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TACTICAL AIRCRAFT

Questions Concerning the
F-22A's Business Case

Statement of David M. Walker,
Comptroller General of the United States





Highlights of GAO-06-991T, a testimony before the Subcommittee on Airland, Committee on Armed Services, U.S. Senate

TACTICAL AIRCRAFT

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Why GAO Did This Study

The F-22A—the Air Force’s next generation air superiority fighter aircraft—incorporates a low observable (stealth) and highly maneuverable airframe, advanced integrated avionics, and a new engine capable of sustained supersonic flight without the use of afterburners. The F-22A acquisition history is a case study in increased cost and schedule inefficiency. Since the program’s inception in 1986, the Air Force has added new requirements, more than doubled the length of the acquisition schedule, cut purchase quantities by more than 75 percent, and increased total acquisition unit costs by more than 100 percent.

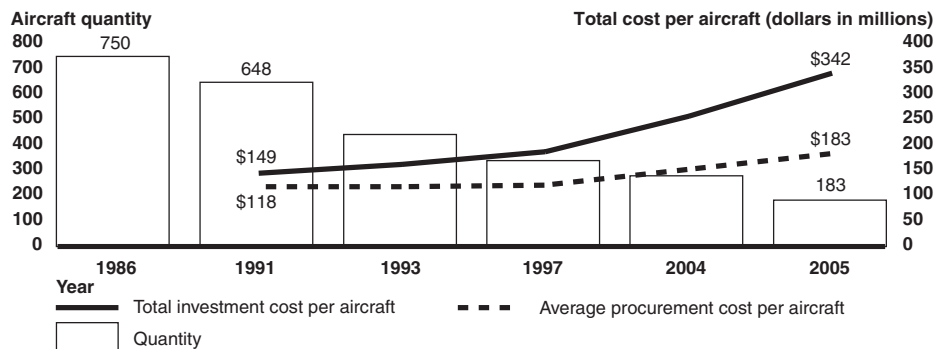
The F-22A program’s significant cost and schedule growth is illustrative of a number of systemic problems in the Department of Defense’s (DOD) major weapon system acquisitions. Currently, DOD is proposing to buy the remaining 60 F-22As under a 3-year contract. At the request of this subcommittee, GAO was asked for its views on DOD’s latest plan to restructure the program and on the Air Force’s request for authority to enter into a multiyear contract to implement this restructuring.

What GAO Found

Under DOD’s latest restructuring of the F-22A program, as reflected in the fiscal year 2007 President’s budget, the program will spread the production of the remaining 60 aircraft over 3 lots extending the period of production by 2 years. The Air Force states that this is to avoid a gap in the production capabilities of the industrial base sector responsible for the latest generation of tactical fighter aircraft. Stretching out the production period will result in lower annual production rates and increased costs to the program of \$1.7 billion when compared to the costs the program would have incurred under the fiscal year 2006 President’s Budget proposal to buy the then-remaining quantity of 56 F-22As in two annual lots. The restructured F-22A program’s increased costs to complete the production will reduce the Department’s options in fulfilling other important national security priorities.

Having made the decision to extend the program, the Air Force, in an attempt to reduce some of the costs of the restructured program, is proposing that Congress authorize its use of a multiyear contract to buy the remaining aircraft. The Air Force has concluded that it has met the six statutory criteria required for entering into a multiyear contract. GAO offers several points for congressional consideration. The Air Force estimates savings of approximately \$225 million, 2.7 percent of remaining procurement cost for 56 aircraft—a significantly lower estimated savings percentage than past multiyear procurement program estimates, which averaged 13 percent. The Air Force wants to buy 4 additional aircraft at a cost of \$674 million to save an additional \$10 million, but has not yet funded this plan. Finally, the statute requires that production rates and quantities remain substantially unchanged during the contract period as downward adjustments could impact contract prices and savings. F-22A quantities have fluctuated recently and further downward adjustments after signing a multiyear contract could result in cancellation costs as high as \$201 million currently not funded.

Changes in F-22A Procurement Quantities and Effect on Unit Costs



Source: U.S. Air Force (data); GAO (presentation).

