

**GAO**

**Testimony**

Before the Subcommittees on Military Research and Development and Military Procurement, Committee on National Security, House of Representatives

---

For Release on Delivery  
Expected at  
2:00 p.m., EDT  
Wednesday,  
March 5, 1997

**DEFENSE AIRCRAFT  
INVESTMENTS**

**Major Program  
Commitments Based on  
Optimistic Budget  
Projections**

Statement of Louis Rodrigues, Director, Defense  
Acquisitions, National Security and International Affairs  
Division



---

---

---

Mr. Chairmen and Members of the Subcommittees:

I am pleased to be here today to discuss the Department of Defense's (DOD) aircraft modernization plans. Our review of 15 aircraft programs revealed that DOD plans to buy or significantly modify at least 8,315 aircraft at a total procurement cost of \$343 billion (fiscal year 1997 dollars) through their planned completions in fiscal year 2030.<sup>1</sup> Appendix I lists the 15 aircraft programs and their estimated procurement costs.

I would like to start with a short overview of the current situation and then provide more detail about (1) how much DOD has historically spent on aircraft purchases, (2) the availability of funding for aircraft purchases, and (3) how funding instabilities have led to schedule stretchouts and billions in increased costs. I will also discuss some of our recent reports where we question the need and timing of some aircraft programs.

---

## Overview

Last year, we testified before your Subcommittees that DOD's planned investments in aircraft were not achievable within likely future budgets and appear to be inconsistent with the current security environment. DOD, however, maintained that its aircraft investment strategy was realistic.

We have continued to evaluate DOD's aircraft procurement programs and remain concerned that DOD cannot achieve its plans within likely future budgets. Our recently completed and ongoing evaluations, and those by the Congressional Budget Office (CBO), continue to raise questions about DOD's ability to execute its planned aircraft investment strategy. For example, in all but 2 years between fiscal year 2000 and 2015, the total funding required for the 15 programs we evaluated exceeds the funding historically spent on aircraft purchases, as a percentage of DOD's overall budget. For several of those years, the funding required to achieve DOD's planned aircraft acquisitions approaches the percentage of the budget reached during the peak Cold War spending years of the early to mid-1980s.

In addition, we doubt DOD's ability to execute its aircraft investment plans because (1) overall defense funding is not expected to increase, (2) the amount of savings from infrastructure reductions and acquisition reforms is uncertain, and (3) inflation indexes used to develop aircraft budget estimates are understated.

---

<sup>1</sup>This statement discusses procurement costs, in constant 1997 dollars. It does not include research and development or operation and maintenance costs.

---

DOD continues to (1) generate and support acquisitions of new weapon systems that will not satisfy the most critical requirements at minimal cost and (2) plan on the availability of more procurement funds than can reasonably be expected to be available in future defense budgets. In a recent review of weapon system production rates, we found DOD's optimistic acquisition strategies are rarely achieved because of DOD's decisions to fund new programs in low-rate initial production and to reduce funding for programs in full-rate production. Consequently, weapon systems are produced at less than planned rates, causing schedules to be stretched out and increasing costs by billions of dollars.

The absence of stability in the execution of DOD's acquisition plans must be addressed. In fact, last week, the Under Secretary of Defense (Acquisition and Technology) testified that the problem of instability in defense acquisition programs and the attendant cost growth and schedule slips caused by the instability are the most important issues that need to be addressed in reforming DOD's acquisition process.

We agree that bringing stability and realism to DOD's acquisition plans is important and will not be easy. It will require fundamental changes to a deeply entrenched acquisition culture. Difficult decisions will need to be made about restructuring and terminating some aircraft or other weapon programs.

In previous reports, we questioned the need for and timing of a number of DOD's aircraft acquisitions.<sup>2</sup> For example, we recently issued reports on the major issues related to U.S. combat air power, the Navy's F/A-18E/F strike fighter, and the Air Force's F-22 air superiority fighter. In the latter two reports, we recommended that DOD consider options that would potentially reduce or postpone the costs of planned aircraft acquisitions. These options would free significant procurement funds.

Let me provide some details on DOD's aircraft investment strategy.

