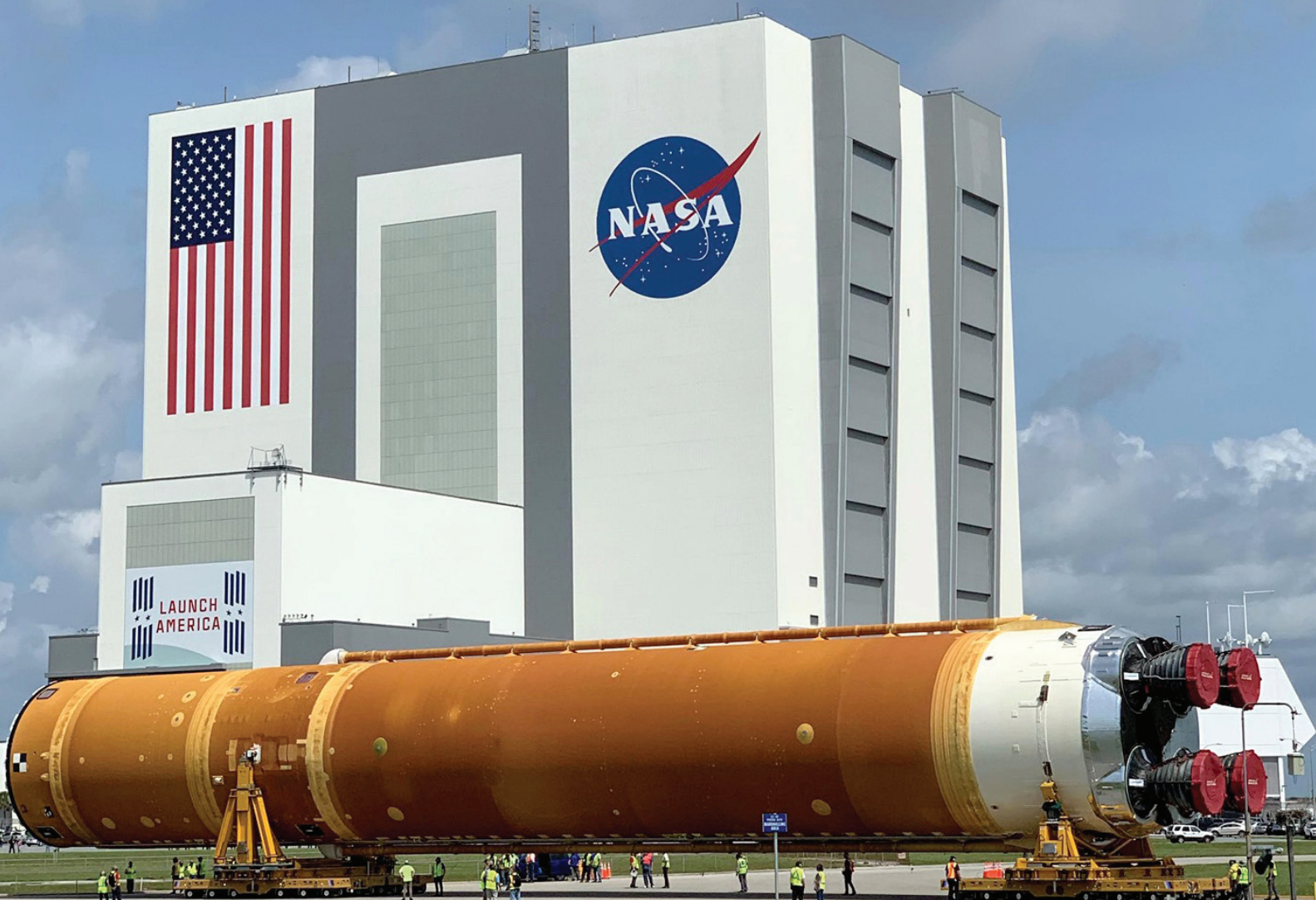


# SPACE LAUNCH SYSTEM

FEBRUARY 2021 – APRIL 2021



## NEXT DESTINATION: LUNAR ORBIT



# BARGING IN: ARTEMIS I CORE STAGE ARRIVES AT KENNEDY FOR LAUNCH PREPARATION



Crews at Stennis Space Center worked to remove the core stage from the B-2 test stand April 19-20.



