

National Aeronautics and Space Administration



SPACE LAUNCH SYSTEM

JULY – SEPTEMBER 2023



ALL ABOARD FOR
ARTEMIS II

ARTEMIS II SLS ROCKET BOOSTER SEGMENTS ARRIVE AT NASA'S KENNEDY SPACE CENTER



The 10 booster motor segments that will form the NASA SLS (Space Launch System) rocket's twin, five-segment solid rocket boosters for the agency's Artemis II mission arrived at NASA's Kennedy Space Center in Florida on Monday, Sept. 25, 2023.

The 10 booster motor segments for NASA's SLS (Space Launch System) rocket that will help propel the Artemis II astronauts in the Orion spacecraft on a trip around the Moon arrived at the agency's Kennedy Space Center in Florida, Sept. 25. They will form the SLS rocket's twin, five-segment solid rocket boosters that produce more than 75% of the total thrust at liftoff to send NASA's Artemis missions to the Moon.

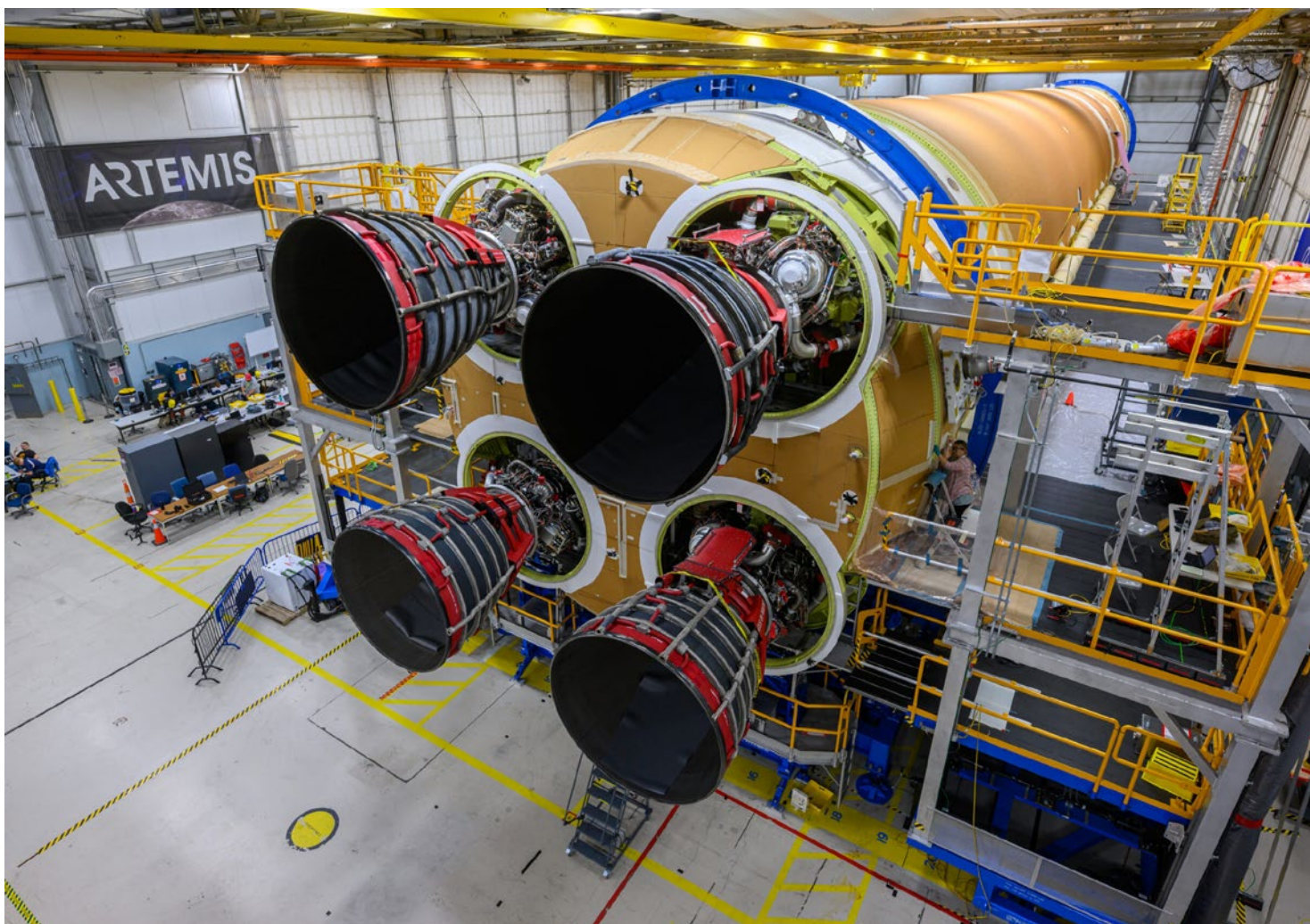
Due to their weight, the 10 booster motor segments traveled by rail across eight states in specialized transporters to the spaceport. Teams with NASA's Exploration Ground Systems Program now are preparing

