Upgraded F/A-18 Flight-Control Software Leads to Mishap Reduction

Boeing [NYSE: BA] and the U.S. Navy have developed new flight-control software for the F/A-18 Hornet that builds on the lessons learned during development and flight testing of the F/A-18E/F Super Hornet. The first major upgrade to the Hornet's flight-control software since 1983, version 10.7 improves the aircraft's slow speed handling characteristics, provides increased departure resistance and improves departure recovery.

Recently Secretary of Defense Donald Rumsfeld challenged the military to reduce military mishap rates by 50 percent in the next two years. "This software will be a major benefit to the fleet and should greatly reduce the number of mishaps resulting from out-of-control flight incidents," said Capt. Jeff Wieringa, former Navy F/A-18 program manager.

Numerous Hornet losses during the past 20 years have been attributed to out-of-control flight, particularly a mode known as "falling leaf." This mode is typically entered following slow speed, nose-high maneuvering. The aircraft may then lose or "depart" control -- rapidly oscillating from side to side like a falling leaf. The upgraded software implements new logic and feedback that eliminate this phenomenon.

Developed by a joint Boeing and Navy test team and flight tested at Naval Air Station Patuxent River, Md., the upgrade makes the Hornet significantly more departure resistant and enables the aircraft to recover more quickly from departure events.

"The high angle of attack capability of the Hornet was great before V10.7, and now it is eye watering," says Boeing senior experimental test pilot Mike Wallace.

The benefits of the upgrade include reductions in the number of aircraft lost due to out-of-control flight, enhanced maneuverability at high angles-of-attack and improved maintainability.

Introduction of the new software into the fleet begins this month. The retrofit will be made to all F/A-18s now in service with the U.S. Navy, U.S. Marine Corps and the air forces of Australia, Canada, Finland, Kuwait, Malaysia, Spain and Switzerland. Plans are now being finalized by the combined Navy/Boeing team for fleet training worldwide that introduces operators to the enhanced capabilities of the aircraft.

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