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Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the Department of Defense's (DOD) proposal to buy sixty F-22As under a multiyear contract. As you know, GAO has recommended that the Air Force prepare a new business case for the F-22A program to justify the substantial changes planned in the mission roles and the quantities to be acquired—a recommendation that has yet to be implemented. Additionally, we share the Congress's concerns over DOD's wherewithal to acquire the F-22A and other key assets in light of current and expected resource constraints. Over the past several years, it has become increasingly clear that DOD must reassess what is affordable and separate its many wants from its real needs. DOD must make tough acquisition choices in order for the country to begin to address the large and growing fiscal imbalance it faces.

My statement today—which is based on our recent report on the F-22A program¹—will highlight our key concerns with moving forward with F-22A procurement, as DOD proposes. Our work was performed in accordance with generally accepted government auditing standards.

Summary

Our review indicates that DOD's proposal to add 2 years to the production period of the remaining F-22A's and to procure the planes under a 3-year multiyear contract will cost about \$1.7 billion more than called for to procure the last two annual lots as compared to the amount previously provided in the fiscal year 2006 budget. The primary reasons cited for this change to the program are industrial base health and the need to preserve the F-22A production line until production of the Joint Strike Fighter (JSF) begins. The Air Force has reported to Congress that the F-22A program meets the criteria set forth in section 2306b of Title 10 of the U.S. Code for a multiyear contract. We have serious concerns regarding whether all of the criteria have been satisfied (i.e. substantial savings, sufficient funding, and stable quantities).

First, the timing of the proposal—near the end of the F-22A's acquisition—reduces the ability of the program to achieve substantial savings. Savings are currently estimated to be about \$225 million or 2.7 percent of remaining procurement cost if 56 additional aircraft are purchased—a

¹ GAO, Tactical Aircraft: *DOD Should Present a New F-22A Business Case before Making Further Investments*, [GAO-06-455R](#) (Washington, D.C.: June 20, 2006).

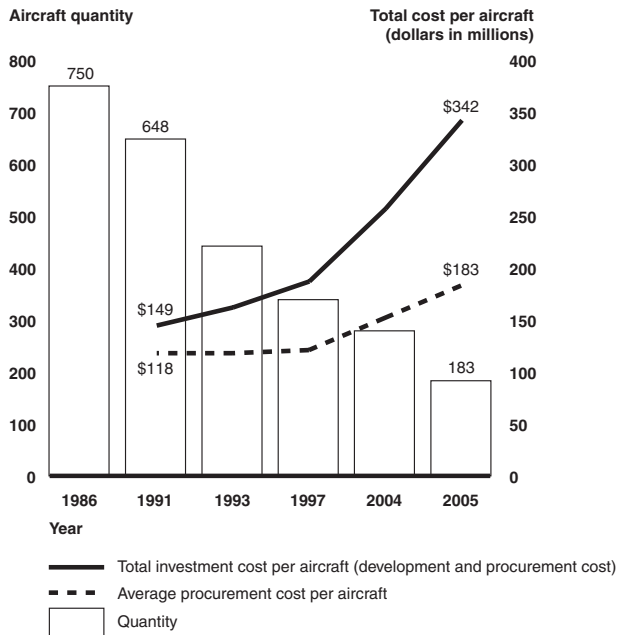
savings that, in terms of percentage of costs, is far below historic estimates of savings for other multiyear contracts. Second, the Air Force is proposing to buy 4 additional aircraft—60 in total—at an added cost of \$674 million in order to save an additional \$10 million under the multiyear contract; however, it has not funded the proposal. Finally, to satisfy other needs in DOD, F-22A quantities have been unstable over the last 2 years reducing quantities from 279 aircraft to 179 in the fiscal year 2006 budget and increasing quantities to 183 aircraft in the fiscal year 2007 budget. If quantities continue to fluctuate downward it could result in additional costs. For example, according to the Air Force cancellation costs alone could be as much as \$201 million—a sum currently unfunded in the multiyear proposal. This financial risk, when compared to the savings projected from a multiyear contract, raises additional questions about the proposal and limits flexibility for future decision making.

