National Aeronautics and Space Administration

JUNE 2016

SPACE LAUNCH SYSTEM HIGHLIGHTS

SLS BOOSTER FIRES UP FOR LAST TEST BEFORE FIRST FLIGHT

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SPACE LAUNCH SYSTEM BOOSTER PASSES MAJOR MILESTONE ON JOURNEY TO MARS

A booster for the most powerful rocket in the world, NASA's Space Launch System, successfully fired up June 28 for its second qualification ground test at Orbital ATK's test facilities in Promontory, Utah. This was the last full-scale test for the booster before SLS's first uncrewed test flight with NASA's Orion spacecraft in late 2018, a key milestone on the agency's journey to Mars.

"This final qualification test of the booster system shows real progress in the development of the Space Launch System," said William Gerstenmaier, associate administrator for the Human Exploration and Operations Mission Directorate at NASA Headquarters in Washington. "Seeing this test today, and experiencing the sound and feel of approximately 3.6 million pounds of thrust, helps us appreciate the progress we're making to advance human exploration and open new frontiers for science and technology missions in deep space."

The booster was tested at a cold motor conditioning target of 40 degrees Fahrenheit – the colder end of its accepted propellant temperature range. When ignited, temperatures inside the booster reached nearly 6,000 degrees. The two-minute, full-duration ground qualification test provided NASA with critical data on 82 qualification objectives that will support certification of the booster for flight. Engineers now will evaluate these data, captured by more than 530 instrumentation channels on the booster.

"This test is the pinnacle of years of hard work by the NASA team, Orbital ATK and commercial partners across the country," said John Honeycutt, SLS Program manager at NASA's Marshall Space Flight Center in Huntsville, Alabama. "SLS hardware is currently in production for every part of the rocket. NASA also is making progress every day on Orion and the ground systems to support a launch from Kennedy Space Center in Florida. We're on track to launch SLS on its first flight test with Orion and pave the way for a human presence in deep space."

More information on the second booster qualification test can be found here:

What is QM-2?

Boosters 101

Three Cool Facts about QM-2

Behind the Scenes at QM-2

SNAPSHOT OF SLS BOOSTER TEST

The house is rolled back ahead of the second and final qualification motor (QM-2) test for the SLS booster at Orbital ATK's test facility in Promontory, Utah.

Space Camp trainees get ready to watch the SLS booster fire up for testing during a special viewing at the U.S. Space & Rocket Center in Huntsville, Alabama.

More than 5,000 people came out to watch the SLS booster test at the public viewing area in Promontory, Utah.

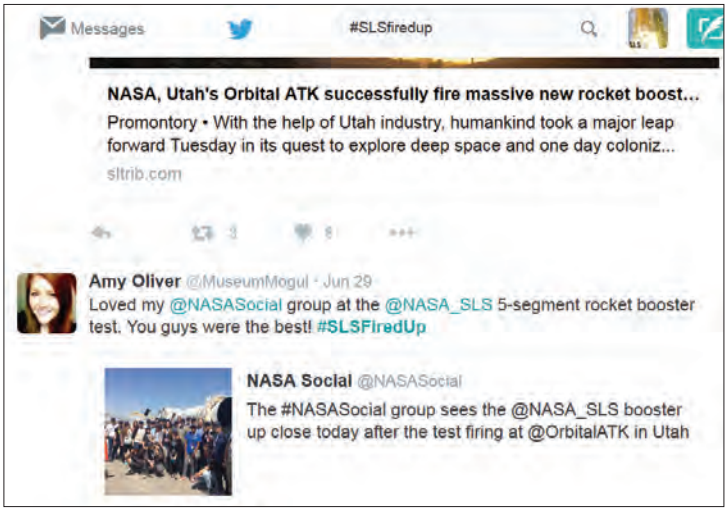
Spectators watch as the booster fires up for a two-minute test.

Former NASA astronaut Don Thomas takes questions from excited children at the Boys and Girls Club of Northern Utah.

Say "Booster!" An enthusiastic family gets a photo made at the public viewing area before the SLS booster test.