---

## Funding Needed for Aircraft Programs Exceeds Historical Norms

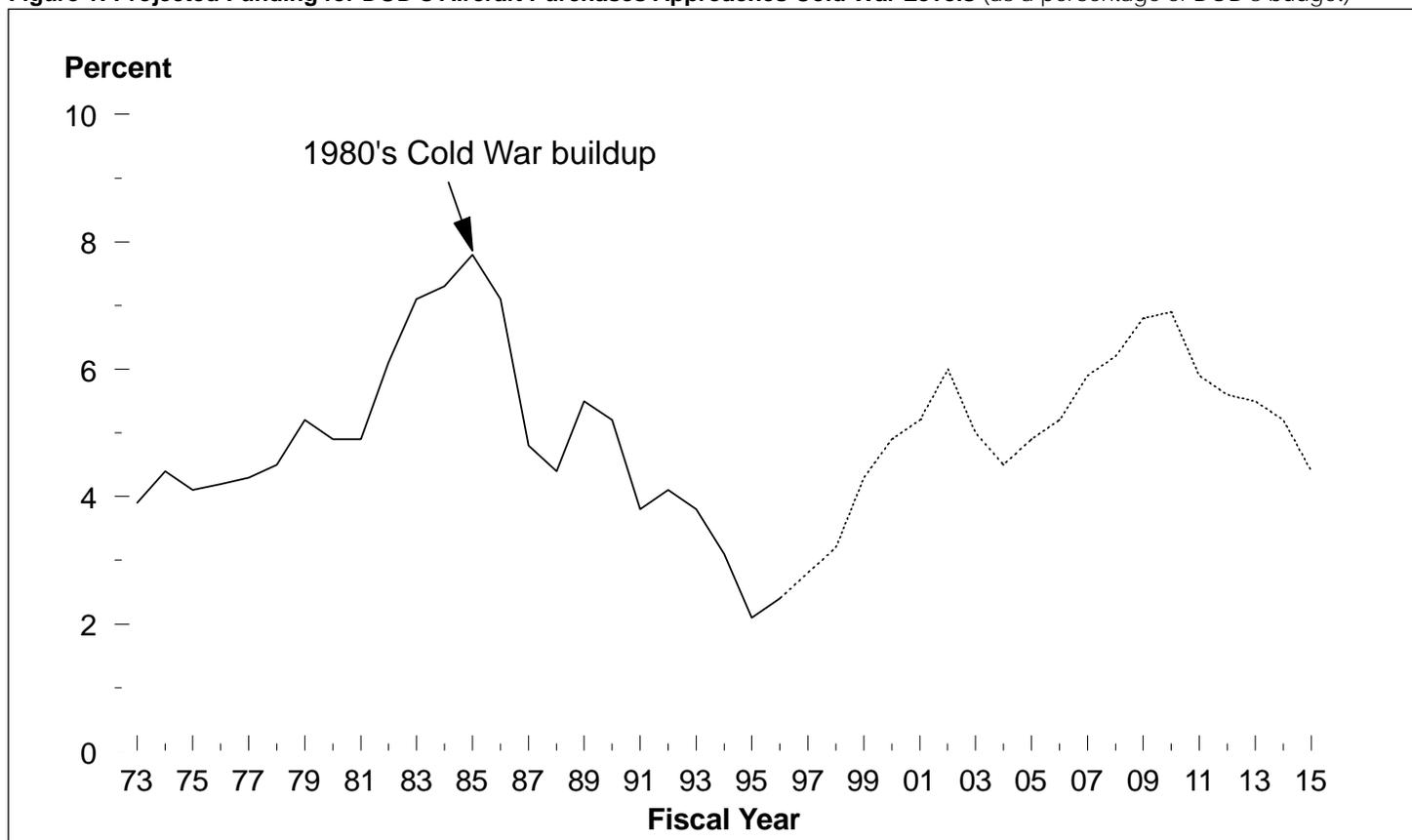
DOD spending for aircraft purchases reached its highest point, both in terms of dollars and as a percentage of overall defense spending, during the early to mid-1980s—the peak Cold War spending era. Using those peak years, DOD maintains that its aircraft acquisition plans are within historical norms.

