Lockheed Martin Achieves Key Milestone In Crew Escape Demonstration

Pad Abort Demonstration Program Demonstrates Stability in Wind Tunnel Testing

In wind tunnel tests during September and October, the Lockheed Martin-designedPad Abort Demonstration (PAD) vehicle proved that it is stable under the maneuvering required to escape from a catastrophic launch vehicle event. The tests were conducted at Lockheed Martin's High Speed Wind Tunnel in Texas.

A collaborative effort among Lockheed Martin, NASA Johnson Space Center, NASA Marshall Space Flight Center and NASA Ames Research Center, the PAD design demonstrates a crew escape capability for future human space flight vehicles.

"Proving the stability of our PAD design during wind tunnel testing is an important step in the design of future human spaceflight vehicles," said Michael Coats, vice president, Advanced Space Transportation, Lockheed Martin Space Systems Company. "Crew safety is our number one priority, and our PAD flight demonstrations will provide a wealth of data as future vehicle designs develop."

The PAD flight profile consists of a six to eight-g powered phase lasting five seconds, simulating the vehicle's separation from the launch system after a launch pad mishap, followed by an unpowered coast from Mach 0.9 (660 miles per hour) down to Mach 0.3 (220 miles per hour) where the recovery system deploys. The required stability ensures safe transition to recovery under a parachute cluster without the need for complex attitude control systems to maintain orientation of the vehicle.

NASA awarded Lockheed Martin the PAD program in November 2002 to design and build crew escape and survivability systems and establish a flexible test bed for human spaceflight vehicles. The PAD vehicle is designed to be flexible, providing the ability to incorporate alternate propulsion systems and adapt to multiple human spaceflight vehicle configurations. For the initial flight test in mid-2005, the PAD will consist of a representative crew escape module mounted on the pusher propulsion module. A flared structure attached to the propulsion module provides the necessary aerodynamic stability. This and subsequent flight tests will use instrumented mannequins to measure the flight environments that crew members would experience.

The PAD program is managed by NASA's Johnson Space Center under NASA Marshall Space Flight Center's OSP program. Lockheed Martin is teamed with Northrop Grumman and Orbital Sciences Corporation in the competition to design and build the Orbital Space Plane.

Headquartered in Bethesda, Md., Lockheed Martin employs about 125,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2002 sales of $26.6 billion.

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