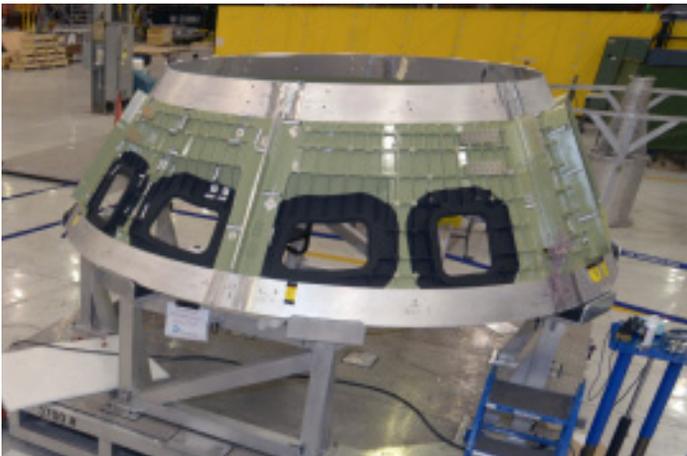
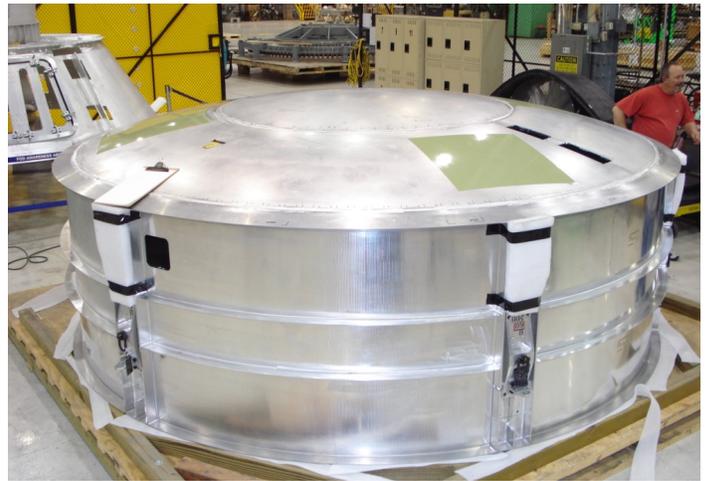
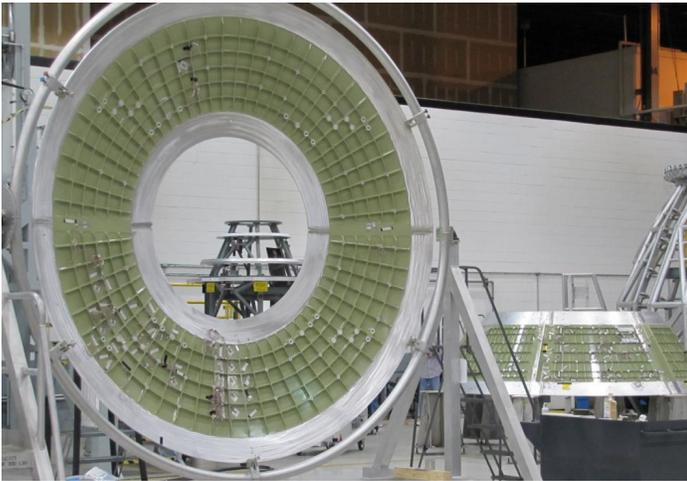
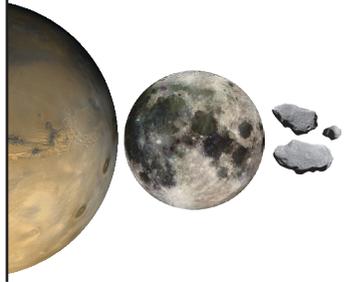


MONTHLY
ACCOMPLISHMENTS
February
2012

orion



Work continues on EFT-1 Crew Module and pathfinder assembly

The Cone Assembly and Aft Bulkhead Strain Gages have been installed on the Exploration Flight Test (EFT-1) Crew Module at the Michoud Assembly Facility (MAF) in New Orleans. Instrumentation is currently in work on the EFT-1 Tunnel, Backbone and Center Panel. (left images)

