

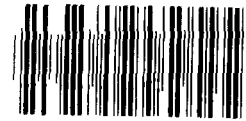
GAO

United States General Accounting Office 132804  
Report to the Chairman, Committee on  
Armed Services, House of Representatives

April 1987

# AIRCRAFT PROCUREMENT

## Status and Cost of Air Force Fighter Procurement



132804

**RESTRICTED** — Not to be released outside the General Accounting Office except on the basis of specific approval by the Office of Congressional Relations.

RELEASED

538688

---

1

---

2

3

4

5

6

7

8

---

**National Security and  
International Affairs Division  
B-226450**

April 14, 1987

The Honorable Les Aspin  
Chairman, Committee on  
Armed Services  
House of Representatives

Dear Mr. Chairman:

As you requested, we are providing information on the Air Force's plans and efforts to modernize and expand its tactical fighter force from 36 to 40 wings and on the cost and affordability of these plans.

Since 1984, when the Air Force issued its first 10-year Tactical Fighter Roadmap to modernize and expand its tactical air forces (TAF), over 600 new aircraft have been purchased, over 500 older aircraft have been retired, and the size of the TAF has increased from 36 to 36.8 wings, about 80 aircraft. These improvements, along with the development and acquisition of more advanced weapons and avionics, are intended to significantly increase the TAF's combat capability. However, high development and acquisition costs together with funding constraints have raised concerns regarding the affordability of acquiring, operating, and supporting a 40-wing force. These concerns are reflected in the Air Force's recent decision to delay further expansion of the TAF. Its fiscal year 1988 budget request calls for the annual procurement of 222 fighter aircraft in fiscal years 1988 and 1989, which, according to the Air Force, are needed to replace TAF aircraft planned for retirement or transfer to the Strategic Air Defense Forces.

Our observations on the Roadmap's status, affordability, and potential alternatives are summarized below and are discussed in more detail in the attached appendixes

---

## Status of Tactical Modernization and Expansion Plans

In February 1984, the Air Force briefed the Congress on the first Roadmap. At that time, the Roadmap called for procuring 276 new fighter aircraft annually, beginning in fiscal year 1986, to replace older aircraft and to expand the force structure from 36 to 40 wings, an increase of about 400 aircraft.<sup>1</sup> The Roadmap also included aircraft modification plans for integrating major weapons and capability

---

<sup>1</sup>A tactical fighter wing usually consists of 3 squadrons of 24 operational aircraft each. The Tactical Air Command estimates it needs about 100 aircraft for every fighter wing—72 operational combat aircraft, 18 for training, 8 for backup inventory, and 2 for testing.

---

improvements, such as the Advanced Medium Range Air-to-Air Missile (AMRAAM) and the Low Altitude Navigation and Targeting Infrared System for Night (LANTIRN).

The Air Force developed the Roadmap to project what it believed was an achievable force structure rather than include all of the systems it believed were needed to counter the Soviet threat. It planned to update the Roadmap to reflect changes in requirements, budgetary limitations, or time frames. Many changes have occurred and two annual Roadmap revisions—"Tactical Fighter Roadmap—1985 to 1994" and "Tactical Fighter Roadmap—1986 to 1995"—have been provided to the Congress, each incorporating changes and updating the 10-year planning period covered by the Roadmap.

The Air Force did not obtain the funding to support the original Roadmap goals in fiscal years 1985 and 1986. Accordingly, to continue toward its 40-wing TAF goal, the Air Force modified its plans primarily by reducing and delaying planned aircraft purchases. It also increased planned purchases of less expensive aircraft while reducing purchases of more expensive and sophisticated aircraft, and upgraded and extended the life of older aircraft. For example, over the past 3 years the Air Force

- deleted procurement plans for the F-16F—a more advanced and costly version of the F-16,
- substituted planned purchases of 120 F-16C aircraft with a less expensive F-16CM version,
- reduced the number of costly F-15Es to be purchased annually from 60 to 48, and
- upgraded and extended the life of F-111 aircraft.

Since the last Roadmap revision, the Air Force is considering the transfer of 270 relatively new F-16As from the TAF to the Strategic Air Defense Force. The Air Force also is considering transferring some A-10 close air support fighter aircraft from the TAF, using these aircraft in a forward air control mission, and replacing them with a new aircraft and/or modifying the A-7 aircraft for the close air support/interdiction mission. These proposed changes, along with costly modifications to produce the F-15E aircraft and fiscal constraints, have resulted in the Air Force delaying further TAF expansion, at least through fiscal year 1989.

Even if the TAF does not expand further, the Air Force's modernization efforts, according to the Air Force, should result in a fighter force with

substantially greater capability. The replacement and modification of older aircraft with new more reliable aircraft, improved navigation and targeting systems, better electronic countermeasures, and more effective weapon systems is intended to significantly enhance the effectiveness of the TAF.

