JSF Team Finishes F-35 Structural Testing Early, Begins Ground-Vibration Testing At Lockheed Martin

The Lockheed Martin F-35 Joint Strike Fighter team successfully completed structural- coupling testing five days ahead of schedule on the first F-35, and moved on to the next scheduled series of ground tests. The F-35's first flight is planned for this fall.

"All of the test results were within the expected range -- an excellent indication we thoroughly understand the flight-control system and the aircraft's structural response to flight-control inputs," said Dan Crowley, Lockheed Martin executive vice president and JSF program general manager.

The testing concluded on April 2 and measured the aircraft's structural response to specific flight-control movements. "Flight controls can move very rapidly and generate very large forces that must be passed through the aircraft structure; for every action there is a reaction," said Doug Pearson, Lockheed Martin vice president of the F-35 Integrated Test Force. "Therefore, we need to know exactly how the aircraft structure reacts to a given dynamic flight-control input."

During structural-coupling testing, a wide range of specific flight- control movements are initiated using the on-board aircraft flight-control system. Based on the data collected during the testing, engineers can "tune" the flight-control system to eliminate responses that could potentially damage the aircraft structure. The tuned flight-control system is transparent to the pilot and ensures that the system will be responsive to his or her demands. The test team evaluated eight different F-35 fuel- and weapons-load configurations. The aircraft's two internal weapons bays were fully loaded with inert bombs (Joint Direct Attack Munitions) and air-to-air missiles for the first time, and the weapons-bay doors were opened and closed repeatedly.

F-35 ground vibration testing started on April 11 and involves the use of shaking devices that place loads and movements on flight-control surfaces, and measure the aircraft's response. The first round of ground tests involved a thorough checkout of the F-35's fuel system during which time no leaks were detected -- a first for a modern fighter.

The stealthy F-35 is a supersonic, multi-role, 5TH Generation fighter designed to replace a wide range of existing aircraft, including AV-8B Harriers, A-10s, F-16s, F/A-18 Hornets and United Kingdom Harrier GR.7s and Sea Harriers.

Lockheed Martin is developing the F-35 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. Each power plant produces 40,000 pounds of thrust, making the F-35 the most powerful single-engine fighter ever. Four F-35 aircraft are currently in assembly, with 15 scheduled to fly during the aircraft's test program.

Headquartered in Bethesda, Md., Lockheed Martin employs about 135,000 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 2005 sales of $37.2 billion.

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