



Aerojet Rocketdyne Highlights Successful Year Supporting DoD and NASA Missions

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EL SEGUNDO, Calif., Dec. 18, 2019 (GLOBE NEWSWIRE) -- Aerojet Rocketdyne continued to power critical defense and space missions in 2019, while also making significant investments aimed at reducing costs and increasing its operational efficiency. Here is a look at some of the company's important accomplishments this year:

Ground Based Strategic Deterrent

- Aerojet Rocketdyne was selected by Northrop Grumman to be an [integral part of its nationwide Ground Based Strategic Deterrent \(GBSD\) team](#). Aerojet Rocketdyne will provide a large solid rocket motor system and a post-boost propulsion system for this vital defense program.

Hypersonics

- Aerojet Rocketdyne successfully completed a series of [subscale propulsion-system test firings](#) as part of a Defense Advanced Research Projects Agency (DARPA) effort to develop a ground-launched hypersonic missile for tactical use. Aerojet Rocketdyne is designing propulsion concepts and technologies for DARPA's [Operational Fires](#) program, a ground-launched tactical weapon system.
- Building upon its pioneering work in hypersonics, Aerojet Rocketdyne is supporting a Lockheed Martin effort to develop a hypersonic conventional missile for the U.S. Air Force under a subcontract valued at \$81.5 million. Known as the [Hypersonic Conventional Strike Weapon](#) (HCSW), the air-launched, standoff weapon will be capable of traveling at more than five times the speed of sound.
- Aerojet Rocketdyne is maturing Axial Upper Stage component technologies and analytical tools to demonstrate component, material and architecture solutions to support future hypersonic development efforts under a [Missile Defense Agency contract](#) worth up to nearly \$19 million.

Missile Defense

- In a [first-of-its-kind flight test](#) of the Missile Defense Agency's (MDA) Ground-based Midcourse Defense program, Aerojet Rocketdyne's Divert and Attitude Control System (DACS) supported Raytheon's Exoatmospheric Kill Vehicle (EKV) in its intercept of an ICBM. The Aerojet Rocketdyne DACS helped to successfully maneuver an EKV to destroy the incoming target.
- Aerojet Rocketdyne Coleman Aerospace, Inc. completed a [successful test](#), known as the Iron Bird Mission, of an air launch extraction and descent system as part of a contract to provide a new Medium Range Ballistic Missile target for MDA.

Investing in the Future

- Senior Aerojet Rocketdyne officials joined Arkansas State and local leaders to break ground on the [newest and most modern solid rocket motor development facility in the nation](#). Expanding the company's decades-long capability of solid rocket motor production in Camden, the Engineering, Manufacturing and Development facility was specifically designed to serve as the developmental gateway to future large solid rocket motor product opportunities, to include GBSD, hypersonics and missile defense targets.
- Senior Alabama State officials joined Aerojet Rocketdyne's CEO Eileen Drake and Executive Chairman Warren Lichtenstein at ribbon-cutting ceremonies for the company's Defense Headquarters and its new, [state-of-the-art Advanced Manufacturing Facility](#) (AMF). In addition to producing advanced propulsion products for U.S. defense and space programs to include the Standard Missile-3 and Terminal High Altitude Area Defense system, the AMF was designed to support new program opportunities including hypersonics and GBSD.
- The company successfully [transitioned its energetics and final assembly](#) of NASA's Orion jettison motor to its Orange, Virginia, facility. The successful Orion Jettison Demonstration Motor 4 (DM-4) test at the Redstone Test Center in Huntsville, Alabama, marked a significant milestone in the company's long-term affordability and utilization improvement

initiative, the Competitive Improvement Program (CIP).

Innovative Advanced Manufacturing

- Aerojet Rocketdyne [acquired](#) 3D Material Technologies (3DMT), expanding the company's additive manufacturing capacity and complementing its existing portfolio with a new, stand-alone production facility. Aerojet Rocketdyne continues to incorporate additive manufacturing into its rocket engines and defense applications to significantly reduce lead times, make products more affordable, and enable new approaches to design.
- One major success for the additive manufacturing team this year was [successfully completing initial testing](#) of a next generation RL10C-X. This next generation upper-stage rocket engine contains major components produced with the company's industry-leading 3D printing technology.
- Aerojet Rocketdyne entered into a Space Act Agreement with NASA's Marshall Space Flight Center to [design and manufacture a lightweight rocket engine thrust chamber assembly](#) using innovative additive manufacturing processes and materials. The goal of the project is to make a thrust chamber that is easily scalable to support a variety of missions, including America's return to the Moon and subsequent missions to explore Mars.