The Air Force regards these improvements as "force multipliers," that is, they expand the effectiveness of the TAF without increasing its size. For example, the AMRAAM, with its smaller size and its ability under certain conditions for launch and leave, is expected to enable each aircraft to carry more missiles and engage more targets, more effectively, with less risk. The LANTIRN system is expected to allow aircraft to more effectively conduct operations at night. This advanced system can nearly double the operating time for a combat aircraft force. Also, replacing and modifying older aircraft with new more reliable ones should increase the number of sorties for each aircraft.

---

## Roadmap Costs

Neither the initial Air Force Roadmap nor its two updates included cost estimates for achieving the modernized and expanded force structure, or for operating, maintaining, and supporting it. Our estimate of Roadmap aircraft procurement costs over the 10-year period ending in fiscal year 1995, is \$75.5 billion, with annual expenditures increasing from \$5.2 billion in fiscal year 1986 to \$10.3 billion in fiscal year 1995. These amounts do not include (1) an estimated \$17 billion for development and procurement of missiles, navigational and targeting aids, or aircraft engines, (2) funds for replacing approximately 900 special purpose and strategic air defense aircraft, and (3) costs for operating and supporting the aircraft. For example; more pilots, maintenance and support personnel, fuel, equipment, and facilities will be required.

---

## Roadmap Affordability and Alternatives

Roadmap modernization and expansion plans may not be affordable. The Roadmap is premised on continued real growth in defense spending. However, budget trends and projections indicate that such continued increases are not likely. In addition, the TAF's share of the Air Force budget is not likely to increase. According to the Air Force, TAF programs are the fourth funding priority behind strategic, readiness, and airlift programs. Accordingly, Roadmap modernization and expansion plans will be competing with other higher priority Air Force programs such as the C-17 cargo plane and the Advanced Technology Bomber.

---

Another concern is the escalating costs of fighter aircraft. Over the years, fighter aircraft costs have risen substantially as they have become more technologically advanced with increased capabilities. These cost increases limit the number of aircraft that can be acquired and consequently deter achievement of Roadmap expansion objectives.

The development and planned procurement of 750 Advanced Tactical Fighters (ATF), which are to become the Air Force's primary air superiority fighters in the mid-to-late 1990s, will require cost versus capability tradeoffs. The Air Force, in developing the ATF, has established a \$35 million unit flyaway cost goal. If this goal is achieved, the program will cost about \$80 billion in then-year dollars over a 12-year period. Even with this large investment, the Air Force believes it will not be able to incorporate all of its desired performance features within the ATF cost goal. Consequently, it expects to add capability, through the modification process, after the ATF is delivered.

In view of the increasing cost of new aircraft, other defense priorities, and funding constraints, the Air Force in its two Roadmap updates (1) slowed the planned retirement rate of older aircraft, thereby increasing average aircraft inventory age, (2) reduced actual and planned procurements of more advanced and costly aircraft, (3) increased procurements of lower cost aircraft, and (4) planned to modify older aircraft to provide improved capabilities and longer service life.

We believe that continuing the TAF expansion under the current fiscal constraints would require more substantial revisions along these lines. Such revisions could lead to reducing readiness and sustainability objectives by foregoing needed aircraft modifications, reducing spare parts and munitions procurements, and personnel levels. The Air Force has acknowledged the affordability concerns and has decided to delay further expansion.

---

To determine the status of the Air Force's tactical modernization and expansion plans, we reviewed the initial Roadmap and subsequent annual updates. We compared the quantities of aircraft requested with the numbers approved for purchase. We also discussed these plans and their component programs with officials of the Office of the Secretary of Defense; Headquarters, United States Air Force; Tactical Air Command; Air Force Logistics Command; System Program Offices within the Air Force Systems Command; and appropriate contractors.

---

We conducted this review from March 1984 to January 1987 as part of our ongoing efforts to monitor the Air Force's expansion plans. Our review was performed in accordance with generally accepted government auditing standards.

The views of Air Force officials were obtained and incorporated in the report where appropriate. As requested by your office, we did not obtain official agency comments.

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 5 days after its issue date. At that time, we will send copies to the Chairmen, Senate Committees on Armed Services and House and Senate Committees on Appropriations; the Director, Office of Management and Budget; the Secretaries of Defense and Air Force; and other interested parties.

