fifteen test events were conducted between 1993-1996, to verify Stinger-RMP Block I hardware and software improvements. The last Stinger-RMP Block I TEMP submission, dated January 27, 1995, was not approved by OSD because the plan did not provide operationally realistic tests.

As a separate but related question, Congress has urged the Army to evaluate the Air-to-Air advantages and disadvantages Stinger and Starstreak provide for the Longbow Apache (AH-64D). This comparative analysis is to include live Stinger and Starstreak shots off of a Longbow Apache.

TEST & EVALUATION ACTIVITY

This year, the Army concentrated on preparing the STINGER-RMP Block II program for a MS II decision in 1QFY00. DOT&E worked with the Army on developing a test strategy for Stinger-RMP Block II in preparation for this MS II decision. The activities accomplished included the approval of an updated Operational Requirement Document, an updated System Threat Assessment Report (STAR), and new Critical Operational Issues. The TEMP, approved by OSD in October 1999, describes the strategy for developmental testing, combined operational and developmental testing, live fire testing, modeling and simulation, and IOT&E that will be conducted in 4QFY05.

Developmental testing of the new focal plane array infrared (IR) seeker was conducted at Eglin AFB in the past year. This testing focused on assessing the performance of the new seeker in various

countermeasure environments and against targets with low IR signatures. Evaluation of the data is ongoing.

The DOT&E-sponsored Joint Live Fire (JLF) Program conducted several tests with Stinger Missiles fired against static F-14 and F-16 aircraft targets that will supplement the Stinger LFT&E. The primary objective of these tests was to determine the types of damage that can be caused on the aircraft by Man-Portable Air Defense Systems (MANPADS). A test shot was conducted at the Naval Air Warfare Center, China Lake, CA, in July 1999, with a Stinger missile against a recently retired F-14 Tomcat. This was the first shot in a series of tests with complete aircraft to assess the vulnerability of our aircraft to MANPADS. Furthermore, this test was a significant event in that it demonstrated that, by working as a team, we have the ability to accomplish several different objectives with one test. The U.S. Marine Corps' Third Low Altitude Air Defense Battalion from Camp Pendleton provided the fire team and basic Stinger missile. For them, this test was a realistic training exercise—an example of putting into practice one of the Secretary of Defense themes, namely combining testing and training opportunities. It also served to develop test techniques for the JLF program, provided realistic lethality data for the Stinger Program Office, and realistic data for aircraft vulnerability assessment and future vulnerability reduction efforts. The Federal Bureau of Investigation also participated in the test by collecting on-site forensic data to support future investigations of potential terrorist activity with MANPADS weapons. A similar JLF test series has been started at Eglin AFB with foreign MANPADS and Stinger missiles against F-16 aircraft.

Planning for the Stinger/Starstreak test continues. DOT&E intends to observe the test and report the results.

TEST & EVALUATION ASSESSMENT

STINGER-RMP Block I missile has not been adequately tested. The STINGER-RMP Block I program did not have an OSD-approved test strategy because of insufficient operational characteristics in the proposed test program.

DOT&E has worked with the Army to develop a STINGER-RMP Block II TEMP that will include a robust OT&E test strategy that captures data on both the Block I and II missiles to support a baseline comparison. The STINGER-RMP Block II TEMP was approved by OSD on October 25, 1999.

The top five concerns from an operational evaluator's view are: (1) the tactics, techniques, and procedures for effectively operating the STINGER-RMP Block II missile (which must be modified to take advantage of the seeker's beyond visual range ability to detect, track, and engage targets); (2) the probability of fratricide and out-of-range engagements (which increase because of the extended acquisition range of the Block II missile seeker); (3) the software algorithms for performance in a countermeasure environment (which have been challenging in developmental testing); (4) the lack of a threat defined for the system and, consequently, little tactics and doctrine have been developed for employing the missile on helicopters (although there is a requirement for the STINGER-RMP Block II missile to operate from helicopters); and (5) plans calling for extensive use of modeling and simulation for test and evaluation. Considerable work in model development remains to be done.

