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RS-25 Engine Test is Giant Step for 3-D Printing

STENNIS SPACE CENTER, Miss., Dec. 13, 2017 (GLOBE NEWSWIRE) -- Aerojet Rocketdyne, a subsidiary of Aerojet Rocketdyne Holdings, Inc. (NYSE:AJRD), and NASA completed hot-fire testing of an RS-25 rocket engine containing its largest additively manufactured component to date. Additive manufacturing, commonly known as 3-D printing, will help lower the cost of future missions of NASA's powerful Space Launch System (SLS) heavy-lift rocket.

A photo accompanying this announcement is available at <http://www.globenewswire.com/NewsRoom/AttachmentNg/f0567594-2dee-42a8-9016-c0c7b586ba33>

"This test demonstrates the viability of using additive manufacturing to produce even the most complex components in one of the world's most reliable rocket engines," said Eileen Drake, CEO and president of Aerojet Rocketdyne. "We expect this technology to dramatically lower the cost of access to space."

During the 400-second test at NASA's Stennis Space Center, Aerojet Rocketdyne was able to evaluate the performance of a 3-D printed vibration dampening device, known as a pogo accumulator assembly, which was manufactured at Aerojet Rocketdyne's facility in Los Angeles, California. The pogo accumulator assembly is a complex piece of hardware that acts as a shock absorber to dampen oscillations caused by propellants as they flow between the vehicle and the engine. The pogo accumulator assembly is important to ensuring a safe flight by stabilizing these potential oscillations.

The pogo accumulator assembly consists of two components: the pogo accumulator and pogo-z baffle. Both were made using a 3-D printing technique called selective laser melting, which uses lasers to fuse metal powder into a pattern by adding layer upon layer of material to produce the part. On the pogo accumulator alone, the new manufacturing technique reduced the number of welds by 78 percent.

The SLS, designed to send astronauts and cargo to explore the moon and other deep space destinations, uses four Aerojet Rocketdyne-built RS-25 engines, which are known for their extremely high performance and reliability.

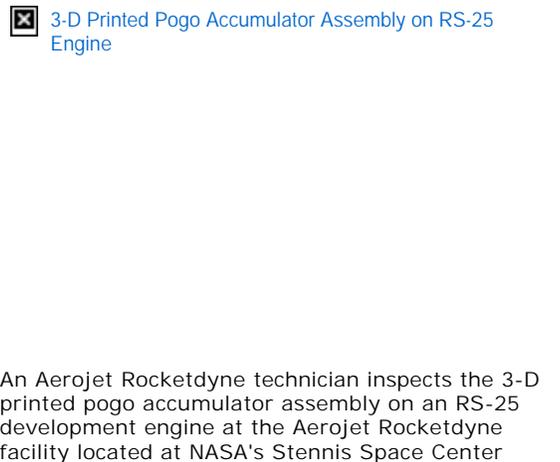
3-D printing can simplify production of many of the RS-25's thousands of parts and components; reducing costs and increasing reliability by cutting back on the number of pieces that must be welded together. Additionally, it shortens development timelines for components and enables enhanced flexibility in the designs.

The new 3-D-printed components were installed and tested on a development engine that is used to test new technologies that are being incorporated into the RS-25 as part of the SLS program. Earlier this year, the company tested [new flight controllers](#) on the same development engine prior to incorporating them into the Exploration Mission-1 [flight engines](#).

"As Aerojet Rocketdyne begins to build new RS-25 engines beyond its current inventory of 16 heritage shuttle engines, future RS-25 engines will feature dozens of additively-manufactured components," said Dan Adamski, RS-25 program director at Aerojet Rocketdyne. "One of the primary goals of the RS-25 program is to lower the overall cost of the engine while maintaining its reliability and safety margins. Additive manufacturing is essential to achieving that goal."

Aerojet Rocketdyne is an innovative company delivering solutions that create value for its customers in the aerospace and defense markets. The company is a world-recognized aerospace and defense leader that provides propulsion and energetics to the space, missile defense and strategic systems, tactical systems and armaments areas, in support of domestic and international markets. Additional information about Aerojet Rocketdyne can be obtained by visiting our websites at www.Rocket.com and www.AerojetRocketdyne.com.

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3-D Printed Pogo Accumulator Assembly on RS-25 Engine

An Aerojet Rocketdyne technician inspects the 3-D printed pogo accumulator assembly on an RS-25 development engine at the Aerojet Rocketdyne facility located at NASA's Stennis Space Center

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