Sincerely yours,



Frank C. Conahan  
Assistant Comptroller General

---

# Contents

---

Letter		1
<hr/>		
Appendix I		8
Tactical Aircraft	Roadmap Coverage	8
Modernization and	Status of Tactical Modernization and Expansion Plans	10
Expansion Plans and	The First Roadmap	10
Subsequent Changes	Revisions to Initial Roadmap	12
	Comparison of Roadmaps	14
	Status of the TAF After the Third Roadmap	14
	Changes Since the Third Roadmap	15
<hr/>		
Appendix II		17
Roadmap Plans May	Roadmap Costs	17
Not Be Affordable	Increasing Costs of Fighter Aircraft	17
	Related TAF Costs Should Be Considered	19
	Competition for Reduced Defense Dollars	19
<hr/>		
Tables		
	Table I.1: Comparison of Fighter Aircraft Procurement Quantities for the Three Roadmaps	14
	Table II.1: Estimated Fighter Aircraft Procurement Costs (Then-Year Dollars in Billions)	17
<hr/>		
Figures		
	Figure I.1: Force Structure of the TAF's Fighter Aircraft as of February 1984	9
	Figure I.2: Fighter Aircraft Procurement Quantities— First Roadmap	11
	Figure I.3: Force Structure of TAF's Fighter Aircraft as of Mid-Fiscal Year 1986	15
	Figure II.1: Historical Cost of Fighter Aircraft (Fiscal Year 1986 Dollars)	18



---

**Abbreviations**

AMRAAM Advanced Medium Range Air-to-Air Missile  
ATF Advanced Tactical Fighter  
LANTIRN Low Altitude Navigation and Targeting Infrared System for  
Night  
TAF Tactical Air Forces

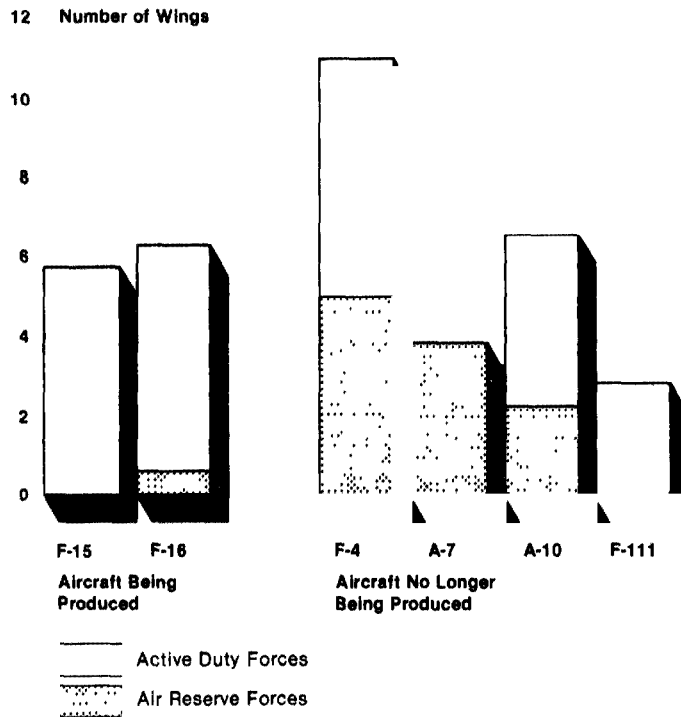
# Tactical Aircraft Modernization and Expansion Plans and Subsequent Changes

## Roadmap Coverage

The TAF has direct responsibility for performing four of the nine basic Air Force operational missions: counterair operations, close air support, air interdiction, and surveillance and reconnaissance. The counterair mission is performed to win air superiority and achieve air supremacy. Close air support and air interdiction missions are flown to provide assistance to ground forces. Surveillance and reconnaissance missions provide information for a variety of combat uses. The TAF uses different types of aircraft to perform these missions. These aircraft are dispersed throughout the world in four major Air Force Commands—Tactical Air Command, U.S. Air Forces in Europe, Pacific Air Forces, and Alaskan Air Command—and some elements of the Air Force Reserve and Air National Guard. The Roadmap's 40-wing objective addresses only the general purpose fighter aircraft portion of the TAF. The remainder are specialized aircraft types which are part of the TAF but are not part of the Roadmap's 40-wing objective.

In February 1984, when the first Roadmap was developed, the TAF consisted of 36 fighter aircraft wings (about 3,600 aircraft) to perform counterair, interdiction, and close air support missions. The aircraft that comprised this force included various models of the A-7, A-10, F-4, F-15, F-16, and F-111. Figure I.1 shows the 36-wing force structure at that time. This was the starting point from which the Air Force planned to expand to 40 fighter aircraft wings.

Figure I.1: Force Structure of the TAF's  
 Fighter Aircraft as of February 1984



Additional aircraft, about 500, are part of the TAF, but are not included in the Roadmap's 40-wing goal. These are special use aircraft (EF-111, EC-130, O-2, OA-37, OV-10, E-3A, EC-135, F-5, and RF-4C) that perform specialized missions such as forward air control and reconnaissance. Forward air control aircraft are used to direct the actions of combat aircraft performing close air support for ground forces. Reconnaissance aircraft are used to provide information on enemy forces and damage assessments.

