

# Skunk Works Hints At SR-72 Demonstrator Progress

*Aviation Week*

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## **Lockheed Martin**

**DENVER, Colorado** - Four years after revealing plans to develop a Mach 6 strike and reconnaissance aircraft, Lockheed Martin says hypersonic technologies are now sufficiently mature to enable progress towards a flight demonstrator.

The company's secretive Skunk Works unit has been working since at least the early 2000s on the basic building blocks for an operational hypersonic vehicle and in 2013 revealed to Aviation Week it was developing a scaled demonstrator for the SR-72, a proposed successor to the U.S. Air Force's long-retired Mach 3 SR-71 Blackbird spy plane. However, details on any subsequent progress have been scarce since this initial plan was unveiled.

"We've been saying hypersonics is two years away for the last 20 years, but all I can say is the technology is mature and we, along with Darpa and the services, are working hard to get that capability into the hands of our warfighters as soon as possible," says Rob Weiss, Lockheed Martin's executive vice president and general manager for Advanced Development Programs.

Speaking to Aviation Week on the sidelines at the AIAA Aviation 2017 forum here, Weiss cautions, "I can't give you any timelines or any specifics on the capabilities. It is all very sensitive. Some of our adversaries are moving along these lines pretty quickly and it is important we stay quiet about what is going on. We can acknowledge the general capability that's out there, but any program specifics are off limits."

However, Weiss hints that work on a combined cycle propulsion system and other key advances needed for a viable hypersonic vehicle are reaching readiness levels sufficient for incorporation into some form of demonstrator. Following critical ground demonstrator tests from 2013 through 2017, Lockheed Martin is believed to be on track to begin development of an optionally piloted flight research vehicle (FRV) starting as early as next year. The FRV is expected to be around the same size as an F-22 and powered by a full-scale, combined cycle engine.

While no specific details have been revealed, it is known that Lockheed Martin and Aerojet Rocketdyne have been teamed since 2006 on work to integrate an off-the-shelf turbine with a scramjet to power an aircraft with a combined cycle propulsion system from standstill to Mach 6 plus. The development built on work begun earlier under the Air Force/Darpa HTV-3X reusable hypersonic demonstrator, which was cancelled in 2008 but went a step further to integrate a high-speed turbine engine. The HTV-3X concept was an outgrowth of Darpa's Falcon program, which included development of small launch vehicles, common aero vehicles and a hypersonic cruise vehicle.

"The combined cycle work is still occurring and obviously a big breakthrough in the air-breathing side of hypersonics is the propulsion system," Weiss adds. "So this is not just on combined cycle but on other elements of propulsion system."

The technology of the "air breather has been matured and work is continuing on those capabilities to demonstrate that they are ready to go and be fielded," he adds.

Depending on progress with the FTV, which would fly in the early 2020s, Lockheed Martin has previously said the follow-on step would be development of a full-scale, twin-engine SR-72. Built to roughly the same proportions as the SR-71, the larger vehicle would enter flight test in the late 2020s.