The core stage was loaded on to NASA's Pegasus barge April 22 and shipped to Kennedy Space Center in Florida, where it will be stacked with the solid rocket boosters on the mobile launcher and prepared for the Artemis I launch.



The SLS Artemis I core stage completed a successful, full-duration hot fire at Stennis Space Center March 18.

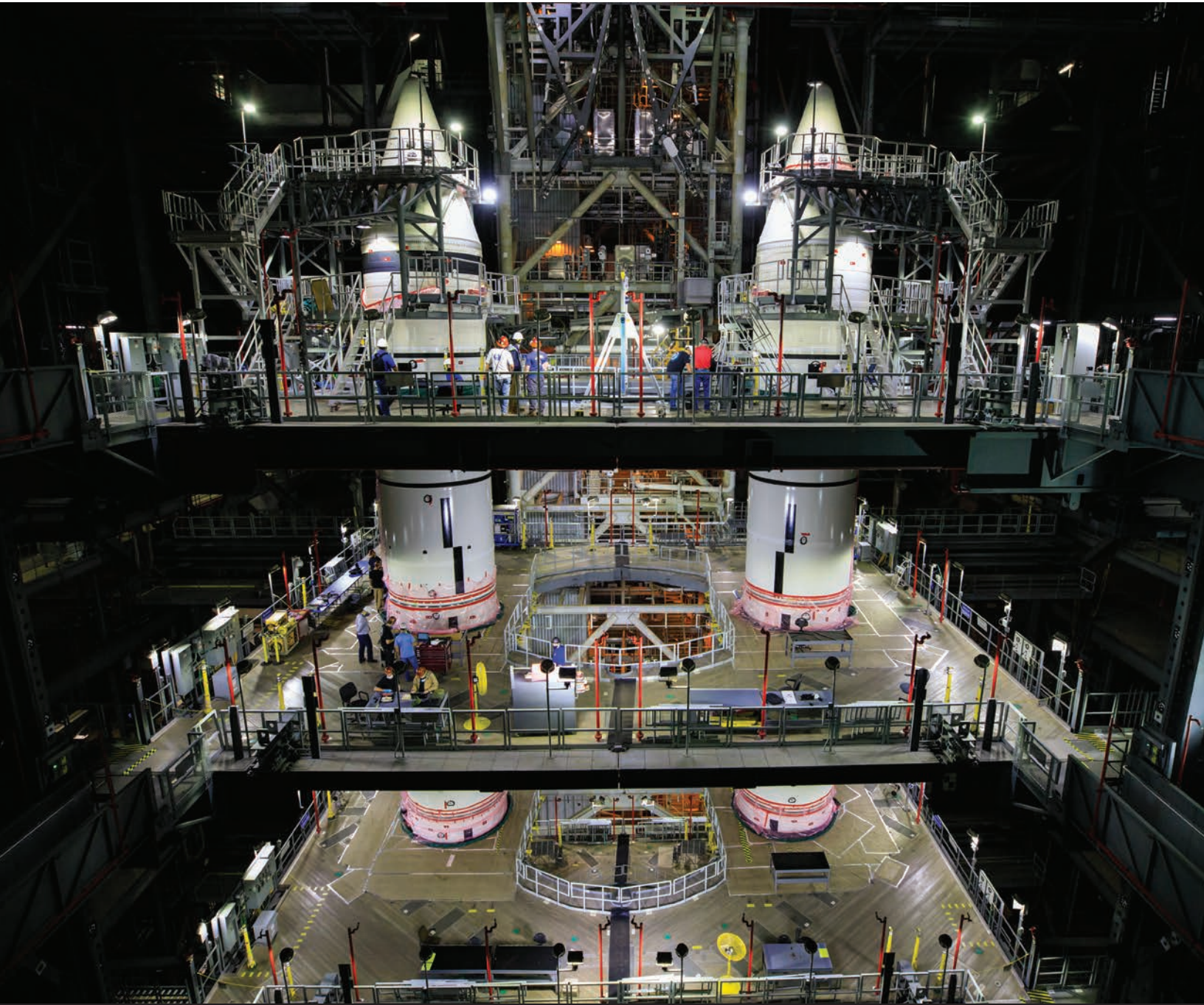
The final piece of NASA's Space Launch System (SLS) rocket that will send NASA's [Artemis I](#) mission to the Moon has arrived at NASA's Kennedy Space Center in Florida. The SLS Program delivered the core stage rocket to the center's Launch Complex 39 turn basin wharf after completing a successful series of [Green Run tests](#) at Stennis Space Center in Mississippi. The 212-foot-tall core stage, which is the largest rocket stage NASA has ever built, completed its voyage aboard the agency's [Pegasus barge](#) on April 27. After a 900-mile journey, teams aboard the barge, which was modified to support SLS's weight and length, safely piloted the specialized self-sustaining vessel to the spaceport.

