



January 7, 2003

NASA, Industry Consortium Successfully Test Full-Scale Hypersonic Engine Thruster

SACRAMENTO, Calif., Jan. 7 /PRNewswire/ -- Aerojet, a GenCorp Inc. company, announced today that NASA and the Rocket Based Combined Cycle Consortium, or RBCCC, have taken an important step in developing a new engine that could revolutionize access to space and air transportation in the next quarter century.

The consortium, of which Aerojet is a member, has successfully completed the first in a series of tests of a full-scale rocket thruster -- a crucial element of a rocket based combined cycle engine system. The test, conducted at Aerojet facilities in Sacramento, Calif., marked a key milestone in NASA's Integrated System Test of an Air-breathing Rocket (ISTAR) program.

The ISTAR program intends, by the end of the decade, to flight-test a self-powered hypersonic flight vehicle to more than six times the speed of sound, demonstrating all modes of engine operation. The small, high performance thrusters are intended to power the engine system demonstrator during the early phase of powered flight, accelerating the craft to hypersonic speed (approx. 3,750 mph). At that point, the engine switches to pure air-breathing ramjet and scramjet modes of operation.

The test demonstrated the first successful hot fire of a thruster using a mix of decomposed peroxide, liquid peroxide and JP-7 jet fuel to generate combustion. This 90-percent peroxide "tri-fluid" approach will allow the thrusters to fit within the engine's extremely tight packaging restraints, yet deliver high performance.

NASA's development of hypersonics technologies, including the ISTAR program, is intended to support creation, by 2025, of flight vehicles that will offer safe, routine, affordable space access and air transportation to any point on the globe in less than two hours.

"Our industry team continues to set the bar for hypersonic research," said Steve Cook, deputy manager of the Next Generation Launch Technology Program at NASA's Marshall Space Flight Center in Huntsville, Ala. "The flight research now being conducted by RBCCC is unprecedented, pushing the envelope of powered flight like no one has done since the Wright Brothers."

The consortium team conducted two separate thruster test series on behalf of the ISTAR program. The team successfully decomposed liquid peroxide in a platelet catalyst bed to supply hot oxygen to the combustion chamber as an ignition source.

Data gained from this test series -- particularly regarding reaching 90 percent efficiency of the catalyst beds -- was the first step needed to establish a start sequence for the full-scale thruster. The platelet catalyst beds reached 90 percent efficiency in six-tenths of a second.

Secondly, the team demonstrated tri-fluid combustion, or the stable operation of decomposed and liquid peroxide and JP-7. The goal of the test was to establish an ignition start sequence and to characterize the use of liquid hydrogen peroxide to cool the combustion chamber walls. A reliable start sequence was established that minimized the start transient -- the abrupt and potentially risky physical motion of the thrusters during ignition and resulted in reaching full chamber pressure in less than one second. The team will conduct longer-duration thruster tests in early 2003. "The consortium is very pleased with the performance of Aerojet's platelet catalyst beds and the performance characteristics of the tri-fluid platelet injector," said Jeff Wall, Aerojet program manager for the ISTAR program. "This successful test series moves the ISTAR program one step closer to achieving NASA's goal -- a full-scale ground demonstration test of a rocket based combined cycle engine in 2006."

RBCCC combines the propulsion development skills of the Rocketdyne Propulsion & Power business of The Boeing Company of Canoga Park, Calif.; the Pratt & Whitney Space Propulsion business unit of United Technologies Corp. of West Palm Beach, Fla.; and the Aerojet missile and space propulsion business unit of GenCorp, Inc., of Sacramento, Calif.

The team was tasked by the Marshall Center in late 2001 to design and develop the new rocket based combined cycle engine system.

The Next Generation Launch Technology Program at Marshall manages NASA's hypersonics research efforts on behalf of the agency's Aerospace Technology Enterprise in Washington, D.C.

Aerojet is a world-recognized aerospace and defense leader principally serving the missile and space propulsion, and defense and armaments markets. GenCorp Inc. is a technology-based manufacturer with leading positions in aerospace and defense, pharmaceutical and automotive industries. For more information, please visit <http://www.aerojet.com> and <http://www.gencorp.com>. SOURCE Aerojet

CONTACT: Susan Bassett of Aerojet, +1-916-355-2310, or susan.bassett@aerojet.com

/Web site: <http://www.gencorp.com> /

/Web site: <http://www.aerojet.com> /