to process each of the segments inside the space center's Rotation, Processing and Surge Facility ahead of integrating them inside the Vehicle Assembly Building.

"The arrival of the SLS solid rocket booster motor segments is an important turning point as NASA and our Artemis partners begin readying for stacking and launch preparations for Artemis II," said Amit Kshatriya, Deputy Associate Administrator for the Moon to Mars Program Office at NASA Headquarters. "Fully stacked, these boosters for NASA's SLS rocket are the largest, most powerful ever built for spaceflight and will help send the first astronauts around the Moon in more than 50 years."

Read more: go.nasa.gov/48SdVQu

ALL ENGINES ADDED TO NASA'S ARTEMIS II SLS CORE STAGE



Engineers and technicians from NASA; Aerojet Rocketdyne, an L3 Harris Technologies company; and Boeing at NASA's Michoud Assembly Facility in New Orleans have installed all four RS-25 engines to the core stage for the Artemis II SLS that will help power the first crewed Artemis mission to the Moon.

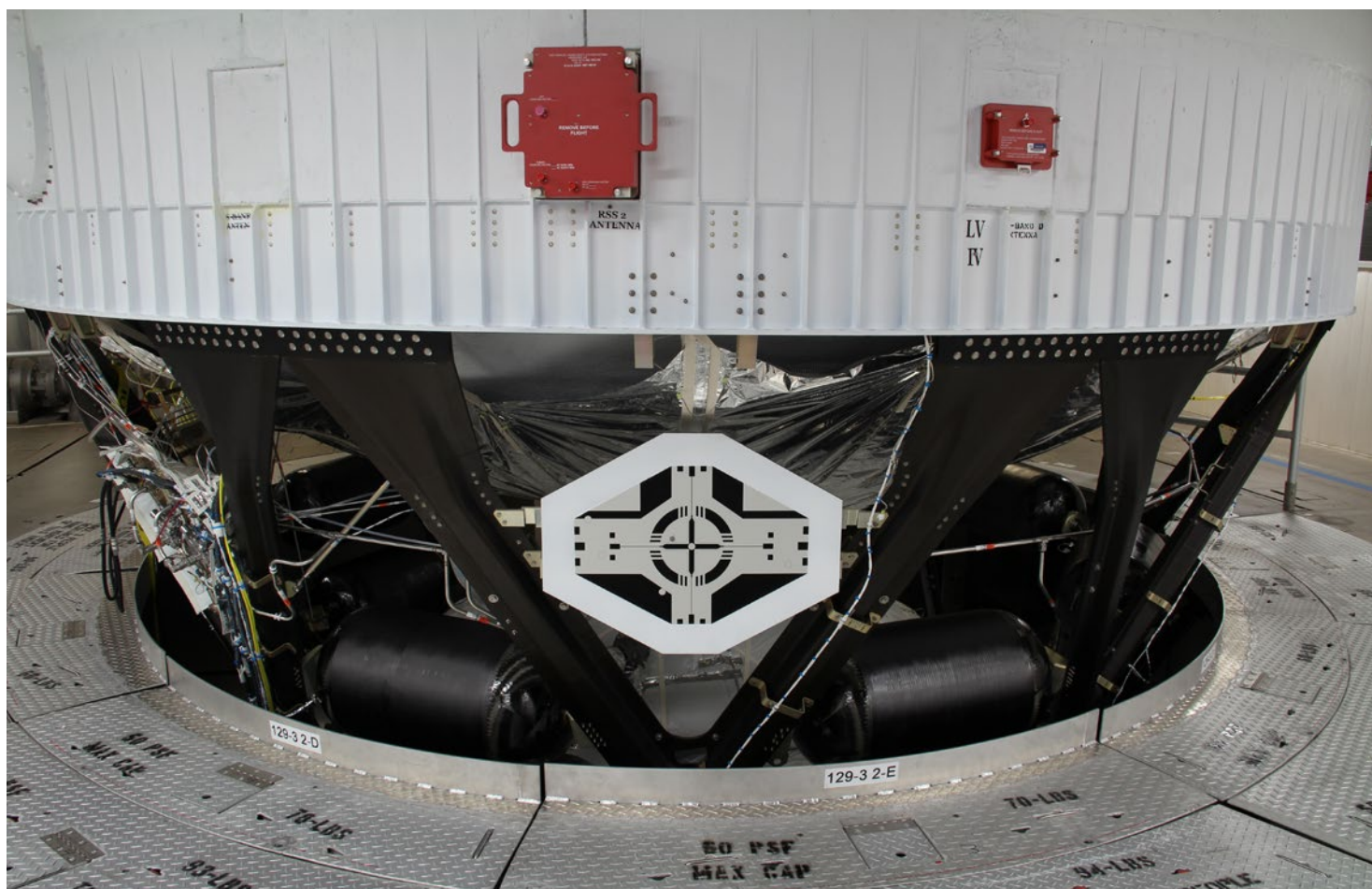
Teams at NASA's Michoud Assembly Facility in New Orleans have connected all four RS-25 engines onto the core stage for NASA's Artemis II SLS Moon rocket. The Artemis II flight test is the agency's first crewed mission under Artemis.

Technicians added the first engine to SLS's core stage Sept. 11. Teams installed the second engine onto the stage Sept. 15, with the third and fourth engines

Sept. 19 and Sept. 20. Technicians with NASA; Aerojet Rocketdyne, an L3Harris Technologies company and the RS-25 engines lead contractor; along with Boeing, the core stage lead contractor, then focused efforts on the complex task of fully securing the engines to the stage and integrating the propulsion and electrical systems within the structure.

Read more: [go.nasa.gov/3PKEY7r](https://www.nasa.gov/3PKEY7r)

TECHNICIANS ADD “TARGET” TO NASA ARTEMIS II’S INTERIM CRYOGENIC PROPULSION STAGE



An Orion rendezvous target that will be used during a flight demonstration on the Artemis II mission was attached May 16 to the SLS interim cryogenic propulsion stage, shown here surrounded by a work platform.

A critical auxiliary target for NASA's Artemis II mission is ready for flight following testing at United Launch Alliance's (ULA) Florida facility. Teams with the company added the target onto the in-space propulsion stage for SLS at ULA's Delta Operations Center at Cape Canaveral Space Force Station May 16.

