



News Release

Defense Advanced Research Projects Agency

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IMMEDIATE RELEASE

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FULLY INTEGRATED SCRAMJET MISSILE ENGINE TESTED AT MACH 6.5

The Defense Advanced Research Projects Agency (DARPA) and the Office of Naval Research (ONR) successfully conducted the first-ever ground test of a full-scale, fully integrated hypersonic cruise missile engine using conventional liquid hydrocarbon fuel on May 30, 2002. The test, performed in a wind tunnel at NASA Langley Research Center, Hampton, Va., demonstrated robust operation of the engine at simulated hypersonic cruise conditions (Mach 6.5 at 90,000 feet altitude).

Demonstration of efficient supersonic combustion ramjet (scramjet) performance with a liquid hydrocarbon fuel is an essential step to enabling a viable hypersonic cruise missile. The May 30 test is the first demonstration of net positive engine thrust for a fully installed, hydrocarbon-fueled scramjet missile engine. Additional tests are planned later this summer at the Air Force Arnold Engineering and Development Center, Arnold AFB, Tenn., to verify operation at Mach 3.5 and 4 flight conditions, which will simulate the hypersonic engine taking over following a rocket boost.

The engine will be used in the four-year, joint DARPA/ONR Hypersonic Flight Demonstration program called HyFly. The objective of the HyFly program is to flight-test a missile demonstrator able to cruise at speeds of up to Mach 6 to a range of 600 nautical miles using liquid hydrocarbon fuel. The HyFly program is being performed by a team consisting of The Boeing Co. (St. Louis, Mo.), Aerojet (Sacramento, Calif.), Johns Hopkins University Applied Physics Laboratory (Laurel, Md.), and Naval Air Warfare Center (China Lake, Calif.). The engine is a dual combustion ramjet engine developed by The Johns Hopkins University Applied Physics Laboratory under ONR's Hypersonic Weapon Technology program.

"HyFly's objective is to mature the dual combustion ramjet-based hypersonic strike missile concept, through flight demonstration, in a weapon configuration that's compatible with launch from surface ships and submarines as well as Navy and Air Force aircraft," explained DARPA's Preston Carter, program manager for HyFly.

(more)

Rear Adm. Jay Cohen, Chief of Naval Research, and Anthony J. Tether, Director of DARPA, in a joint statement, noted, “The dual combustion ramjet engine concept is the enabling technology for a future high-speed strike weapon. A hypersonic strike weapon has the potential to transform our nation’s armed forces to meet future warfighting needs. HyFly is a leading element of DoD’s National Aerospace Initiative to demonstrate advanced hypersonic technologies.”

Developmental flight tests of the HyFly demonstrator vehicle start early in FY 2004 with demonstration of a surrogate submunition deployment planned for March 2004. The program plans to progress to powered flights at Mach 4 in November 2004, with Mach 6 flights starting a year later.

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Media with questions, please contact Jan Walker, (703) 696-2404, or jwalker@darpa.mil .
Photos of the tested engine are available via the Web (www.darpa.mil/body/news.html).