Boeing Validates Performance of Crew Space Transportation Vehicle's Attitude Control Engine

Dual-role propulsion system increases flexibility, reliability

HOUSTON, June 27, 2012 -- Boeing [NYSE: BA] recently demonstrated the dual-role propulsion features and performance of the Orbital Maneuvering Attitude Control (OMAC) engine on the service module for the company's Crew Space Transportation (CST)-100 spacecraft. The tests were conducted at NASA's White Sands Test Facility, N.M., as part of the second phase of NASA's Commercial Crew Development (CCDev) program.

"Boeing's unique service-module propulsion system combines on-orbit propulsion with ascent abort capability into a single system, allowing the OMAC engine and the majority of the propellant feed and pressurization hardware to perform dual roles," said John Mulholland, vice president and program manager, Commercial Programs. "This dual-role feature reduces the number of parts and provides operational flexibility, increasing system reliability and improving crew safety."

The OMAC engine is a heritage hypergolic propellant engine produced by Pratt & Whitney Rocketdyne. The engine provides thrust for orbital maneuvers and de-orbit burns, giving the crew precise control of the spacecraft. It also performs critical attitude control and steering functions in the event of an aborted ascent. Because the engine has been modified to accommodate additional burn time for the CST-100 spacecraft, the test team conducted a series of demonstration firings on two development OMAC engines to ensure the integrity of the modification.

The tests used equipment previously used by the space shuttle program to test Orbiter Reaction Control System engines. The test firing of smaller propulsion engines in the near-vacuum environment at White Sands provides a more realistic simulation of on-orbit conditions. The OMAC test series included 20 engine firing sequences of varying numbers of pulses and durations to validate engine and valve performance as well as durability.

Boeing has successfully completed 46 CCDev milestones to date. The team is on schedule to complete remaining CCDev-2 milestones this summer, including service module propellant tank tests and a forward heat-shield jettison test that will provide additional data on important components of the spacecraft design.

Boeing's CST-100 is a reusable spacecraft that will provide commercial crew transportation services to low Earth orbit, enabling the return of U.S. access to the International Space Station by 2016.

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