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# Boeing's New Training Jet Looks a Little Like the F/A-18

The latest competitor in the T-X program to make the Air Force a new training jet flew this week.



Boeing

By Eric Tegler Dec 21, 2016

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The Lockheed T-38 jets that train Air Force pilots are more than five decades old. And while they still offer high performance, they're expensive to maintain and don't offer technology like that on the F-35s some of these men and women will fly during their careers. That's why the Air Force embarked on a "T-X" competition to identify its next trainer, and yesterday, the last of four major competitors made its first flight.

Boeing's T-X took off for the first time from Lambert-St. Louis International Airport. The Boeing plane is competing against Lockheed's T-50, Raytheon's T-100, and Northrop Grumman's Trainer-X (with the possibility of another entrant from Sierra Nevada Corporation) to enter service by 2024 as the Air Force's new advanced trainer.

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Most people associate Boeing with big commercial airliners, but the company inherited a number of fast-jet programs when it acquired McDonnell-Douglas in the 1990s, including the T-45 Goshawk advanced trainer which it builds for the Navy. Experience with the T-45 and the Navy's F/A-18 Super Hornet influenced the design of T-X, which Boeing has partnered with Swedish firm Saab to build.

T-X program aircraft requirements include the ability to perform sustained high-G operations at 6.5-7.5 g's, aerial refueling, air-to-air intercepts, data-link operations, and night vision imaging systems operations. The Boeing/Saab T-X is a two-seat tandem cockpit configuration with a raised rear cockpit for good forward visibility. Since the rear cockpit is typically occupied by the instructor, a stepped-up rear seating position is a must for all T-X competitors.

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A single General Electric F404-GE-402 afterburning turbofan, the same engine that powers older F/A-18C/D Hornets, provides the T-X with 17,900 lbs of thrust. (It powers Lockheed's T-50A and Northrop Grumman's Trainer-X entrants, too.) If the T-X's twin canted tails look familiar to you, it's likely because they're inspired by the twin tails used on the first-generation F/A-18 where their effective aerodynamics enable high angle-of-attack and maneuverability.

Though the design has some elements found on previous aircraft, the Boeing-Saab team calls it a clean sheet. Boeing has thus far assembled two T-Xs with the second scheduled to fly in early 2017. Assembly takes place in St. Louis but major components are built in Sweden by Saab. Tight on engineering staff, Boeing reportedly teamed with Saab to make up the shortfall and to accelerate T-X development. The T-X's progress from critical design review to first flight was accomplished in 12 months, notably short for a modern aircraft program.



Boeing

The approach may be paying dividends as the first flight went off without a hitch. Airborne for 55 minutes, the T-X climbed as high as 11,000 feet and reached a speed of 231 knots with Boeing test pilot Steven Schmidt in front and Chief Pilot for Air Force Programs Dan Draeger in the rear cockpit. Both trained for the flight using Boeing's ground-based T-X system which includes ground-based preflight training and simulation.

"The aircraft met all expectations," Schmidt said. "It's well designed and offers superior handling characteristics. The cockpit is intuitive, spacious and adjustable, so everything is within easy reach."

For all T-X competitors the cockpit will be a central focus, not just for its ergonomics but for its room for growth and ability to accommodate the kind of sensor and artificial intelligence systems which student pilots will find in the F-35. Training to employ these – with ground-based simulation and in the cockpit – will be crucial for the Air Force's next generation of pilots.

As the last of the four major competitors to fly, Boeing will have some catching up to do in the New Year. Boeing T-X program manager Ted Torgerson declined to specify the planned flight-test program for the two prototypes but is confident they'll meet the requirements, telling Defense News that their biggest challenge may be winter time weather in St. Louis. The Air Force is scheduled to release around December 30 and in 2017 the contest will be on to see who builds 350 next-generation trainers to replace the T-38.

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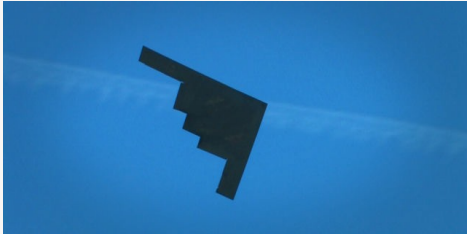
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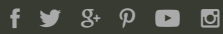
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