



# *STENNIS SPACE CENTER AND NASA'S ARTEMIS PROGRAM*



## THE NEW PROGRAM

NASA's **ARTEMIS PROGRAM**, 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 next man to the Moon by 2024.

## THE NEW VEHICLE

The **SPACE LAUNCH SYSTEM** is being developed as the **MOST POWERFUL** rocket in history to travel deeper into space than ever and, ultimately, to Mars.

## THE CORE STAGE

The 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 to provide more power and use a new controller. Each engine was **ANCHORED IN PLACE** on the A-1 Test Stand at Stennis and fired just as during an actual launch.

## THE FUTURE

Artemis missions will test hardware, technologies, capabilities, and approaches needed for future space missions, including to **MARS**.

## THE 'GREEN RUN'

Prior to the **ARTEMIS I MISSION**, NASA is testing the Space Launch System core stage on the B-2 Test Stand at Stennis. For **GREEN RUN**, the stage is 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 includes 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 Stennis Space Center. All space shuttle main engines and the **SPACE SHUTTLE MAIN PROPULSION TEST ARTICLE** – with its three engines – was tested at Stennis prior to the vehicle's maiden flight.

## THE ASSIGNMENT

- Test all **RS-25 ENGINES** that will help power the new Space Launch System vehicle.
- Test the Space Launch System **CORE STAGE** prior to its launch on the Artemis I mission.

## 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 Stennis in January 2015. All RS-25 engines and new controllers for the first four Artemis missions have been tested and proven flightworthy at Stennis. The Space Launch System core stage was delivered to Stennis in **JANUARY 2020**. It is installed on the B-2 Test Stand and undergoing a series of tests before being shipped to Kennedy Space Center for preparation and launch on the **ARTEMIS I MISSION**. Stennis also will test new RS-25 engines built by Aerojet Rocketdyne for use on **FUTURE SPACE LAUNCH SYSTEM MISSIONS**.

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