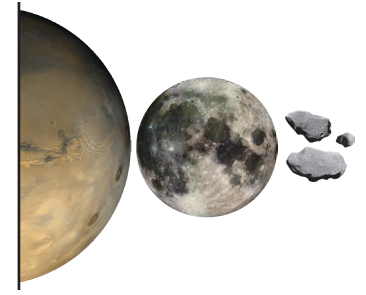


**MONTHLY
ACCOMPLISHMENTS**
June 2014

Orion



Orion stacks up for first flight!



With less than six months until its first trip to space, NASA's Orion spacecraft continues taking shape at the agency's Kennedy Space Center in Florida. Following the completion of the heat shield installation, the NASA/Lockheed Martin team stacked the Orion crew module on top of the service module.

The stacking took place inside the Final Assembly and System Test cell inside the Operations and Checkout building at Kennedy Space Center in early June. The stacked modules will undergo electrical, avionic and radio frequency tests in preparation for Orion's first flight in December. During that flight, the uncrewed spacecraft will launch on a Delta IV Heavy rocket

and will travel 3,600 miles above the Earth—15 times farther than the International Space Station. That same day, Orion will return to Earth at a speed of approximately 20,000 mph for a splashdown in the Pacific Ocean.

The flight will provide engineers with data about systems critical to crew safety — including heat shield performance, separation events, avionics and software performance, attitude control and guidance, parachute deployment, and recovery operations — to validate designs of the spacecraft before it supports human exploration missions to new destinations in deep space.

Parachutes hit no snags in most difficult test



More than 5,000 space enthusiasts around the world viewed a Google+ Hangout live during the drop test, and another 10,000 have watched the video on YouTube. Orion program experts Stu McClung and Molly White provided play-by-play explanations throughout the test and answered questions from viewers. <http://bit.ly/1qcnPjz>

On June 25, NASA completed the most complex and flight-like test of the parachute system for the agency's Orion spacecraft.

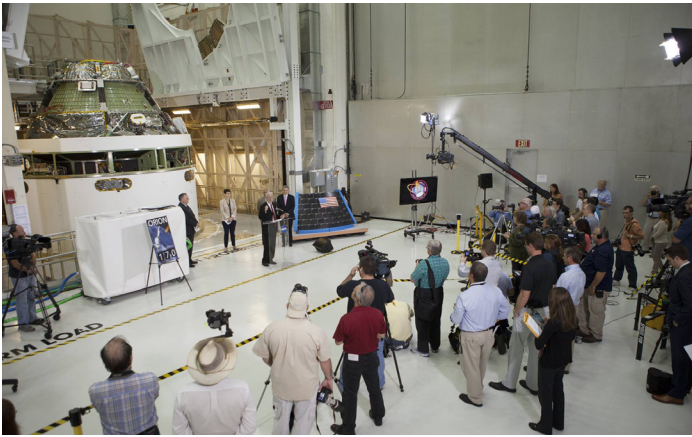
A test version of Orion touched down safely in the Arizona desert after being pulled out of a C-17 aircraft, 35,000 feet above the U.S. Army's Yuma Proving Ground. It was the first time some parachutes in the system had been tested at such a high altitude. Engineers also put additional stresses on the parachutes by allowing the test version of Orion to free fall for 10 seconds, which increased the vehicle's speed and aerodynamic pressure. After Orion's free fall, its forward bay cover parachutes deployed, pulling away the spacecraft's forward bay cover, which is critical to the rest of the system performing as needed. The forward bay cover is a protective shell that stays on the spacecraft until it has reentered Earth's atmosphere. The parachutes that slow Orion to a safe landing speed are located under the cover, so the cover must be jettisoned before they can be unfurled.

Engineers also rigged one of the main parachutes to skip the second phase of a three-phase process of unfurling each parachute, called reefing. This tested whether one of the main parachutes could go directly from opening a little to being fully open without an intermediary step, proving the system can tolerate potential failures.

The test also marked the last time the entire parachute sequence will be tested before Orion launches into space in December on its first space flight test.

Orion's next parachute test is set for October and will test the combined failure of one drogue parachute and one main parachute, as well as new parachute design features. It is one of three remaining tests needed to demonstrate the system's capability for human missions, but does not need to be completed before Orion's first flight later this year.

Orion makes headlines with news media



NASA and Lockheed Martin Orion program managers have been in demand with the news media as excitement and interest in Orion's first space flight builds. More than 25 reporters attended the NASA press briefing in the Operations and Checkout building at Kennedy Space Center on June 18. NASA Administrator Charles Bolden, Kennedy Space Center Director Bob Cabana, NASA Orion Program Manager Mark Geyer and Lockheed Martin Orion Program Manager Cleon Lacefield provided statements to the press and conducted interviews. Lockheed Martin's Jim Crocker and Larry Price also participated, along with Astronauts Rex Walheim and Doug Hurley. The event aired live on NASA TV.

News 13 Orlando: <http://bit.ly/1zktwSL>

NASA's Orion test flight is paving the way to Mars

Florida Today: <http://on.flatoday.com/1jZMC6S>

Bolden at KSC: Orion flight this year 'a big deal'

Space.com: <http://bit.ly/1tgz5ku>

December Test Flight Huge for NASA's Next Manned Spacecraft

Additional Orion features this month:

KHOU-TV Houston: <http://bit.ly/1lo0Gek>

NASA unveils new mission into space

KPRC-TV Houston: <http://bit.ly/1IPcebG>

NASA: How to land an asteroid

Lockheed Martin provided Aviation Week with an artist rendering of an Orion Lunar sample return concept featured on the cover of the June 23 issue. The covered package titled "Paving the Way to Deep Space" features five articles about deep space exploration. Lockheed Martin's Jim Crocker, Larry Price and Josh Hopkins were all quoted.

