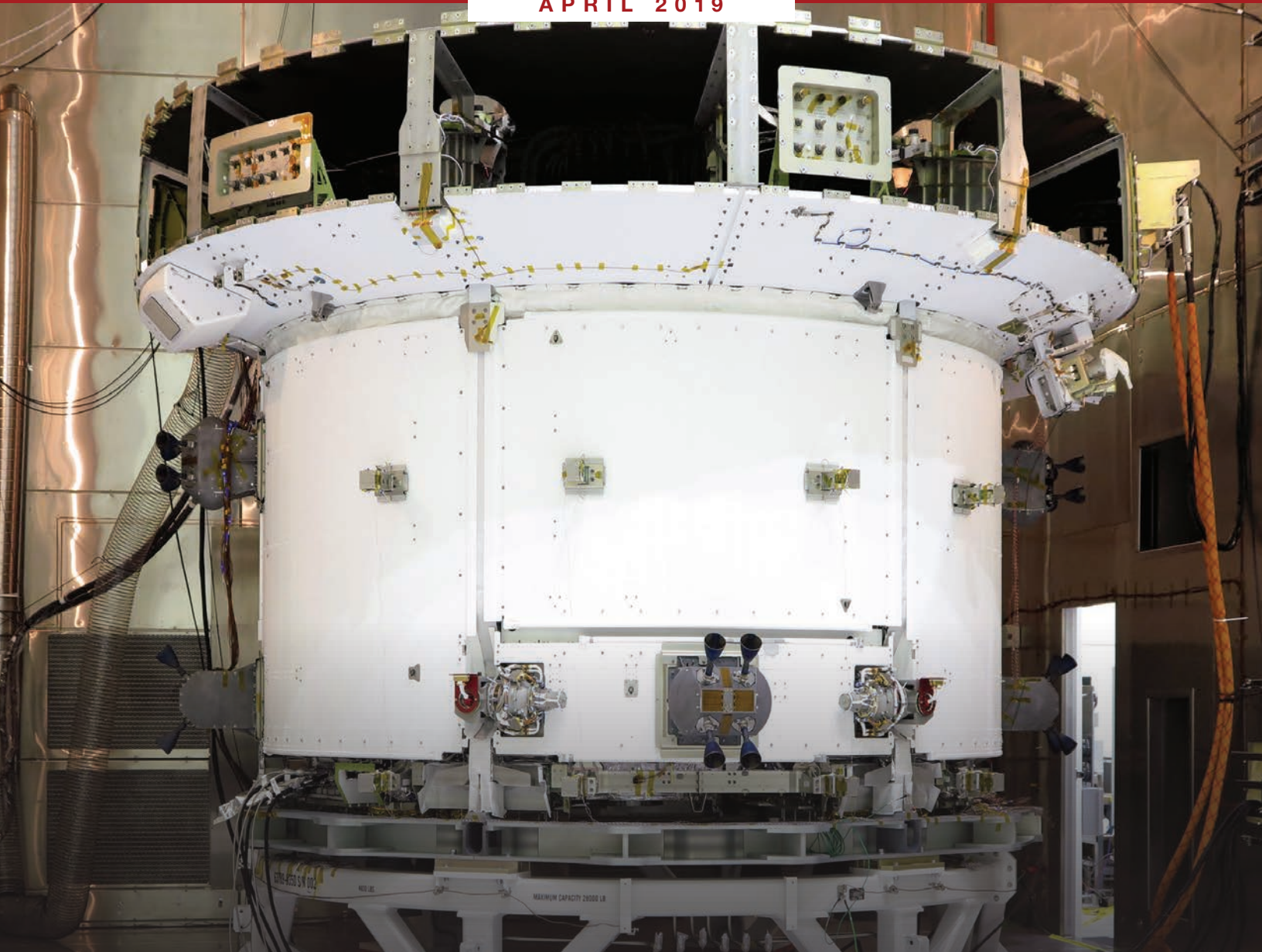


ORION



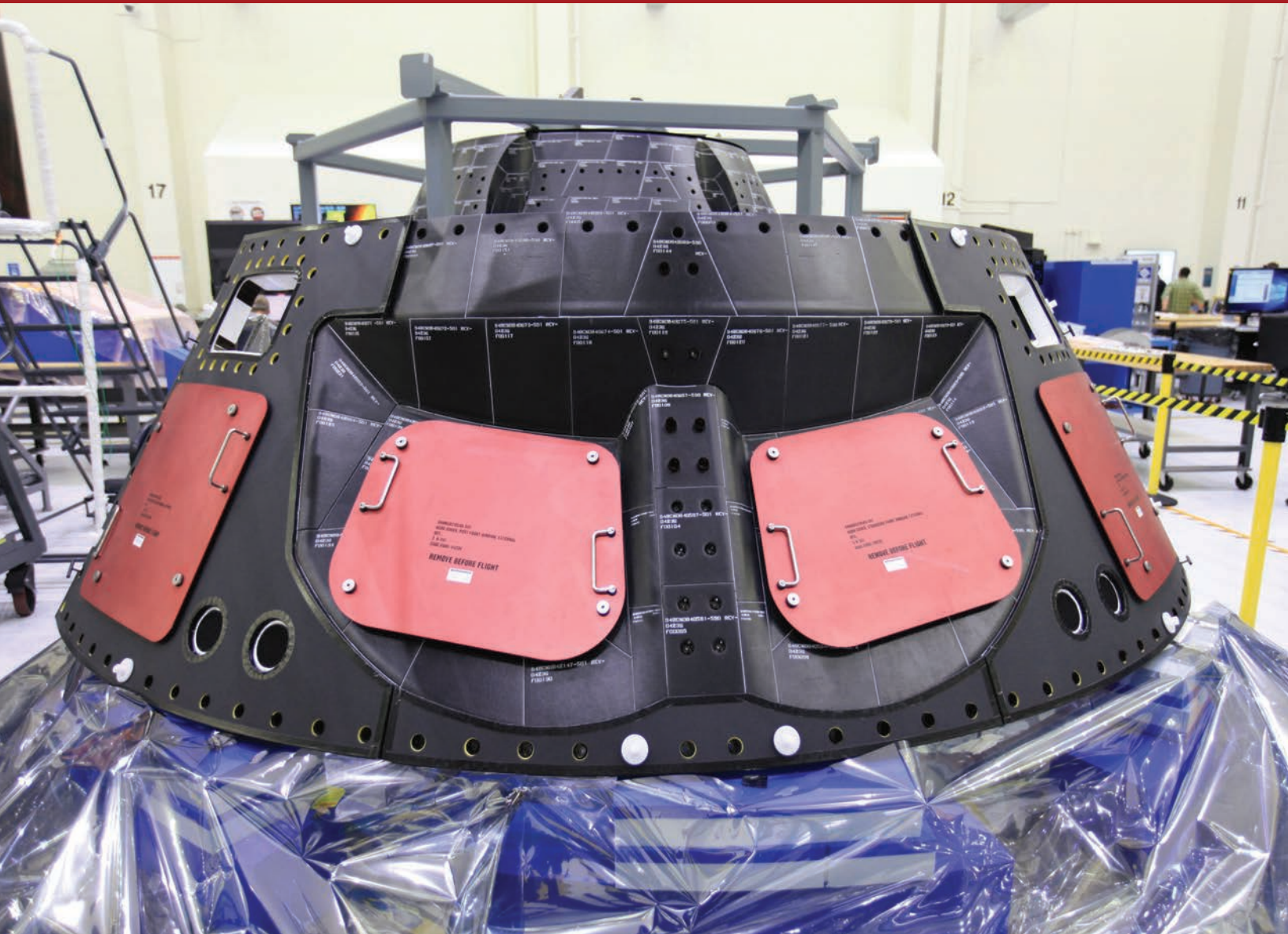
APRIL 2019



Making Strides Toward the Moon

With NASA's charge from the Trump Administration to send American astronauts to the surface of the Moon by 2024, the Orion team is making great strides to reach that goal.

MAKING STRIDES TOWARD THE MOON



NASA is using all means necessary to move us forward to the Moon, and the Orion team is making great strides to reach that goal. At different NASA sites around the country, and partners around the world, the Orion team is reaching milestones so Orion will be ready to meet the challenges proposed by the Administration and send astronauts to the surface of the Moon in five years.

For Exploration Mission (EM)-1, which will take Orion around the Moon and back for the first time, many milestones were reached this month at the Operations and Checkout Building (O&C) at NASA's Kennedy Space Center in Florida.