QM-2 SOCIAL SNAPSHOT

#SLSFiredUp trended throughout the day in the United States on Twitter and Facebook.



#SLSFiredUp

Marshall Center Director Todd May talks to the 33 NASA Social participants who got the opportunity to tour Orbital ATK facilities and see the booster test in person. The group shared their experiences on their social media accounts, using the hashtag #SLSFiredUp. The hashtag trended on Twitter and Facebook.

The NASA Social group gets a closer look at the SLS booster after a successful test.

SLS BOOSTER TEST IN THE NEWS

Washington Post
Daily Mail
NBC News
CNN Money
Popular Mechanics
CBS News
USA Today
Popular Science
Reuters
Ars Technica
The Huffington Post
BBC

HARDWARE FOR NASA'S JOURNEY TO MARS IS 'BIG CATCH' FOR UPCOMING TEST SERIES

A key piece of hardware for SLS completed a five-hour journey by barge June 19 along the Tennessee River in North Alabama. Fishermen may have caught a glimpse of it on its way from United Launch Alliance in Decatur, Alabama, to the agency's Marshall Space Flight Center in Huntsville, Alabama.

The transported hardware is a prototype of the interim cryogenic propulsion stage (ICPS) and will be a "big catch" for testing later this year. Read more here.

The interim cryogenic propulsion stage test article made a five-hour journey on the Tennessee River from United Launch Alliance in Decatur to the Marshall Center.

Two cranes lift the interim cryogenic propulsion stage test article out of its crate. The ICPS test article joins other structural test articles and simulators that make up the upper portion of the SLS rocket. They will be stacked and tested later this year at Marshall.

NASA IN THE PARK

More than 7,500 people attended NASA Marshall Space Flight Center and Downtown Huntsville, Inc.'s third annual celebration of NASA and the community June 18. This year, the event moved to Huntsville's Big Spring Park, becoming "NASA in the Park." SLS was part of the celebration, which featured fun for all ages. See more pictures from "NASA in the Park."

SLS INSPIRES AT 'TAKE YOUR CHILDREN TO WORK DAY'

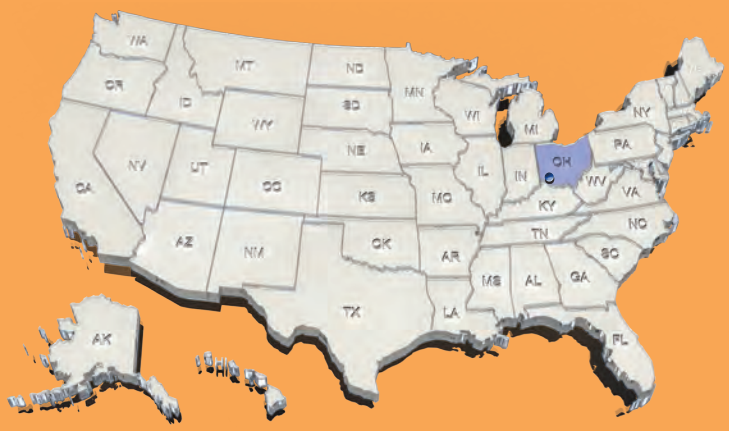
Saniyah Jones, daughter of Sophia Jones and granddaughter of SLS's Stephanie Lacy-Conerly, greets an "astronaut" at the Marshall Center's "Take Your Children to Work Day." More than 500 potential future spacefarers, scientists and engineers took part in the event June 23, which included SLS exhibits and activities.

FACES OF SLS: JANICA CHENEY

This rocket scientist is the conductor of one big orchestra for testing the boosters that will help NASA's Space Launch System hit the "high note" of deep space. Meet Janica Cheney, director of test and research operations at Orbital ATK.

SPACEFLIGHT PARTNERS:
Metalex Inc.

Metalex employees are recognized June 1 for their work on SLS and Orion during a NASA supplier visit to the manufacturing facility.



