Boeing Completes JSF X-32B Engine Accelerated Mission Tests

Boeing, Pratt & Whitney and Rolls-Royce today completed accelerated mission tests of the Joint Strike Fighter X-32B qualification engine at Pratt & Whitney's facility in West Palm Beach, Fla.

The government-monitored durability evaluation will lead to certification of the propulsion system for short-takeoff-and-vertical-landing (STOVL) flight. The Boeing X-32B aircraft, which will demonstrate the company's direct-lift approach to the STOVL requirements for the U.S. Marine Corps and the United Kingdom's Royal Navy and Royal Air Force, is expected to make its first flight during the first quarter.

"During the tests, the team took the Pratt & Whitney engine and its Rolls-Royce STOVL components on the test stand through two full profiles of what the X-32B will do in flight test," said Frank Statkus, Boeing vice president and JSF general manager. "All propulsion-system components operated as predicted; this is another major step in reducing risk as we move closer to first flight of the X-32B."

The qualification engine components now will be taken apart and inspected prior to the government's certification for flight.

Last week in Palmdale, Calif., Boeing successfully completed low- and medium-speed taxi tests with its X-32B concept demonstrator. According to Boeing lead STOVL test pilot Dennis O'Donoghue, the tests went as planned and the "X-32B handled just like the X-32A."

The Boeing X-32A, which first flew Sept. 18, is demonstrating the Boeing JSF approach to conventional and aircraft-carrier-based flight. It has completed all government required carrier-handling tests, flown at supersonic speeds and been refueled in flight. The X-32A and X-32B are up to 90 percent common.

Boeing has 30 years of experience with direct lift -- the only combat-proven approach to STOVL flight. The company is leveraging that experience into a new design that incorporates significant improvements to ensure the services receive a true "third-generation" low-risk STOVL solution that is more capable, reliable, affordable and easier to fly than STOVL aircraft operating today.

"Technology has allowed us to improve direct lift for vertical operations on JSF," Statkus said. "Therefore, the long, expensive debugging process typical of inventive solutions is not required, and the benefits can be measured immediately in near-term EMD risk-reduction and long-term product reliability."

To perform STOVL maneuvers, the system redirects engine thrust downward through lift nozzles in the airframe. For conventional flight the lift nozzles are closed and thrust flows rearward through the two-dimensional thrust-vectoring cruise nozzle -- the same as in the X-32A - to propel the aircraft forward and to supersonic speeds.

In more than 1,000 demonstrations on the STOVL engine test stand, transition times between conventional and vertical thrust and back again have been consistently accomplished in one to three seconds. This rapid and direct transition capability is critically important for unrestricted STOVL operations and aircraft safety.B

oeing, the world's largest producer of fighter aircraft, is competing to build the JSF under a four-year concept demonstration phase contract with the U.S. Air Force, Navy and Marine Corps and the British Royal Air Force and Navy. A competition winner is scheduled to be selected later this year.

JSF X-32B low- and medium-speed taxi tests.

Completed X-32B engine runs.

X-32A's supersonic flight.

Completion of JSF X-32A aircraft carrier variant tests.

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