

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 to DOD's long-term recapitalization plans to replace hundreds of legacy aircraft. Total U.S. investment is now projected at nearly \$400 billion to develop and acquire 2,457 aircraft through 2037 and will require a long-term, sustained funding commitment. The JSF has been extensively restructured over the last 2 years to address relatively poor cost, schedule, and performance outcomes.

This report, prepared in response to the National Defense Authorization Act for Fiscal Year 2010, addresses (1) JSF program cost and schedule changes and affordability issues; (2) performance objectives, testing results, and technical risks; and (3) contract costs, concurrency impacts, and manufacturing. GAO's work included analyses of a wide range of program documents and interviews with defense and contractor officials.

What GAO Recommends

GAO recommends that (1) DOD analyze cost and program impacts from potentially reduced future funding levels and (2) assess the capability and challenges facing the JSF's global supply chain. DOD concurred with the second recommendation and agreed with the value of the first, but believed its annual budget efforts are sufficient. GAO maintains that more robust data is needed and could be useful to congressional deliberations.

View [GAO-12-437](#). For more information, contact Michael J. Sullivan at (202) 512-4841 or sullivanm@gao.gov.

JOINT STRIKE FIGHTER

DOD Actions Needed to Further Enhance Restructuring and Address Affordability Risks

What GAO Found

Joint Strike Fighter restructuring continued throughout 2011 and into 2012, adding to cost and schedule. The new program baseline projects total acquisition costs of \$395.7 billion, an increase of \$117.2 billion (42 percent) from the prior 2007 baseline. Full rate production is now planned for 2019, a delay of 6 years from the 2007 baseline. Unit costs per aircraft have doubled since start of development in 2001. Critical dates for delivering warfighter requirements remain unsettled because of program uncertainties. While the total number of aircraft DOD plans to buy has not changed, it has for 3 straight years reduced near-term procurement quantities, deferring aircraft and costs to future years. Since 2002, the total quantity through 2017 has been reduced by three-fourths, from 1,591 to 365. Affordability is a key challenge—annual acquisition funding needs average about \$12.5 billion through 2037 and life-cycle operating and support costs are estimated at \$1.1 trillion. DOD has not thoroughly analyzed program impacts should funding expectations be unmet.

Overall performance in 2011 was mixed as the program achieved 6 of 11 important objectives. Developmental flight testing gained momentum and is now about 21 percent complete with the most challenging tasks still ahead. Performance of the short takeoff and vertical landing variant improved this year and its "probation" period to fix deficiencies was ended after 1 year with several fixes temporary and untested. Developing and integrating the more than 24 million lines of software code continues to be of concern. Late software releases and concurrent work on multiple software blocks have delayed testing and training. Development of critical mission systems providing core combat capabilities remains behind schedule and risky. To date, only 4 percent of the mission systems required for full capability have been verified. Deficiencies with the helmet mounted display, integral to mission systems functionality and concepts of operation, are most problematic. The autonomic logistics information system, integral technology for improving aircraft availability and lowering support costs, is not fully developed.

Most of the instability in the program has been and continues to be the result of highly concurrent development, testing, and production activities. Cost overruns on the first four annual procurement contracts total more than \$1 billion and aircraft deliveries are on average more than 1 year late. Program officials said the government's share of the cost growth is \$672 million; this adds about \$11 million to the price of each of the 63 aircraft under those contracts. Effectively managing the expanding network of global suppliers will be key to improving program outcomes, increasing manufacturing throughput, and enabling higher production rates. In addition to contract overruns, concurrency costs of at least \$373 million have been incurred on production aircraft to correct deficiencies found in testing. The manufacturing process is still absorbing higher than expected number of engineering changes resulting from flight testing, changes which are expected to persist at elevated levels into 2019, making it difficult to achieve efficient production rates. More design and manufacturing changes are expected as testing continues, bringing risks for more contract overruns and concurrency costs. Even with the substantial reductions in near-term production quantities, DOD still plans to procure 365 aircraft for \$69 billion before developmental flight tests are completed.