

NASA commercial crew partner Boeing completes new spacecraft, rocket milestones

June 4 2013

The Boeing Company of Houston, a NASA Commercial Crew Program (CCP) partner, recently performed wind tunnel testing of its CST-100 spacecraft and integrated launch vehicle, the United Launch Alliance (ULA) Atlas V rocket. The testing is part of NASA's Commercial Crew Integrated Capability (CCiCap) initiative, intended to make commercial human spaceflight services available for government and commercial customers.

Boeing and ULA also worked together to test a newly developed component of the Atlas V's Centaur [upper stage](#). Boeing now has completed two of eight performance milestones under CCiCap and is on track to complete all 19 of its milestones around mid-2014.

"The Centaur has a long and storied past of launching the agency's most successful spacecraft to other worlds," said Ed Mango, NASA's CCP manager at the agency's [Kennedy Space Center](#) in Florida. "Because it has never been used for human spaceflight before, these tests are critical to ensuring a smooth and safe performance for the crew members who will be riding atop the human-rated Atlas V."

The [wind tunnel tests](#), which began in March and wrapped up in May at NASA's Ames Research Center in Moffett Field, Calif., were the first interface tests of Boeing's spacecraft, launch vehicle adaptor and launch vehicle. A scale model of the integrated spacecraft and rocket was placed in Ames' 11-foot diameter transonic wind tunnel. The data gathered provides Boeing with critical information it needs to ensure its

system is safe for launching crews to low-Earth orbit.

The Centaur liquid oxygen-feed duct line was tested in March in Murrieta, Calif., to characterize how [liquid oxygen](#) moves from the stage's [oxygen tank](#) to its two engines where the [propellant](#) will be mixed with [liquid hydrogen](#) to create thrust. The Centaur, which takes over after the Atlas V first stage runs low on propellants, will push the spacecraft to its intended orbit. The Centaur has an extensive and successful history of delivering spacecraft to their destinations, including carrying NASA's Curiosity science rover to Mars.

"The CST-100 and Atlas V, connected with the [launch vehicle](#) adaptor, performed exactly as expected and confirmed our expectations of how they will perform together in flight," said John Mulholland, Boeing vice president and program manager for Commercial Programs.

Boeing is one of three U.S. companies NASA is working with during CCoCap to set the stage for a crewed orbital demonstration mission around the middle of the decade. Future development and certification initiatives eventually will lead to the availability of human spaceflight services for NASA to send astronauts to the International Space Station from the United States.

For more information about NASA's Commercial Crew Program and its aerospace industry partners, visit:

www.nasa.gov/commercialcrew

Provided by NASA

Citation: NASA commercial crew partner Boeing completes new spacecraft, rocket milestones (2013, June 4) retrieved 27 April 2024 from <https://phys.org/news/2013-06-nasa-commercial-crew-partner-boeing.html>

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