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Lockheed Martin F-35 *Lightning II* Completes First Flight

by Mr. Kim O. Harrison, *Lightning II Program Integrator, DCMA Fort Worth*

The Lockheed Martin F-35 *Lightning II* lifted into the skies for the first time Dec. 15, 2006, initiating the most comprehensive flight test program in military aviation history.

The 35-minute flight of the F-35 began at 12:44 p.m. at Lockheed Martin in Fort Worth, Texas, and Lockheed Martin chief test pilot Mr. Jon Beesley said he was very impressed with the thrust from the Pratt & Whitney F135 engine. The aircraft's initial ascent was to an altitude of 15,000 feet, and it carried approximately 15,000 pounds — or 2,500 gallons — of fuel. The flight included a series of basic maneuvers that tested the aircraft's handling, engine and systems operations.

"The first flight of the F-35 *Lightning II* is an historic moment because, for the first time ever, we are seeing all the attributes of a fifth-generation aircraft — including advanced stealth, fighter agility, sensor fusion and greatly improved supportability — combined in an affordable package," said Mr. Ralph Heath, Lockheed Martin Aeronautics Co. president. "The F-35 will be the most advanced and most capable multi-role fighter on the international market for many, many years to come."

Mr. Dan Crowley, Lockheed Martin executive vice president and general manager of the F-35 program, said the aircraft has continued to meet or exceed expectations during its assembly and pre-flight checkouts. It has now embarked on a 12,000-hour flight-test program designed to validate tens of thousands of hours of testing already completed in F-35 laboratories. "The F-35 will enter service as the most exhaustively tested, most thoroughly proven fighter system in history," Mr. Crowley remarked. "And thanks to its all-digital design, an exceptionally talented international engineering team and the world's best assemblers and mechanics, the F-35 has completely rewritten the book on fighter assembly precision and quality."

The stealthy F-35 *Lightning II* is a supersonic, multi-role, fifth-generation fighter designed to replace a wide range of existing aircraft, including the Marine Corps AV-8B *Harrier*, Air Force A-10 *Thunderbolt II*, Air Force F-16 *Fighting Falcon*, Navy and Marine Corps F/A-18 *Hornets* and the United Kingdom's *Harrier GR7s* and *Sea Harriers*. The aircraft is currently under a system design and development contract with an estimated value of \$ 23.8 billion, and the entire scope of its program has an estimated value of \$276 billion.

The U.S. and eight international partners are involved in the F-35's funding and development. The U.S. Air Force, Navy and Marine Corps and the United Kingdom's Royal Air Force and Royal Navy plan to acquire a total of 2,581 F-35s. Italy, the Netherlands, Turkey, Canada, Australia, Denmark and Norway are also partners in the program and are expected to add about 700 more aircraft to the total order. F-35 sales to other international customers could push the final number of aircraft produced to 4,500 or beyond. "We believe the F-35 is poised to become the world standard-bearer of fighter aircraft," said Tom Burbage, Lockheed Martin executive vice president and F-35 program integration general manager.

Three versions of the F-35 are under development: a conventional land-based variant for regular runways; a short takeoff/vertical landing variant for operating off small ships and near frontline combat zones; and a carrier variant for catapult launches and arrested recoveries aboard the U.S. Navy's large aircraft carriers.

Lockheed Martin is developing the F-35 *Lightning II* with its principal industrial partners, Northrop Grumman and BAE Systems. Two separate, interchangeable F-35 engines are under development: the Pratt & Whitney F135 and the GE Rolls-Royce Fighter Engine Team F136.



(Above) The F-35 Joint Strike Fighter *Lightning II*, built by Lockheed Martin, takes off for its first flight on Joint Reserve Base Fort Worth, Texas, Dec. 15, 2006, during an initial test of the aircraft's capabilities. The U.S. Defense Department and eight allied countries have contracted with Lockheed Martin as part of the *Lightning II* program, which was designed to maximize efficiency and minimize the life cycle and costs of a future multirole fighter jet. (U.S. Navy photo by Mass Communication Spc. 2nd Class D. Keith Simmons)