The Tactical Air Command also has 3.75 wings of fighter aircraft—called strategic air defense forces—that are not part of the TAF or the 40-wing Roadmap goal. These aircraft are used primarily by the Air National Guard to detect, identify, intercept, and, if necessary, destroy hostile aircraft or missiles attempting to penetrate North American airspace. In general, these strategic forces are comprised of older F-4 and F-106 aircraft that have been rotated from the TAF.

---

## Status of Tactical Modernization and Expansion Plans

The Tactical Fighter Roadmap—1984 to 1993 was submitted to the Congress in February 1984. It outlined the Air Force's plans for procuring (1) the number of fighters to achieve, modernize, and sustain a 40-wing tactical air force, (2) the mix of aircraft needed to accomplish the various air-to-air and air-to-ground missions, and (3) the key weapons and aircraft improvements needed for these missions. It did not include estimates for development, procurement, operating, and support costs associated with the modernization and expansion plan.

The Roadmap was based on assumed continued real growth in the defense and TAF budgets. However, planned increases in funding did not occur in fiscal years 1985 and 1986. The funding shortages, combined with underestimates of the time and cost to develop and procure the fighter aircraft and weapon systems, resulted in Roadmap updates in February 1985 and February 1986. These updates revised Roadmap requirements, planned procurement rates, average inventory age, and aircraft types to be acquired.

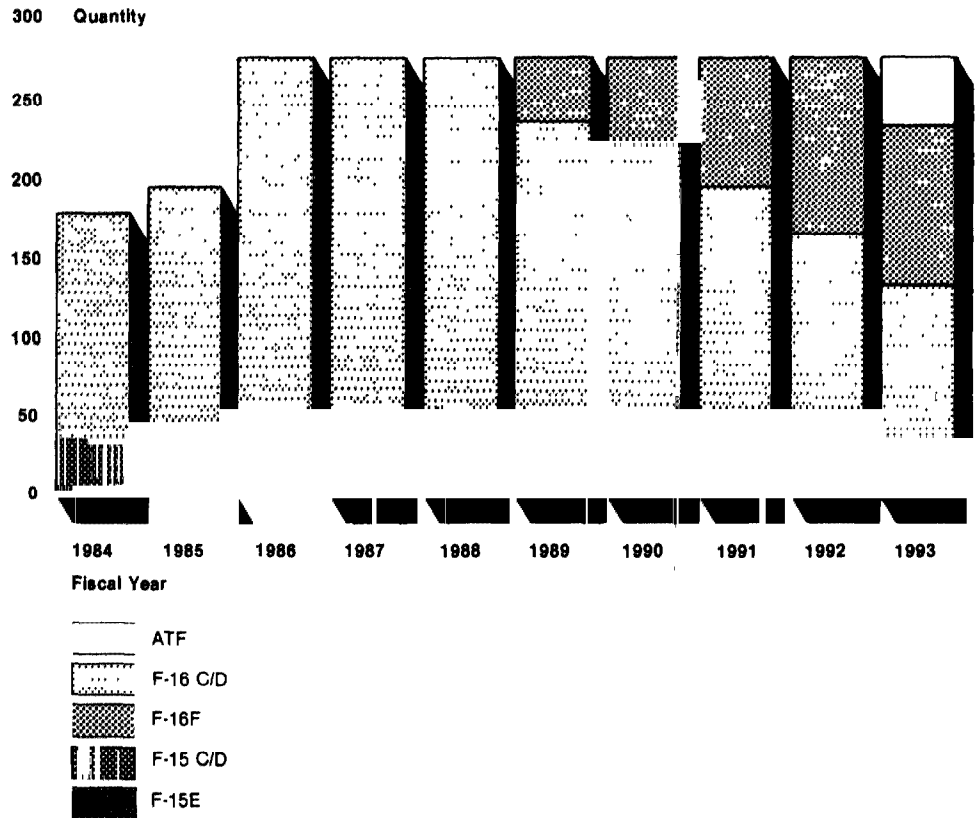
---

## The First Roadmap

The first Roadmap called for the procurement of 276 fighters a year, beginning in fiscal year 1986 and continuing over the remainder of the 10-year period covered by the Roadmap. This plan would allow for the expansion from 36 to 40 tactical fighter wings through the replacement of older aircraft with various models of new F-15s, F-16s, and the Advanced Tactical Fighter, which is expected to be introduced in the mid-1990s. The Roadmap indicated that 234 new fighter aircraft a year were needed to sustain a 36-wing force, and that 276 aircraft a year were required to expand from 36 to 40 wings without allowing the average inventory age to exceed 10 years. The Air Force estimated that once the 40-wing force is achieved, it would need 260 new aircraft a year to sustain it. The plan also indicated the types of new aircraft weapons and subsystems needed to enhance the TAF's capabilities for specific missions.

