



RS-25 Main Engine



NASA'S Space Launch System (SLS): America's Rocket for Deep Space Exploration

POWERFUL:

- SLS will be the most powerful current or planned rocket, using four RS-25 engines and a pair of 5-segment solid rocket boosters.
- At liftoff, it will generate 8.4 million pounds of thrust — 10 percent more than the Saturn V Moon rocket.

VERSATILE:

- SLS will be able to lift 154,000 pounds to orbit, taking explorers farther than they have ever gone and supporting science missions with greater mass, faster trip times, and simpler spacecraft design.

HIGH CAPACITY:

- The evolved SLS will lift 286,000 pounds to orbit for Mars missions and have a payload fairing that could carry 9 school buses.
- For pioneering new territories, SLS provides unmatched payload advantages and simplifies the entire off-Earth logistic and operations chain.



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Exploration Mission-1 (EM-1) (ready for launch in 2017)

- Engine 2024, STS-95 – John Glenn's return to space
- Engine 2047, STS-135 – Final flight of the Space Shuttle

Exploration Mission-2 (EM-2) (ready for launch in 2021)

- Engine 2056, STS-121 – First Shuttle launch on U.S. Independence Day
- Engine 2059, STS-117 – Longest mission for the orbiter Atlantis

Exploration Mission-3 (EM-3)

- Engine 2058, STS-133 – Last flight of orbiter Discovery
- Engine 2062, new engine never flown

Exploration Mission-4 (EM-4)

- Engine 2060, STS-135 – Final flight of the Space Shuttle
- Engine 2063, new engine never flown

Interesting Facts

- RS-25 engines flew with 100-percent success for 135 Space Shuttle missions from 1981 to 2011, and was refined and upgraded throughout its service life.
- The Shuttle was powered by three RS-25 engines, whereas SLS will use four main engines.
- The engines operate for 8.5 minutes through the entire launch and ascent to orbit.
- NASA has 16 engines in its inventory to support the first four SLS flights. These engines powered 42 different Shuttle missions and include all nine engines from the final three Shuttle flights.
- Engines will be selected for each mission based on previous flight time, testing, and mission needs.
- NASA and Aerojet Rocketdyne will begin testing in 2014 to be ready to integrate these power plants into the massive SLS core stage, now in development.