---

<sup>2</sup>A list of GAO reports dealing with DOD aircraft programs is contained in appendix II.

However, in light of the current budget environment, we believe it is not realistic to use the peak years as the norm. Figure 1 shows, as a percentage of the budget, a longer history for DOD aircraft spending. It also shows DOD's plans to increase future aircraft acquisition funding—sometimes approaching Cold War-era spending levels.

**Figure 1: Projected Funding for DOD's Aircraft Purchases Approaches Cold War Levels** (as a percentage of DOD's budget)



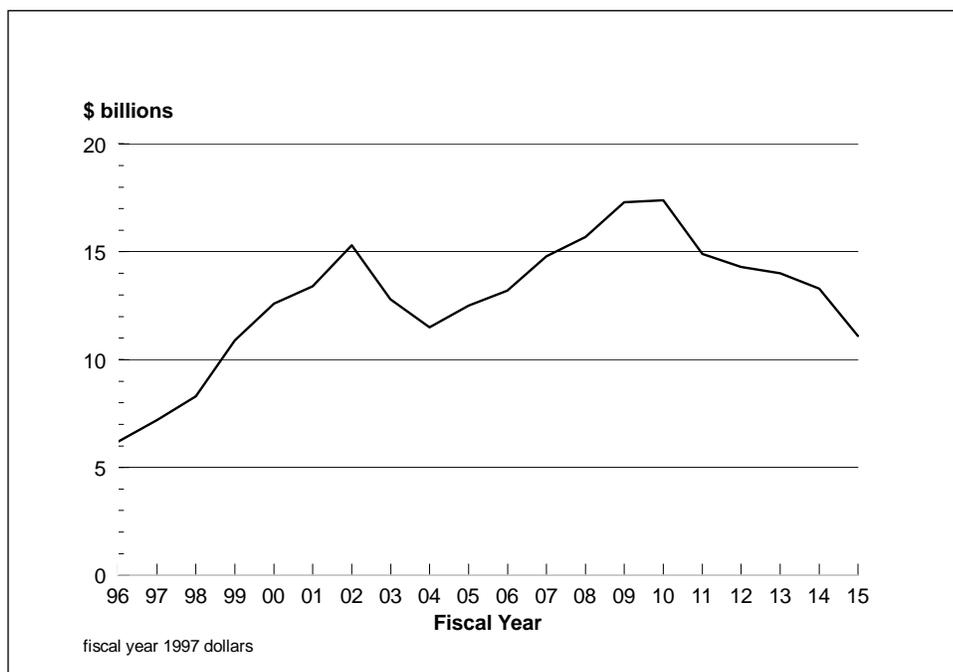
Source: GAO analysis of DOD and CBO data.

Since 1973, funding for DOD's aircraft acquisitions has fluctuated substantially. From fiscal year 1982 to 1986, DOD spent from 6.1 to 7.8 percent of its budget on aircraft purchases. In contrast, DOD devoted \$6.2 billion, or 2.4 percent of its fiscal year 1996 budget to buy aircraft. On

average, however, DOD has spent about 4.8 percent of its budget since 1973 buying aircraft.

To execute its aircraft investment strategy, DOD needs to significantly increase spending on aircraft and sustain the increase for several years. Figure 2 shows future spending plans for aircraft acquisitions. For 14 of the next 20 years, DOD plans to spend more than \$12 billion<sup>3</sup> annually on aircraft. For 4 years during this period, aircraft spending will exceed \$15 billion, and for 2 of those years it will exceed \$17 billion.

**Figure 2: DOD's Projected Funding Requirements for Aircraft Purchases**



Source: GAO analysis of DOD and CBO data.

Historically, acquisition programs almost always cost more than originally projected. Figure 2 is a conservative projection of DOD's aircraft funding requirements because no cost growth beyond current estimates is considered. Research has shown that unanticipated cost growth has averaged at least 20 percent over the life of weapon programs.

<sup>3</sup>Applying the historical average spending level for aircraft—4.8 percent—to DOD's current overall budget of \$253 billion equates to about \$12 billion.

