Mighty F-35 Lightning II Engine Roars To Life

The Lockheed Martin F-35 Lightning II completed its first series of engine runs on Monday afternoon, culminating in a full-afterburner test that unleashed 40,000 pounds of thrust -- the most ever from a jet-fighter engine. The testing began on Friday, Sept. 15, when Chief Pilot Jon Beesley moved a cockpit switch to the "run" position and brought the Pratt & Whitney F135 engine to life.

While F135 engines already have logged thousands of successful hours on test stands, Friday's engine start marked the first time the engine had run in the F-35 aircraft. The milestone kicked off a final series of ground tests that will lead to the jet's first flight later this year.

"This is an exciting time for Pratt & Whitney and the entire F-35 team," said Bill Gostic, vice president of F135 engine programs for Pratt & Whitney. "Running this engine in the aircraft puts us one step closer to watching the F-35 fly. We are proud that the Lightning II will be powered by Pratt & Whitney."

"Starting and running the F135 engine means we're now in the final stretch leading to first flight, and also that we have greater insight into the F-35's design as an integrated system," said Dan Crowley, Lockheed Martin executive vice president and F-35 program manager. "This team continues to prove that the F-35 is a mature system that is poised to enter flight test, and soon thereafter, production."

A unique Integrated Power Package (IPP), produced by Honeywell Aerospace Electronic Systems, is used to start the engine. The installed IPP was started for the first time on Sept. 7. It combines a starter, electrical power supply and environmental control system in a single unit -- systems that in previous aircraft have been separate, stand-alone units.

Doug Pearson, vice president of the F-35 Integrated Test Force, characterized the IPP and engine testing as another example of the F-35's ability to integrate teams and complex systems on a timely basis. "Previous legacy programs have needed months to progress from initial onboard power to engine start and full afterburner mode. The rapid progression on the F-35 is a good indication that the program's investments in laboratories and early ground testing are paying off," Pearson said.

The engine runs mark the first time that the F-35 has been completely functional on its own power systems. As the tests proceeded, Beesley incrementally advanced the throttle until the engine achieved military power (full power without afterburner) on Sunday night, and full afterburner on Monday.

Before today's engine start, nine F135 development engines had run for more than 5,500 hours on test stands. The F135 is an evolution of the Pratt & Whitney F119 engine, which powers the F-22 Raptor, Lockheed Martin's other 5TH Generation Fighter. Pratt & Whitney has delivered three flight test engines to support the F-35's first flights. As the most powerful single-engine fighter in history, the F-35 Lightning II produces more thrust than most twin-engine fighters.

The stealthy F-35 is a supersonic, multi-role, 5TH Generation fighter designed to replace a wide range of existing aircraft, including AV-8B Harriers, A-10s, F-16s, F/A-18 Hornets and United Kingdom Harrier GR.7s and Sea Harriers.

Lockheed Martin is developing the F-35 with its principal industrial partners, Northrop Grumman and BAE Systems. Two separate, interchangeable F- 35 engines are under development: the Pratt & Whitney F135 and the GE Rolls-Royce Fighter Engine Team F136.

Fifteen F-35s will undergo flight testing, seven will be used for static/ground testing and another will validate the aircraft's radar signature.

Headquartered in Bethesda, Md., Lockheed Martin employs about 135,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2005 sales of $37.2 billion.

Pratt & Whitney is a world leader in the design, manufacture and service of aircraft engines, space propulsion systems and industrial gas turbines. United Technologies provides high-technology products and services to the aerospace and building industries.

For additional information, visit our Web sites:
http://www.lockheedmartin.com/
http://www.pw.utc.com/f135

An F-35 electronic media kit is available at: http://www.lockheedmartin.com/wms/findPage.do?dsp=fec&ci=15965&rsbci=13151&fti

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