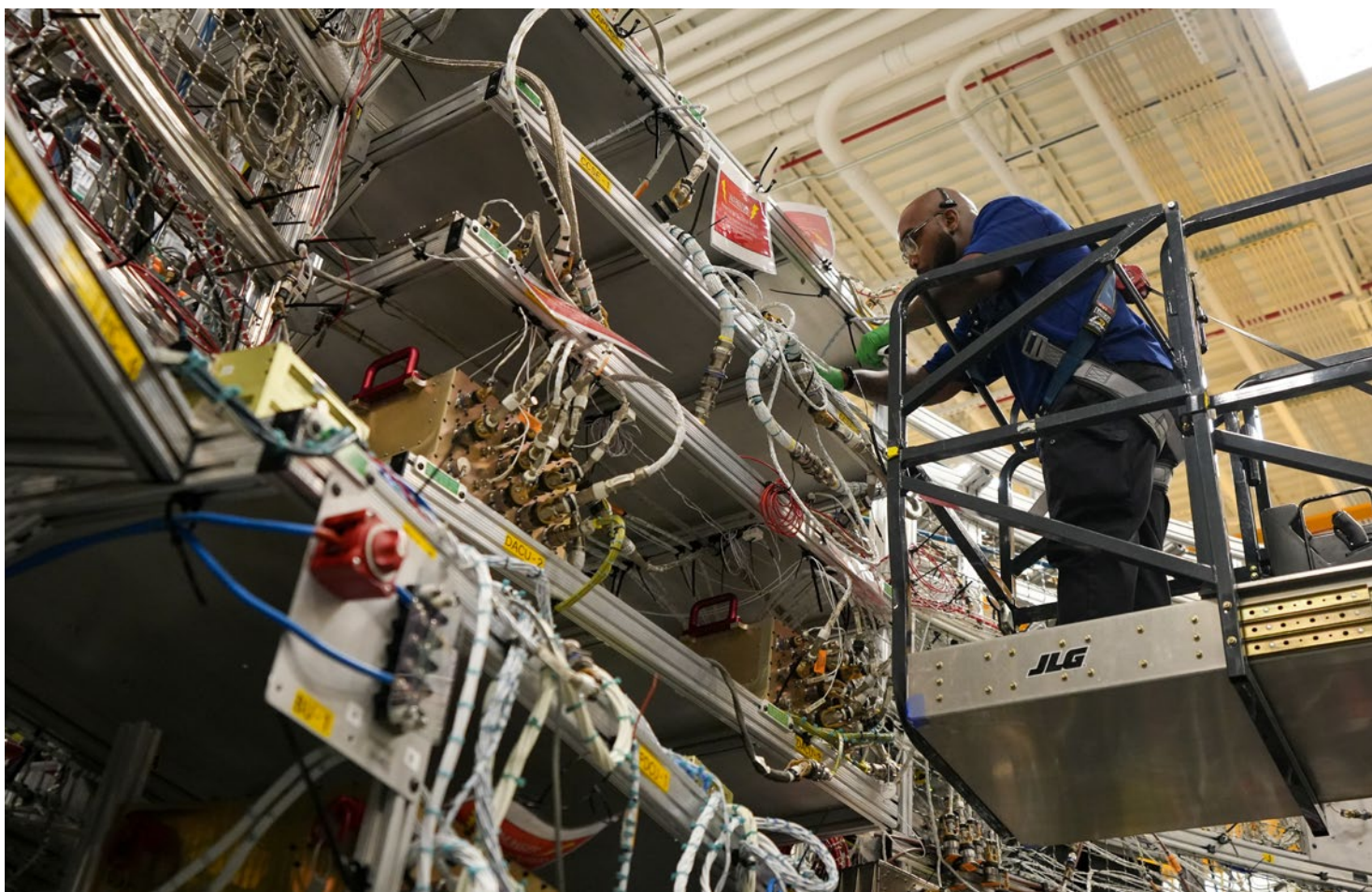
Following the safe separation of NASA's Orion spacecraft from the rocket's upper stage during Artemis II, the **four** **astronauts** aboard Orion will use the target affixed to the in-space stage for a proximity operations demonstration to test Orion's piloting qualities. The target underwent illumination

testing in May to ensure it will be visible in the different lighting conditions of space.