Now that the core stage is at Kennedy, it will be [stacked](#) with the solid rocket boosters on the mobile launcher in the Vehicle Assembly Building (VAB) in preparation for the Artemis I launch later this year.

Read more: [go.nasa.gov/3gNkz1I](https://go.nasa.gov/3gNkz1I)



# STACKING COMPLETE FOR TWIN SLS ROCKET BOOSTERS



The SLS solid rocket boosters for the Artemis I mission are stacked on the mobile launcher in the Vehicle Assembly Building at Kennedy Space Center.

Teams with NASA's Exploration Ground Systems have completed stacking of the SLS [solid rocket boosters](#) at Kennedy Space Center in Florida. Stacking work was done using one of five massive cranes to place the aft assemblies, motor segments, and forward assemblies onto the mobile launcher in the VAB at Kennedy. The fully assembled, five-segment boosters are the largest, most powerful solid rocket boosters ever built for flight. Engineers placed the first segment on the mobile launcher Nov. 21, 2020, and continued the process segment by segment, finishing with the placement of the forward assemblies March 2. Prior to the arrival of the SLS core stage, the team finished installing electrical instrumentation and pyrotechnics, then tested the systems on the boosters. Technicians then transported the core stage to the VAB and will stack it on the mobile launcher between the two boosters.

Read more: [go.nasa.gov/3uf9fyS](https://go.nasa.gov/3uf9fyS)



