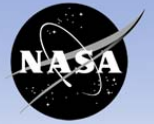


National Aeronautics and Space Administration



LAGNIAPPE

John C. Stennis Space Center

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Moving Forward!



A work crew at NASA's Stennis Space Center removes RS-25 engine No. 10001 from the Fred Haise Test Stand on July 12. Removal of the engine follows completion of the initial certification test series designed to pave the way for production of new RS-25 engines to help power NASA's SLS (Space Launch System) rocket on future Artemis missions to the Moon, beginning with Artemis V. NASA Stennis is expected to conduct a second certification test series, beginning late summer/early fall.

One grandgator leaned over and said to me, “It’s such a sight to see.”

“The color is amazing,” another commented.

“The memories we are making together is what I enjoy the most,” I told them.

That is how the conversation went with the grandgators and I as we celebrated Fourth of July.

Their eyes lit up with amazement and wonder at the colorful display. One right after the other, fireworks ignited and raced toward the sky. There were colors of red, blue, gold, and orange.

When the bright orange color illuminated the sky, the brilliant flash of light brought to mind something else inspiring – the series of RS-25 engine tests recently witnessed at NASA Stennis.

The RS-25 engine tests were similar in many ways to the firework display viewed on Independence Day.

They both provided noise, flashes of light, and lots of ingenuity. One right after the other, the folks at NASA Stennis fired up the series of certification tests.

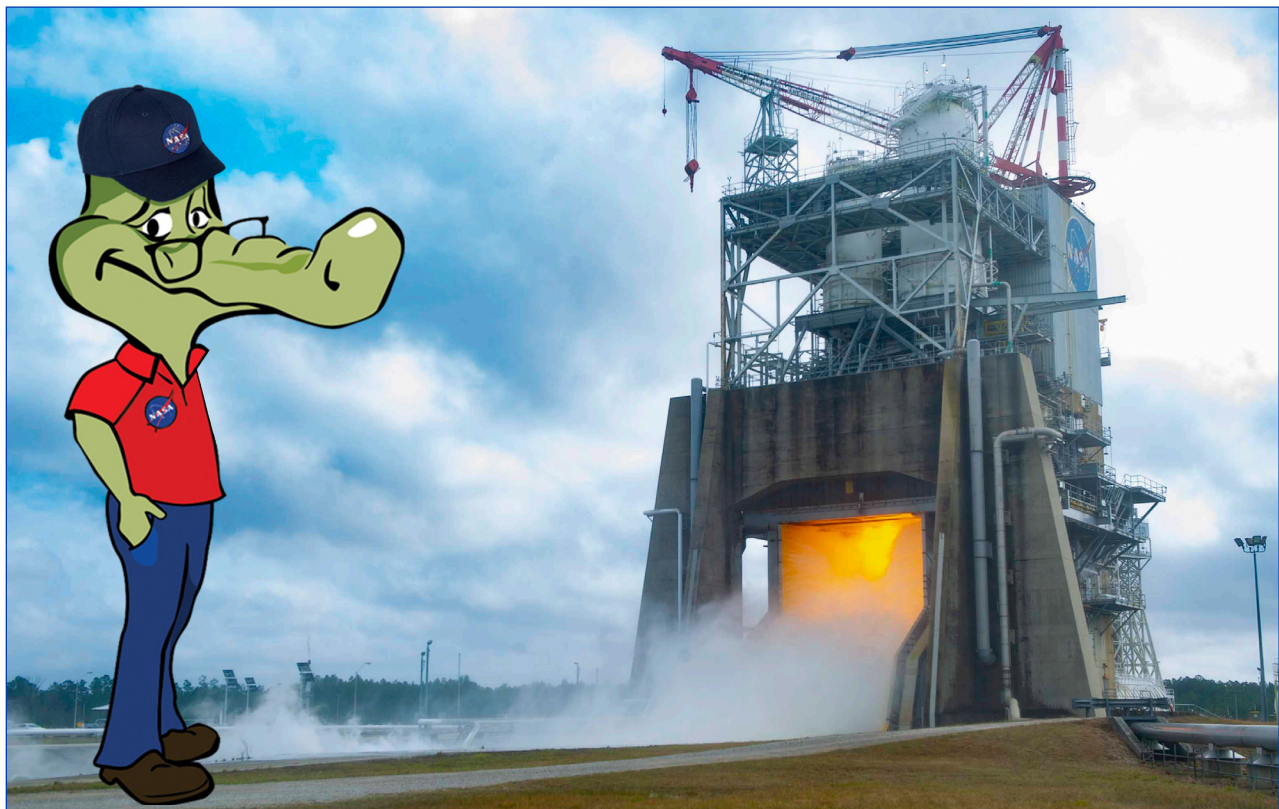
While the firework show carried on for more than 20 minutes, the hot fires at NASA Stennis lasted five times as long in total – almost 110 minutes – over 12 tests from February to June.

The next time the grandgators and I will likely have the opportunity to view another firework display will be months from now when we usher in a new year.

However, it will not be that long we all have to wait to see NASA Stennis fire up another RS-25 engine. A second certification series is coming in the fall.

It will usher in a new chapter for future flights of NASA’s powerful SLS (Space Launch System) rocket.

And with it will come what I enjoy the most – the memories we are making together as we journey to the Moon and, eventually, to Mars..



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NASA Achieves Key Milestone for Production of Future Artemis Engines

NASA achieved a key milestone June 22, completing an initial certification test series designed to pave the way for production of new RS-25 engines to help power NASA's SLS (Space Launch System) rocket on future [Artemis](#) missions to the Moon, beginning with Artemis V.

“This certification test series for the redesigned engine sets the stage for a new chapter of spaceflight history for the RS-25 engines and future flights of the SLS rocket,” said Johnny Heflin, SLS liquid engines manager. “The newly redesigned RS-25 engines leverage advanced manufacturing techniques and innovative designs while increasing the engine’s performance as NASA aims to establish a sustainable presence on the Moon and prepare for future missions to Mars.”

Engineers conducted a full-duration test of more than eight minutes (500 seconds) on an [RS-25](#) certification engine manufactured by SLS engines lead contractor Aerojet Rocketdyne. The engine incorporates dozens of improvements to make production more efficient and affordable while maintaining high performance and reliability. The test [series](#) on the Fred Haise Test Stand at NASA's Stennis Space Center is designed to verify that the new engines meet all Artemis flight requirements.

The stage is now set for a second – and final – certification series to begin in early fall. Data from the certification tests will confirm all is good to go in producing new engines for use beginning with the Artemis V mission to the Moon as NASA continues its effort to explore the secrets of the universe for the benefit of all.

