

# Lockheed Martin Navy JSF Breaks Sound Barrier KC-10 Tanker Qualifications Completed

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The Joint Strike Fighter (JSF) X-35C carrier variant (CV) began a series of supersonic envelope-expansion flights on Jan. 31, becoming the second Lockheed Martin JSF demonstrator to exceed the speed of sound.

In two separate flights, test pilot Joe Sweeney climbed to 25,000 feet and accelerated to Mach 1.05, then to Mach 1.10, validating the Navy JSF's supersonic performance. The flights are the first in a series designed to test the X-35C at increasingly higher supersonic speeds, and they are among the last before the plane's scheduled transcontinental flight to the U.S. Navy flight-test center at Patuxent River, Md.

"Pushing the envelope past Mach 1 in an aircraft that is essentially identical to our proposed production JSF enables us to know today how that production plane of the future will handle at supersonic speeds," said Tom Burbage, executive vice president and general manager of the Lockheed Martin JSF program. "It's a very important exercise in risk reduction, and reducing technical risk is the cornerstone of our flight-test program."

The X-35A broke the sound barrier on Nov. 21, 2000, opening up the JSF supersonic envelope for the U.S. Air Force and U.S. Marine Corps. Each aircraft is powered by a single Pratt & Whitney JSF119-611 engine, developing about 40,000 pounds of thrust.

On Jan. 25, the X-35C completed tanker qualification trials with a series of air-to-air refuelings behind a U.S. Air Force KC-10. Naval probe-and-drogue refueling demonstrations are scheduled during the aircraft's testing period at Patuxent River.

The X-35C, designed to satisfy U.S. Navy requirements, features a larger wing and control surfaces than the other JSF variants, and has an increased-capacity structure for absorbing catapult launches and arrested landings.

The X-35A conventional-takeoff-and-landing (CTOL) variant, built to U.S. Air Force specifications, successfully completed its flight-test program on Nov. 22, 2000, logging a record-setting 27 flights in 30 days.

The X-35B short-takeoff-vertical-landing (STOVL) demonstrator is expected to begin hover-pit testing this month. Designed to meet U.S. Marine Corps and British Royal Air Force/Royal Navy requirements, the X-35B features a unique shaft-driven lift fan that amplifies engine thrust and reduces exhaust temperature and velocity during STOVL operations.

The single-seat, single-engine JSF will be a stealthy and highly sophisticated replacement for an aging fleet of U.S. and British warplanes, including the A-10, F-16, F/A-18 and Harrier.

Lockheed Martin, in partnership with Northrop Grumman and BAE SYSTEMS, is competing to build the JSF for the United States and United Kingdom. Government selection of a single contractor for the Engineering and Manufacturing Development phase is set for fall 2001.

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