Lockheed Martin F-35B STOVL Stealth Fighter Achieves Successful First Flight

With test pilot Graham Tomlinson at the controls, the short takeoff/vertical landing (STOVL) Lockheed Martin F-35B Lightning II streaked into blue Texas skies Wednesday, marking the first flight of an aircraft that will provide a combination of capabilities never before available: stealth, supersonic speed and STOVL basing flexibility.

Tomlinson, a former Royal Air Force Harrier pilot now employed by BAE Systems, performed a conventional takeoff at 10:17 a.m. CDT from Lockheed Martin's Fort Worth facility. As planned, all initial F-35B flights will be made using conventional takeoffs and landings, with transitions to short takeoffs, hovers and vertical landings beginning early next year. Tomlinson guided the jet to 15,000 feet and performed a series of handling tests, engine-power variations and subsystems checks before landing at 11:01 a.m. CDT.

"A great team effort led to a relaxed first flight, with the aircraft handling and performing just as we predicted based on STOVL simulator testing and flying the F-35A," Tomlinson said. The F-35B, known as BF-1, becomes the second Lightning II to enter flight test, preceded by the conventional takeoff and landing (CTOL) F-35A, which first flew in December 2006 and has completed 43 flights. The F-35B that flew today is the second of 19 System Development and Demonstration aircraft and the first to incorporate new weight-saving design features that will apply to all future F-35 aircraft.

Though nearly identical in appearance to the F-35A, the F-35B incorporates a counter-rotating shaft-driven lift fan positioned directly behind the cockpit. The lift fan, produced by Rolls-Royce, is turned by a drive shaft from the F-35's massively powerful single engine, which features a swiveling rear exhaust nozzle that vectors thrust downward during vertical flight. The lift fan, engine and stabilizing roll ducts beneath the F-35B's wings combine to produce 40,000 pounds of lifting force. Converting the F-35B from STOVL to conventional flight and vice-versa requires only the push of a button by the pilot. The system otherwise operates automatically.

"We're absolutely convinced that this aircraft is going to only further enhance what is a tremendous asymmetric advantage that we hold in terms of controlling the air, taking advantage of intelligence, surveillance and reconnaissance capabilities, multi-sensor capabilities, and the ability, if need be, to drop a bomb in a precision strike," said Gen. James Conway, Commandant of the U.S. Marine Corps.

The F-35B will be the first of the three Lightning II variants to achieve Initial Operational Capability, beginning with the Marines in 2012. The STOVL variant also will be used by the United Kingdom's Royal Air Force and Royal Navy, and Italy's Air Force and Navy. With the capability to operate from a variety of ships or austere runways, the F-35B can deploy closer to shore or near front lines, shrinking distance and time to the target, increasing sortie rates and greatly reducing the need for support assets.

"This is truly an historic day for aviation and the JSF program," said Maj. Gen. C.R. Davis, F-35 program executive officer. "It caps a commitment we made in August 2006 to the Department of Defense and the U.S. Marine Corps when we said we would fly a production-representative STOVL F-35 by June of 2008 -- and the team did it. This flight is also a milestone in a 5,000-sortie flight test program that spans five years but continuously rolls out incremental F-35 war fighting capability. It's a proud day and proud beginning."

"The STOVL aircraft represents the ideal balance of form and function. It uniquely meets the warfighter's demanding requirements with 5th Generation capabilities to deliver lethality, survivability, supportability and affordability," said Dan Crowley, Lockheed Martin executive vice president and F-35 program general manager. "The quality of this aircraft reflects the talent of the worldwide design and manufacturing team who made today's flight possible."

The United States and eight international participants are involved in the F-35's funding, development, production and sustainment. Three versions of the F-35 will be produced:

-- F-35A CTOL variant for conventional runways
-- STOVL F-35B for operating off small ships and near front-line combat zones
-- And the F-35C carrier variant (CV) for catapult launches and arrested recoveries aboard the U.S. Navy's large aircraft carriers.

All 19 F-35 flight-test and ground-test aircraft are in production flow or on the flightline, and assembly has begun

on the first two production-model F- 35s.

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

Lockheed Martin is developing the F-35 with its principal industrial partners, Northrop Grumman and BAE Systems. BAE Systems also is the prime contractor for the Royal Navy's next two aircraft carriers, from which the United Kingdom's 138 F-35Bs will operate.

Two separate, interchangeable F-35 engines are under development: the Pratt & Whitney F135, which powered today's flight, and the GE Rolls-Royce Fighter Engine Team F136.

Headquartered in Bethesda, Md., Lockheed Martin 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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