

## **PRATT & WHITNEY ROCKETDYNE COMPLETES MACH 5 TESTING OF WORLD'S FIRST CLOSED-LOOP HYDROCARBON-FUELED HYPERSONIC PROPULSION SYSTEM**

CANOGA PARK, Calif., July 27, 2006 – Pratt & Whitney Rocketdyne (PWR), a business unit of United Technologies Corp. [NYSE:UTX], has completed testing of its hypersonic Ground Demonstrator Engine No. 2 (GDE-2) at NASA's Langley Research Center in Virginia. This is the first time that a closed-loop hydrocarbon-fueled scramjet propulsion system has been successfully tested at hypersonic conditions.

The PWR GDE-2 produced significant hypersonic data results during several test runs conducted at Mach 5 conditions in the eight-foot High Temperature Tunnel at the Langley Research Center. The engine used standard JP-7 fuel in a closed-loop configuration to both cool engine hardware and fuel the engine's combustor.

"Completing the testing of GDE-2 marks a significant milestone in hypersonic technology," said Mike McKeon, manager of hypersonic programs for PWR. "GDE-2 is a complete propulsion system that contains many of the technologies required to make real world hypersonic propulsion a reality."

Pratt & Whitney Rocketdyne teamed with the U.S. Air Force Research Laboratory (AFRL) and NASA to complete the testing of GDE-2. A government/industry team that includes AFRL, DARPA (Defense Advanced Research Projects Agency), NASA, PWR and The Boeing Company will use technology demonstrated by GDE-2 to develop the propulsion system for the X-51A flight demonstration program, which will begin flight testing in 2008.

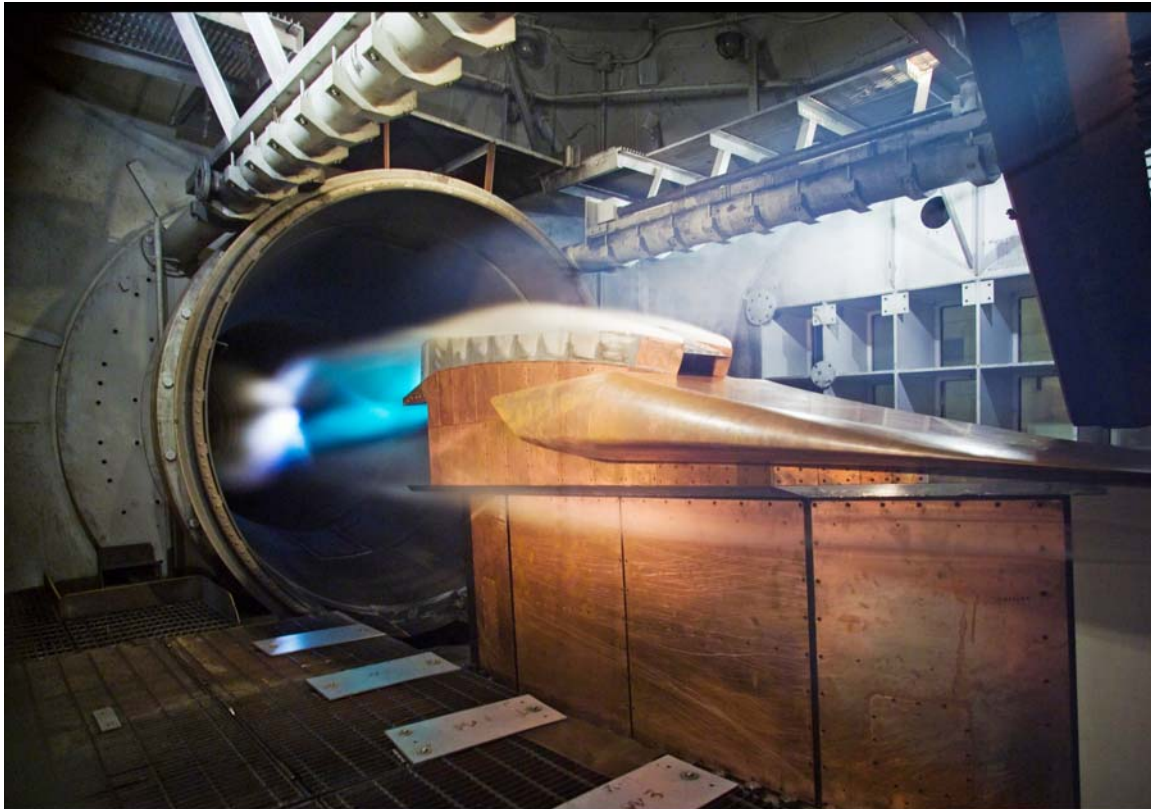
"Completing the successful testing of GDE-2 was truly a team effort," said McKeon. "This accomplishment speaks volumes about the level of professionalism and dedication demonstrated by members of the team from AFRL, NASA and PWR."

(more)

## PWR-Hypersonic/2

Pratt & Whitney Rocketdyne, Inc. offers a complete line of propulsion products for launch vehicles to missile defense to advanced hypersonic propulsion. These have been used in a wide variety of government and commercial applications, including the main engines for the space shuttle, Atlas and Delta launch vehicles, and high altitude defense systems. Pratt & Whitney is a world leader in the design, manufacture and service of aircraft engines, space propulsion systems and industrial gas turbines. United Technologies provides high-technology products and services to the aerospace and building industries.

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NASA LaRC/Paul Bagby

Figure 1. Pratt & Whitney Rocketdyne (PWR) tests its hypersonic Ground Demonstrator Engine No. 2 (GDE-2), a hydrocarbon-fueled scramjet propulsion system, in Mach 5 conditions at NASA's Langley Research Center. Credit: NASA Langley Research Center/Paul Bagby.

Pratt & Whitney Rocketdyne media relations contacts:

Nancy Colaguori  
561 796-2219  
nancy.colaguori@pw.utc.com

Bryan Kidder  
818 586-2213  
bryan.kidder@pwr.utc.com