# WELD COMPLETE FOR ADAPTER ON FIRST ARTEMIS CREWED LAUNCH



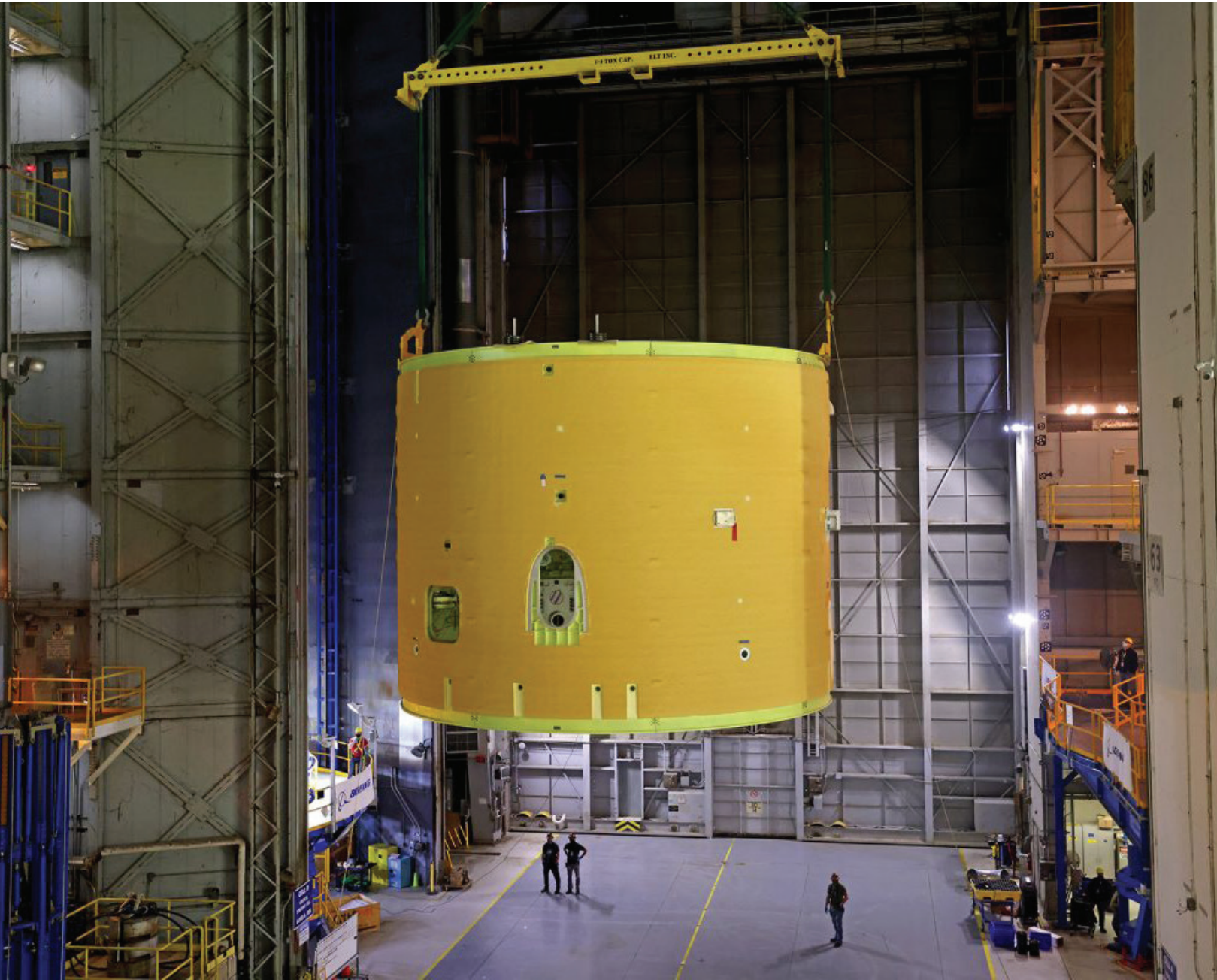
The SLS launch vehicle stage adapter for Artemis II undergoes welding assembly at Marshall Space Flight Center.

Technicians at NASA's Marshall Space Flight Center in Huntsville, Alabama, completed the weld to join the two major parts of the launch vehicle stage adapter (LVSA) for NASA's SLS rocket. The adapter, a cone-shaped piece of hardware that connects the rocket's upper and lower stages, will fly on Artemis II, the first crewed mission of [NASA's Artemis program](#). Using advanced robotic tooling and an innovative process called [friction stir welding](#), technicians completed the weld that joins the upper and lower cones of the LVSA into one structure. The next step in the manufacturing process is the installation of the pneumatically actuated frangible joint, which sits atop the LVSA and helps separate the core stage and LVSA from the [Interim Cryogenic Propulsion Stage \(ICPS\)](#) during flight. In addition to connecting the 212-foot-tall core stage to the ICPS, the stage adapter protects avionics and electrical devices in the ICPS from extreme vibration and acoustic conditions during launch and ascent.

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



# HARDWARE FOR FUTURE ARTEMIS FLIGHTS MAKE PROGRESS



The intertank for the Artemis II SLS core stage is moved inside Michoud Assembly Facility.

