Lockheed Martin F/A-22 Raptor Flight-Test Program Successfully Demonstrates Intraflight Datalink

The Lockheed Martin -led F/A-22 Raptor air dominance fighter flight-test program has for the first time successfully demonstrated between two Raptors the capabilities of the Intraflight Datalink (IFDL), a key component of the Raptor's avionics suite that is designed to enhance a pilot's situational awareness. This achievement moves the F/A-22 closer to being prepared to support the timely start and successful execution of the program's critically important Dedicated Initial Operational Test & Evaluation (DIOT&E) phase.

During the almost four-hour flight from the Air Force Flight Test Center (AFFTC) at Edwards Air Force Base, Calif., two F/A-22s -- Raptors 4005 and 4006 -- demonstrated the basic functionality of the IFDL, which can broadcast and receive both voice transmissions and data.

"The IFDL is essentially an encrypted radio and wireless communications modem that allows Raptor pilots to covertly talk to and share information with each other without fear of being overheard by potential enemies," said Bret Luedke, Lockheed Martin Aeronautics Co.'s chief F/A-22 test pilot, one of two pilots involved in this IFDL test flight. "The IFDL helps preserve the aircraft's stealthiness without requiring pilots to maintain radio silence or to communicate via visual signals; IFDL is truly a step forward in aircraft interoperability."

The IFDL -- part of the Communications, Navigation and Identification (CNI) suite provided by the Radio Systems division of Northrop Grumman Space Technology -- allows formations of Raptor pilots to share information provided by each other's on-board and off-board sensors, including target tracking information provided by the F/A-22's APG-77 radar. Such information helps prevent weapons from being unnecessarily launched or dropped on targets already being engaged by another Raptor. The IFDL also helps the flight leader keep track of his wingmen and the formation's weapons loadout and fuel status so that missions can be successfully executed and all aircraft and pilots involved in that mission can maximize their combat effectiveness and return safely to base.

Prior to this true airborne demonstration between F/A-22s, Boeing's 757 Flying Test Bed (FTB) was used to prove the IFDL's capabilities both in the air and on the ground with but a single Raptor pilot at Edwards AFB. During three days of tests, the FTB showed that the IFDL can share data with a wingman, even when the F/A-22 pilot executed a series of fast and slow rolls and high-g maneuvers. Previous IFDL flight tests have involved the FTB and the ground-based Avionics Integration Lab at Boeing's facility in Seattle. Avionics testing on board the 757 is helping reduce risk and future F/A-22 flight test hours by enabling extensive in-flight testing, evaluation and troubleshooting prior to installation on F/A-22 fighters.

In related news, the F/A-22 flight-test program continues to expand the Raptor's flight envelope, and recently the aircraft reached its maximum speed at 15,000 feet of approximately 800 knots. With this, the flight-test program is progressing toward successfully clearing the remainder of the F/A-22's flight envelope, a necessary achievement before the Air Force can begin DIOT&E next year.

In addition, the F/A-22 demonstrated its ability to safely and effectively launch AIM-9 short-range, heat-seeking air-to-air missiles while performing "elevated g" turns. During a recent mission flown from Edwards AFB, Boeing F/A-22 test pilot Fred Knox successfully launched an AIM-9 missile that cleanly separated from the aircraft while flying Raptor 4003 above the Navy's Air Warfare Center, China Lake, Calif.

To date, the Raptors at Edwards AFB have accumulated almost 3,000 flight hours during more than 1,300 test missions.

The F/A-22 Raptor is built by Lockheed Martin in partnership with Boeing, powered by Pratt & Whitney engines, and made from parts and subsystems provided by approximately 1,200 subcontractors and suppliers in 46 states. Principal aircraft production activities take place at Lockheed Martin facilities in Marietta, Ga., Fort Worth, Texas, and Palmdale, Calif., as well as at Boeing's plant in Seattle, Wash. The engines are built in East Hartford, Conn.

Final assembly and initial flight testing of the Raptor occurs at the Marietta factory, production headquarters for the F/A-22 program's contractor team. The Raptor's low-observable control surface edges, antennas and radomes are built in Palmdale, while its mid-fuselage is built in Fort Worth. Boeing builds the aircraft's aft-fuselage and wings, while Lockheed Martin is the program's principal systems integrator.

The Raptor, scheduled to become operational in 2005, has unprecedented fighter and attack capabilities with its

balanced design of stealth, supercruise speed and extreme agility, along with advanced integrated avionics and the pilot-friendly cockpit. These attributes make the Raptor truly transformational and will support the goal of quick, decisive victory in future conflicts, saving American and allied lives.

Lockheed Martin Aeronautics Co., headquartered in Fort Worth, Texas, 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-130, C-130J, P-3, S-3 and U-2.

Headquartered in Bethesda, Maryland, Lockheed Martin 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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