# JAVELIN ANTITANK MISSILE

The Javelin is a man-portable, fire-and-forget, medium anti-tank missile, employed by dismounted troops, to defeat current and future threat armored combat vehicles out to 2,500 meters. Javelin attacks most targets from the top to defeat explosive reactive armor; it also has the capability, in the direct fire mode, to attack targets under cover. The program provides a medium anti-tank capability for dismounted (including light) forces, while the Tube-launched Optically-controlled Wireless-guided Fire and Forget and Line-of-Sight systems will provide heavy anti-tank capabilities for all light forces.

The tactical Javelin consists of a missile in a disposable launch tube and a re-usable Command Launch Unit (CLU) with a trigger mechanism and day/night-sighting device for surveillance and tracking, and built-in test capabilities. Training equipment includes classroom-level devices and a Field Tactical Trainer that supports both fixed-location range training, and participation in realistic force-on-force exercises.

## BACKGROUND INFORMATION

The IOT&E, completed in December 1993, concluded that Javelin was operationally effective, but required further assessment for operational suitability. DOT&E's B-LRIP and LFT&E lethality reports concluded that the Javelin Enhanced Producibility Program system design was operationally effective, operationally suitable, and lethal. The Milestone III Full-Rate Production (FRP) decision was made in May 1997.

To enhance producibility and to reduce cost, post-FRP design changes were incorporated into the missile as well as the CLU. Unanticipated missile reliability problems from these changes were uncovered and delayed the missile's transition from LRIP to FRP, postponing System Maturity by one year beyond the initially scheduled date of May 2000.

Testing and analysis of developmental test data, including 38 missile firings in April-December 2000 verifying the final design, demonstrated that all System Maturity requirements had been attained. Several changes to the warhead design had been proposed. The Javelin Enhanced Tandem Integration (JETI) modification is scheduled to be cut into production in the third FRP year. No additional dedicated LFT&E was conducted for JETI, since only the manner in which the existing precursor and main charge warheads are mounted within the missile has changed (i.e., the warheads themselves are unchanged).

## TEST AND EVALUATION ACTIVITY

Javelin testing in FY01 consisted of the PM's continuing technical and lot acceptance testing of missiles and other system components. Flight testing against Active Protection Systems (enhancements to threat armor vehicles designed to detect and destroy incoming missiles) is underway. The final phase of JETI testing, which included three firings of tactical missiles by military gunners against operational tank targets, was conducted in FY01 as part of the third production year qualification test program. The final shot was fired against a threat tank that contained a tactical load of live propellant charges. After the missile impacted the turret, the warhead's shaped charge perforated the armor and detonated the onboard propellant, resulting in total destruction of the tank target.

## TEST AND EVALUATION ASSESSMENT

The initial design of the Javelin system was adequately tested in accordance with the OSD-approved TEMP and determined to be operationally effective, operationally suitable, and lethal. The currently designed Javelin missile, CLU, and training devices meet or exceed their System Maturity requirements. Recent testing, including missile flights against threat Active Protection Systems assessing JETI performance and missile qualification testing, have been highly successful.

## LESSONS LEARNED

No further dedicated testing is required to demonstrate System Maturity. Nonetheless, continued observation and analysis of Javelin missile and warhead performance reliability is warranted, especially as additional producibility changes continue to be implemented.

The final phase of the JETI test program demonstrated that missiles fired by military gunners could yield valid test results that support an assessment of missile lethality.