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Aerojet Rocketdyne RS-25 Test Advances Exploration Efforts

STENNIS SPACE CENTER, Miss., Jan. 16, 2018 (GLOBE NEWSWIRE) -- Today, NASA and Aerojet Rocketdyne hot-fired an RS-25 engine in a test that marked another milestone toward the first crewed flight of the agency's Space Launch System (SLS) while laying groundwork for future production of the heavy-lift launch vehicle's main propulsion system.

The 365-second test at NASA's Stennis Space Center near Bay St. Louis, Mississippi qualified the controller for the third of four RS-25 engines that will power the SLS first stage on Exploration Mission-2 (EM-2), which will send astronauts to an area near the Moon in the early 2020s. It will be humankind's first foray beyond low Earth orbit in nearly 50 years.

Also on the test engine was an additively manufactured component designed to dampen engine vibrations that could create stability issues during flight. The pogo accumulator assembly, the engine's largest additively manufactured component to date, has now performed successfully on two successive RS-25 hot-fire tests. [The first test was on Dec. 13, 2017.](#)

"Aerojet Rocketdyne is playing a vital role in the nation's effort to expand the frontiers of humankind," said Eileen Drake, Aerojet Rocketdyne's CEO and president. "This test is the latest example of our steady progress, not only toward EM-2 but also toward putting the nation's exploration program on a sustainable path for the future."

Additive manufacturing is a key element of Aerojet Rocketdyne's plan to reduce the manufacturing costs of future versions of the RS-25 by 30 percent. The RS-25 engine is based on the Space Shuttle Main Engine that powered NASA's space shuttles into orbit. Future versions will incorporate design simplifications and modern manufacturing processes such as additive manufacturing for affordability and sustainability.

The RS-25 program has 16 engines left in its inventory from the space shuttle program that are currently being repurposed for SLS, which will make its debut in 2019 carrying an uncrewed version of NASA's Orion spacecraft.

These legacy engines are being upgraded and modernized for the first four flights of the SLS. Thrust is being increased from 491,000 pounds on space shuttle missions to 512,000 pounds for SLS. The new controller - essentially the brain of the engine - weighs less and has far more processing power than previous versions, making the engine more responsive to vehicle commands.

"We ended 2017 with a successful engine test in December and have now maintained that momentum into 2018," said Dan Adamski, RS-25 program director at Aerojet Rocketdyne. "Future testing this year will continue to add to the program's inventory of flight controllers and will bring additional development hardware into the test program to demonstrate design, manufacturing and affordability improvements. Our pogo accumulator assembly is just one of the first of these efforts to be hot-fire tested."

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