

Highlights of [GAO-12-447](#), a report to the Subcommittee on Defense, Committee on Appropriations, United States Senate

## Why GAO Did This Study

The Air Force currently plans to spend \$11.7 billion to modernize and improve reliability of the F-22A, its fifth generation air superiority fighter. Originally designed to counter air threats posed by the former Soviet Union, the post-Cold War era spurred efforts to add new missions and capabilities to the F-22A, including improved air-to-air and robust air-to-ground attack capabilities. In 2003, the Air Force established the F-22A modernization program to develop and insert new capabilities in four increments.

GAO was asked to evaluate (1) cost and schedule outcomes and (2) testing results and risks going forward in the F-22A modernization program and related efforts. To do this, GAO examined the program's budgets and schedule estimates over time and discussed any changes with program officials, and reviewed progress and results from developmental and operational testing, and plans to mitigate risks and resolve system deficiencies.

## What GAO Recommends

GAO recommends that DOD evaluate capabilities to determine if future F-22A modernization efforts meeting DOD policy and statutory requirements should be established as separate major acquisition programs.

DOD concurred with our recommendation.

View [GAO-12-447](#). For more information, contact Michael J. Sullivan, (202) 512-4841, [sullivanm@gao.gov](mailto:sullivanm@gao.gov)

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## TACTICAL AIRCRAFT

### F-22A Modernization Program Faces Cost, Technical, and Sustainment Risks

## What GAO Found

Total projected cost of the F-22A modernization program and related reliability and maintainability improvements more than doubled since the program started—from \$5.4 billion to \$11.7 billion—and the schedule for delivering full capabilities slipped 7 years, from 2010 to 2017. The content, scope, and phasing of planned capabilities also shifted over time with changes in requirements, priorities, and annual funding decisions. Visibility and oversight of the program's cost and schedule is hampered by a management structure that does not track and account for the full cost of specific capability increments. Substantial infrastructure costs for labs, testing, management, and other activities directly support modernization but are not charged to its projects. The Air Force plans to manage its fourth modernization increment as a separate major acquisition program, as defined in DOD policy and statutory requirements.

**Comparison of Estimated F-22A Modernization Program and Related Costs (Nominal Dollars in Millions, not Inflation Adjusted)**

Then-year (dollars in millions)



Source: GAO analysis of U.S. Air Force data.

Note: The 2004 estimate reflects costs from 2003 to 2012. The 2012 estimate reflects costs from 2003 to 2023.

Testing of new capabilities to ensure operational effectiveness and suitability is ongoing. Results to date have been satisfactory but development and operational testing of the largest and most challenging sets of capabilities have not yet begun. Going forward, major challenges will be developing, integrating, and testing new hardware and software to counter emerging future threats. Other risks are associated with greater reliance on laboratory ground tests and relocating an F-22A lab needed to conduct software testing. While modernization is under way, the Air Force has undertaken parallel efforts to improve F-22A reliability and maintainability to ensure life-cycle sustainment of the fleet is affordable and to justify future modernization investments. But the fleet has not been able to meet a key reliability requirement, now changed, and operating and support costs are much greater than earlier estimated.