Technicians and engineers continue to make progress manufacturing core stages that will help power NASA's SLS rocket for its second and third flights. NASA and Boeing, the lead contractor for the core stage, are in the process of conducting one of the biggest Artemis II milestones: assembling the top half of the core stage. The [212-foot tall core stage](#) for the SLS rocket is the largest rocket stage NASA has ever produced. The five individual elements that make up the core stage – the forward skirt, liquid oxygen tank, intertank, liquid hydrogen tank, and the engine section – are in various stages of manufacture and assembly at NASA's [Michoud Assembly Facility](#) in New Orleans. Michoud's 43-acre building provides more than enough space for crews to work in tandem to build the core stages for Artemis II and Artemis III, the second and third flights of the SLS rocket and the first crewed missions of NASA's Artemis program.

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

# NEW RS-25 ENGINE TEST SERIES UNDERWAY



An RS-25 engine for the SLS Program is fired up as part of a new test series at Stennis Space Center.

NASA conducted a long-duration RS-25 single-engine test April 28, continuing its [seven-part test series](#) to support development and production of engines for future missions of the agency's SLS rocket. Operators fired the engine for almost 11 minutes (650 seconds) on the [A-1 Test Stand](#) at Stennis Space Center near Bay St. Louis, Mississippi, providing valuable data to Aerojet Rocketdyne, lead contractor for the SLS engines, as it begins production of new engines for use after the first four SLS flights. Four [RS-25 engines](#), along with a pair of solid rocket boosters, will help power SLS at launch. Engines for the rocket's first four Artemis program missions to the Moon already have been tested. Operators now are focused on collecting data to demonstrate and verify various engine capabilities, evaluate new engine components manufactured with cutting-edge and cost-saving technologies, eliminate operating risks, and enhance engine production.

Read more: [go.nasa.gov/3xCa9bl](https://go.nasa.gov/3xCa9bl)



# WHAT'S NEW IN SLS SOCIAL MEDIA

## SMOKE & FIRE! NASA TESTS THE WORLD'S MOST POWERFUL ROCKET

NASA's SLS rocket's core stage fired all four of its RS-25 engines on March 18 at Stennis Space Center. The hot fire test included loading 733,000 gallons of liquid oxygen and liquid hydrogen – mirroring the launch countdown procedure – and igniting the engines.

Watch the full video here:

[go.nasa.gov/3xBQ3xN](https://go.nasa.gov/3xBQ3xN)



## WATCH TECHNICIANS WELD ROCKET STAGE ADAPTER FOR FIRST CREWED ARTEMIS FLIGHT



Engineers at NASA's Marshall Space Flight Center in Huntsville, Alabama, complete the welds to form the launch vehicle stage adapter (LVSA) for the SLS rocket. The LVSA in this video will fly on Artemis II, the first crewed mission of NASA's Artemis program. Upon stacking the upper and lower cones, technicians use advanced robotic tooling and an innovative process called friction stir welding to join the cones of the LVSA to form one structure. Watch the full video here: [youtu.be/gL6vUL\\_95hU](https://youtu.be/gL6vUL_95hU)



