

RS-25 Final Certification Test Series **by the Numbers**

500 seconds

Teams employed a “test like you fly” approach throughout the RS-25 certification series with all hot fires running for at least 500 seconds – the same amount of time the engines must fire during an actual launch.

6,465 seconds

In total, the NASA Stennis test team fired developmental engine E0525 12 times for 6,465 seconds – more than 107 minutes of testing and equivalent to at least 12 SLS launches.

10 minutes

Three of the 12 certification tests ran at least 10 minutes (600 seconds) – longer than the amount of time needed to help launch the SLS rocket and send astronauts aboard the Orion spacecraft into orbit.

113%

Operators fired the engine at power levels varying between 80% and 113% to test performance in multiple scenarios. New RS-25 engines will power up to the 111% level to provide SLS launches. Testing up to the 113% power level provides a margin of operational safety.

650 seconds

The longest test of the certification series occurred on Nov. 29, 2023, when the test team fired the engine for 650 seconds. During the hot fire, crews also conducted a gimbal test of the engine to ensure it could safely pivot as needed to help the SLS rocket maintain stability and trajectory during flight.

2nd

A Feb. 29 hot fire marked only the second Leap Day engine test ever conducted at NASA Stennis. Forty-four years earlier, on Feb. 29, 1980, teams conducted a space shuttle main engine test, also on the historic Fred Haise Test Stand, then known as the A-1 Test Stand.