Boeing Installs Engine in JSF X-32A Demonstrator Aircraft

The Boeing Joint Strike Fighter One Team has installed the engine that will power the Boeing JSF X-32A concept demonstrator through flight testing. Designated the YF004, the engine has successfully completed 45 hours of acceptance testing at engine manufacturer Pratt & Whitney's (UTX) facility in West Palm Beach, Fla.

"We projected a day to install the exhaust system into the airframe, but we did it in less than two hours," said Steve Kyle, Boeing JSF propulsion manager. "We also planned a day to install and pin the engine, and that took only four hours.

"We used 3D design tools throughout the development program to simulate engine installation. This kind of installation performance is the product of our lean processes. It demonstrates how our effective engine removal and installation concept will sustain high JSF sortie rates in fleet operations.

"To install the engine in such a short time, the first time, gives us great confidence that we will easily meet the more challenging installation times required later in the operational JSF," Kyle said.

The YF004 engine meets or exceeds requirements in all categories, including available thrust levels and engine operability, building upon more than 900 hours of sea-level and altitude development testing at Pratt & Whitney and at the U.S. Air Force Arnold Engineering Development Center, Tullahoma, Tenn.

"Pratt & Whitney and the rest of the team have done a superb job in developing and delivering this powerplant," Kyle said.

The JSF One Team, including specialists from Boeing, Pratt & Whitney, Rolls-Royce and other top aerospace companies, collaborated from the earliest stages of design to develop a safe and reliable system that is compatible with the stringent needs of meeting multi-service requirements in a variety of sea- and land-based environments. Using the most advanced computer solid-modeling techniques, the team validated installation processes and procedures long before the engine and aircraft came together in Palmdale.

The X-32A will demonstrate conventional takeoff and landing qualities for the U.S. Air Force variant of the JSF and low-speed carrier approach for the U.S. Navy variant.

Separately, more than 200 hours of STOVL engine testing to date have demonstrated consistent success and reliability, from low to high power, in transitions from conventional flight to STOVL operations and back again.

"What really matters in STOVL is the ability to transition from horizontal to vertical flight reliably and quickly time after time," Kyle said. "In over 100 transitions on the test stand, they have been flawless - uneventful. The transitions have been smooth and quick, we're talking only a few seconds. We have the utmost confidence that this is the safest, most dependable system for our customer."

Boeing, the world's largest producer of fighter aircraft, is competing to build the JSF under a four-year U.S. Air Force, Navy and Marine Corps concept demonstration contract, while also defining the design for the operational JSF. A winner will be selected in 2001.

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