Aerojet Rocketdyne is employing new manufacturing processes and techniques, including 3D printing, to produce the RS-25 more efficiently. NASA has awarded the company contracts to provide 24 new engines, which will help power six [SLS](#) launches. Four RS-25 engines fire simultaneously to produce more than 2 million pounds of combined thrust to help launch the rocket.

The recent certification series at NASA Stennis featured a dozen full-duration tests and plenty of highlights, including:

- **Almost 110 minutes of cumulative hot fire duration.** Each of the 12 tests fired for at least 8 minutes (500 seconds) and several for even longer to fully characterize engine performance. The 500-second tests simulate the same amount of time the engine must perform to lift SLS and astronauts aboard the [Orion](#) spacecraft to orbit. The engine approached 2 hours (6,570 seconds) of cumulative hot fire time during the series.
- **Four long-duration tests.** Operators conducted a pair of 10-minute tests, as well as 10-and-a-half minute and 12-minute hot fires, during the series. The 720-second test represented the longest-ever hot fire of a modified RS-25 engine.
- **An aggressive gimbal test.** Halfway through the campaign, operators conducted a gimbal test of the engine to ensure it will pivot as needed to maintain the stability and trajectory of SLS during flight. Operators moved the engine by as much as 6 degrees from center on a tight circular axis and in a back-and-forth pattern to demonstrate the gimbaling capability.
- **A wide range of power levels.** Operators fired the RS-25 engine from 80% to 113% power levels to test the performance of the engine in various scenarios. The first four Artemis missions use modified space shuttle main engines that can power up to 109% of their rated level. New RS-25 engines will power up



NASA conducts an RS-25 hot fire test on the Fred Haise Test Stand at NASA's Stennis Space Center on June 22. The 12-test series for the initial certification series is complete, with a second certification series to follow that will pave the way for production of new RS-25 engines to help power the SLS rocket.

to the 111% level to provide additional thrust. Operators tested up to the 113% power level during a number of certification hot fires to learn about the engine’s capabilities and to provide a margin of operational safety.

- **State-of-the-art components.** The certification engine featured various components manufactured with advanced processes and techniques, including a main combustion chamber using hot isostatic pressure bonding, an improved nozzle brazing process, new flex hoses, and numerous 3D-fabricated components. The certification hot fires demonstrate the performance capabilities of the new components.

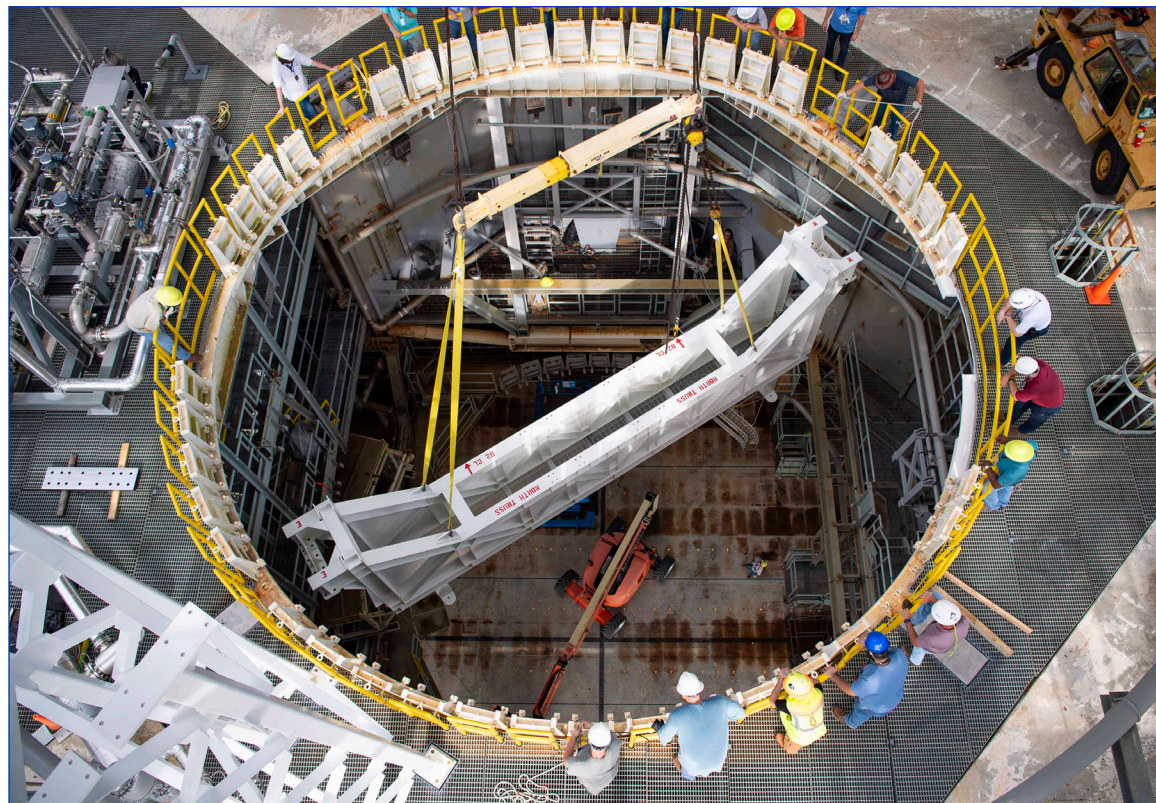
The initial certification series provided key data about the performance limits of the [redesigned engine](#) and components. “Testing new hardware always is a learning process, even on an engine as proven as the RS-25,” said Chip Ellis, manager of the

RS-25 Engine Test Project at NASA Stennis. “The success of this series really is a testament to NASA’s commitment to ‘test as we fly’ and to the expertise of the test team.”