The SLS rocket delivers propulsion in phases to send the Artemis missions to the Moon. Its ICPS (interim cryogenic propulsion stage) and its single RL10 engine fires twice during the Artemis II mission to put the Orion spacecraft and astronauts into a high-Earth orbit, where they will then check out Orion's manual handling qualities using the ICPS and its auxiliary target before then heading to the Moon.

Read more: go.nasa.gov/3Rl2soz

SLS FLIGHT SOFTWARE FOR ARTEMIS II MEETS TESTING CHECKPOINT



An engineer evaluates the avionics configuration inside the Systems Integration Laboratory (SIL) at NASA's Marshall Space Flight Center in Huntsville, Alabama.

The first Artemis astronauts have begun [crew training](#) for their Artemis II mission around the Moon, and teams at NASA's Marshall Space Flight Center in Huntsville, Alabama, are testing and configuring the flight software for the mega Moon rocket that will launch them on their journey.

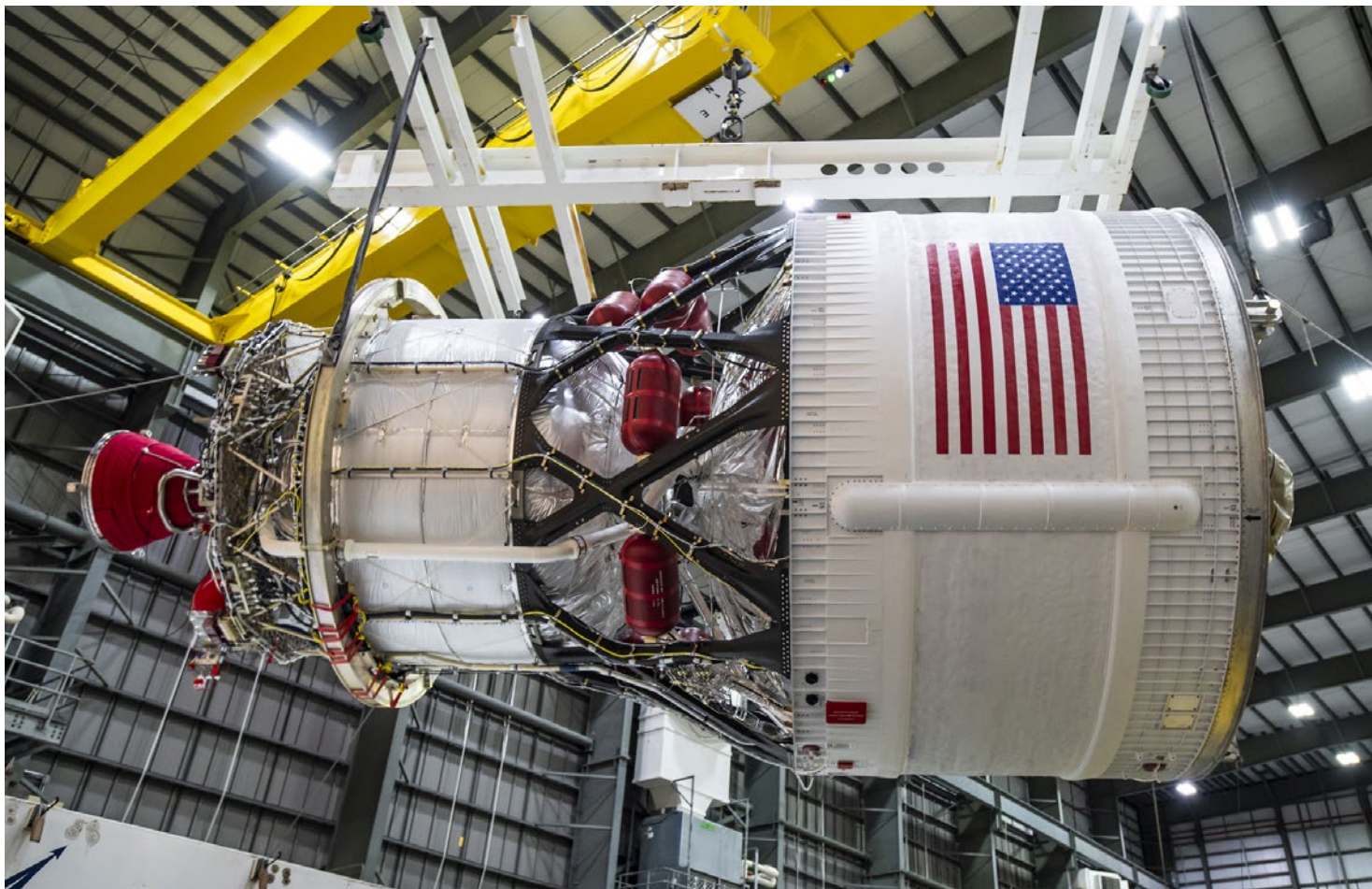
When SLS launches NASA's Artemis II crew aboard Orion, it will produce more than 8.8 million pounds of thrust. The SLS rocket's flight software acts as the "brains" of the rocket, activated and checked 48 hours prior to launch to command all that power and energy for the first eight

