# Lockheed Martin F-35A Logs 50th Mission; F-35B Prepares For Transition To STOVL Flights

The conventional takeoff and landing (CTOL) Lockheed Martin F-35A Lightning II notched its 50th flight last week in preparation for testing at Edwards Air Force Base, Calif., while the F-35B short takeoff/vertical landing (STOVL) variant began a planned modification interval that will lead to STOVL-mode flight early next year.

In preparation for its deployment to Edwards, the F-35A is conducting a final series of in-flight refueling tests from its Fort Worth base, having taken on 12,000 pounds of fuel during a three-hour flight on Thursday, Sept. 25. Additionally, on Sept. 16, the aircraft flew for the first time with a full weapons load in its internal bays. The mock-up weapons duplicate the dimensions and weight of a typical F-35 strike mission load-out in full stealth configuration: two 2,000-pound Joint Direct Attack Munitions and two Advanced Medium Range Air-to-Air Missiles.

With more than 5,000 pounds of ordnance in its internal weapons bays, performance remained strong, with no discernable indication of the degradation sometimes experienced in current fighters because of aerodynamic drag. "The acceleration in maximum-afterburner takeoff was very quick," said F-35 Chief Test Pilot Jon Beesley. "The climb-out with full internal weapons carriage was particularly impressive to me. Very pleasant to see clean-fighter climb rates and angles while carrying a combat load."

At Edwards Air Force Base, pilots will test the F-35A's ability to shut down and restart the engine while airborne.

While AA-1 has been preparing for its Edwards deployment, the STOVL F-35B has undergone a range of handling-qualities tests, engine-power transitions from idle to full afterburner, extended its retractable fuel probe, and opened and closed all of the doors associated with its STOVL propulsion system. "The aircraft performed exactly as we predicted with the STOVL doors in their various positions. It has exceeded our expectations in its 14 flights to date, and this was a key milestone to achieve before starting vertical flight operations in the next few months," said Dan Crowley, Lockheed Martin executive vice president and F-35 program general manager. The tests validated computer modeling and simulation predictions and moved the aircraft a step closer to vertical flight early next year.

The F-35B now begins a 12-week modification period for system evaluations, calibrations and software and hardware updates, including the installation of the Pratt & Whitney F135 engine that is certified for short takeoffs, hovers, vertical landings and the full range of STOVL-mode and conventional flight. The test plan calls for transition to vertical flight operations in early 2009.

With four System Development and Demonstration aircraft complete and the remaining 15 in production, Lockheed Martin plans to begin delivering one F-35 per month, with all SDD aircraft scheduled for completion by late 2009.

Additionally:

-- The second F-35B has already transitioned from production to the flight line and is undergoing ground testing prior to its projected first flight in early 2009.

-- The first structurally optimized F-35A also has entered final assembly in the recently completed moving assembly line.

-- The first F-35 dedicated solely to ground-test activities has tested structural components to well beyond their designed load limits.

-- The program is on schedule to begin delivery of production-model aircraft to the armed services beginning in 2010.

The F-35 is a supersonic, multi-role, 5th generation stealth fighter. Three F-35 variants derived from a common design, developed together and using the same sustainment infrastructure worldwide will replace at least 13 types of aircraft for 11 nations initially, making the Lightning II the most cost-effective fighter program in history.

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2007 sales of $41.9 billion.

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