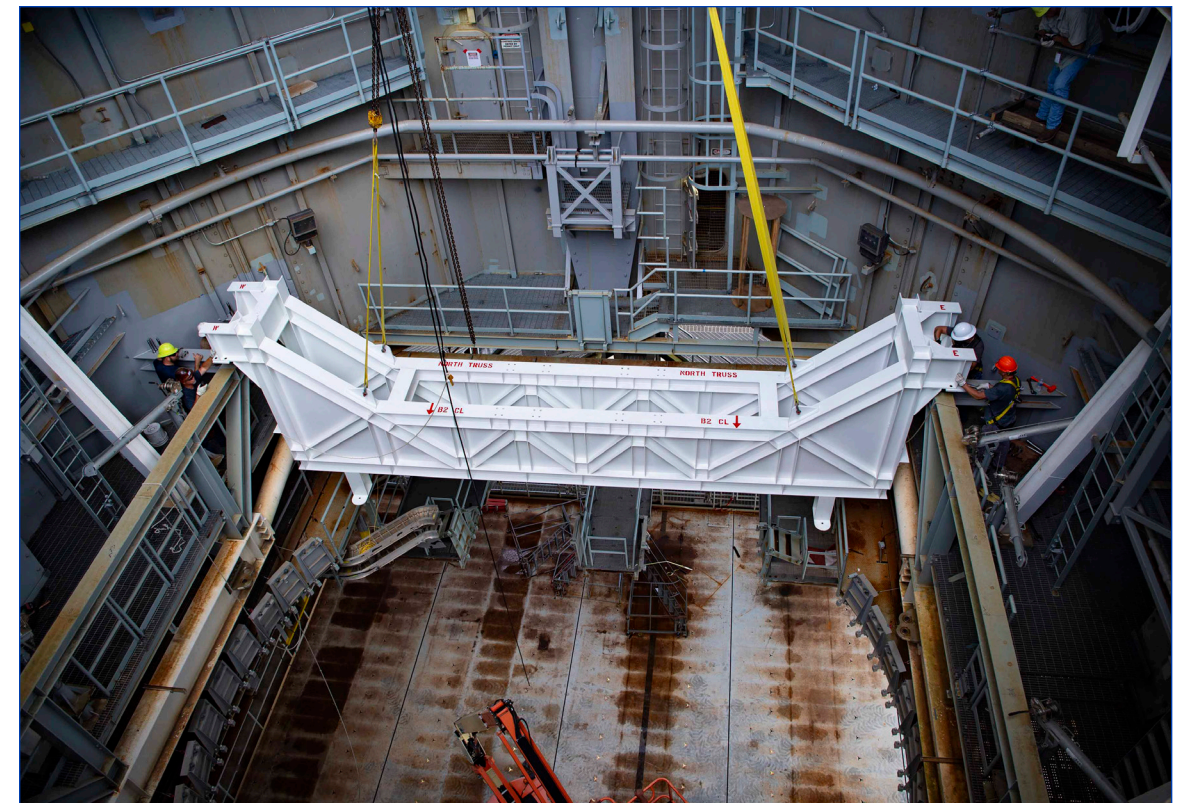
“This 12-test series demonstrated our confidence level that our new designs have the same reliability and performance as their predecessors,” said Aerojet Rocketdyne RS-25 Deputy Program Manager Mike Lauer. “We put the engine through a lot of different scenarios, and we are extremely pleased with the results.”

By the close of the series, operators were conducting weekly full-duration tests of the engine. Now, all eyes turn to the second certification series. With completion of that campaign, it is anticipated that all systems will be “go” to produce engines for future Artemis missions to the Moon and, eventually, Mars.

Trusses for Exploration Upper Stage Testing Installed at B-2 Test Stand



NASA Stennis marked a milestone July 13 with the lift and installation of two large trusses on the B-2 Test Stand. The 35-foot-long trusses, each weighing 18,000 pounds, were lifted with the stand derrick and lowered into place in preparation for testing the SLS (Space Launch System) Exploration Upper Stage (EUS). The trusses were fabricated at NASA's Michoud Assembly Facility in New Orleans and underwent some finishing work and inspection at NASA Stennis before being sandblasted and painted. The installed trusses will serve as a mounting platform for the four EUS engine diffusers and also will bear some of the load of the interstage simulator structure that will house the lower portion of the EUS on the stand. The EUS will enable NASA to carry larger and heavier payloads to lunar orbit than the Interim Cryogenic Propulsion Stage being used on initial Artemis flights. Prior to its use on SLS, the EUS will be installed on the B-2 stand and undergo a series of tests to ensure it is ready for flight. The so-called Green Run test series will represent the first full power-up of the stage and its systems. It will culminate with a firing of the stage's four Aerojet Rocketdyne RL10 engines, just as must occur during an actual mission. NASA conducted a similar campaign with the first SLS core stage in 2020-21. The 212-foot-tall SLS core stage also was anchored on the B-2 Test Stand for its own Green Run series. Once the core stage was removed for use on the Artemis 1 flight, teams began modifying the B-2 Test Stand to house the smaller EUS, which stands 54.5 feet tall. The SLS rocket is powering Artemis missions to return humans, including the first woman and the first person of color to the Moon, in preparation for a future journey to Mars. In addition to stage testing, NASA Stennis also is testing engines that will help launch SLS on its Artemis missions.



NASA's MOON to MARS MISSION

NASA Rocket Flight Software for Artemis II Meets Testing Checkpoint

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.

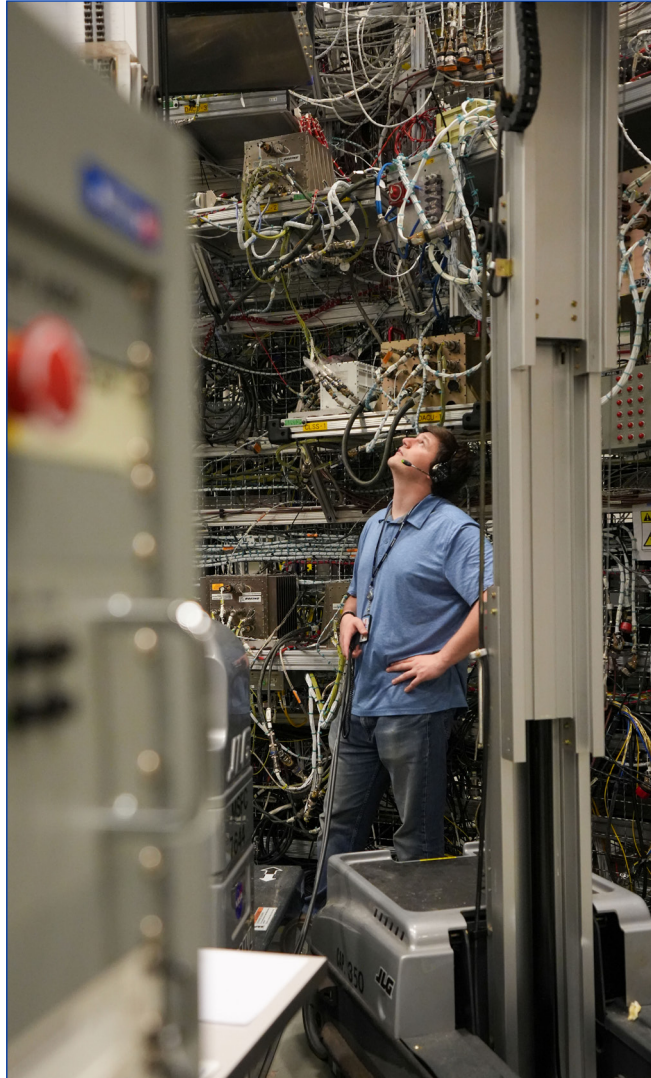
When [NASA's SLS](#) (Space Launch System) rocket launches NASA's Artemis II crew aboard the Orion spacecraft, it will produce more than 8.8 million pounds of thrust. The SLS rocket's flight software acts as the "brains" of the rocket, activating 48 hours prior to launch to command all that power and energy for the first eight minutes of the mission through the separation of its in-space propulsion stage. 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. SLS flight software qualification testing includes multiple test procedures to verify software requirements. By the conclusion of the two-week test period on May 15, engineers had completed 179 test procedures with approximately 58,000 test cases. In comparison, the first phase of qualification testing for Artemis II completed in 2022 had 72 test procedures consisting of 9,500 test cases. "The SLS flight software team integrated operational

