



News Release

Defense Advanced Research Projects Agency

3701 North Fairfax Drive
Arlington, VA 22203-1714

IMMEDIATE RELEASE

September 30, 2008

DARPA Plans Additional HyFly Flight Test in 2010

The Defense Advanced Research Projects Agency announces plans to conduct a third powered flight of the [Hypersonic Flight Demonstration \(HyFly\)](#) flight vehicle in the summer of 2010. Initially a joint program with the [Office of Naval Research](#), HyFly is a full-scale, strike missile demonstrator powered by a dual combustion ramjet. The objective of the HyFly program is to demonstrate that HyFly missile technology can accelerate to and sustain flight at Mach 6. HyFly missile technology could provide an advanced, long-range strike capability for the U.S. military.

This month, the HyFly program will begin a six-month effort to modify key state-of-the-art, high-temperature connectors and seals for the fuel system. Following this work, the fuel system will be subjected to flight conditions and activated to operate at flight pressure and temperature prior to being integrated into the flight vehicle and readied for flight test.

Prior HyFly flights, conducted in September 2007 and January 2008, were partially successful, demonstrating missile guidance, boost to cruise stage separation and engine ignition. Both flights were launched from a Boeing-operated F-15E aircraft flying at a speed of Mach 0.95 at an altitude of 40,000 feet over the sea range at the Naval Air Warfare Center Weapons Division, Point Mugu, Calif.

The objectives of the first flight included stage separation, inlet cover ejection, ignition of the dual combustion ramjet engine, and missile acceleration. On that flight, after successfully completing boost, stage separation, inlet cover ejection, and dual combustion ramjet ignition, an engine throttle software error prevented the missile from accelerating as planned.

On the second flight, following a successful boost phase to Mach 3.5, stage separation and inlet cover ejection, the dual combustion ramjet engine failed to light. An independent failure review board confirmed that the ignition failure was due to leakage in the high-pressure, high-temperature fuel system, a malfunction unrelated to the dual combustion ramjet engine itself. The other subsystems on the missile performed nominally. The vehicle remained under control throughout the flight, and conducted a successful terminal accuracy demonstration before impacting the ocean.

Other program activities have included successfully demonstrating robust engine operation and performance in full-scale ground testing of the liquid hydrocarbon-fueled dual combustor ramjet. Through ground testing, the HyFly program has also demonstrated the ability of an uncooled, high-temperature composite engine structure to withstand the extreme engine

(more)

environment experienced at Mach 6, thereby establishing a simpler alternative to active cooling for high-speed tactical missiles.

The Boeing Company, St. Louis, Mo., is the prime contractor for HyFly. Aerojet, Sacramento, Calif., is the dual combustor ramjet engine supplier. The government team includes Johns Hopkins University Applied Physics Laboratory, Baltimore, Md., where the dual combustor ramjet was invented, and [Naval Air Warfare Center Weapons Division, China Lake](#), and Point Mugu, Calif.

-END-

Media with questions, please contact Jan Walker, (703) 696-2404, or jan.walker@darpa.mil. Contractors or military organizations, contact Dr. Thomas Bussing at (571) 218-4212.