Boeing Completes Demonstration of Full Mission Simulation for Joint Strike Fighter

The Boeing Joint Strike Fighter (JSF) program has completed the first in a series of full mission simulation demonstrations for the company's operational aircraft concept. Using advanced real-time technology, the simulation demonstrates the characteristics of the Boeing JSF in an integrated and operational mission environment.

"Having this capability available for our customer early in the design phase exemplifies the technologies and value-added approach Boeing is using to develop this aircraft," said Frank Statkus, Boeing JSF program manager. "The pilots fly the simulation in a real-time environment, and can then provide our team with instantaneous feedback relative to our design concept, reducing the overall system development time and cost."

Located at the Developmental Center near Boeing Field in Seattle, the full mission simulation is a significant step toward satisfying three critical proposal technology requirements:

- onboard/offboard data fusion
- single seat cockpit and pilot vehicle interface
- warfighting capability

Using a piloted-dome environment, all three technologies are demonstrated within real-time mission scenarios provided by the government. Several of the demonstrated weapon system characteristics that will be on the operational aircraft include mission management functions, sensor modeling and tasking, data communication, radar simulation, functionality and display formats, and operations within the government's System-of-Systems.

The simulation is the first of four sequentially scheduled simulator-based demonstrations that will occur during the current Concept Demonstration Phase (CDP) of the program. During the four-year CDP contract, Boeing is demonstrating critical technologies, processes and system attributes for the company's JSF. Boeing also is defining a multi-service operational aircraft, known as the Preferred Weapon System Concept (PWSC), for the Engineering and Manufacturing Development (EMD) phase of the JSF program. Each simulation will build on the preceding model to refine operational capabilities that coincide with design and requirement changes in the Boeing PWSC.

"Our primary objectives for establishing the full mission simulator are twofold," said Dennis Muilenburg, Boeing JSF weapons systems analysis and integration team manager. "First, we wanted to provide our customer pilots with an evaluation mechanism that fits within the System-of-Systems environment. Second, we wanted to take data from their collective mission sequences and factor that information directly into our PWSC development. So far, both objectives are being met with tremendous success."

Boeing recently hosted a team of eight pilots representing the U.S. armed services and UK Royal Navy for a week-long training and evaluation session relative to the PWSC. The company also is conducting extensive trade studies and effectiveness evaluations during simulator operations to augment the reduction of risk during later phases of the program, and to ensure that affordability and operational performance requirements are met.

Boeing is one of two companies competing to build the next-generation strike fighter. In addition to defining the PWSC, Boeing also is building two JSF X-32 demonstrator aircraft. One aircraft will demonstrate characteristics of the Air Force's conventional takeoff and landing and the Navy's carrier-based variants. The second aircraft will demonstrate the short take-off and vertical landing variant envisioned for use by the U.S. Marine Corps and the Royal Navy.

A JSF CDP competition winner will be selected in 2001, with actual fighter deployment set for 2008.

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