minutes of the mission through the separation of the ICPS. Inside the SLS Software Development Facility (SDF) at Marshall, software engineers recently completed the first part of formal qualification testing for the Artemis II SLS flight software.

The rocket's flight software consists of approximately 50,000 lines of code. To test the SLS computer systems and flight software ahead of launch, a team inside the SDF simulates a series of normal and off-nominal SLS-rocket and environmental scenarios, called test cases.

Read more: go.nasa.gov/48ABcX3

ARTEMIS III ICPS ARRIVES IN FLORIDA FOR ADDITIONAL PROCESSING

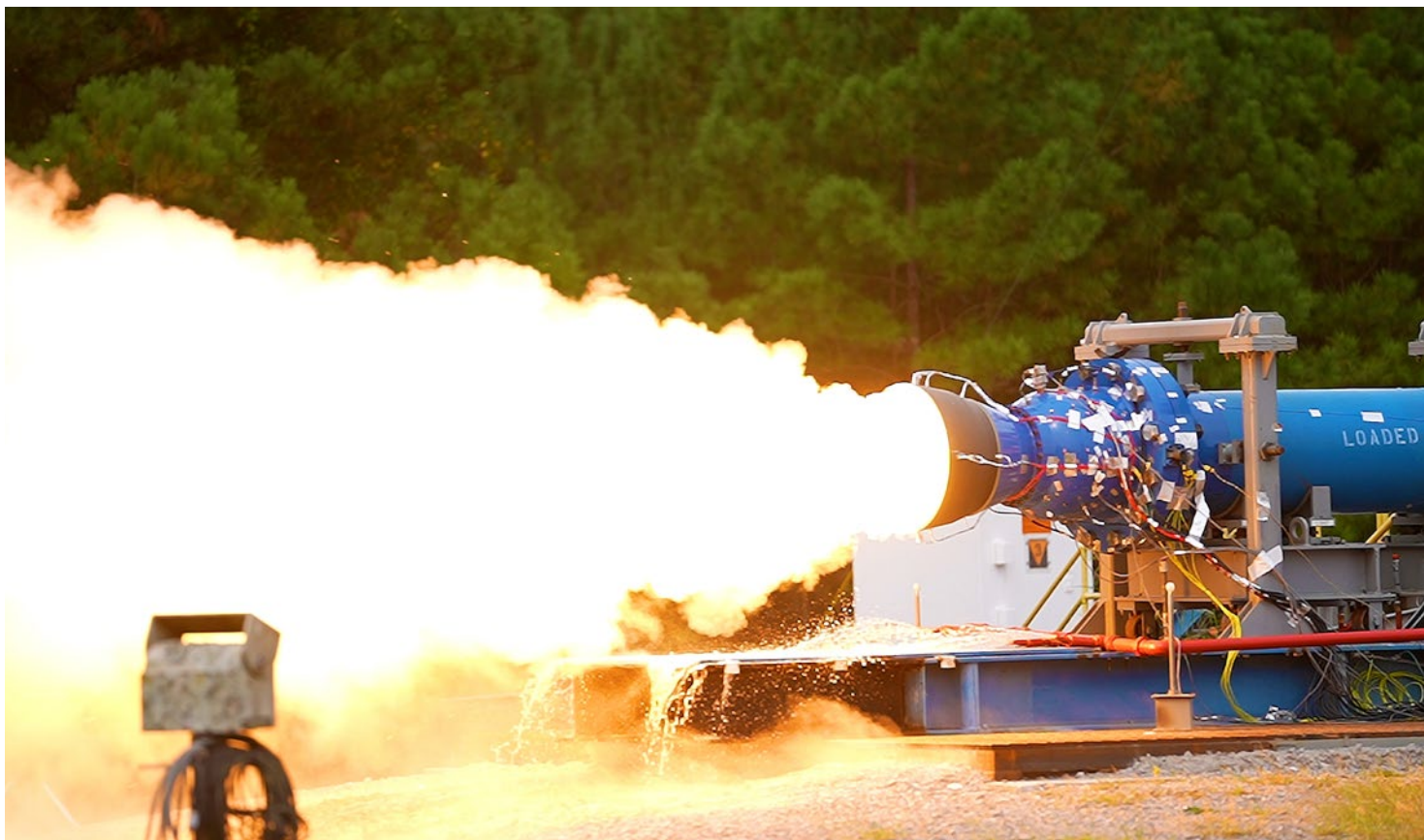


The Artemis III ICPS is transported at ULA's facilities at Cape Canaveral Space Force Station.

The upper stage for the SLS rocket that will power the Artemis III mission and send astronauts on to the Moon for a lunar landing arrived at the Cape Canaveral Space Force Station Poseidon Wharf in Florida Aug. 9. It will undergo final checkouts by contractors Boeing and ULA at ULA's facilities before it is delivered to nearby Kennedy.

SLS's ICPS is responsible for giving Orion and the astronauts inside the big push – called a trans-lunar injection – to journey to the Moon on a precise trajectory during Artemis III. The ICPS for the mission is the last of its kind as Artemis missions beginning with Artemis IV will use the SLS Block 1B configuration with its more powerful exploration upper stage for launch and flight.

THIRD SUBSCALE BOOSTER FIRES UP AT MARSHALL TO TEST MATERIALS FOR FUTURE ARTEMIS MISSIONS



Engineers at Marshall conducted a hot fire of a 24-inch subscale solid rocket motor for SLS solid rocket booster development Sept. 14.

Engineers at Marshall conducted a hot fire of a 24-inch subscale solid rocket motor Sept. 14. The test, conducted in Marshall's East Test Area, produced more than 82,000 pounds of thrust and was part of an ongoing series of developmental tests for an upgraded booster design for future configurations of SLS.

Beginning with Artemis IX, the SLS rocket in its Block 2 configuration will use the BOLE (booster obsolescence and life extension) evolved booster. The more powerful solid rocket motor will give the SLS rocket the capability to send even heavier payloads to the Moon for future Artemis missions and other areas of deep space.

Read more: go.nasa.gov/46EJpaE

I AM ARTEMIS: CODY JONES



Cody Jones is a project manager for SLS ICPS.

When Cody Jones graduated with a degree in communication arts from the University of Alabama in Huntsville (UAH) in 2011, he had no idea what he was supposed to do next. “I graduated with my degree in a place named ‘The Rocket City,’ but I never imagined myself as someone who would work with rockets,” Jones said.