Aviation Week: <http://bit.ly/TZ08kq>



NASA Public Affairs Officer Michael Curie interviews Scott Wilson, manager of Orion production operations, about preparations for Orion's first flight on the June 17 episode of Space Station Live.

<http://bit.ly/TgHXG0>



Members of the NASA and Lockheed Martin management team pose in front of the Orion crew and service modules at the Operations and Checkout Building at Kennedy Space Center, Florida. Left to right: Scott Wilson, Mark Geyer, Jules Schneider, Roger McNamara, Jim Crocker, Larry Price, Paul Cooper and Cleon Lacefield. Front row, left to right are astronauts Rex Walheim and Doug Hurley.



Exploration Systems Division: All Systems Go!

Check out NASA's latest music video of Exploration Program progress.

<http://bit.ly/118ctso>

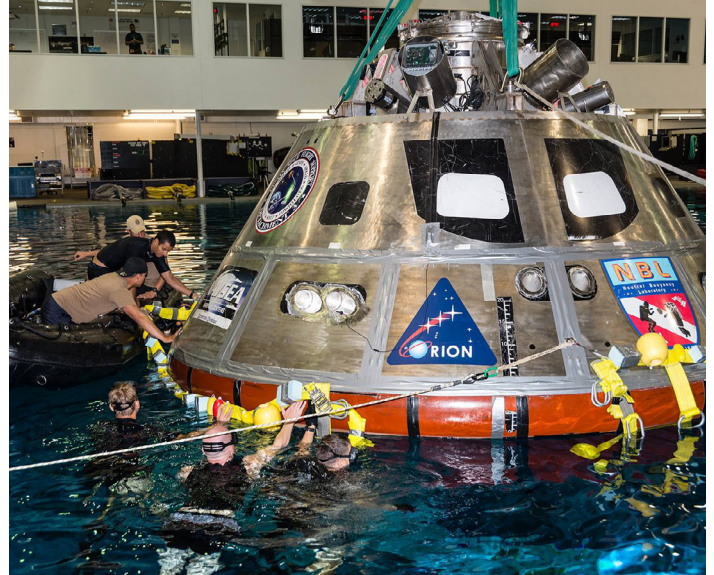
Orion participated in The Ultimate Science Street Fair



On June 1, NASA's Orion program participated in The Ultimate Science Street Fair at Washington Square Park in New York City. The fair was part of the World Science Festival, a year-round celebration of science that brings together great minds in science, business, government and the arts. The five-day festival featured more than 50 programs, including public outdoor events that attracted more than 170,000 visitors. The events offered an immersive experience in science through interactive experiments and installations, games and performances, all designed to entertain and inspire people of all ages.



Orion and Navy team train at NBL



U.S. Naval divers attended a training session at NASA's Neutral Buoyancy Lab in Houston, Texas during the first week in June to prepare for recovery operations after Orion's first flight. The divers got an overview of the Orion thermal protection system hardware. Procedures for installing the back-up horse collar fixture for a well deck recovery as well as the contingency basket lifting straps were worked out during the training. Divers also rehearsed an end-to-end operation of the baseline attachment approach using upgraded hardware as well as a forward bay cover "flip" operation so that it can be recovered and placed right side up on the ship during recovery operations.

NASA / Lockheed management visit KSC-area suppliers



Lockheed Martin's Paul Cooper, Jeff Quinn and Clay Bergquist visited with the Titusville Tool team on June 18.



Lockheed Martin's Orion Deputy Program Manager Larry Price met with employees at Coastal Steel in Cocoa, Florida, on June 17. The 36-year-old, family-owned business fabricates structures for the Orion and Space Launch System programs.



NASA's Orion Program Manager Mark Geyer and Lockheed Martin Orion Deputy Program Manager Larry Price paid a visit to EMF Inc. in Merritt Island, Fla. on June 18. EMF has built many of the tools used in Orion's assembly and production at Kennedy Space Center. They are also manufacturing components for some of the launch pad modifications needed for NASA's future deep space exploration missions.

ESD team presents to small business leaders



On June 9, Orion Assistant Program Manager Paul Marshall gave an overview of the Orion program to an audience of nearly 200 small business industry leaders at an Exploration Systems Development (ESD) Update event in Huntsville, Alabama. During the event, top managers from ESD provided an update on the latest accomplishments and future plans. Other Exploration Systems Development speakers included Dan Dumbacher, deputy associate administrator for Exploration Systems Development, Todd May, SLS program manager and Mike Bolger, Ground Systems Development & Operations program manager.



The NASA and Lockheed Martin Launch Abort System team participated in the "NASA Day on the Square" event in downtown Huntsville on June 21. The event was an outreach to the local community to let the public know about the work being done by NASA and its partners. The team, which represented the Orion Program for the day, answered questions about Orion from a very responsive public.



iViva Orion!

Honeywell employees in Puerto Rico participated in the "I'm on Board" banner campaign on June 12.



New Roundup highlights Orion's first test flight

Read about the top five things we will learn from Exploration Flight Test-1 in the summer edition of Johnson Space Center's Roundup magazine.

<http://1.usa.gov/1jclxn>

Coming up in July:

- Orion Crew/Service Module functional tests
- Backshell panel installation
- Renaming ceremony for Operations & Checkout Building at Kennedy Space Center



Read more about Ellen Ochoa, center director for NASA's Johnson Space Center: <http://on.fb.me/1mctVMA>