Lockheed Martin Debuts Revolutionary X-47B Pole Model Design

Lockheed Martin's revolutionary full-scale pole model has completed its first round of testing at the Lockheed Martin Helendale Measurement Facility.

The radar cross section testing of the vehicle will continue throughout 2006. Today, Lockheed Martin is using this pole model to provide critically relevant data about the Northrop Grumman Corporation-led X-47B vehicle built for the Joint Unmanned Combat Air Systems (J-UCAS) program.

Lockheed Martin's full-scale pole model was designed and built in less than 13 months and funded entirely with Lockheed Martin's Independent Research and Development dollars. What makes it distinct from conventional pole model designs is its modular and flexible configuration, allowing future large scale physical changes. This permits customers to easily modify the many pre- planned regions of the configuration and quickly collect high fidelity data. This means the pole model is now a design tool rather than simply a demonstration device.

"The configuration that we are ultimately targeting was developed by the X-47B team as part of the J-UCAS program. Later in the program components from Lockheed Martin, Northrop Grumman and Pratt & Whitney will be integrated and tested," said Frank Alvidrez, Lockheed Martin's J-UCAS program manager.

Northrop Grumman provides the initial shape of the vehicle and the proposed aerodynamic features including control surfaces and gear and payload door arrangements. Northrop Grumman has also supported frequent technical interface meetings to provide detailed descriptions of how it is approaching the design and build of the X-47B flight vehicles. While Lockheed Martin built the pole model vehicle, Northrop Grumman Corporation will use the test data to improve the low observable design of the X-47B.

"This relationship improves the overall effectiveness of the X-47B J-UCAS effort while continuing to develop the teaming relationship between Lockheed Martin and Northrop Grumman," said Scott Winship, Northrop Grumman Corporation's X-47B program director.

"The full-scale pole model is critical to the X-47B J-UCAS program because it is modular and reconfigurable. It allows us to test our signature level, refine it and retest all on the same vehicle. This is a first in the industry," said Rick Ludwig, Northrop Grumman Corporation's business development director for its unmanned systems business.

Pratt & Whitney is providing the entire inner structure of the exhaust module in later tests. "As team mates, Pratt & Whitney has provided the most appropriate interface systems for maintaining our reconfigurable approach. They have been instrumental to this effort," stated Gene Folsom, Lockheed Martin full-scale pole model project engineer.

Key to the rigorous X-47B radar cross section test schedule is Lockheed Martin's Helendale Measurement Facility, which is the premier radar cross section test range. It is located in California's Mojave Desert and enables Lockheed Martin to design, fabricate and validate some of the world's most sophisticated vehicles. It is one of only two facilities of this type in the United States.

Northrop Grumman Integrated Systems is a premier aerospace and defense systems integration organization. Headquartered in El Segundo, Calif., it designs, develops, produces and supports network-enabled integrated systems and subsystems optimized for use in networks. For its government and civil customers worldwide, Integrated Systems delivers best-value solutions, products and services that support military and homeland defense missions in the areas of intelligence, surveillance and reconnaissance; space access; battle management command and control; and integrated strike warfare.

Headquartered in Bethesda, Md., Lockheed Martin employs about 135,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2004 sales of $35.5 billion.

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