NASA STENNIS AND ARTEMIS TESTING
THE NEW PROGRAM
NASA’s Artemis mission, named for the twin sister of Apollo, will return astronauts to the Moon to establish a strategic U.S. presence. It will send the first woman and the first person of color to the Moon.

THE NEW VEHICLE
NASA’s powerful mega rocket SLS (Space Launch System) is being developed to travel deeper into space than ever and, ultimately, to Mars.

THE CORE STAGE
The SLS (Space Launch System) core stage is powered by four RS-25 engines, firing together to generate 1.6 million pounds of combined sea-level thrust and more than 2 million pounds of altitude thrust.

THE ENGINES
RS-25 engines for initial Artemis Program missions are space shuttle main engines, modified with a new controller and to provide more power. Each engine was placed on the Fred Haise Test Stand at NASA Stennis and fired as during an actual launch.

THE ‘GREEN RUN’
Prior to the Artemis I mission, NASA tested the SLS core stage on the B-2 Test Stand at NASA Stennis. For Green Run, the stage was installed on the stand and tested – along with all of its related components and systems – for the first time and in the same way it must operate on a mission. This included firing all four RS-25 engines simultaneously to generate 1.6 million pounds of combined sea-level thrust.

THE TRADITION
All Saturn V first and second rocket stages that carried astronauts to the surface of the Moon during the Apollo Program were tested at NASA Stennis. All space shuttle main engines and the Space Shuttle Main Propulsion Test Article – with its three engines – was tested at NASA Stennis prior to the vehicle’s maiden flight.

THE ASSIGNMENT
- Test all RS-25 engines that will help power the new SLS rocket.
- Test the SLS core stage for the Artemis I mission.
- Test the new Exploration Upper Stage for future flights.

THE IMPORTANCE
- Prove new engines, hardware, and operating parameters.
  - Ensure astronaut safety by identifying and addressing potential issues prior to missions.
  - Increase probability of mission success.

THE STATUS
NASA performed the first RS-25 engine test at NASA Stennis in January 2015. All RS-25 engines and new controllers for the first four Artemis missions have been tested and proven flightworthy at NASA Stennis. The SLS core stage was delivered to NASA Stennis in January 2020 and installed on the B-2 Test Stand to undergo a series of tests before being shipped to Kennedy Space Center for preparation and launch on the Artemis I mission. NASA Stennis also will test all RS-25 engines built by Aerojet Rocketdyne for use on future SLS missions.

THE FUTURE
NASA Stennis will test all new RS-25 engines produced by Aerojet Rocketdyne to power future deep space missions, beginning with Artemis V.