# SLS ON THE VIRTUAL ROAD

## THE POWER OF SLS AND ORION



Trey Cate

### ORION

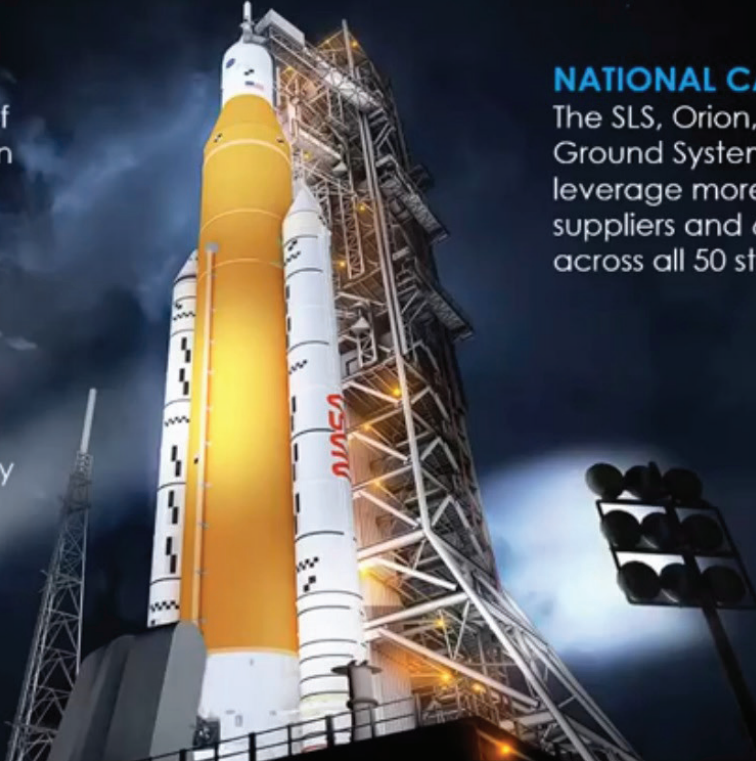
The only spacecraft capable of carrying and sustaining crew on missions to deep space, providing emergency abort capability, and safe re-entry from lunar return velocities

### SLS

The only rocket with the power and capability required to carry astronauts to deep space onboard the Orion spacecraft

### NATIONAL CAPABILITY

The SLS, Orion, and Exploration Ground Systems programs leverage more than 3,800 suppliers and 60,000 workers across all 50 states