---

In addition, the projected funding requirements in figure 2 may be understated because they do not include any projected funding for other aircraft programs that DOD has yet to approve for procurement. For example, tentative plans exist to replace the KC-135, C-5A, F-15E, F-117, EA-6B, S-3B, and other aircraft. Adding any of these potential programs to DOD's aircraft investment strategy would further complicate the funding problems.

---

## Funding for Increased Procurement Is Uncertain

DOD expects to increase procurement spending to a level of approximately \$60 billion per year while keeping overall defense spending at current levels, at least through fiscal year 2002. Aircraft acquisitions are expected to be a prime beneficiary of the procurement increases. Of the \$40 billion cumulative increase through fiscal year 2002, about \$24 billion will be used for DOD's aircraft investment strategy.

To achieve the increased procurement spending, DOD expects substantial savings to be generated from infrastructure reductions and acquisition reforms. Our work, however, indicates that the extent to which such savings will be available to fund the increase is unclear.

In 1996, we reported that DOD would accrue no significant net infrastructure savings between fiscal year 1996 and 2001 because the proportion of infrastructure costs in DOD budgets remain relatively constant.<sup>4</sup> In addition, our ongoing evaluation of acquisition reform savings on major weapon systems suggests that the amount of such savings that will be available to increase procurement spending is uncertain. While DOD has estimated as much as \$29 billion (then year dollars) in acquisition reform savings, our work shows that, for various reasons, the costs of some of the programs claiming the savings have increased, more than offsetting any acquisition reform savings. Without the savings expected from infrastructure reductions and acquisition reform, DOD will face difficult choices in funding its modernization plans.

We recently raised an issue on the Air Force's F-22 air superiority fighter that further complicates the situation.<sup>5</sup> That issue deals with the inflation indexes that DOD is using to estimate program costs. In estimating the cost to produce the F-22, for example, the Air Force used an inflation rate of 2.2 percent per year for all years after 1996. However, in agreeing to

---

<sup>4</sup>Defense Infrastructure: Budget Estimates for 1996-2001 Offer Little Savings for Modernization (GAO/NSIAD-96-131, Apr. 4, 1996).

<sup>5</sup>F-22 Restructuring (GAO/NSIAD-97-100R, Feb. 28, 1997).

---

restructure the F-22 program to address the recently acknowledged \$15-billion increase (then year dollars), the Air Force and its contractors used an inflation rate of 3.2 percent per year. Increasing the inflation rate by 1 percent added billions of dollars to the F-22 program's estimated cost. We are concerned that the higher inflation rates could have a significant budgetary impact for other DOD acquisition programs. Similar increases on other major weapon programs would add billions of dollars to the amounts we have been discussing today and further jeopardize DOD's ability to fund its modernization plans.

---

## Program Instabilities Cause Schedule Stretchouts and Higher Costs

We recently reported that better use of limited DOD acquisition funding could reduce costs.<sup>6</sup> We found that DOD has inappropriately placed a high priority on buying large numbers of untested weapons during low-rate initial production to ensure commitment to new programs and thus has had to cut by more than half its planned full-rate production for many weapons that have already been tested. This wasteful practice adds unnecessary costs. For example, the costs for 17 of 22 full-rate production systems we reviewed increased by \$10 billion beyond original estimates due to stretching out the completion of the weapons' production. Actual production rates were, on average, less than half of the originally planned rates and systems were taking an average of 8 years longer to complete than originally planned. For example, if the Army continues to buy the Blackhawk helicopter at the current rate, full-rate production will take almost 54 years to complete, about 43 years longer than originally planned. Such stretchouts in production are costly. For example, rather than producing 48 T-45 aircraft annually at a unit cost of \$8.7 million, the Navy is producing an average of 12 T-45s annually at a unit cost of \$18.2 million.

If DOD bought untested weapons at minimum rates during low-rate initial production, more funds would be available to buy proven weapons in full-rate production at more efficient rates and at lower costs.

---

<sup>6</sup>Weapons Acquisition: Better Use of Limited DOD Acquisition Funding Would Reduce Costs (GAO/NSIAD-97-23, Feb. 13, 1997).

