

Javelin Antitank Missile System – Medium



Javelin is undergoing two separate, complementary upgrades the Army intends to control unit cost, reduce size and weight, and address component obsolescence while meeting or exceeding the current system performance. The Light Weight Command Launch Unit (LW CLU) is on track to undergo Operational Testing (OT) in FY23. The G-model missile will begin government-led flight testing in FY23.

SYSTEM DESCRIPTION

The Javelin Antitank Missile System – Medium is a man-portable, shoulder-launched, fire-and-forget weapon system used to defeat threat armored vehicles out to 2,500 meters. The Javelin system consists of a missile in a disposable launch tube assembly (LTA) and a reusable CLU. The CLU mechanically engages the LTA for shoulder firing, has day and night sights for surveillance and target acquisition, and electronically interfaces with the missile for target lock-on and missile launch.

Javelin is undergoing two separate, complementary upgrades intended to control unit cost, reduce size and weight, and address component obsolescence while meeting or exceeding the current system performance. These system improvements are referred to as the G-model missile and LW CLU. The G-model missile effort is developing a new LTA, electronic battery unit, guidance electronics unit, and missile seeker. Production missiles will be designated FGM-148G. The LW CLU effort incorporates modern daylight and infrared camera technology in a smaller and lighter form factor. The LW CLU will be backward compatible with prior missile models and the G-model missile will be backward compatible with the current (Block 1) CLU.

The Army is developing a new Basic Skills Trainer and the Javelin Outdoor Trainer to be compatible with the upgraded Javelin.

MISSION

Commanders use Army and Marine Corps ground maneuver units equipped with the Javelin to destroy, capture, or repel enemy assault through maneuver and firepower. Soldiers and Marines use the Javelin to destroy threat armor targets and light-skinned vehicles, and to incapacitate or kill threat personnel within fortified positions or in the open.

PROGRAM

Javelin is an Acquisition Category IC program. The Army is upgrading the Javelin weapon system and associated training equipment through multiple engineering change proposals occurring in separate LW CLU and G-model missile development efforts. IOT&E will inform the LW CLU Full-Rate Production decision planned in 2QFY24. The G-model missile will continue development and testing over the next 3 years and begin production upon the completion of a successful government qualification flight test series. DOT&E approved an updated test and evaluation master plan (TEMP) for the Javelin program in April 2020.

» MAJOR CONTRACTORS

- Raytheon Missiles & Defense – Tucson, Arizona
- Lockheed Martin – Orlando, Florida

TEST ADEQUACY

The Javelin TEMP describes extensive developmental, integrated, and operational testing to determine operational effectiveness, suitability, and survivability. Operational testing focuses on determining whether a unit equipped with the upgraded Javelin is more effective at identifying and engaging targets in various climate and terrain types while being lighter and more compact than the current Javelin.

The Army executed a cooperative vulnerability and penetration assessment (CVPA) of Javelin from August 31 to September 3, 2021. The CVPA was conducted in accordance with a DOT&E-approved test plan and was observed by DOT&E personnel. Future cybersecurity testing includes a follow-on CVPA in 2QFY23 on the Basic Skills Trainer and the operationally configured software loader hardware, a Javelin Adversarial Assessment (AA) in 4QFY23, and a CVPA in 4QFY23 and AA in 2QFY24 on the Javelin Outdoor Trainer.

The Javelin Project Office conducted a LW CLU Detection, Recognition & Identification (DRI) and Dirty Battlefield (DBF) demonstration with Soldiers and Marines from January – February, 2022 at Redstone Arsenal, Alabama. The purpose of the demonstration was to compare the ability of gunners to detect, recognize, and identify threat vehicles at various ranges using the Block 1 CLU and LW CLU. The Army will use the DRI-DBF demonstration

and other DT results to assess LW CLU maturity prior to entering operational testing.

G-model missile flight testing began in FY22 in accordance with the DOT&E-approved TEMP. DOT&E personnel will observe select flight tests.

Army Test and Evaluation Command will execute OT at two locations: The Cold Region Test Center, Ft. Greely, Alaska in 2QFY23 and Yuma Proving Grounds, Arizona in 4QFY23. These tests are planned to be conducted in accordance with DOT&E-approved test plans. Due to some divergence of the LW CLU and G-model missile development schedules, these OTs will not include the G-model missile. A follow-on test will be required.

PERFORMANCE

» EFFECTIVENESS

Initial observations of the DRI-DRB demonstration indicate that the better camera resolution and higher

zoom capability of the LW CLU makes detecting, recognizing, and identifying threat vehicles quicker and possible at longer ranges when compared with the Block 1 CLU.

Live Fire testing to date indicates that the new Javelin seeker does not reduce the effectiveness of the Javelin warhead that was demonstrated in F-model missile live fire test and evaluation.

» SUITABILITY

Feedback on the LW CLU has been positive. Gunners prefer the improved camera resolution and the smaller, lighter form factor. DT testing to date indicates that the LW CLU is on track to meet its reliability requirement.

The G-model missile experienced a failure during a contractor led confidence flight test. Flight testing has been halted, and the failure is under investigation as of this writing. A reliability estimate is not available at this time.

» SURVIVABILITY

The Army executed a CVPA of Javelin LW CLU and G-model missile August 31 to September 3, 2021 and reported four classified findings. Results of the CVPA will be used to inform the upcoming Javelin AA.

RECOMMENDATIONS

The Army should:

1. Develop a T&E concept for FOT&E that combines both the LW CLU and G-model missile.
2. Develop a T&E concept for demonstrating the new maximum effective range of the upgraded Javelin.