The Michoud team completed the Gore Assembly to the Barrel pathfinder weld and the Center Panel to

the Aft Structural Assembly Pathfinder welds. The closeout weld will be the next pathfinder weld in preparation for final closeout weld operations. (upper right)

Fit check, laser alignment and assembly of the backbone panels, brackets and fasteners for the EFT-1 Crew Module have been completed. (lower right)



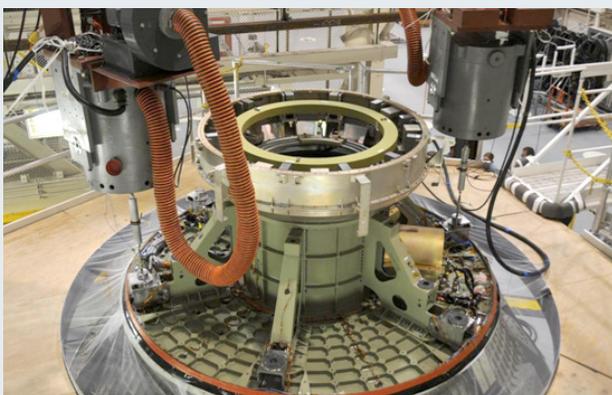
Parachute Air Drop Test a Success

On Feb. 29, NASA successfully conducted another drop test of the Orion crew vehicle's entry, descent and landing parachutes high above the Arizona desert in preparation for the vehicle's orbital flight test in 2014.

An Air Force C-17 plane dropped a test version of Orion from an altitude of 25,000 feet above the U.S. Army's Yuma Proving Grounds in Arizona. Orion's drogue chutes were deployed between 15,000 and 20,000 feet, followed by the pilot parachutes, which deployed the main landing parachutes. Orion landed on the desert floor at a speed of almost 17 mph, well below the maximum designed touchdown speed of the spacecraft.

The test examined how Orion's wake, the disturbance of the air flow behind the vehicle, would affect the performance of the parachute system. Parachutes perform optimally in smooth air that allows proper lift. A wake of choppy air can reduce parachute inflation. The test was the first to create a wake mimicking the full-size Orion vehicle and complete system.

The drop tests build an understanding of the chutes' technical performance for eventual human-rated certification. The next drop test, which will occur on a different test vehicle, is scheduled for April 2012.



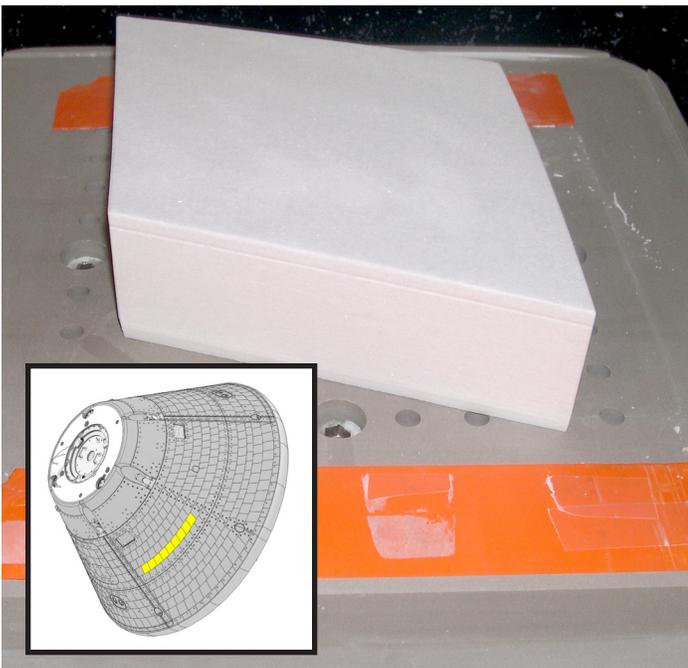
Multi-point vibration testing complete

The team at Lockheed Martin's facility in Denver successfully completed all eight multi-point random vibration tests on the Ground Test Article. This random-force testing applies random forces to the GTA to create expected dynamic responses in a manner that simulates the way the vehicle would react during flight. This completes the testing campaign of the GTA in Denver. The next tests for the GTA will be Hydro Impact Basin drop tests at the Langley Research Center in 2013.