---

## Need and Timing of Some Aircraft Programs Should Be Reassessed

Our previous reports have questioned the need for and timing of some aircraft procurements. For example, we recently issued reports on U.S. combat air power,<sup>7</sup> the Navy's F/A-18E/F strike fighter,<sup>8</sup> and the Air Force's F-22 air superiority fighter.<sup>9</sup> In the latter two reports, we recommended that DOD consider options that would potentially reduce or postpone the cost of planned aircraft acquisitions.

In the combat air power report, we point out that the United States has significantly improved its combat air power capabilities in recent years while reducing its total combat aircraft in the active inventory by about 28 percent since the end of the Persian Gulf War. It also points out that other air power assets, such as long-range cruise missiles, unmanned aerial vehicles, and theater air defense forces, are increasingly supplementing aircraft and that today's combat aircraft have more capabilities for (1) multimission roles, (2) autonomous navigation, (3) night operations, (4) target acquisition, (5) self-protection, and (6) the use of advanced munitions. These capabilities are giving combatant commanders greater flexibility in employing aviation assets and are potentially reducing the required number of manned aircraft. Moreover, although potential adversaries possess capabilities that threaten U.S. air power missions, DOD considers the severity of these threats to be limited. Our work showed that some aircraft modernization programs would only marginally improve existing capabilities at a very high cost. Other programs may no longer be needed in view of the changed security environment. And for some programs, less costly alternatives could be pursued to meet identified needs.

The F-22 program has a high degree of risk because the Air Force plans to procure a significant number of aircraft before completing initial operational testing and evaluation. Because neither the threat nor the need to replace the current front-line air superiority fighter, the F-15, was urgent, we recommended that the Air Force not rush into high-production rates for the F-22 prior to completing operational testing.

In the case of the F/A-18E/F, we concluded that the Navy's plans to buy 1,000 aircraft were overstated and the eventual annual production rate of

---

<sup>7</sup>Combat Air Power: Joint Mission Assessments Needed Before Making Program and Budget Decisions (GAO/NSIAD-96-177, Sept. 20, 1996).

<sup>8</sup>Navy Aviation: F/A-18E/F Will Provide Marginal Operational Improvement at High Cost (GAO/NSIAD-96-98, June 18, 1996).

<sup>9</sup>Tactical Aircraft: Concurrency in Development and Production of F-22 Aircraft Should Be Reduced (GAO/NSIAD-95-59, Apr. 19, 1995).

---

72 aircraft was overly optimistic. As a result, the F/A-18E/F would be more expensive than the Navy reported. We also determined that the E/F model did not provide significant performance advantages over the less expensive C/D model of the aircraft. We estimated the Navy could save about \$17 billion by continuing to buy C/D models in lieu of E/F models.

We understand that the milestone decision on F/A-18E/F low-rate initial production is scheduled for March 28, 1997. We believe that DOD should postpone the decision until it completes and fully considers two very significant, congressionally mandated analyses. First, as a result of our prior F/A-18E/F report, the National Defense Authorization Act for Fiscal Year 1997 (P.L. 104-201) directed the Secretary of Defense to conduct a comparison of the cost and benefits of the F/A-18E/F and the F/A-18C/D aircraft, taking into account the operational combat effectiveness of each aircraft. That report is due to the Congress by March 30, 1997. The conference report supporting the fiscal year 1997 defense appropriations directed an identical study and report by April 15, 1997. Second, the Quadrennial Defense Review is evaluating the gamut of defense missions, forces, and programs. Because of the potential for widespread and significant impact, we believe that DOD should defer all but the most urgent procurement decisions until the review's conclusions and recommendations are examined. This would be consistent with the National Military Strategy, which cautions against making major new investments unless there is a substantial payoff.

