

RS-25

SPACE LAUNCH

SYSTEM (SLS)

HUMAN-RATED

HEAVY-LIFT

ROCKET ENGINE

**INCREDIBLE
FACTS**



RS-25



INCREDIBLE FACTS

- The Boeing 747-400 is powered by four large turbofan jet engines. Likewise, the Space Launch System (SLS) core stage is powered by four RS-25 engines. The thrust provided by the SLS RS-25 engines could keep eight 747s aloft.
- The RS-25 is so powerful that if it were generating electricity instead of propelling rockets into space, it could power 846,591 miles of residential street lights. That's a street long enough to go to the moon and back, then circle the earth 15 times.
- Four RS-25 engines push the SLS rocket 73 times faster than an Indianapolis 500 race car.
- The RS-25 is so powerful that if it were generating electricity instead of propelling rockets into space, it could provide twice the power needed to move all 10 existing Nimitz-class aircraft carriers at 30 knots.
- The RS-25 is very efficient combining liquid hydrogen and liquid oxygen to produce thrust. The RS-25 generates about 20% more thrust at sea level than comparable kerosene engines using the same amount of fuel. The RS-25 exhaust is clean, superheated water vapor.
- Each turbine blade powering the RS-25's high pressure fuel turbopump produces more than a Corvette ZR1's 638 horsepower, and its airfoil is the size of a quarter.
- In the RS-25, coolant travels through the main combustion chamber in two milliseconds, increasing its temperature by 400-degrees Fahrenheit.
- Pressure within the RS-25 is equivalent to an ocean depth of three miles – about the same distance where Titanic lies below the surface of the Atlantic Ocean.
- The SLS's four RS-25 engines are thirsty. They gobble propellant at the rate of 1,500 gallons per second. That's enough to drain more than an olympic size swimming pool during launch.
- Hot gases exit the RS-25's nozzle at 9,600 miles per hour – 13 times the speed of sound. That's fast enough to go from Los Angeles to New York City in 15 minutes.

