

ORION



FEBRUARY 2019



Save the Date

Launch date set for Ascent Abort-2 flight test.

SAVE THE DATE



The Orion program has officially set the date for the Ascent Abort-2 (AA-2) flight test for June 12, 2019. During the months of January and February, the team integrated the three motors of the Launch Abort System (LAS), started work on the Abort Test Booster (ATB) guidance and control assembly, and has begun work integrating the ATB itself, as well as the crew module and separation ring, all at NASA's Kennedy Space Center in Florida. At the launch pad where AA-2 will be tested, Space Florida also completed integration of lightning towers, which will keep the hardware out of danger in case of nearby lightning strikes while on the pad.

AA-2 will involve a full-scale test of the LAS under the most demanding ascent conditions astronauts would encounter

inside Orion. After being lifted off the ground by the ATB, the crew module, sized and weighted to represent Orion, will undergo an abort sequence initiated at 31,000 feet, 55 seconds after launch. At that time, the abort motor will fire and the LAS will pull the crew module away from the ATB, relying on attitude control motors to reorient the LAS a safe distance away. Once reoriented, the jettison motor will fire, separating the LAS from the crew module, which will return to the ocean and simulate a safe return for future astronauts. This test will verify that the LAS can steer Orion and its crew inside to safety in the event of an unlikely issue with the Space Launch System rocket when the spacecraft is under the highest aerodynamic loads it will experience during a rapid ascent into space.

POWERED ON, READY TO GO

At NASA's Kennedy Space Center Operations & Checkout (O&C) building, the Orion Exploration Mission (EM)-1 European Service Module has been successfully powered on. After arriving only three months prior, in November, the initial power on resulted in no issues as the power conditioning distribution unit, which maintains constant voltage to prevent electrical malfunctions in the spacecraft,

was successfully tested. The initial power on marks the beginning of testing the Orion team will perform to identify potential electrical malfunctions or parts that are not responding correctly so they can be repaired or replaced before integration with the crew module. Assembly, integration and testing also continue on EM-1 and EM-2 crew modules in the O&C.

TEXAS SPACE DAY

NASA and aerospace industry partners visited the Texas State Capitol on Feb. 26 for Space Day, an annual event highlighting achievements in human space exploration throughout the state of Texas. The schedule of events and exhibits in Austin that day focused on STEM education, exploration, and astronauts.

NASA's Johnson Space Center took over the Capitol ground-floor rotunda to share its accomplishments including Orion and preparations for the Ascent Abort-2 test. Orion team members staffed exhibits and met with state congressional representatives to share information about the program and the impact that Texas companies have on deep space exploration. NASA's workforce in Texas includes more than 11,000 aerospace employees and more than \$2 billion in contracts and federal salaries in 2018.



7TH ANNUAL SUPPLIERS CONFERENCE

The 7th Annual Orion/Space Launch System (SLS)/ Exploration Ground Systems (EGS) Suppliers' Conference was held in Washington D.C. from Feb. 13-14. More than 2,400 companies have contributed to the Orion program since its inception, of which almost half are small businesses, and hail from all 50 states, Puerto Rico and Washington D.C. With so many in attendance, the conference itself is a testament to the impact the Orion program is having on America, not only by inspiring the next generation with space travel, but by creating employment for more people, and providing opportunities for businesses large and small to grow and expand. For some small

businesses, having a contract to work on the Orion program has led to other opportunities in other business sectors they may not have been granted otherwise.

The conference included talks led by NASA management, with subjects ranging from lunar science, information about the Moon to Mars campaign, center updates, and Deep Space Exploration. Updates were also given on Orion/SLS/EGS progress by an industry panel, as well as budgeting and policy changes.

Learn more: solorionsuppliers.com/



SUPPLIER SPOTLIGHT

STELLAR SOLUTIONS



Stellar Solutions is a woman-owned, global aerospace systems company headquartered in Silicon Valley. Stellar Solutions provides test engineering for Orion's avionics interface, specifically contributing to the guidance, navigation, and control systems, the propulsion systems, and the Launch Abort System. In addition, Stellar Solutions has verified that Orion's flight software meets NASA's design requirements ensuring it will keep astronauts safe during deep space missions. They have also assisted in creating

data and sequencing controls for all of Orion's autonomous events, as well as automated the post processing for the environmental control and life support system. While Stellar Solutions has contributed to other NASA programs such as Solar Orbiter, Landsat, and New Horizons, their work on the Orion program is the first time the company has assisted with a crewed mission.

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HOUSTON WE HAVE A PODCAST: **LIVABLE SPACE**

In episode 79, John Lewis, Orion Environmental Control and Life Support system manager discusses how the Orion spacecraft will keep the crew inside comfortable - and more importantly alive - during a mission into deep space.

Listen here: go.nasa.gov/2VCqTLM