---

## Weapon System Acquisition Problems Persist

As you know, in 1990, we began a special effort to review and report on the federal program areas our work identified as high risk because of vulnerabilities to waste, fraud, abuse, and mismanagement. This effort has brought a much needed focus on problems that were costing the government billions of dollars. As we recently reported in our high-risk report on defense weapon systems acquisition, DOD has produced many of the world's most capable weapon systems, but its weapon system acquisition processes have often proved costly and inefficient, if not wasteful.<sup>10</sup> Despite DOD's past and current efforts to reform the acquisition system, wasteful practices still add billions of dollars to defense acquisition costs. Pervasive problems persist regarding (1) questionable requirements and solutions that are not the most cost-effective available; (2) unrealistic cost, schedule, and performance estimates; (3) questionable program affordability; and (4) the use of high-risk acquisition strategies.

---

<sup>10</sup>Defense Weapon Systems Acquisition (GAO/HR-97-6, Feb. 1997).

---

## Conclusion

As the nation proceeds into the 21st century with the prospect of a flat budget, we believe that action needs to be taken to address DOD's problematic aircraft investment strategy. Action needs to be taken now because, if major commitments are made to procure the planned aircraft programs—such as the F/A-18E/F, F-22, Joint Strike Fighter, and V-22—over the next several years, a significant imbalance is likely to result between program funding requirements and available funding. Such imbalances have historically led to program stretchouts, higher unit costs, and delayed deliveries to operational units. Also, this imbalance may be long term in nature, restricting DOD's ability to respond to other funding requirements.

DOD must reorient its aircraft investment strategy to recognize the reality of the current security and budget environment. Accordingly, instead of continuing to start aircraft procurement programs that are based on optimistic assumptions about available funds, DOD—in consultation with the Congress—should determine how much procurement funding will realistically be available and structure its investment strategy within those levels. DOD must also provide more concrete and lasting assurance that its procurement programs are militarily justified in the current security environment and clearly affordable through their planned periods of procurement. The key to ensuring the efficient production of systems is program stability. Understated cost estimates and overly optimistic funding assumptions result in too many programs chasing too few dollars.

We believe that bringing realism to DOD's acquisition plans will require very difficult decisions because programs will have to be terminated. While all of us may agree that there are too many programs chasing too few dollars, and could probably agree that we need to bring stability and executability to those programs that are pursued, it will be much more difficult to agree on which programs to cut.

Nevertheless, the likelihood of continuing fiscal constraints and reduced national security threats should provide additional incentives for real progress in changing the structure and dominant culture of DOD's system acquisition processes. We hope that today's hearing may provide a stimulus for progress toward the goal we all share—efficient and effective processes for identifying, developing, and procuring needed defense weapon systems.

---

Mr. Chairmen, this concludes my prepared statement. I would be happy to address any questions you or other members of the Subcommittees may have.

---

---

# DOD's Fiscal Year 1997 Aircraft Procurement Plans (as of December 31, 1995)

Dollars in billions (fiscal year 1997)

<b>Aircraft</b>	<b>Mission/procurement type</b>	<b>Quantity</b>	<b>Estimated procurement funding</b>
1. Joint Strike Fighter	Strike fighter/new	2,978	\$144.8
2. F/A-18E/F	Multimission tactical/ upgrade	1,000	61.7
3. F-22	Air superiority fighter/new	438	40.9
4. V-22	Vertical assault/new	523	29.9
5. Comanche	Reconnaissance & attack helicopter/new	1,292	24.5
6. C-17	Airlift and cargo/new	80	18.8
7. Longbow Apache	Attack helicopter/ modification	734	5.7
8. SH-60R	Antisubmarine and antisurface warfare helicopter/upgrade	188	4.0
9. Joint Surveillance Target Attack Radar System	Surveillance and targeting/ new	11	3.1
10. Joint Primary Aircraft Training System	Primary trainer/new	705	2.6
11. E-2C Hawkeye	Combat information/new	29	2.2
12. T-45 Training System	Strike pilot trainer/new	78	1.9
13. AV-8B	Light attack/remanufacture	56	1.7
14. UH-60L Black Hawk	Air assault/cavalry/medical evacuation helicopter/ modification	172	1.5
15. E-3 AWACS	Airborne warning and control/ modification	31	0.4
<b>Total</b>		<b>8,315</b>	<b>\$343.7</b>

Source: DOD's December 31, 1995, Selected Acquisition Reports, except the Joint Strike Fighter data is based on CBO estimates, and Comanche data is from the Comanche program office.