The EM-1 crew module assembly activities included final installation of the wire harnesses, which are a key portion of the Orion instrumentation system, and preparation for the crew module to undergo more testing before Orion makes its way to the launch pad. Additionally, the service module underwent thermal testing and deployment of the solar array wings.

The EM-2 crew module is also making progress in the O&C, as the team gets it ready for Orion's first crewed flight near the Moon. The crew module is currently undergoing installation of the power distribution units, and numerous

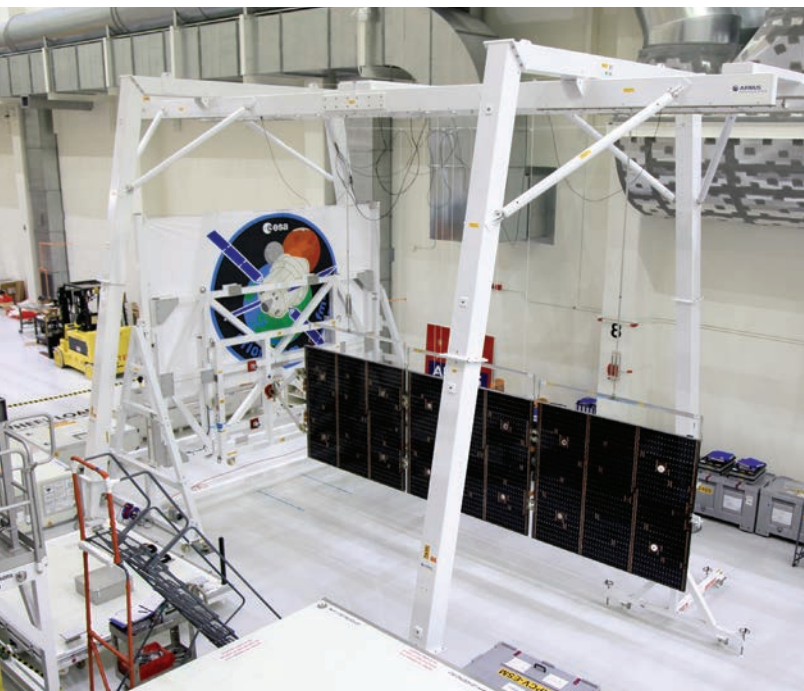
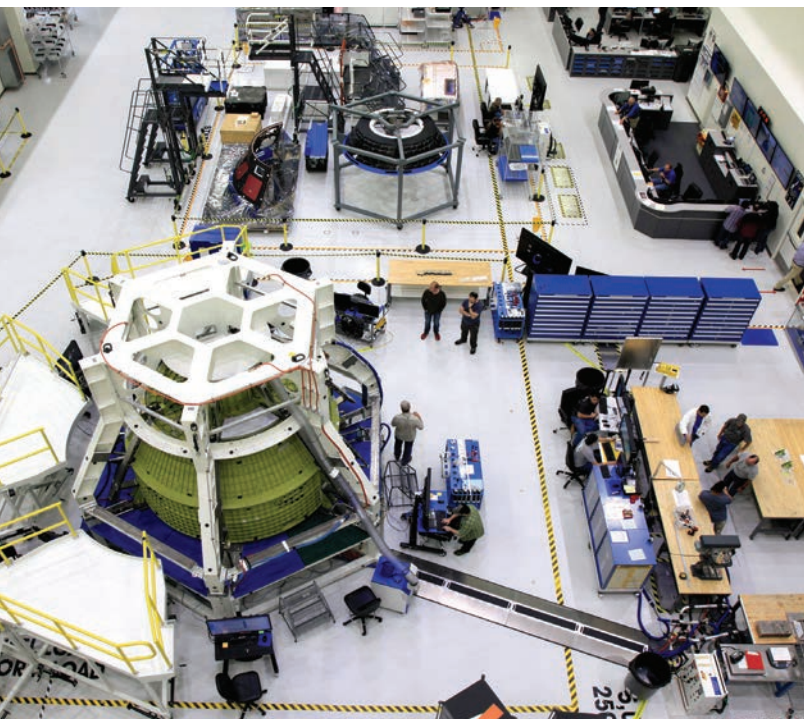
pieces of secondary structure brackets for the batteries, propulsion and the environmental and life support systems are in work.