The fighter aircraft type, model, and procurement quantities called for in the first Roadmap are shown in figure I.2.

Figure I.2: Fighter Aircraft Procurement Quantities\*—First Roadmap



\*There is nearly a 3-year lead time between the time funds are appropriated to procure an aircraft and the time the aircraft actually enters the inventory

Other Aircraft and Weapon Enhancement Goals

In addition to new aircraft requirements, the Roadmap addressed other major aspects of improving tactical air force capabilities. It called for continued modification of existing aircraft to improve reliability, maintainability, and survivability and identified the need for new weapons, avionics upgrades, and engine improvements. For example, the AMRAAM was identified as the medium-range, high speed, launch and leave weapon needed to replace the Sparrow missile. The AMRAAM is being developed and produced to enhance air-to-air capabilities by increasing the potential for multiple kills per engagement and improving launch aircraft survivability.

Also, the LANTIRN is being developed and produced to provide improved air-to-ground capabilities. Improvements would enhance the pilots' ability to (1) navigate and attack at night or under limited adverse weather conditions and (2) help find and identify targets for infrared missiles, unguided weapons, and laser-guided bombs.

The Roadmap also included a three-phased plan for enhancing engine capabilities. Phase one was a near-term program to improve reliability and maintainability of F-15C/D/E and F-16C/D aircraft engines. This would be done through procurement of F-100-PW-220 engines from Pratt Whitney and/or F110-GE-100 engines from General Electric. Phase two was a mid-term program involving a planned competition for higher thrust versions of both engines. These engines would be used in an upgraded version of the F-16 and to extend the capability of the F-15. Phase three was a long-term program to develop an advanced technology engine for the ATF.

---

## **Revisions to Initial Roadmap**

During the 2 years following the issuance of the initial Roadmap, the Air Force did not receive the funding levels needed to procure the quantities of aircraft and weapons it requested. As a result, the initial Roadmap objectives were not achieved during this period. Subsequently, the Air Force altered its plans and issued the second Roadmap (Tactical Fighter Roadmap—1985 to 1994) and the third Roadmap (Tactical Fighter Roadmap—1986 to 1995). These revised plans corresponded to the President's budgets for fiscal years 1986 and 1987.

---

## **Changes to the First Roadmap**

As a result of budget reductions for fiscal year 1985, the Air Force reduced the first Roadmap aircraft procurement quantities and addressed other program problems that would negatively affect Roadmap goals. The objective of procuring 276 aircraft a year was delayed from fiscal year 1986 until 1988. Other revisions included

- reducing planned F-15C/D procurements by 30 aircraft (6 in fiscal year 1985 and 12 each in the next 2 years) and delaying plans to increase the annual F-15 production rate to 60 aircraft by 2 years;
- reducing the procurement of LANTIRN systems, which were experiencing performance problems and cost increases, from 720 to 700; and
- studying the AMRAAM program which was experiencing significant schedule slippages, cost overruns, and technical problems, to determine ways to reduce costs.

In total, the second Roadmap called for procurement of 102 fewer aircraft (30 F-15s and 72 F-16s) from fiscal years 1985 to 1987 than were called for by the initial Roadmap. This reduction delayed F-4 retirements, resulting in about a 1-year increase in the planned average inventory age relative to the original Roadmap (from 9.5 years to about 10.5 years).

### Changes to the Second Roadmap

After issuance of the second Roadmap, numerous changes were considered during the ensuing year. A major consideration was the assumption that 300 new aircraft would be purchased for the strategic air defense forces as part of a congressionally directed fighter competition. Funding for these aircraft would be in competition with the planned TAF fighter procurements in the Roadmap. This assumption, along with other changes and budget reductions, resulted in a third Roadmap which reduced the planned TAF fighter aircraft procurements from the initial goal of 276 to 264. It also reduced planned F-15 aircraft procurements and added plans to purchase some of a less expensive version of the F-16 aircraft. Specific changes included

- reducing planned procurements of the expensive and capable F-15E aircraft from 60 to 48 per year;
- canceling plans to purchase the F-16F, an improved F-16 model for air-to-ground missions with secondary air-to-air capability because the additional costs made the aircraft unaffordable; and
- substituting a less expensive F-16CM aircraft for some of the more expensive F-16C aircraft so that F-16 procurement levels could be increased from 180 to 216 aircraft a year, beginning in fiscal year 1987.

The assumption that 300 new aircraft would be purchased for the strategic air defense forces never materialized. Although a competition was held, the Air Force did not select the proposal made by Northrop Corporation to provide the F-20 fighter aircraft or the one made by the General Dynamics Corporation to provide a new specially configured version of the F-16 (the F-16SC). Instead, the Air Force decided, after the third Roadmap had been issued, to modify and transfer 270 F-16As in the TAF inventory to the strategic air defense forces. This alternative is expected to save about \$3.4 billion when compared to new aircraft procurement costs. However, transferring relatively new F-16As (average age about 5 years) from the TAF may result in an increase in the average age of the remaining TAF fighter aircraft.