# Related GAO Products

---

Combat Air Power: Joint Assessment of Air Superiority Can Be Improved  
(GAO/NSIAD-97-77, Feb. 26, 1997).

B-2 Bomber: Status of Efforts to Acquire 21 Operational Aircraft  
(GAO/NSIAD-97-11, Oct. 22, 1996).

Air Force Bombers: Options to Retire or Restructure the Force Would Reduce Planned Spending (GAO/NSIAD-96-192, Sept. 30, 1996).

U.S. Combat Air Power: Aging Refueling Aircraft Are Costly to Maintain and Operate (GAO/NSIAD-96-160, Aug. 8, 1996).

Combat Air Power: Assessment of Joint Close Support Requirements and Capabilities Is Needed (GAO/NSIAD-96-45, June 28, 1996).

U.S. Combat Air Power: Reassessing Plans to Modernize Interdiction Capabilities Could Save Billions (GAO/NSIAD-96-72, May 13, 1996).

Combat Air Power: Funding Priority for Suppression of Enemy Air Defenses May Be Too Low (GAO/NSIAD-96-128, Apr. 10, 1996).

Navy Aviation: AV-8B Harrier Remanufacture Strategy Is Not the Most Cost-Effective Option (GAO/NSIAD-96-49, Feb. 27, 1996).

Future Years Defense Program: 1996 Program Is Considerably Different From the 1995 Program (GAO/NSIAD-95-213, Sept. 15, 1995).

Aircraft Requirements: Air Force and Navy Need to Establish Realistic Criteria for Backup Aircraft (GAO/NSIAD-95-180, Sept. 29, 1995).

Longbow Apache Helicopter: System Procurement Issues Need to Be Resolved (GAO/NSIAD-95-159, Aug. 24, 1995).

Comanche Helicopter: Testing Needs to Be Completed Prior to Production Decisions (GAO/NSIAD-95-112, May 18, 1995).

Cruise Missiles: Proven Capability Should Affect Aircraft and Force Structure Requirements (GAO/NSIAD-95-116, Apr. 20, 1995).

Army Aviation: Modernization Strategy Needs to Be Reassessed  
(GAO/NSIAD-95-9, Nov. 21, 1994).

---

Future Years Defense Program: Optimistic Estimates Lead to Billions in Overprogramming ([GAO/NSIAD-94-210](#), July 29, 1994).

Continental Air Defense: A Dedicated Force Is No Longer Needed ([GAO/NSIAD-94-76](#), May 3, 1994).

Tactical Aircraft: F-15 Replacement Is Premature as Currently Planned ([GAO/NSIAD-94-118](#), Apr. 25, 1994).

---

### Ordering Information

The first copy of each GAO report and testimony is free. Additional copies are \$2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. VISA and MasterCard credit cards are accepted, also. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

**Orders by mail:**

**U.S. General Accounting Office  
P.O. Box 6015  
Gaithersburg, MD 20884-6015**

**or visit:**

**Room 1100  
700 4th St. NW (corner of 4th and G Sts. NW)  
U.S. General Accounting Office  
Washington, DC**

**Orders may also be placed by calling (202) 512-6000  
or by using fax number (301) 258-4066, or TDD (301) 413-0006.**

**Each day, GAO issues a list of newly available reports and testimony. To receive facsimile copies of the daily list or any list from the past 30 days, please call (202) 512-6000 using a touchtone phone. A recorded menu will provide information on how to obtain these lists.**

**For information on how to access GAO reports on the INTERNET, send an e-mail message with "info" in the body to:**

**[info@www.gao.gov](mailto:info@www.gao.gov)**

**or visit GAO's World Wide Web Home Page at:**

**<http://www.gao.gov>**

---

**United States  
General Accounting Office  
Washington, D.C. 20548-0001**

**Bulk Rate  
Postage & Fees Paid  
GAO  
Permit No. G100**

**Official Business  
Penalty for Private Use \$300**

**Address Correction Requested**

---