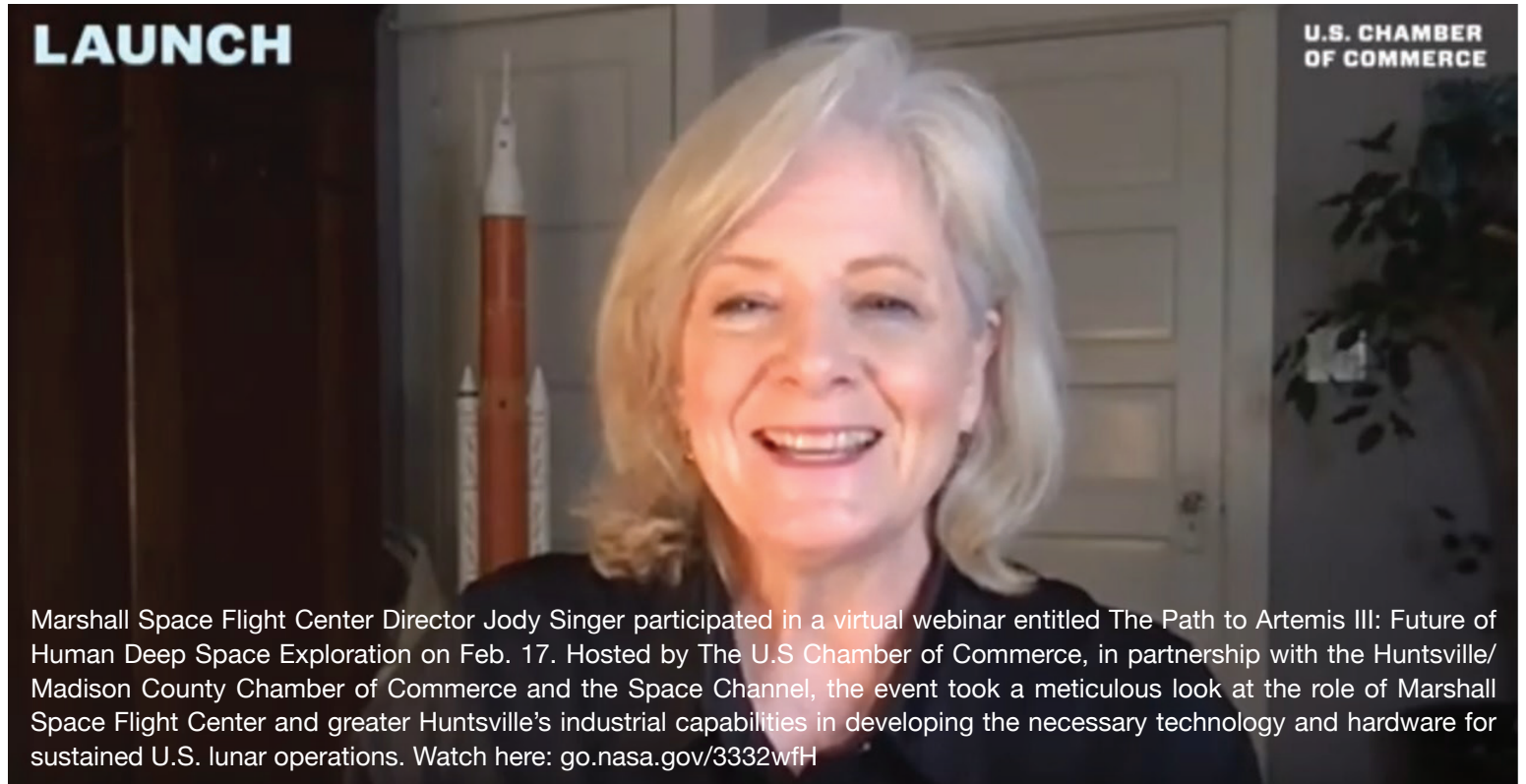


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SLS's Trey Cate visited virtually with the Tecnológico de Costa Rica on March 26. Cate gave a briefing on SLS and Artemis to the group. Watch here: [go.nasa.gov/3gMkLOQ](https://go.nasa.gov/3gMkLOQ)

## LAUNCH

U.S. CHAMBER OF COMMERCE



Marshall Space Flight Center Director Jody Singer participated in a virtual webinar entitled The Path to Artemis III: Future of Human Deep Space Exploration on Feb. 17. Hosted by The U.S Chamber of Commerce, in partnership with the Huntsville/Madison County Chamber of Commerce and the Space Channel, the event took a meticulous look at the role of Marshall Space Flight Center and greater Huntsville's industrial capabilities in developing the necessary technology and hardware for sustained U.S. lunar operations. Watch here: [go.nasa.gov/3332wfH](https://go.nasa.gov/3332wfH)



# SPACEFLIGHT PARTNERS: *Haigh-Farr*

NUMBER OF EMPLOYEES: 75

LOCATION: *Bedford, New Hampshire*

## WHAT THEY DO FOR SLS:

*Founded in 1969, Haigh-Farr is a small, woman-owned business that has become a world leader in the design, development, manufacture, and test of customizable antennas for simple to sophisticated applications in the space, defense, and commercial sectors. The company provides antenna systems for SLS, including for use on Block 1B's advanced and more powerful upper stage, the Exploration Upper Stage (EUS).*

# GET THE LATEST SLS UPDATES SENT TO YOUR INBOX EACH MONTH!

[View as Webpage](#)



### Top Three Countdown

*What you need to know right now*

- 3... **An engine for the future** — A new test series of the RS-25 engine has two successful hot fires in the books. [Read more](#)
- 2.. **Fueling for flight** — The Orion service module is being fueled for the Artemis I mission. [Read more](#)
1. **Three, two, one...Liftout!** — Crews at NASA's Stennis Space Center removed the SLS core stage for the Artemis I mission from the B-2 test stand in preparation for transport to Kennedy Space Center. [Read more](#)

### Picture of the Month

*We know how to wow*



Every day, the SLS rocket gets closer to launch. Get updates in your inbox each month by subscribing to [SLS in 3..2..1.](#)



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

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