improvements and new test scenarios in preparation for Artemis II based on lessons learned from the successful launch of Artemis I in November 2022," said Dan

Mitchell, NASA's lead SLS integrated avionics and software engineer. "The test facilities at Marshall Space Flight Center have the capability to produce thousands of test cases the SLS flight software is required to detect and respond to appropriately on launch day, offering us the opportunity to assess and certify all the major software elements and systems on the rocket before the first crew flies on SLS."

The second and final phase of formal qualification testing for the SLS flight software in the SDF is set to begin in July. Beginning in the fall, engineers will begin integrated system testing in the SLS System Integration Lab (SIL) using the full suite of SLS avionics hardware and flight software. Together, the test results from the SIL system and the flight software SDF will provide teams key evidence to support mission readiness for Artemis II. By the time the SLS rocket launches Artemis II, flight software engineers will have "flown" the SLS mission more than 100,000 times within the various SLS avionics and software development and test facilities.



A software engineer evaluates the flight software and avionics configuration inside the Systems Integration Laboratory (SIL) at NASA's Marshall Space Flight Center in Huntsville, Alabama. Engineers will soon begin integrated system testing in the SIL to support flight software development and mission readiness for Artemis II. Photo Credit: NASA/Brandon Hancock

NASA is working to land the first woman and first person of color on the Moon under Artemis. SLS is part of NASA's backbone for deep space exploration, along with the Orion spacecraft, advanced spacesuits and rovers, the Gateway in orbit around the Moon, and commercial human landing systems. SLS is the only rocket that can send Orion, astronauts, and supplies to the Moon in a single mission.

NASA's MOON to MARS MISSION

New Fleet of Vehicles for NASA's Artemis Crews Arrives at Kennedy



With the Vehicle Assembly Building in the background, the three specially designed, fully electric, environmentally friendly crew transportation vehicles for Artemis missions arrived at NASA's Kennedy Space Center in Florida on July 11. The zero-emission vehicles, which will carry astronauts to Launch Complex 39B for Artemis missions, were delivered by the manufacturer, Canoo Technologies Inc. of Torrance, California. Photo Credit: NASA/Isaac Watson

NASA has received the fleet of vehicles that will take [Artemis](#) crews on the final Earth-bound leg of their journey to the Moon before boarding their rocket and spacecraft.

Teams from manufacturer Canoo Technologies Inc. of Torrance, California, delivered three specially designed, fully electric, [environmentally friendly](#) crew transportation vehicles to NASA's Kennedy Space Center in Florida on July 11. The zero-emission vehicles can carry four astronauts in their [Orion crew survival system](#) spacesuits, support personnel including a spacesuit technician, and provides room for specialized equipment for the drive to Launch Pad 39B ahead of Artemis missions to the Moon.

The new vehicles are customized to accommodate NASA's unique specifications for Artemis missions while also paying homage to the legacy of the agency's human spaceflight and space exploration efforts. Many aspects of the design, from the interior and exterior markings to the color of the vehicles to the wheel wells, were chosen by a creative team that included the Artemis launch director and representatives from NASA's Astronaut Office based at Johnson Space Center in Houston. They provided insight from the conceptual phase throughout production. Canoo was awarded a contract in April 2022 to manufacture the vehicles.

"The collaboration between Canoo and our NASA representatives focused on the crews' safety and comfort on the way to the pad ahead of their journey to the Moon," said Charlie Blackwell-Thompson, NASA's Artemis launch director. "I have no doubt everyone who sees these new vehicles will feel the same sense of pride I have for this next endeavor of crewed Artemis missions."

Historically, during launch operations at Kennedy for NASA's Apollo and Space Shuttle Programs, the earlier [Astrovans](#) were the primary means of transporting crews from the astronauts' crew quarters in the Neil A. Armstrong Operations and Checkout Building to the launch pad. While the path to the pad may look similar, the ride to get there has changed with the times.

Ahead of [Artemis II](#), the first crewed mission under Artemis that will send four astronauts around the Moon and bring them home, the fleet will be used for astronaut training exercises at the spaceport. The approximately 10-day flight will test NASA's foundational human deep space exploration capabilities, the [Space Launch System](#) rocket and [Orion](#) spacecraft, for the first time with astronauts and will pave the way for lunar surface missions, including landing the first woman and first person of color on the Moon.

Webb Celebrates First Year of Science With Close-up on Birth of Sun-like Stars

The James Webb Space Telescope is the world's premier space science observatory. Webb is helping to solve mysteries in our solar system, looking beyond to distant worlds around other stars, and probing the mysterious structures and origins of the universe and humans place in it. Webb is an international program led by NASA with its partners, ESA (European Space Agency) and the Canadian Space Agency.

Lee esta historia en español [aquí](#).

From our cosmic backyard in the solar system to distant galaxies near the dawn of time, NASA's James Webb Space Telescope has delivered on its promise of revealing the universe like never before in its first year of science operations. To celebrate the completion of a successful first year, NASA has released Webb's image of a small star-forming region in the Rho Ophiuchi cloud complex.