Deep Space Exploration

- NASA has laid the groundwork to return Americans to the Moon by 2024 and Aerojet Rocketdyne will be a critical contributor on multiple facets of the historic endeavor. This year, Aerojet Rocketdyne [completed acceptance testing](#) of all 16 RS-25 engines and flight controllers needed to support the first four flights of NASA's Space Launch System (SLS) and [completed integration](#) of [the first set of engines](#) for Artemis I, the first flight of SLS. Also in support of Artemis I, Aerojet Rocketdyne [delivered](#) the jettison motor for Orion's Launch Abort System and qualified the motor for all future Artemis missions. Hardware for Artemis II has also started to be delivered to NASA, including eight [auxiliary engines](#) for integration into Orion's European Service Module (ESM).
- Lockheed Martin awarded Aerojet Rocketdyne a contract to support production of NASA's Orion spacecraft fleet for Artemis missions three through five with an option to support missions six through eight with three additional engine shipsets.
- The Advanced Electric Propulsion System (AEPS) thruster, developed by Aerojet Rocketdyne for the Power and Propulsion Element of NASA's Gateway, demonstrated operation at [full power for the first time](#), achieving an important program milestone for NASA's orbiting lunar outpost for robotic and human exploration.
- Aerojet Rocketdyne was also [awarded a contract](#) by NASA to further investigate designs for a Lunar Transfer Vehicle under NASA's new Artemis lunar exploration program.

Low Earth Orbit

- Astronauts installed new sets of [Lithium-Ion \(Li-Ion\) batteries](#) built by Aerojet Rocketdyne into the International Space Station's power system. These batteries will provide twice the kilowatt-hours than their predecessors at a fraction of the mass, and are designed to operate for at least 10 years.
- The Starliner program conducted a successful [Pad Abort Test](#), where the service module demonstrated its ability to separate itself from a simulated launch vehicle and propel itself and the crew module approximately one mile high and one mile downrange, and then separate from the crew module in a controlled manner using Aerojet Rocketdyne propulsion. Aerojet Rocketdyne propulsion hardware is featured on [all phases of Starliner missions](#): from launch to on-orbit operations to atmospheric re-entry.

Military Satellite Launches

- Aerojet Rocketdyne played a major role supporting the successful launches of three military satellites – [Wideband Global SATCOM](#) (WGS-10), [Advanced Extremely High Frequency](#) (AEHF-5) and [Global Positioning System \(GPS\) III](#) Space Vehicle 02 – with propulsion on the United Launch Alliance (ULA) launch vehicles and on-board satellite propulsion systems.

Access to Space and Space Operations

- Aerojet Rocketdyne and Firefly Aerospace, Inc. (Firefly) [announced](#) a cooperative agreement that combines the capabilities of both companies to provide flexible, sustainable and highly competitive space access solutions. This collaboration will leverage Firefly's new family of launch vehicles and in-space services with Aerojet Rocketdyne's experience in propulsion development, additive manufacturing and mission assurance for commercial, national security and exploration missions.

- Aerojet Rocketdyne, along with NASA, Ball Aerospace and the Air Force Research Laboratory (AFRL), [launched](#) the Green Propellant Infusion Mission, which is conducting a 13-month demonstration of a “green” propellant developed by the AFRL. The revolutionary mission is examining if this new propellant can improve overall efficiency while reducing the handling concerns associated with traditional spacecraft propellants.
- Aerojet Rocketdyne electric and chemical engines will play a key role in Northrop Grumman’s [Mission Extension Vehicle](#) (MEV). MEVs have the ability to extend the mission life of satellites by providing the propulsion and attitude control needed to extend their lives. The first MEV launched in 2019 and will service its host satellite for five years.

For more details on how Aerojet Rocketdyne is providing for a modern defense and pushing the boundaries of space exploration, and to follow along while we make history in 2020, visit www.rocket.com.

About Aerojet Rocketdyne: Aerojet Rocketdyne, a subsidiary of Aerojet Rocketdyne Holdings, Inc. (NYSE:AJRD), is a world-recognized aerospace and defense leader that provides propulsion systems and energetics to the space, missile defense and strategic systems, and tactical systems areas, in support of domestic and international customers. For more information, visit www.Rocket.com and www.AerojetRocketdyne.com. Follow Aerojet Rocketdyne and CEO Eileen Drake on Twitter at [@AerojetRdyne](#) and [@DrakeEileen](#).

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