## Comparison of Roadmaps

The Air Force adjustments to its annual aircraft procurement goals to compensate for program changes and budget constraints are reflected in table I.1. The table compares fighter aircraft procurement goals established in each of the three Roadmaps.

**Table I.1: Comparison of Fighter Aircraft Procurement Quantities for the Three Roadmaps**

Type of aircraft (First Roadmap)	Fiscal year											
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
F-15	36	48	60	60	60	60	60	60	60	36		
F-16	144	150	216	216	216	216	216	216	216	216		
ATF	.	.	.	.	.	.	.	.	.	24		
<b>Total</b>	<b>180<sup>a</sup></b>	<b>198</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>		
<b>(Second Roadmap)</b>												
F-15		42	48	48	60	60	60	60	60	36	.	
F-16		150	180	180	216	216	216	216	208	216	216	
ATF		.	.	.	.	.	.	.	8	24	60	
<b>Total</b>		<b>192<sup>a</sup></b>	<b>228</b>	<b>228</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>	<b>276</b>	
<b>(Third Roadmap)</b>												
F-15			48	48	48	48	48	48	48	48	48	.
F-16			180	216	216	216	216	216	208	192	168	204
ATF			.	.	.	.	.	.	8	24	48	60
<b>Total</b>			<b>228<sup>a</sup></b>	<b>264</b>	<b>264</b>	<b>264</b>	<b>264</b>	<b>264</b>	<b>264</b>	<b>264</b>	<b>264</b>	<b>264</b>

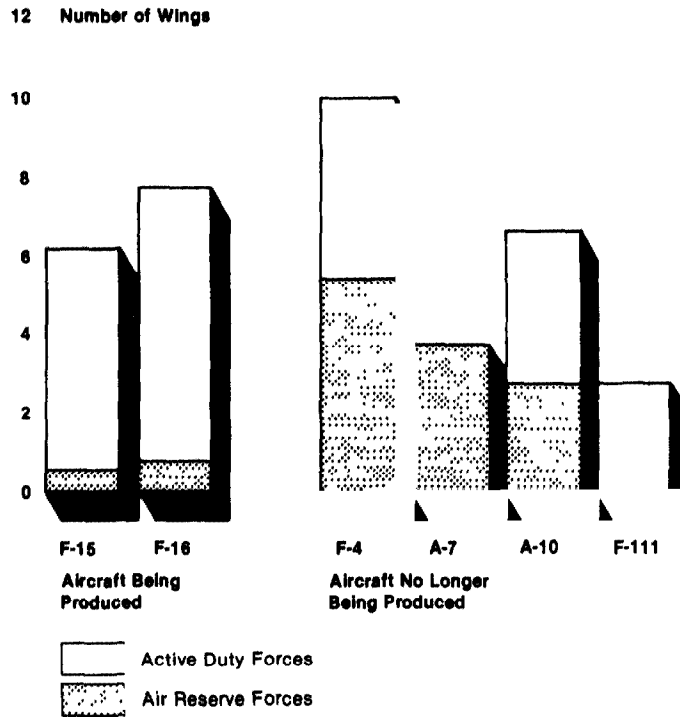
<sup>a</sup>Quantities approved by the Congress in fiscal years 1984, 1985, and 1986

## Status of the TAF After the Third Roadmap

Since the Roadmap was first issued in February 1984, the number of fighter aircraft in the TAF has increased from 36 to 36.8 wings. Figure I.3 shows the structure of the 36.8-wing force in mid-fiscal year 1986.



Figure I.3: Force Structure of TAF's  
 Fighter Aircraft as of Mid-Fiscal Year  
 1986



### Changes Since the Third Roadmap

The third Roadmap, which called for the procurement of 264 aircraft each year beginning in fiscal year 1987, will need to be revised to reflect funding and budgeting reductions made for fiscal years 1987, 1988, and 1989. The Air Force requested funding for 264 aircraft in fiscal year 1987; the Congress, however, approved funding for 222 aircraft (42 F-15Es and 180 F-16s). In the fiscal year 1988 defense budget request covering fiscal years 1988 and 1989, the Air Force requested funding for 222 aircraft for each year. This request for fewer aircraft than planned in the third Roadmap recognizes that adjustments to the Roadmap expansion plan will be needed.

Further changes that may affect the third Roadmap are being considered. Air Force officials have proposed the transfer of some A-10 close air support fighter aircraft, which are now included in the TAF inventory, for use as forward air control observer aircraft or for a Special

Operating Forces mission beginning in 1988. These officials also proposed the procurement of a modified F-16, redesignated as the A-16, for the close air support role. However, this proposal has been delayed by the Office of the Secretary of Defense officials who directed the Air Force to investigate other close air support alternatives, such as a modified A-7 aircraft or a newly designed aircraft.