"In just one year, the James Webb Space Telescope has transformed humanity's view of the cosmos, peering into dust clouds and seeing light from faraway corners of the universe for the very first time. Every new image is a new discovery, empowering scientists around the globe to ask and answer questions they once could never dream of," said NASA Administrator Bill Nelson. "Webb is an investment in American innovation but also a scientific feat made possible with NASA's international partners that share a can-do spirit to push the boundaries of what is known to be possible. Thousands of engineers, scientists, and leaders poured their life's passion into this mission, and their efforts will continue to improve our understanding of the origins of the universe – and our place in it."

The new Webb image released on July 12 features the nearest star-forming region to us. Its proximity at 390 light-years allows for a highly detailed close-up, with no foreground stars in the intervening space.

"On its first anniversary, the James Webb Space Telescope has already delivered

upon its promise to unfold the universe, gifting humanity with a breathtaking treasure trove of images and science that will last for decades," said Nicola Fox, associate administrator of NASA's Science Mission Directorate in Washington. "An engineering marvel built by the world's leading scientists and engineers, Webb has given us a more intricate understanding of galaxies, stars, and the atmospheres of planets outside of our solar system than ever before, laying the groundwork for NASA to lead the world in a new era of scientific discovery and the search for habitable worlds."

Webb's image shows a region containing approximately 50 young stars, all of them similar in mass to the Sun, or smaller. The darkest areas are the densest, where thick dust cocoons still-forming proto-stars. Huge bipolar jets of molecular hydrogen, represented in red, dominate the image, appearing horizontally across the upper third and vertically on the right.

These occur when a star first bursts through its natal envelope of cosmic dust, shooting out a pair of opposing jets into space like a newborn first stretching her arms out into the world. In contrast, the star S1 has carved out a glowing cave of dust in the lower half of the image. It is the only star in the image that is significantly more massive than the Sun.

"Webb's image of Rho Ophiuchi allows us to witness a very brief period in the stellar lifecycle with new clarity. Our own Sun experienced a phase like this, long ago, and now we have the technology to see the beginning of another's star's story," said Klaus Pontoppidan, who served as Webb project scientist at

the Space Telescope Science Institute in Baltimore, Maryland, since before the telescope's launch and through the first year of operations.

Some stars in the image display tell-tale [shadows indicating](#) protoplanetary disks – potential future planetary systems in the making.

A Full Year, Across the Full Sky

From its very [first deep field image](#), unveiled by President Joe Biden, Vice President Kamala Harris, and Nelson live at the White House, Webb has delivered on its promise to show us more of the universe than ever before. However, Webb revealed much more than distant galaxies in the early universe.

"The breadth of science Webb is capable of exploring really becomes clear now, when we have a full year's worth of data from targets [across the sky](#)," said Eric Smith, associate director for research in the Astrophysics Division at NASA Headquarters and Webb program scientist. "Webb's first year of science has not only taught us new things about our universe, but it has revealed the capabilities of the telescope to be greater than our expectations, meaning future discoveries will be even more amazing." The global astronomy community has spent the past year [excitedly](#) poring over Webb's initial public data and getting a feel for how to work with it.

Beyond the infrared [images](#), what really has scientists excited are Webb's crisp spectra – the detailed information that can be gleaned from light by the telescope's spectroscopic instruments.



The first anniversary image from NASA's James Webb Space Telescope displays star birth like it never has been seen before, full of detailed, impressionistic texture. The subject is the Rho Ophiuchi cloud complex, the closest star-forming region to Earth. It is a relatively small, quiet stellar nursery, but one never would know it from Webb's chaotic close-up. Jets bursting from young stars crisscross the image, impacting the surrounding interstellar gas and lighting up molecular hydrogen, shown in red. Some stars display the telltale shadow of a circumstellar disk, the makings of future planetary systems. Credits: NASA, ESA, CSA, STScI, Klaus Pontoppidan (STScI) [Download the full-resolution, uncompressed version and supporting visuals from the Space Telescope Science Institute.](#)

Read more about the mission of NASA's James Webb Space Telescope to [#UnfoldTheUniverse](#) by clicking [here](#).

Did you know? NASA Stennis supported Webb's predecessor, the Hubble Space Telescope, by testing and proving flightworthy the space shuttle main engines for the six shuttle flights over 19 years to launch, deploy, service, and repair Hubble.

NASA in the News



Artemis II Heat Shield Installed

Teams install the heat shield on the [Artemis II](#) Orion spacecraft at NASA's Kennedy Space Center in Florida on June 22. The 16.5-foot-wide shield will ensure the safe return of the astronauts on board as the spacecraft travels at speeds of about 25,000 miles per hour and experiences outside temperatures of nearly 5,000 degrees Fahrenheit. See progress on Artemis II, the first crewed mission on NASA's path to establishing a long-term presence at the Moon for science and exploration by clicking [here](#). Photo Credit: NASA/Cory Huston

Webb Detects Most Distant Active Supermassive Black Hole to Date

Researchers have discovered the most distant active supermassive black hole to date with the James Webb Space Telescope. The galaxy, CEERS 1019, existed just over 570 million years after the big bang, and its black hole is less massive than any other yet identified in the early universe. Researchers also have easily “shaken out” two more black holes that are also on the smaller side, and existed 1 and 1.1 billion years after the big bang. Webb also identified eleven galaxies that existed when the universe was 470 to 675 million years old. The evidence was provided by Webb's Cosmic Evolution Early Release Science (CEERS) Survey, led by Steven Finkelstein of the University of Texas at Austin. The program combines Webb's highly detailed near- and mid-infrared images and data known as spectra. Read more [here](#).

Long History and Bright Future of Space Sample Deliveries

When NASA's OSIRIS-REx spacecraft releases a capsule with material from asteroid Bennu onto the Utah desert on Sept. 24, it will become the latest in a line of missions to gather samples from space and deliver them to Earth. Collecting material from space is a challenging feat that requires teams of dedicated scientists and engineers, innovative technology, and patience. But the scientific breakthroughs these samples unlock make the effort worthwhile as humans attempt to understand the origins of the planet and the life that thrives here. The practice of retrieving samples from space began in 1969 with NASA's Apollo 11 mission, the first to land astronauts on the Moon. Many more sample-gathering missions to the Moon and beyond followed, growing in ambition. Read more [here](#).

NASA Stennis News



Participants in the University of Arkansas at Pine Bluff STEM (science, technology, engineering and mathematics) Summer Institute stand in front of the Roy Estess Building at NASA Stennis during a site tour on July 10. The students viewed multiple areas of the federal city, including a visit to the B-1/B-2 Test Stand, where students learned about NASA Stennis' role in the Artemis program. Through Artemis, NASA will send the first woman and first person of color to the Moon. The agency will use what is learned on and around the Moon to take the next giant leap – sending astronauts to Mars. The Arkansas at Pine Bluff STEM program started in 2003 and is designed to help increase the number and diversity of well-prepared STEM graduates.