However, a professor saw Cody’s potential and suggested he apply for an internship working as a payload communicator in the [International Space Station Payload](#)

[Operations and Integration Center](#) at Marshall. Although the position was intended for someone with a technical background, Jones’ communication skills, persistence, and willingness to learn about the aerospace industry got him the job and helped make him successful in that initial role. It led him to his current one as project manager for the SLS ICPS, which is managed by Marshall and will help NASA land the first woman and first person of color on the Moon under Artemis.

Read more: go.nasa.gov/45jBBKn

WHAT'S NEW IN SLS SOCIAL MEDIA

“FUEL” AND FIRE: NASA’S ARTEMIS MISSIONS TO THE MOON, FEAT. METALLICA

What do Metallica and NASA’s Artemis missions to the Moon have in common? Both love “Fuel” and fire. See footage of the Artemis I launch scored by Metallica’s “Fuel.”


Watch here: bit.ly/3Q20F4a



ARTEMIS II CREW PARTICIPATES IN TEST AT LAUNCH COMPLEX 39B

In September, the Artemis II crew participated in a Launch Day Demonstration which included traveling to Launch Complex 39B and then to the crew access arm that will be used to board NASA’s Orion spacecraft on launch day. While the SLS rocket and Orion were not present during this demonstration, tests like this help prepare the team for all the operations needed to get the crew to their ride that will take them around the Moon.

Watch here: bit.ly/3ZFSfTr

 **NASA's Space Launch System**
September 23 at 3:00 PM · 🌐

What a view!

This past week the crew for [NASA Artemis II](#) participated in a Launch Day Demonstration which included them traveling to Launch Pad 39B and then to the crew access arm used to board [NASA's Orion Spacecraft](#) on launch day.

While the SLS rocket and Orion were not present during this demonstration, tests like this help prepare the team for all the operations needed to get the crew to their ride that will take them around the Moon. ... [See more](#)



SLS ON THE ROAD



SLS Chief Engineer John Blevins (third from right) participated on a panel with Apollo 16 Lunar Module Pilot Charlie Duke (third from left), current and retired astronauts, and current and retired NASA engineers at the Experimental Aircraft Association's annual AirVenture convention in Oshkosh, Wisconsin, July 24.



During an August site visit, SLS Program Manager John Honeycutt shakes the hand of one of the hundreds of employees in Augusta, Kansas, who helps build SLS.

SPACEFLIGHT PARTNERS:

Amorim Cork Composites

LOCATION: *Trevor, Wisconsin*


WHAT THEY DO FOR SLS:

Amorim Cork Composites supplies cork for thermal protection of the solid rocket boosters. Established in Wisconsin in 1946, Amorim Cork Composites produce a 100% natural, recyclable, renewable, and sustainable product that can resist temperatures up to 248 Fahrenheit.



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Top Three Countdown

What you need to know right now

- 3...The Next Giant Leap** — More than 50 years ago, NASA sent the first humans to the Moon under the Apollo program. Now, NASA is preparing to send the first woman and first person of color to the lunar surface as part of the Artemis program. Step back in time with us to the age of Apollo and join us as we prepare for our next giant leap in exploration. — [Read more](#)
- 2. Start Your Engines!** — Teams at NASA's Michoud Assembly Facility in New Orleans structurally joined all four RS-25 engines onto the core stage for SLS (Space Launch System). Together these four engines provide more than 2 million pounds of thrust and will help send the Artemis II crew on a lunar flyby. — [Read more](#)
- 1. Special Delivery!** — The 10 booster motor segments for the Artemis II mission arrived at NASA's Kennedy Space Center in Florida on Sept. 25. Once they are vertically stacked, they will form the SLS rocket's twin, five-segment solid rocket boosters, which will produce more than 75% of the total thrust at liftoff. — [Read more](#)

Picture of the Month

We know how to wow



Technicians at NASA's Michoud Assembly Facility in New Orleans installed the four RS-25 engines onto the SLS rocket's 212 ft.-core-stage. Together, the engines produce more than 2 million pounds of thrust during ascent to help send NASA's Orion spacecraft and astronauts beyond

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

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