



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.

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 FUTURE

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

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**.

Front image - RS-25 engine test at NASA's Stennis Space Center on Jan. 9, 2015