At NASA's Michoud Assembly Facility in New Orleans, the team continues to manufacture, test and deliver Orion human spaceflight hardware components for EM-1 and EM-2, and has successfully delivered all of the Ascent Abort-2 (AA-2) hardware to Kennedy. Most recently, they installed the ogive and nose cone thermal protection systems for EM-1.

The AA-2 team has continued to make progress toward the upcoming flight test which will verify the Launch Abort System (LAS) is capable of transporting crew to safety in the instance of a malfunction as Orion is ascending into

space on the Space Launch System (SLS) rocket. The crew module/separation ring was successfully stacked and integrated to the LAS, leading to verification of connectivity between the components. LAS ogive panels, which protect the crew module during ascent, were also successfully installed on the LAS.

The Air Force and Northrop Grumman rolled out the AA-2 Solid Rocket (SR)-118 motor to the launch pad and assembled the Abort Test Booster at Space Launch Complex 46. While progressing through all of these milestones, the team determined that additional time is needed to complete the AA-2 vehicle. The new AA-2 launch date is Tuesday, July 2, which allows for time to complete the needed preparation and takes into account test range availability.



SPACE SYMPOSIUM



Orion team members from NASA and Lockheed Martin participated in the 36th annual Space Symposium in Colorado Springs, Colorado, April 8-11. This forum on civil and military space policy brought together leaders from across the globe to discuss future achievements in space. The symposium's exhibit center provided NASA, Lockheed Martin and other industries the opportunity to reach out and share information about the latest launches, missions and space innovations. NASA Administrator Jim Bridenstine delivered the keynote speech as well as a presentation during a plenary session, where he addressed the plan to send astronauts to the surface of the Moon by 2024.



ORION TEAM SHINES AT RNASA



The Rotary National Awards for Space Achievement (RNASA) Foundation holds an annual event to recognize outstanding achievements in space and create greater public awareness of the benefits of space exploration. This year's event honored former President and CEO of Orbital ATK David Thompson with the National Space Trophy and included remarks from actor William Shatner who accepted his 2018 Space Communicator Award. Orion team members were recognized for the following achievements and contributions towards deep space exploration:

Early Career Stellar Award

Kathleen S. Bonner of Northrop Grumman Innovation Systems - Outstanding leadership of Orion attitude control motor valve development and qualification, and distinguished community service through STEM activities.

Middle Career Stellar Awards

Timothy P. Pepe of Lockheed Martin - Outstanding leadership associated with driving the successful delivery of hundreds of first-time development mechanisms and pyrotechnic devices for human spaceflight and the Orion Spacecraft program.

Late Career Stellar Award

Stanley A. Bouslog of NASA Johnson Space Center - Exceptional leadership and technical contributions to NASA's aerothermodynamics and thermal protection system (TPS) communities, leading to success of the Space Shuttle, Orion and advanced TPS development efforts.

William A. Johns of Lockheed Martin - Extraordinary excellence and innovation in space exploration mission success.

Team Stellar Awards

Lockheed Martin Orion European Service Module Integration & Delivery Team - Successful delivery and integration of the European Service Module (ESM) for Orion's Exploration Mission-1 flight test to the far side of the Moon and back.

More details of the 2019 RNASA event and all nominees can be found at: rnasa.org

Pictured above are the 2019 RNASA Late Career Stellar Award winners.

SUPPLIER SPOTLIGHT

ARCONIC



Located in Cleveland, Ohio, Arconic Cleveland Operations is responsible for forging the titanium forward bay cover for Orion. The cover is a piece of the capsule that is critical during reentry and acts as a shield for the top portion of the capsule, which contains the delicate parachutes, from the heat generated by entering Earth's atmosphere. Orion is not the first opportunity for Arconic to work with NASA. The company has contributed to other NASA programs

in the past, such as with castings on the space shuttle to forgings in rocket engines. Arconic also developed the aluminum alloys used in the Apollo 11 mission. To Arconic, the Orion program represents a major historical step forward. It is proud of its involvement with the space program, and knowing that its experience has contributed to advancing humankind.

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NASA'S NEW SPACECRAFT
FOR HUMAN EXPLORATION:

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HOUSTON WE HAVE A PODCAST:
**SYMPOSIUM DAY 2: FORWARD
TO THE MOON**

NASA Administrator Jim Bridenstine discusses NASA's plan to reach the lunar surface by 2024.

Listen here: <https://go.nasa.gov/2J30ft6>