



## A 'Hush Rush' keeps the T-45 flying

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The Naval Air Warfare Center Aircraft Division's Propulsion and Power test team keeps the T-45 Goshawk flying with the latest design of engine turbine blades. The T-45A aircraft is flown in intermediate and advanced Navy/Marine Corps pilot training for jet carrier aviation and tactical strike missions. (U.S. Navy photo)

NAVAL AIR SYSTEMS COMMAND, PATUXENT RIVER, Md. — The Naval Air Warfare Center Aircraft Division's Propulsion and Power Test Methods and Facilities Division has a reputation for meeting challenges.

When a recent potential shortage of engines for the T-45A Goshawk trainer fleet threatened to impact the Navy's ability to train its strike aviators, the team was called into action. The T-45 is used for intermediate and advanced portions of the Navy and Marine Corps pilot training program.

Safety problems with the Low Pressure Turbine blades in the F405 engine that powers the T-45 forced a redesign of the old blades, which ended production early last year. But the redesign created a new dilemma.

"The problem was that the newly redesigned blades were not yet fully qualified by U.S. Navy standards and could not be used immediately and the stockpile of old blades was forecast to be depleted by April," explained Greg Muschlitz,



**January 14, 2013**

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lead engineer for the NAWCAD Propulsion Systems Evaluation Facility here.

In order for the redesigned blades to be fully qualified, a 1,000-hour Accelerated Simulated Mission Endurance Test (ASMET) would have to be completed. The test simulates the usage an engine would experience over its lifetime.

The Navy granted approval to begin implementing the redesigned blades into the fleet after completing only 100 hours of endurance testing. That's where the propulsion and power team faced their challenge.

"The ASMET program was awarded to the Propulsion System Evaluation Facility on January 20," Muschlitz said, "leaving only two and a half months to prepare for what typically takes four to six months for just the set up prior to testing."

Testing of the F405 engine with the redesigned blades was conducted at the NAS Patuxent River Aircraft Test & Evaluation Facility, known as the "Hush House."

The test program was led by NAVAIR's Test Methods and Facilities Division with key members from the Support Equipment and Aircraft Launch and Recovery Group at Joint Base McGuire-Dix-Lakehurst, N.J., and the Patuxent River Outdoor Test site.

"The 100-hour deadline was met on April 11, allowing the new blades to be deployed and preventing an impact on T-45 availability," Muschlitz said.

The remainder of the 1,000-hour testing was performed throughout the summer and completed Oct. 23, several weeks ahead of schedule and several million dollars under budget, saving critical program funds.