First nine TPS tiles complete

The first nine thermal protection system tiles for the backshell of Exploration Flight Test (EFT-1) have been manufactured at the Thermal Protection System Facility at Kennedy Space Center and are awaiting inspection. These nine identical tiles will be placed in the lowermost portion on the backshell. Sixteen additional tiles are in the coating process and twenty eight tiles are in machining. When completed, EFT-1 will have approximately 1300 tiles. The TPS tiles will provide protection to the crew from the excessive heat experienced during re-entry. For additional information on the TPS tiles, visit: <http://www.nasa.gov/exploration/systems/mpcv/tiles.html>.



Demonstration of portable High-Efficiency Particulate Air (HEPA) facility

The Lockheed Martin/United Space Alliance team conducted a pathfinding event in full clean room garments to demonstrate and validate that Assembly Integration and Processing (AI&P) can perform orbital tube welding on the spacecraft within a stable 10K clean room environment provided by the portable clean HEPA walls. This will be critical for welding the tubing of flight fluid systems.



Heatshield Testing in shock tunnel

The Crew Exploration Vehicle Aerosciences Project (CAP) team concluded the Capsule Heatshield Crew Module Compression Pad heating test at CUBRC in Buffalo, NY. This test measured the aeroheating on the heatshield compression pads and the Avcoat ramps around the compression pads. A family of Avcoat ramp geometries were tested to develop parametric heating models to be used for the design and verification of the compression pads and heatshield.

Students help to shape Orion



Students from Texas A&M University visited the Orion Medium Fidelity Mockup as part of SSANS, or Students Shaping America's Next Spacecraft program. The students, who are Industrial Engineering majors, are partnering with the Orion Program on two design projects: Orion Lighting System hardware for the full-scale mockup and the Orion Budget and Planning Project.

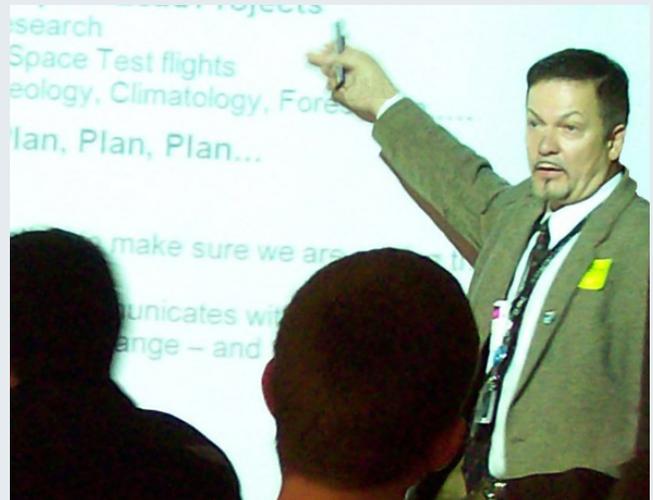
During their visit to Johnson Space Center on Feb. 22, the students presented their work as part of the Preliminary Design Review.

Projects also have been kicked off with Houston School of Automotive Machinists to design and build Orion mockup seat parts and with Frenship High School in Lubbock, to design and build components to outfit the Orion mockup. Hardware for these projects will be delivered in May for review.

Embry Riddle University, Houston branch, has also been working with SSANS since Fall 2011, and is helping make the main Orion human requirements document more usable, looking for opportunities to gain efficiency and updating the requirements applicability based on the new mission plan.



NASA Deputy Administrator Lori Garver hosted an All Hands meeting at Johnson Space Center with Center Director Mike Coats and toured the Orion mockups in JSC's Space Vehicle Mockup Facility. Garver also toured the Michoud Assembly Facility in New Orleans.



Dr. Jose Ortiz, Systems Engineering and Integration Lead for the Orion Launch Abort System, visited Lafayette High School in Williamsburg, Va. on NASA Education Day, Feb. 29 where he presented to students in grades 10-12 focusing on technology-related career choices.