Air Force officials stated that there is a need to replace 270 F-16A fighter aircraft, which will be withdrawn from the current inventory to act in an air defense mission. These proposed changes, along with fiscal constraints, have caused the Air Force to delay its plan to achieve 40 tactical wings by the early 1990s. Accordingly, the TAF is to increase to 37 wings this year and remain at that level.

The Secretary of Defense's January 1987 Annual Report to the Congress also mentions that beginning in the early 1990s, 56 FB-111 aircraft will be transferred from the strategic forces to the tactical inventory. These aircraft are to supplement the Air Force's deep interdiction forces.

# Roadmap Plans May Not Be Affordable

The Air Force may not be able to achieve its ultimate goal of a 40-wing structure. That expansion may be unrealistic because (1) fighter aircraft costs are increasing, (2) high costs associated with TAF modernization and expansion plans were not considered, and (3) the program must compete with other high priority programs for limited procurement dollars. Consequently, the Air Force may have to continue making annual revisions to its Roadmap plans to bring them in line with funding realities.

## Roadmap Costs

Although the 40-wing goal is based on what the Air Force believed was an achievable force structure, none of the Roadmaps included cost estimates. To provide an indication of the costs, we obtained available Air Force data on future purchases of fighter aircraft and prepared a 10-year cost estimate for the third Roadmap. Our estimate shows that aircraft procurement costs for the current Roadmap will total about \$75.5 billion, with annual funding increasing from \$5.2 billion in fiscal year 1986 to \$10.3 billion in fiscal year 1995. (See table II.1.)

**Table II.1: Estimated Fighter Aircraft Procurement Costs\*** (Then-Year Dollars in Billions)

Type of aircraft	Fiscal year										Total
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
F-15	\$2.0	\$2.0	\$2.1	\$2.2	\$2.1	\$2.1	\$2.1	\$2.1	\$1.7	\$0.0	\$18.4
F-16	3.2	3.8	3.9	4.2	4.2	4.3	4.1	3.8	3.4	4.1	39.0
ATF	0.0	0.0	0.0	0.0	0.0	0.3	2.9	3.7	5.0	6.2	18.1
<b>Total</b>	<b>\$5.2</b>	<b>\$5.8</b>	<b>\$6.0</b>	<b>\$6.4</b>	<b>\$6.3</b>	<b>\$6.7</b>	<b>\$9.1</b>	<b>\$9.6</b>	<b>\$10.1</b>	<b>\$10.3</b>	<b>\$75.5</b>

\*These cost estimates are based on the procurement quantities shown in the third Roadmap (see figure 1.3) except for the ATF's fiscal year 1995 cost estimate, which assumed procurement of 72 aircraft rather than the 60 shown in the third Roadmap. The cost estimate for 60 ATFs was not available. F-15 costs were obtained from the December 1985 Selected Acquisition Report. F-16 costs were obtained from the December 1985 report as updated by F-16 program office officials. The ATF costs were prepared in November 1985 by ATF program officials because a Selected Acquisition Report showing estimated production cost was not issued.