Background

The F-22A program is illustrative of a number of systemic problems in DOD's acquisition system. First, the F-22A was approved in an environment with no clear agreement on enterprise-wide priorities and without due consideration of current and likely future threats and resource constraints. Second, the requirements and key program specifications were not fixed when the program began and have changed over its decades-long development. Third, key procurement decisions were made without adequate consideration of technology and other program risks, with costly consequences. And finally, in this program as in many others, DOD has paid out significant incentive and award fees to its contractors despite large cost overruns and schedule delays.

The program has been a case study in cost increases and schedule inefficiency in major weapon system acquisitions. We have issued numerous reports over the years on the problems and issues associated with the F-22A development program. Beginning in 1986 the program was expected to complete development in 9 years for an estimated cost of \$12.6 billion. After taking 19 years to complete development in December 2005, development costs were reported at \$26.3 billion—109 percent more than expected. The end result of these inefficiencies in the acquisition program has been a loss of buying power as the reduced quantity of aircraft will require a significantly higher unit cost than expected. Figure 1 shows the changes in procurement quantities over time and allocates both development and procurement costs to those changing procurement quantities to show the trend of average total acquisition unit costs and procurement unit costs.

Figure 1: Changes to Quantities and Costs of F-22As as Program Has Evolved



Source: U.S. Air Force (data); GAO (presentation).

While the F-22A program has completed development and testing of its initially planned air-to-air capability, the Air Force now sees a need to develop more robust air-to-ground attack and intelligence-gathering capabilities. Therefore, it has started a multibillion dollar development program for these additional capabilities. These capabilities were not previously considered a primary role for the F-22A as it was intended to be primarily an air-to-air fighter to replace the F-15. From the outset the F-22A was built to counter expected large numbers of new advanced Soviet fighter aircraft but this threat never materialized. The expanded air-to-ground attack capability is intended to allow the F-22A to engage a greater variety of ground targets, such as surface-to-air missile systems, that have posed a significant threat to U.S. aircraft in recent years.

DOD's Latest Restructuring Is More Expensive and Slows F-22A Deliveries

Amidst changes to expand F-22A missions and roles, the procurement quantities and acquisition strategy have also been in flux in recent years. In December 2004, the Office of the Secretary of Defense (OSD) reduced planned quantities to a total of 179 F-22A aircraft. At the same time, it decided to terminate the procurement program at the end of 2008 in order to free up about \$10 billion for other priorities. Then, the fiscal year 2007 budget extended the procurement program 2 years, to 2010. The

department cited the health of the industrial base—the need for maintaining a fifth generation fighter² production line—as its rationale for this added expense and delay. DOD also proposed buying four additional aircraft and using a 3-year multiyear contract to procure the remaining 60 F-22As to mitigate some of the costs of extending procurement for at least 2 years.

To identify savings that might reduce the cost impact of the restructured acquisition strategy, the Air Force is proposing a multiyear contract to buy the remaining F-22A aircraft. The Air Force formulated an estimate for three annual contracts to compare to a single multiyear contract to buy 56 aircraft. While this comparison can provide a basis for determining potential savings, the Air Force had not previously planned to buy the remaining aircraft over 3 years. Instead, the fiscal year 2006 President's Budget included procurement costs to buy 56 F-22As in two annual lots—29 F-22As in 2007 and 27 F-22As in 2008. Therefore, even utilizing the multiyear contract authority, the restructuring will add \$1.7 billion in cost to the procurement program and slow deliveries of the final aircraft when compared to the plan previously provided for in DOD's fiscal year 2006 budget. The final 60 aircraft will each cost 10 percent more on average (unit procurement costs increase from \$166 million per aircraft to \$183 million per aircraft) under the restructured plan, even taking into account expected savings from the multiyear procurement.

Concerns Whether DOD Satisfies All Multiyear Procurement Criteria

The Air Force submitted its justification to the Congress on May 16, 2006, to buy the remaining 56 to 60 F-22A aircraft over a 3-year period with a multiyear contract. To enter into a multiyear contract for the F-22A, the Air Force must first obtain specific legislative authorization in both the annual DOD appropriations act and in an authorization act. If authorization is obtained from Congress, the Air Force must also meet the statutory criteria listed in 10 U.S.C. § 2306b(a) for entering into a multiyear contract. The justification package the Air Force submitted to Congress in

² F-22A and F-35 are considered fifth generation fighter aircraft as compared to the F-15, F-16, F/A-18, and F-117. The primary characteristics are Very Low Observable (VLO) stealth and information fusion capabilities that make fifth generation aircraft more survivable and lethal.

support of its request for authority to enter into a multiyear contract for the F-22A concludes that the statutory criteria for multiyear procurement have been met and that such a multiyear contract would provide substantial cost savings or avoidance over three annual lot buys. In reviewing these criteria and the Air Force’s position, we have serious concerns regarding whether all of the criteria have been satisfied (i.e. substantial savings, sufficient funding and stable quantities). Table 1 lists the six criteria and our observations (we did not assess two of the criteria).