Syncom Space Services employee Shane Cravens (center) accepts a NASA Engineering and Safety Center (NESC) Group Achievement Award from NESC Director Timmy Wilson (l) and NESC Chief Astronaut Mark T. Vande Hei on May 23 at NASA's Langley Research Center in Hampton, Virginia. A blended team of employees at NASA Stennis and White Sands Test Facility in Las Cruces, New Mexico, were honored for work on the Thruster Advancement for Low-Temperature Operation in Space (TALOS) Project, conducted at NASA Stennis. Employees working on the project included Alex Elliot and Kris Mobbs of the NASA Engineering and Test Directorate, along with Cravens, Brandon Carver, Richard Smith, and Peggi Marshall from Syncom Space Services. The award recognized the team for outstanding technical achievement in the evaluation of the TALOS Project's Labview code for ground tests of hypergolic thrusters. Photo Credit: NASA/Langley



NASA Program Specialist Louis Thompson speaks with interns from the Office of Louisiana Congressman Garret Graves during their visit to NASA's Stennis Space Center on July 6. During the day, the group learned more about the nation's largest rocket propulsion test site and the NASA internship program. Additionally, participants visited the Fred Haise Test Stand, where NASA Stennis completed an initial certification test series last month in preparation for production of redesigned RS-25 engines. The group also visited the Aerojet Rocketdyne's Engine Assembly Facility on site. Aerojet Rocketdyne is the lead contractor for SLS (Space Launch System) engines, which are assembled and processed in the south Mississippi facility.

NASA Stennis Celebrates Employees during June's Pride Month Recognizing Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, and Asexual + Communities

NASA Stennis & NSSC Celebrate LGBTQIA+ Pride Month



Michele Beisler (she/they)
Deputy Program Manager
NASA Rocket Propulsion Test Program

What does Pride mean to you?

To me, Pride is about letting go of shame and judgement to celebrate and share my beautiful, authentic self with the world. It is also a time to express gratitude to the people who came before with the courage to fight and make progress for our right to equality. It is a time to show up and stand up for others – together as a community (including allies) – especially for those who are not ready to stand up for themselves.

How would you encourage others to gain awareness about the LGBTQIA+ community and its concerns?

The LGBTQIA+ acronym has grown over the years to be more inclusive of the diversity of sexual orientations and gender identities within the community. The community has made progress in some areas, like marriage equality. However, there are many issues currently facing the community with battles for equality still being fought across the country today.

Some of these issues include violence towards LGBTQIA+ people, parenting rights for same-sex couples, harmful conversion therapy practices, employment and housing discrimination, higher rates of homelessness and suicide among LGBTQIA+ youth, and a record number of anti-LGBTQIA+ legislative measures advancing in many states. If you want to offer your support, explore ways to actively demonstrate your allyship. There are many great online resources and organizations working to improve the lives of LGBTQIA+ people, and there is still much to be done to create an inclusive and equal society for all!

NASA Stennis & NSSC are proud to celebrate LGBTQIA+ Pride Month and recognize the diversity of the workforce contributing to the success of America's premier rocket propulsion test site.

NASA Stennis & NSSC Celebrate LGBTQIA+ Pride Month



Larry de Quay
Aerospace Engineer
NASA Engineering & Test Directorate

What does Pride mean to you?

Pride means the inclusion and full acceptance of all human beings as members of our society who are highly valued. It also means the recognition that people who are very different from me – in the ways we live our lives and in our intimate relationships – often bring new perspectives and ideas that make each of us better.

In the work environment, this diversity means we collectively make better decisions, produce the best possible products, and provide exceptional services because we then get a wider range of great ideas to solve problems or improve processes, and we properly account for scenarios that would otherwise be ignored.

Pride also reminds me, as an ally of the LGBTQIA+ community, of the need to pay extra attention, provide more protections, and give additional recognition to people who are often marginalized or vulnerable to abuses from others.

How would you encourage others to gain awareness about the LGBTQIA+ community and its concerns?

My response to this question is a quote by the late Supreme Court Justice Ruth Bader Ginsburg, which is as follows: "In recent years, people have said, 'This is the way I am.' And others looked around, and we discovered it's our next-door neighbor – we're very fond of them. Or it's our child's best friend, or even our child. I think that as more and more people came out and said that 'this is who I am,' the rest of us recognized that they are one of us."

NASA Stennis & NSSC are proud to celebrate LGBTQIA+ Pride Month and recognize the diversity of the workforce contributing to the success of America's premier rocket propulsion test site.

NASA Stennis & NSSC Celebrate LGBTQIA+ Pride Month



Serene Wood
Pathways Intern
NASA Engineering & Test Directorate

What does Pride mean to you?

Pride represents both our community's identity and the progress we have made. It is important not only to celebrate our 'today,' but also to learn about our history and honor LGBTQIA+ predecessors who fought to push society to where it is today. Pride month is a chance for us to cherish the influential figures who built this community and come together to celebrate our uniqueness and differences.

How would you encourage others to gain awareness about the LGBTQIA+ community and its concerns?

Since our community is under attack more than it has been in a long time, being informed is more important than ever. There are so many struggles we are facing today: higher rates of homelessness for LGBTQIA+ youth, dehumanization in the media, legislation against healthcare, increased suicides, etc. Moreover, those with intersectional identities – people of color, women, and disabled people in the LGBTQIA+ community – are particularly impacted by the persecution against us.

Society cannot turn a blind eye to these issues. Our existence cannot be treated as "hush-hush" or a taboo. We need allies who are willing to stand for the community in solidarity. Even little gestures, like reaching out to LGBTQIA+ friends and family and keeping up to date on current issues, are incredibly impactful. Knowing even one safe person to talk to does make all the difference for us.

NASA Stennis & NSSC are proud to celebrate LGBTQIA+ Pride Month and recognize the diversity of the workforce contributing to the success of America's premier rocket propulsion test site.

Employee Helps NASA Stennis Space Center Move Forward into the Future

Each day Ken Griffey shows up for work, he participates in the ongoing transformation of NASA's Stennis Space Center near Bay St. Louis, Mississippi. Much like his role at NASA Stennis for the past 17 years, the nation's largest rocket propulsion test site and unique federal city continues to evolve.

Having a chance to be a part of the process has provided Griffey with some of his "most rewarding work."

