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RS-25 INCREDIBLE FACTS

Space launch system (SLS) human-rated heavy-lift rocket engine

- 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.
- 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.
- Four RS-25 engines push the SLS rocket 73 times faster than an Indianapolis 500 race car.
- 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-sized 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.

FOUR L3HARRIS RS-25 ENGINES POWER THE CORE STAGE OF NASA'S SPACE LAUNCH SYSTEM

November 2022 Launch
Photo credit NASA

RS-25 Engine Test

RS-25 Incredible Facts

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