Table 1: Observations of F-22A Multiyear Contract Criteria

Multiyear criteria	GAO observations
Contract will result in substantial savings	Substantial savings are not defined in the statute, but the 2005 F-22A Independent Cost Estimate states that between 1982 and 1989 estimates for multiyear savings for proposed weapon systems averaged 13 percent. The Air Force justification package shows only 2.7 percent cost avoidance (\$225 million) for 56 aircraft.
Reasonable expectation agency head will request funding at required level to avoid contract cancellation	The Air Force has indicated that its multiyear budget is currently under funded by \$674 million and is seeking authorization to use incremental funding rather than fully funding each aircraft lot.
Minimum need expected to remain substantially unchanged during contract period in terms of production rates and total quantities	F-22A quantities have changed in the last 2 fiscal years to accommodate the need to fund other annual priorities. Given the potential for other priorities in the future—military presence overseas, global war on terrorism, and response to natural disasters—there is a risk that F-22A quantities would need to be adjusted again. Quantity reductions could result in cancellation costs of as much as \$201 million, an amount that is currently unfunded.
There is stable design, and technical risks are not excessive	The baseline F-22A aircraft design is stable (the proposed multiyear contract is for the baseline aircraft). While not the subject of the proposed multiyear contract because it is a separate effort, the design for adding new ground attack and ISR capabilities has not been demonstrated through development or operational testing and cannot be considered “stable” at this time.
Estimates of contract cost and cost avoidance are realistic	Not assessed.
Use of the multiyear contract will promote national security of the United States	Not assessed.

Source: GAO Analysis and 10 U.S.C. 2306b.

Substantial Savings Criterion

To identify potential savings, the Air Force formulated an estimate for three annual contracts to compare to a single multiyear contract with buys of 56 and 60 aircraft. Section 2306b of Title 10 of the U.S. Code does not define what constitutes substantial savings, but the 2005 F-22A Independent Cost Estimate³ indicates that from 1982 to 1989, DOD

³F/A-22 Independent Cost Estimate, Institute for Defense Analyses, August 2005.

proposed at least 60 multiyear procurement programs for congressional approval, with estimated savings averaging 13 percent. The Air Force estimates F-22A multiyear procurement savings to be 2.7 percent if 56 aircraft are procured, approximately \$225 million. The justification package also shows that an additional \$10 million could be saved by buying 60 aircraft as stated in the fiscal year 2007 President's Budget, but it would require an additional \$674 million not included in the fiscal year 2007 future year defense plan.

Funds Have Not Been Budgeted

The proposed multiyear contract for 60 F-22As submitted with the fiscal year 2007 budget is under funded by about \$674 million—funds the Air Force believes it will need in fiscal years 2008 through 2010 to complete these buys. Additionally, the Air Force has proposed using incremental funding to pay for the multiyear contract. Instead of fully funding the buy for each fiscal year, this proposal plans four funding increments—economic order quantity, advanced buy, subsystem, and final assembly. Incremental funding for multiyear procurement is neither permitted by the annual DOD appropriations act⁴ nor the multiyear authorizing statute, which requires that funds only be obligated under a multiyear contract “for procurement of a complete and usable end item.”⁵ The Air Force is seeking an exception to these requirements in its request to Congress for statutory authorization for the multiyear contract. The congressional defense committees are aware of the concerns with incremental funding, and those committees that have completed a defense bill have provided full funding for the initial year of the proposed multiyear contract. However, the congressional authorization and appropriations processes are ongoing.