The chief of staff for the NASA Stennis Center Operations Directorate points to a key factor in the continued development of the south Mississippi site. "The people, hands down," he said. "Mighty little Stennis has a 'can do' attitude."

The Diamondhead, Mississippi, resident would know since he has served in variety of roles. As acting agency architect for the NASA Shared Services Center, Griffey helped make way for the facility to locate at NASA Stennis in 2006 and unify NASA's mission support functions. He became the center's acting deputy director for business and administration and then its chief information officer in 2008. NASA Stennis began operating the National Center for Critical Information Processing and Storage, a shared federal data center facility supporting more than 10 federal organizations, under Griffey's watch as program manager.

In subsequent years, Griffey played a role in revitalization of the B-2 Test Stand for direct support of the Artemis effort and helped pave the way for new growth at NASA Stennis as the primary liaison of the federal city. Griffey believes mental flexibility is the primary key to success as NASA Stennis has transformed from its early days of mainly testing rocket engines and stages, to having as many as 40 on-site agencies, organizations, universities, and companies sharing operating costs, while pursuing individual missions, and employing about 5,000 people sitewide. This concept is something he lives out while encouraging and mentoring newer employees.

"The ability to flex into new paradigms and processes is more important to successful change than any other

factor," Griffey said. "These brilliant, diverse people are truly our greatest resource for the future."

The Lawrenceburg, Kentucky, native has firsthand experience in success and change. Griffey has four college degrees, ranging from an associate degree in general studies to a doctoral degree in business administration – with highest honors earned each time.

His son Benjamin, better known as Casper, is a Germany-based rap star with more than 10 Gold and Platinum albums, as well as multiple awards. Griffey, himself, has one Platinum and two Gold awards for contributions to his son's first two albums.

Additionally, Griffey serves as commander of Veterans of Foreign Wars Post 2880 in Diamondhead, selected as one of Mississippi's "All-State Post" for 2022-23.

The U.S. Army veteran also spearheaded creation of the Veterans Employee Resource Group for NASA Stennis and NASA Shared Services Center employees. The group has grown from three members to 69 in two years.

"The primary reward from the group has been the camaraderie," Griffey said. "When serving in the military, there is a shared purpose. Everyone from all backgrounds bonds over the remote locations, shared purpose, and the sense of looking after each other or having each other's back. Having the group at NASA Stennis helps improve employee morale through a renewed sense of comradeship and shared experience."

The group supports local events on behalf of NASA Stennis. It focuses on inclusion and encompasses veterans, veteran allies, veteran families, and friends of veterans. For Griffey, it is all about feeling "included and seen."

Griffey cannot wait to see how the center moves forward. NASA Stennis continues to expand the agency's partnership as it welcomes new commercial aerospace companies to the federal city, all while contributing to the Artemis initiative to send the first woman and first person of color to the Moon.



Ken Griffey, chief of staff for the Center Operations Directorate at NASA's Stennis Space Center, serves as the primary liaison for the NASA Stennis federal city and chairs the Veterans Employee Resource Group at the south Mississippi site, in addition to mentoring and encouraging newer employees in their own career growth and development.

“Black Monday” Turns into Bright Future

For employees of the then-Mississippi Test Facility, Nov. 9, 1970, represented “Black Monday.” It was the closing ceremony of Saturn V rocket stage testing at what is now known as NASA’s Stennis Space Center. The end of the Apollo Program had been decided, so there would be no more testing of its associated engines and rocket stages.

NASA Administrator George Low came to the south Mississippi site, accompanied by top managers from NASA Headquarters in Washington, and NASA’s Marshall Space Flight Center in Huntsville, Alabama, to give employees a “pat on the back” and a “job well done” for their work on the program.

However, employees, including site Director Jackson Balch, also saw the ceremony as a sign that NASA wished to close the Mississippi facility. Meanwhile, what Low and the other NASA managers did not know was that Balch, U.S. Sen. John Stennis, U.S. Sen. Bill Colmer, Mississippi Gov. John Bell Williams, local community leaders, and heads of at least 10 different federal agencies already located on site or considering a move to the facility, were attending the ceremony to speak with Low to let him know how vital MTF was to the government and local community.

Balch, Stennis, Colmer, and their team challenged the

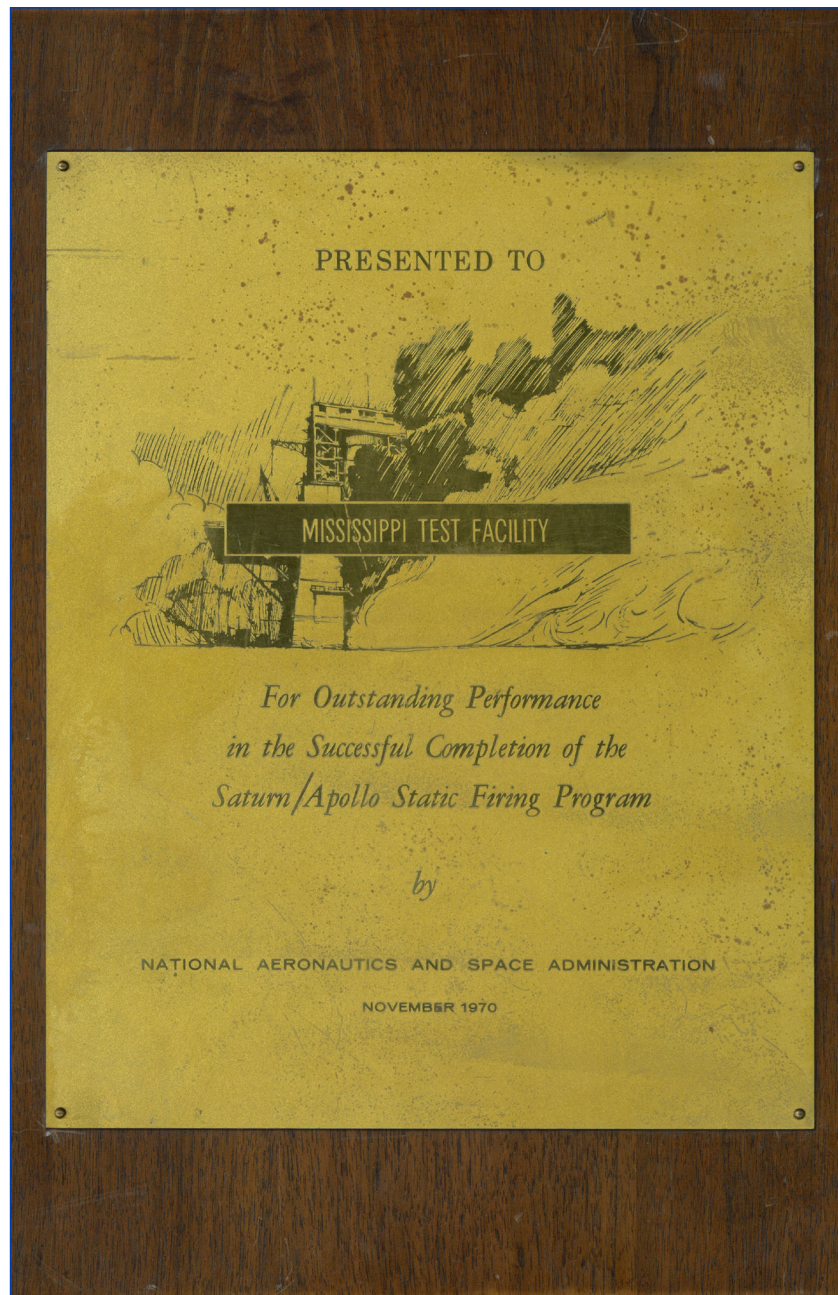
NASA administrator and officials. Colmer said, “Sen. Stennis is noted to be a gentleman, and you may not understand his message, but I am telling you now that if NASA fails to support MTF, we will withdraw our support for NASA.” Without the support of Stennis and Colmer in the U.S. Senate, NASA faced a budget cut, and programs already in the works, like the space shuttle, possibly would never materialize.

