Lockheed Martin F-35 Fusion Risk-Reduction Flights Begin

The Lockheed Martin F-35 Joint Strike Fighter team successfully launched the first phase of the F-35 Data Fusion Risk Reduction flight-test program with recently conducted flights over the Patuxent River Naval Air Warfare Center in Maryland. The objective of the nine-month program is to reduce the development risk of the F-35 JSF's fusion functionality by evaluating key architectural concepts using a combination of flight tests and flight-validated ground simulations.

The F-35's fusion capability combines and prioritizes information gathered from on-board and off-board sources by way of the aircraft's various sensors. The F-35 sensor suite will be the most advanced ever flown on a fighter aircraft.

The two-phase flight-test program uses a Northrop Grumman Electronic Systems (NG-ES) BAC 1-11 flying test bed and cooperative targets. Phase One of the flight tests installs and integrates into the BAC 1-11 the performance- representative sensors, a fourth-generation Active Electronically Scanned Array multi radar built by NGC-ES and the Electro-Optical Targeting Demonstration System (EOTDS) developed by Lockheed Martin Missiles and Fire Control. In addition, the NG-ES Distributed Aperture System sensors will be installed during most flights to collect infrared images on a stand-alone basis.

Phase One tests began on Aug. 18 with an EOTDS development flight. On Sept. 4, the team conducted the first radar development flight. During these initial development flights, a Sabreliner target aircraft was visible to the EOTDS in excess of 30 nautical miles. In air-to-air mode, the radar detected cooperative targets in tail-aspect and scan-down scenarios.

"Both flights went very well -- enough to cover all planned target- detection test points plus a few extras," said Tom Burbage, Lockheed Martin executive vice president and general manager of the F-35 JSF program. "We can now focus on characterizing the sensors' trackers in preparation for integrating with the fusion software."

The partnering relationships that drive the fusion risk-reduction initiative exemplify Lockheed Martin's commitment to help its customers meet their defining moments.

"The teamwork and synergism between Lockheed Martin Fort Worth, Lockheed Martin Orlando and our engineers at Northrop Grumman ES have been exceptional as they integrate the sensors and fusion processor to begin the fusion development flights," said Kathy Burns, program manager for F-35 Fusion Risk Reduction at Northrop Grumman. "We are all looking forward to the culmination of this effort as we move toward the demonstration flights next year."

Phase Two of the flight-test program, set to begin in November, will integrate the sensors with the Lockheed Martin-developed fusion software to evaluate several aspects of the fusion architecture. The six-month Phase Two test effort will culminate in the tracking of multiple F/A-18 target aircraft flying representative tactical missions. The F-35 team will use the flight- test program's sensor data to validate the ground-based simulation tools that evaluate fusion algorithms. Final results of the F-35 Data Fusion Risk Reduction program will be available to support the Mission Systems Incremental Design Review in the fall of 2004.

The F-35 is a stealthy, supersonic multirole fighter designed to replace a wide range of aging fighter and strike aircraft. Three variants derived from a common design will ensure F-35 meets the performance needs of the U.S. Air Force, Marine Corps, Navy and allied defense forces worldwide, while staying within strict affordability targets.

Lockheed Martin is developing the F-35 in conjunction with its principal industrial partners, Northrop Grumman and BAE SYSTEMS. Companies worldwide are participating in the F-35's development.

Among the aircraft the F-35 will replace are the AV-8B Harrier, A-10, F-16, F/A-18 and United Kingdom's Harrier GR.7 and Sea Harrier.

BACKGROUND INFORMATION

Lockheed Martin Aeronautics Co., a business area of Lockheed Martin, is a leader in the design, development, systems integration, production and support of advanced military aircraft and related technologies. Its customers include the military services of the United States and allied countries throughout the world. Products include the F-16, F/A-22, F-35 JSF, F-117, T-50, C-5, C-27J, C-130, C-130J, P-3, S-3 and U-2.

Headquartered in Bethesda, Md., Lockheed Martin Corp.employs about 125,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2002 sales of $26.6 billion.

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