Multiyear Contract Quantities Could Be Changed in the Future

OSD has restructured the F-22A acquisition program twice in the last 2 years in order to allocate funds to other priorities. In December 2004, OSD reduced the program from 279 to 179 F-22As to save \$10.5 billion. Then in December 2005, OSD changed the F-22A program again, adding \$1 billion to extend the production line for 2 years to ensure a fifth generation fighter aircraft production line would remain in operation in case the JSF experiences delays or problems. So far we have not seen detailed rationale

⁴ Section 8008 of the fiscal years 2005 and 2006 Department of Defense Appropriations Acts (Public Laws 108-287 and 109-148, respectively) require full funding of units to be procured.

⁵ 10 U.S.C. § 2306b (i)(4)(A). This restriction was added by section 820 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 (Public Law 107-314).

concerning the impact to the health of the industrial base. OSD also added 4 aircraft at this time for a total of 183 F-22As. We have also not seen the threat based justification for buying these additional aircraft at an estimated cost of \$674 million. Given the potential for priorities to change again in the future to fund the military presence in Iraq and Afghanistan, fight terrorism around the globe, fund the response to natural disasters, or for other reasons, there is risk that F-22A quantities under the proposed multiyear contract would need to be adjusted again. According to the Air Force's multiyear proposal, if a reduction in quantity were to happen, it could result in cancellation costs of as much as \$201 million in fiscal year 2007, the first year of the multiyear contract. The current Air Force acquisition strategy does not fund these potential cancellation costs. Therefore, the Air Force would have to find funds from other sources to pay these costs in the event quantities are reduced. This is therefore a risk that must be weighed in approving a multiyear contract for the F-22A, particularly at this late stage of its procurement program as it could limit the flexibility of decision makers in the future.

Other Factors Influence the Practicality of Using Multiyear Contracts at This Stage in the F-22A Program

Other circumstances argue against using a multiyear contract. Multiyear contracts are typically used earlier in an acquisition program when greater efficiencies in buying materials and subsystems can be achieved and thereby provide more substantial savings at both the prime contractor and subcontractor levels. In the case of the F-22A, the multiyear proposal comes at the end of production. At the same time, the F-22A program plans to reduce the annual buying rate, providing less opportunity to incur savings. Previously, the Air Force had planned to purchase 29 and 27 aircraft in fiscal years 2007 and 2008, respectively. The multiyear plan calls for 20 aircraft a year in 2008, 2009, and 2010—7 to 9 aircraft fewer in each of the 2 years under the previous plan. Additionally, it appears the primary purpose for proposing a multiyear contract was to mitigate the additional cost of extending procurement for an additional 2 years; even with the proposed multiyear contract, procurement costs will be \$1.7 billion higher than costs proposed under the previous program structure.

The length of the proposed multiyear contract and the lower quantity of aircraft planned for multiyear are concerns identified in the May 2006 Air Force business case analysis for F-22A multiyear procurement. For example, the business case analysis states that the average number of air

vehicles procured under a multiyear contract was 308⁶—more than five times the number of aircraft the F-22A program is proposing to buy under its 3-year contract. The analysis also acknowledges that there is limited opportunity to obtain additional savings from the previously planned initiatives to improve the F-22A production efficiency as these savings were obtained earlier in the acquisition cycle.

In conclusion, the Air Force's decision to extend production for 2 years for industrial base purposes has increased the length and cost of the F-22A program. We are not sure what the Air Force's rationale was for extending production and how it specifically relates to maintaining the industrial base so as to warrant an increased cost of at least \$1.7 billion. At the same time, our nation's large and growing long-term fiscal imbalance requires the federal government—especially DOD—to begin making hard choices between its many wants and real needs. In this context, we continue to believe that the Congress needs to reevaluate a range of existing federal programs and policies, including the F-22A program, based on credible current and future threats, current and expected future national budget levels and priorities, and the warfighter's many true needs. As it stands, the restructured F-22A program's increased cost to complete the procurement program—\$1.7 billion—will eventually serve to reduce the Department's options in fulfilling other important national security priorities. This at a time when the difference between DOD's program wants and its expected resource levels is growing.

⁶ The Institute for Defense Analysis analyzed the multiyear procurement programs for the F/18, C-17, C-130J/KC-130, and F-16. Institute for Defense Analysis, *F-22A Multiyear Procurement Business Case Analysis* (May 2006).

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