

HyFly - Hypersonic Flight Demonstration Program

Dual Combustion Ramjet

Compatible with air and sea launch

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Dual Combustion Ramjet

Next-generation strike missile



Full-scale titanium
fuel tank casting

Under a contract with the Defense Advanced Research Projects Agency, or DARPA, Phantom Works, the advanced research and development unit of Boeing, is designing, developing and flight-testing a HyFly hypersonic strike missile demonstrator vehicle powered by a Dual Combustion Ramjet, or DCR, engine.

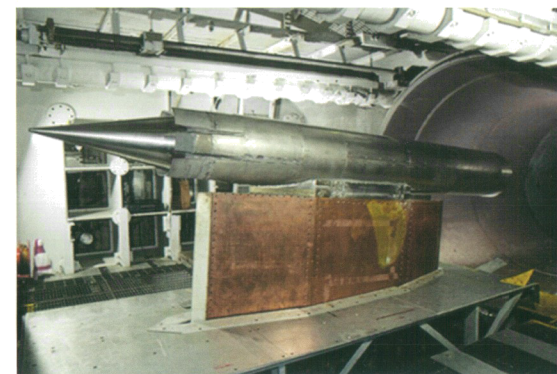
The program's objective is to develop and demonstrate, in flight, advanced technologies for hypersonic flight with near-term emphasis on a missile application. HyFly will demonstrate a vehicle capable of a 400-to-600 nautical-mile range, with sustainable speeds of Mach 6. The program will also validate vehicle and engine material and structural robustness.

DARPA and the Office of Naval Research, or ONR, jointly fund the four-year HyFly program. Boeing and its principal subcontractor, Aerojet, in Sacramento, Calif., are conducting an extensive ground test program including subscale wind tunnel tests, sled test, and full-scale engine direct-connect and freejet tests. In addition to Boeing and Aerojet, the HyFly program team includes the Johns Hopkins University Applied Physics Laboratory and the Naval Air Warfare Center Weapons Division in China Lake, Calif.

From 2004 to 2006, the team will perform 10 flight tests. One is an unpowered separation test; two will be powered by a solid rocket booster but no DCR engine; and seven powered by a booster and DCR engine at speeds of up to Mach 6. Further development to operational status would result in a weapon that could revolutionize strike capability against both time-critical and deeply buried targets.

AEROJET

*DCR engine performance at Mach
6.5 demonstrated on a full-scale
model in freejet testing at NASA
Langley Research Center*



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