LOCATION:
Blue Ash, Ohio

NUMBER OF EMPLOYEES: *120*

WHAT THEY DO FOR SLS:
Metalex is currently under contract to Aerojet Rocketdyne, Boeing and Orbital ATK to machine critical components for the SLS rocket's liquid rocket engines, solid rocket boosters and propellant systems. This includes critical RS-25 engine components, such as the main combustion chamber, powerhead and the main injector inner propellant plate. In June, the company was recognized with a Space Flight Awareness award for its contributions toward the SLS Program, and achieving its affordability and schedule goals.

MICHOUD 'TANKS' UP FOR NASA'S DEEP SPACE ROCKET

A qualification article for the SLS liquid hydrogen tank undergoes welding in the Vertical Assembly Center at Michoud. At the same time, a crew completes installation and checkout procedures for the liquid oxygen tank weld confidence article, bottom left. The liquid hydrogen and liquid oxygen tanks make up the SLS core stage. Confidence hardware verifies weld procedures are working as planned and tooling-to-hardware interfaces are correct. The confidence article also will be used in developing the application process for the thermal protection system, which is the insulation foam that gives the tank its orange color. The liquid hydrogen qualification article closely replicates flight hardware and processing procedures. Once completed, both tanks later will be shipped on the Pegasus barge to the Marshall Center for structural loads testing on two new test stands currently under construction for the tanks.

BILL NELSON SEES MANUFACTURING OF SLS FUEL TANK AT MICHOUD

In June, Sen. Bill Nelson (D-FL), center, along with NASA officials, got a look inside a liquid hydrogen tank test article being constructed by the world's largest robotic weld tool in the Vehicle Assembly Center at NASA's Michoud Assembly Facility in New Orleans. At over 300-feet tall and 5.75 million pounds at liftoff, SLS needs plenty of fuel to leave Earth. Once a final dome is added to the liquid hydrogen rocket fuel tank, shown here, it will come in at 27.5-feet in diameter and over 130-feet long.

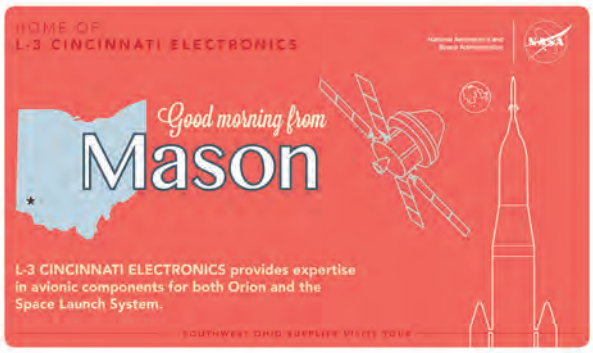
SLS HITS A HOME RUN WITH BASEBALL FANS

The 30-foot-tall inflatable SLS was a grand slam for thousands of spectators at the Congressional Baseball Game June 23 at Nationals Park in Washington. ▶

SLS VISITS OHIO AND ALABAMA PARTNERS

SLS Boosters Deputy Manager Bruce Tiller thanks employees at L-3 Cincinnati Electronics in Mason, Ohio, for their work on avionics components for SLS and Orion. While in Ohio, NASA and prime contractor representatives also visited Metalex Manufacturing Inc. in Blue Ash. The company machines parts for the Orion crew module, and SLS RS-25 engine and rocket boosters.

Employees from Watring Technologies of Huntsville, Alabama, accept supplier awards for their work on SLS. NASA and several prime contractor companies visited four suppliers, including Watring, in the Huntsville/Madison area June 15-16. Supplier visits are intended to highlight and recognize the critical role companies across the country play in the production of the SLS and Orion.



FOLLOW THE PROGRESS OF NASA'S NEW LAUNCH VEHICLE FOR DEEP SPACE:

NASA SLS Rocketology Blog....blogs.nasa.gov/Rocketology

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Flickr.....Flickr.com/NASASLS

Google+.....Plus.Google.com/+NASASLS

Tumblr.....nasasls.tumblr.com

COMING IN
JULY:

RS-25 development engine testing

LVSA flight aft ring machining complete

Transporters arrive at Marshall