Balch dreamed that MTF would become a “scientific utopia.” He tried for years to establish state and federal agencies at the facility to work together on projects that would benefit each other, as well as the larger scientific community.

In 1972, Balch began to see his dream come to fruition. Federal and state agencies began moving to MTF and brought their resources and staff. The following year, 16 federal and state agencies and universities moved to the facility and

were able to work together on various projects using data, sensors, computers, and instruments they would not have had access to by themselves.

Following discussions, NASA affirmed its intention to keep the south Mississippi site open. Since then, Balch’s vision has continued to grow. Flash forward to 2023, and there are currently about 40 agencies located at NASA Stennis.



An image shows the plaque given to Mississippi Test Facility for its role in the Apollo missions.

Office of Diversity and Equal Opportunity

Unconscious Bias: How to Identify and Overcome

Have you ever assumed that an employee from an older generation needed more help with technology or that men have illegible handwriting? These are both examples of “unconscious bias” or “implicit bias.”

An unconscious/implicit bias can be an unconscious assumption, belief, or attitude toward a group of individuals. Learning what and how unconscious biases are formed and executed can help individuals identify the kinds of unconscious biases they have and how to combat them.

Sometimes an unconscious bias is learned through a stereotype. According to the [Unconscious Bias Project](#), “a stereotype is a widely held fixed and oversimplified image or idea of a particular type of person or thing.”

Stereotypes can be about gender, race, age, sexuality, ability and even how someone dresses. Even though stereotypes seem harmless, stereotypes can result in negative associations regarding groups of people. Quick judgements can lead to developing an unconscious bias.

An “unconscious bias manifests in many ways, such as how we judge and evaluate others, or how we act toward members of different groups ([unconsciousbiasproject.org](#)).”

For example, if someone has an unconscious bias that food derived from India is too spicy, they miss out on several Indian dishes, like buttered chicken, which contains marinated chicken with rice and a creamy sauce.

Studies have shown that unconscious bias can negatively affect groups of people. In 2006, the U.S. Equal Employment Opportunity Commission won a class action law suit on behalf three individuals who were denied entry level management positions due to racial bias ([United States Court of Appeals, Seventh Circuit, No. 04-3559](#)). Moreover, a study from the University of California Berkeley and the University of Chicago found in 2022 that several of the largest employers in the United States were discriminating based on their assumed biased view of gender and race when seeing applicants names ([berkeley.edu](#)).

It is helpful to know how to combat unconscious bias before it causes harm to a group or individual.

Listed are eight helpful tactics for identifying and combatting implicit bias created by the American Academy of Family Physicians, using the acrostic “implicit:”

1. **I**ntrospection: Explore and identify prejudices by taking implicit association tests or through other means of self-analysis.
2. **M**indfulness: Since one is more likely to give in to biases when under pressure, practice ways to reduce stress and increase mindfulness, such as focused breathing.
3. **P**erspective-taking: Consider experiences from the point of view of the person being stereotyped. One can do this by reading or watching content that discusses those experiences or directly interacting with people from those groups.
4. **L**earn to slow down: Before interacting with people from certain groups, pause and reflect to reduce reflexive actions. Consider positive examples of people from that stereotyped group, such as public figures or personal friends.
5. **I**ndividuation: Evaluate people based on their personal characteristics rather than those affiliated with their group. This could include connecting over shared interests.
6. **C**heck one’s messaging: Utilize statements that are welcoming and that embrace multiculturalism or other differences.
7. **I**nstitutionalize fairness: Support a culture of diversity and inclusion at the organizational level. This could include using an [equity and empowerment lens tool](#) to identify one’s blind spots or reviewing the images in one’s office to see if they further or undercut stereotypes.
8. **T**ake two: Resisting implicit bias is lifelong work. Individuals must constantly restart the process and look for new ways to improve.

Unconscious bias, as the name suggests, can be difficult to overcome because it is an unconscious view. By using these eight tips, one can begin to identify biases and learn proactive ways to overcome them.

For more information, visit the links below:

- [Eight tactics to identify/reduce your implicit biases](#)
- [Harvard Project Implicit](#)
- [Name Discrimination Study Finds Lakisha And Jamal Still Less Likely To Get Hired Than Emily And Greg | Here & Now \(wbur.org\)](#)

Online Resources

View coverage from NASA Stennis Media Day

Click the links below.

- [AP: NASA Tests Redesigned Moon Rocket Engine](#)
- [WDAM: NASA Tests Engine for Artemis Mission](#)
- [WDSU: NASA Crews in Southern Mississippi Work on Future Space Flights](#)
- [WGNO: NASA Tests Engines for Future Artemis Flights](#)
- [WLOX: Stennis Space Center Engine Test Takes Next Step Toward Space Travel](#)



NASA Stennis Artemis Resources

Click the above photo for NASA Stennis Artemis resources.



SuperTalk Mississippi Interviews NASA Engineer Bradley Tyree

Click the above photo for the interview.



NASA Moon To Mars

Click the above photo to learn more about NASA's Moon to Mars Strategy and Objectives Development.