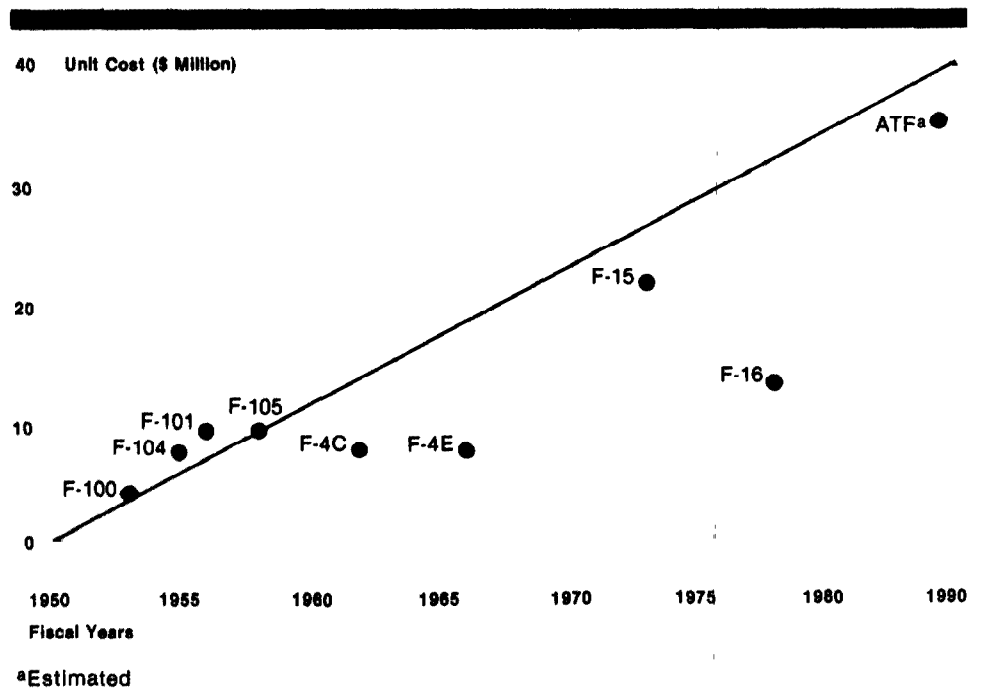
## Increasing Costs of Fighter Aircraft

Achieving Roadmap goals is made more difficult because of the escalating cost of fighter aircraft. As fighter aircraft costs have risen, the quantities of aircraft purchased have substantially decreased. Modern fighter aircraft perform tactical combat missions with more complex equipment than previous aircraft generations. These aircraft now contain advanced avionics and propulsion systems and more lethal weaponry that greatly enhance their capabilities. The trend for more complexities is occurring as capability is added to the various aircraft

models, making them more expensive to buy. The next generation, the ATF, is intended to add another quantum jump in capability. Consequently, their higher costs along with fiscal constraints may substantially reduce the quantities that can be purchased.

Advances in avionics, such as long-range radars, navigation systems, electronic countermeasure equipment, and computer assisted weapon delivery systems, have been major causes of fighter aircraft cost growth. For example, in 1960 avionics accounted for about 1-1/2 percent of the cost of the F-100D, with the airframe accounting for about 64 percent and the engine about 23 percent. Currently, however, the avionics for the F-15C and F-16A account for about 21 percent and 25 percent of the total cost, respectively. Unit cost for various fighter aircraft is shown in figure II.1.

Figure II.1: Historical Cost of Fighter Aircraft (Fiscal Year 1986 Dollars)



During the 20-year period, from 1946 to 1965, the Air Force bought 19,366 fighter aircraft, as compared to 6,416 fighter aircraft bought over the next 20-year period, from 1966 to 1985. Current Air Force plans call for the procurement of 750 ATFs between 1992 and 2004, at a total program cost of about \$80 billion in then-year dollars.

---

## Related TAF Costs Should Be Considered

The Roadmaps did not include cost estimates for development and procurement of the AMRAAM and Maverick missiles, LANTIRN, and aircraft engines. We estimate these costs to be about \$17 billion. The Roadmaps also did not include estimates for operations and support costs associated with adding 4 wings or 400 aircraft to the inventory, which would require more pilots, maintenance and support personnel, and facilities. These additional estimates would add several billions to the costs.

---

## Competition for Reduced Defense Dollars

Roadmap aircraft procurement objectives were premised on continued real growth in the defense and TAF budgets, which may not be realistic. For example, the proposed defense budget for fiscal year 1987 called for a 3-percent real growth in defense spending. The approved budget, however, had no real growth.

The prospects for a substantial reduction in projected defense spending have been recognized in the Department of Defense fiscal year 1987 Five-Year Defense Plan. When compared with the fiscal year 1986 Five-Year Defense Plan, the fiscal year 1987 plan shows a reduction of about \$300 billion for the 4 years that overlap both plans. Similarly, the Air Force's share of the approved budget has decreased from \$99.4 billion for fiscal year 1985 to \$94.9 billion for fiscal year 1986 to \$94.6 billion for fiscal year 1987.

During the past 10 years, the Air Force's share of the total defense budget dollar has remained relatively constant, at about 30.9 percent. In the same period, funding levels for fighter aircraft procurement have averaged about 6.1 percent of the Air Force budget. However in recent years, the Air Force's share of the defense budget has been above its 30.9 percent average, while the share for TAF fighter procurement has decreased. In ranking the funding priorities, the tactical programs are the Air Force's fourth, behind strategic forces (which includes the Advanced Technology Bomber), airlift (which includes the C-17 cargo aircraft), and readiness and sustainability programs. These higher priority programs will require billions of procurement dollars in the late 1980s and 1990s.

In addition to the Roadmap fighter procurement objectives, the TAF has several major aircraft programs that may compete for procurement dollars. For example, the TAF has emerging requirements for special use aircraft, such as those needed for reconnaissance and forward air control. These special use aircraft needs are competing with the 40-wing fighter aircraft goal.



---

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office  
Post Office Box 6015  
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are \$2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

---

United States  
General Accounting Office  
Washington, D.C. 20548

First-Class Mail  
Postage & Fees Paid  
GAO  
Permit No. G100

Official Business  
Penalty for Private Use \$300

Address Correction Requested

---