



F-35 Lightning II Program

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An Edwards Air Force Base F-35A Lightning II fires an AIM-120 Advanced Medium-Range Air-to-Air Missile as part of Weapons Delivery Accuracy testing. The 461st Flight Test Squadron and F-35 Integrated Test Force completed WDA testing in early December, which concludes a large and important part of F-35 developmental test and evaluation. Courtesy photo by Chad Bellay.

F-35 testers wrap up Weapons Delivery Accuracy tests

Story by Kenji Thuloweit, 412th Test Wing

EDWARDS AIR FORCE BASE, Calif. -- Testers from the 461st Flight Test Squadron and F-35 Integrated Test Force (ITF) completed a major test milestone bringing the F-35 Lightning II's full combat capabilities closer to the battlefield.

Weapons Delivery Accuracy (WDA) flight tests began in July 2013 and testing wrapped up earlier this month. The WDA portion of the F-35 developmental test and evaluation mission ensures the fifth-generation fighter's weapons system can deliver lethal ordnance both air-to-air and air-to-ground using the jet's warfighting Block 3F software.

The ITF used all three F-35 variants and delivered air-to-air missiles including AIM-120s, the AIM-9X and the United Kingdom's Advanced Short Range Air-to-Air Missile. The WDA tests also confirmed air-to-ground delivery of the Paveway IV laser-guided bomb, GBU-39 small diameter bomb, GBU-12, GBU-31 Joint Direct Attack Munition and the AGM-154 Joint Standoff Weapon.

"Weapons delivery accuracy tests are important, because without proof that the F-35 can actually drop these weapons where we need them to go, then the F-35 is just an information-gathering system," said Lt. Col. Tucker Hamilton, 461st FLTS commander and F-35 ITF director. "The F-35 proved it was extremely capable in delivering these weapons where we wanted it and how we wanted it delivered. These are the most complicated and intricate missions that we had and the jet did extremely well."

Hamilton said the air-to-air accuracy tests finished in August with air-to-ground tests ending in October. The F-35 ITF then capped off WDA tests by completing testing on the F-35's GAU-22 25mm gun at the beginning of December. The WDA gun tests included the Air Force's A variant where the gun is internal carried and on the Marine Corps' and Navy's B and C variants, which employ a gun pod beneath the jet.

Each weapon test required multiple missions including software development, "dry runs" and then the actual weapon release. Not including the gun, Hamilton said the F-35 ITF delivered 55 weapons during WDA testing, which was mainly done over the military sea range off the California coast and at Naval Air Weapons Station China Lake in California.

Maj. Jonathan Gilbert, 461st FLTS, completed the final air-to-ground WDA test as a new test pilot to the F-35 Integrated Test Force.

"I didn't even know it was a milestone, I just knew I was dropping a weapon," said Gilbert. "It wasn't until after that I felt the excitement from the team and the squadron to close out the WDA program. It is a credit to the team and the planning as it did not appear this would be achievable in the time the squadron accomplished it in, but yet they were able to complete it. I just had the pleasure of dropping the last one."

Hamilton said the F-35 Joint Program Office analyzes the data from all the WDA tests and any upgrades to the F-35 mission systems software will be sent out to the F-35 operational fleet.

"When they get their 3F software, the one that is going to be productionized for full 3F capability, [the fleet] will be confident they can load these weapons and drop them on the target they're selecting," Hamilton said.

The F-35 Integrated Test Force, operating at both Edwards AFB and at Naval Air Station Patuxent River in Maryland, continues to conduct developmental flight test for the Defense Department's F-35 Joint Program Office. Ongoing testing at Edwards AFB includes mission effectiveness testing, suppression of enemy air defenses, maritime interdiction, and offensive and defensive air-to-air combat testing.

"The ITF takes these extremely challenging and intricate data requirements and then finds a way to coordinate with multiple outside agencies, drones, tankers, ranges and basically conduct these missions and make them happen in a historical manner," said Hamilton. "No one before them has ever been able to pull off executing weapons deliveries like the individuals in the ITF."