

Why GAO Did This Study

The F-35 Lightning II, also known as the Joint Strike Fighter (JSF), is the Department of Defense's (DOD) most costly and ambitious aircraft acquisition, seeking to simultaneously develop and field three aircraft variants for the Air Force, Navy, Marine Corps, and eight international partners. The JSF is critical for recapitalizing tactical air forces and will require a long-term commitment to very large annual funding outlays. The estimated total investment cost is currently about \$385 billion to develop and procure 2,457 aircraft. Because of a history of relatively poor cost and schedule outcomes, defense leadership over the past year has directed a comprehensive restructuring of the JSF program that is continuing.

This testimony draws substantially from our extensive body of work on the JSF, including the current annual review mandated in the National Defense Authorization Act for Fiscal Year 2010, Pub. L. No. 111-84 § 244 (2009). Our draft report is being reviewed by the Department and we expect to issue it early next month. That report and this testimony discusses (1) program cost and schedule changes and their implications on affordability; (2) progress made during 2010; (3) design and manufacturing maturity; and (4) test plans and progress. GAO's work included analyses of a wide range of program documents and interviews with defense and contractor officials.

JOINT STRIKE FIGHTER

Program Restructuring Should Improve Outcomes, but Progress Is Still Lagging Overall

What GAO Found

DOD continues to restructure the JSF program, taking positive, substantial actions that should lead to more achievable and predictable outcomes. Restructuring has consequences—higher up-front development costs, fewer aircraft bought in the near term, training delays, and extended times for testing and delivering capabilities to warfighters. Total development funding is now estimated at \$56.4 billion to complete in 2018, a 26 percent cost increase and a 5-year schedule slip from the current baseline. DOD also reduced procurement quantities by 246 aircraft through 2016, but has not calculated the net effects of restructuring on total procurement costs nor approved a new baseline. Affordability for the U.S. and partners is challenged by a near doubling in average unit prices since program start and higher estimated life-cycle costs. Going forward, the JSF requires unprecedented funding levels in a period of more austere defense budgets.

The program had mixed success in 2010, achieving 6 of 12 major goals and progressing in varying degrees on the rest. Successes included the first flight of the carrier variant, award of a fixed-price aircraft procurement contract, and an accelerated pace in development flight tests that accomplished three times as many flights in 2010 as the previous 3 years combined. However, the program did not deliver as many aircraft to test and training sites as planned and made only a partial release of software capabilities. The short takeoff and landing (STOVL) variant had significant technical problems and deficient flight test performance. DOD directed a 2-year period to evaluate and engineer STOVL solutions.

After more than 9 years in development and 4 in production, the JSF program has not fully demonstrated that the aircraft design is stable, manufacturing processes are mature, and the system is reliable. Engineering drawings are still being released to the manufacturing floor and design changes continue at higher rates than desired. More changes are expected as testing accelerates. Test and production aircraft cost more and are taking longer to deliver than expected. Manufacturers are improving operations and implemented 8 of 20 recommendations from an expert panel, but have not yet demonstrated a capacity to efficiently produce at higher production rates. Substantial improvements in factory throughput and the global supply chain are needed.

Development testing is still early in demonstrating that aircraft will work as intended and meet warfighter requirements. About 4 percent of JSF capabilities have been completely verified by flight tests, lab results, or both. Only 3 of the extensive network of 32 ground test labs and simulation models are fully accredited to ensure the fidelity of results. Software development—essential for achieving about 80 percent of the JSF functionality—is significantly behind schedule as it enters its most challenging phase.