

# ***NASA STENNIS AND ARTEMIS TESTING***





## THE MISSION

NASA's **ARTEMIS MISSION**, named for the twin sister of Apollo, will return American astronauts to the Moon to establish a strategic U.S. presence.

## THE VEHICLE

NASA's powerful rocket **SLS (SPACE LAUNCH SYSTEM)** will travel deeper into space than ever and return astronauts to the Moon for the first time since 1972.

## THE CORE STAGE

The SLS (Space Launch System) rocket is powered, in part, by four RS-25 engines, firing simultaneously to generate **1.6 MILLION POUNDS** of combined sea-level thrust during initial launch and more than **2 MILLION POUNDS** of thrust at altitude.

## THE ENGINES

RS-25 engines for initial **ARTEMIS MISSIONS** are remaining space shuttle main engines, modified with a new controller and other components to provide more power. To verify the upgrades, engines were **INSTALLED** on the Fred Haise Test Stand at NASA Stennis and fired just as during an actual launch.

## THE 'GREEN RUN'

Prior to the **ARTEMIS I MISSION**, NASA tested the SLS core stage on the B-2 side of the Thad Cochran 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.

## THE IMPORTANCE

- **PROVE** 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 and components for initial Artemis missions have been tested and proven flightworthy at NASA Stennis. The SLS core stage for Artemis I was delivered to NASA Stennis in **JANUARY 2020** and installed on the B-2 side of the Thad Cochran Test Stand to undergo a series of tests before being shipped to Kennedy Space Center in Florida for preparation and launch. The **ARTEMIS I MISSION** launched in November 2022 on a successful 1.4-million-mile uncrewed mission to the Moon and back.

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