CBO MEMORANDUM

THE COSTS OF THE
ADMINISTRATION'S PLAN
FOR THE AIR FORCE
THROUGH THE YEAR 2010

November 1994

CONGRESSIONAL BUDGET OFFICE
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NOTES

Unless otherwise indicated, all years referred to in this memorandum are fiscal years.

Rounded numbers in the text and tables may produce sums that do not correspond to the totals shown.

Unless otherwise indicated, all costs are expressed in billions of fiscal year 1995 dollars of budget authority.

This memorandum was prepared by the Congressional Budget Office (CBO) in response to a request from the Chairman of the House Committee on Armed Services. It is one of a series of memorandums requested by the Chairman that analyze future costs of the Administration's plans for defense forces. In keeping with CBO's mandate to provide objective and nonpartisan analyses, the memorandum makes no recommendations.

Lane Pierrot, William P. Myers, David E. Mosher, and Rachel Schmidt performed the analysis, with assistance from Geoff Cohen, Shaun C. Black, and Deborah Clay-Mendez. Neil M. Singer and R. William Thomas provided general supervision. Sherwood Kohn edited the manuscript. Judith Cromwell prepared it for publication.

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SUMMARY AND INTRODUCTION

The Reagan Administration planned to have more than 40 Air Force tactical fighter wings to fight the former Soviet Union, although the service never managed to field more than 37. The Bush Administration's base force would have contained 26 wings to fight the smaller and more diffuse threats of the post-Cold War world. The Clinton Administration's Bottom-Up Review--a statement of the Administration's defense policy, released in 1993--asserts that 20 wings, about half the Reagan goal, should provide enough combat punch to fight two regional wars.

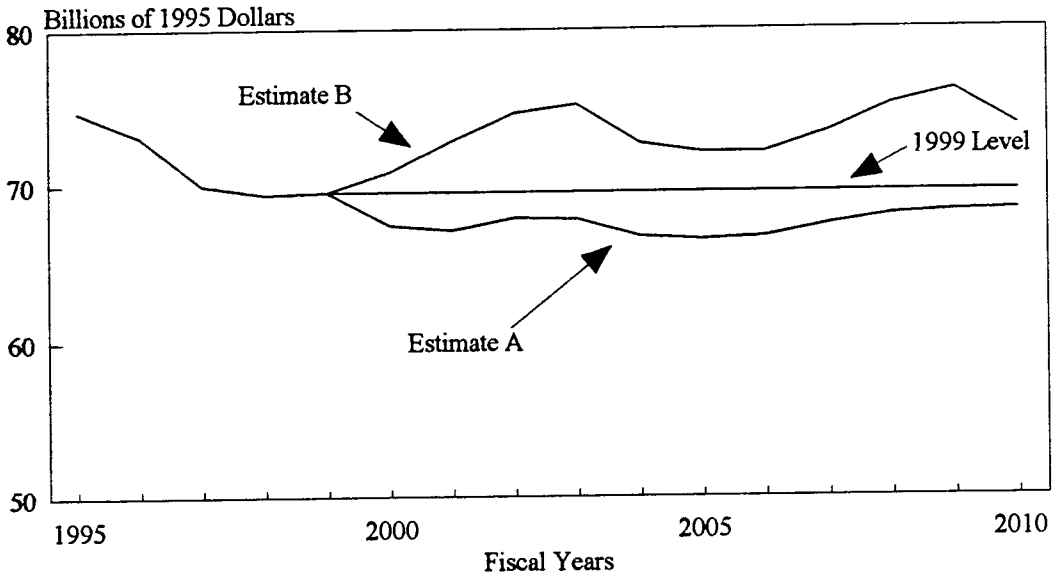
Goals for fielding strategic bombers have also undergone downsizing, reflecting the deemphasis of the strategic mission, though the cuts are smaller than the reductions in fighter fleets. Fleets of strategic bombers, pegged at about 300 planes in Cold War plans, would have shrunk to 210 under President Bush. The Clinton Administration expects to reduce the number of bombers set under the Bush plan by about 10 percent. Inventories of intercontinental ballistic missiles have suffered similar fates.

One major element of the Air Force, however, is not declining. The Air Force expects to preserve the capabilities of its airlift fleets at current levels, since the capacity to move troops and equipment early in a conflict may be particularly important in a world where conflict could take place in unexpected locations.

Under the Administration's current plan, Air Force budgets will also decrease between 1990 and 1999, but by lower percentages than decreases in combat forces. The Air Force budget in 1995--about $75 billion--will be approximately 30 percent lower than the service's 1990 funding. The budget would decline further to about $70 billion in 1997 and remain at roughly that level through 1999 (see Figure 1).

The Administration has not published its plans for the years after 1999. Based on the Administration's statements and goals, however, the Congressional Budget Office (CBO) estimates that the Air Force would only need about $67 billion in the year 2000 under Estimate A, an assessment that assumes only limited growth in the future cost of weapons. Beyond the year 2000, CBO projects that Air Force budgets could remain at approximately that level, averaging $68 billion in the first decade of the new century, if weapons costs do not grow. The reason: the costs of new weapon systems--including the F-22 tactical fighter and whatever aircraft emerges from the Joint Advanced Strike Technology (JAST) program to replace the F-16--would be offset by completing acquisition of the C-17 airlifter. But a somewhat more pessimistic outlook suggests tighter Air Force budgets. CBO made a second

FIGURE 1. AIR FORCE BUDGET ESTIMATES A AND B



SOURCE: Congressional Budget Office.

assessment, Estimate B, that projects Air Force budgets averaging about $74 billion during the 2000-2010 period, or about $4 billion more than the Air Force's 1999 funding level.

CBO's analysis assumes enactment and execution of the plans set forth in the Administration's Future Years Defense Program (FYDP) for fiscal years 1995 through 1999. If that program changes, perhaps because projected savings are not realized, costs prove higher than anticipated, forces are cut further, or planned procurement programs are canceled, this analysis of the period after the FYDP would also change.

The range of costs in CBO's long-run estimates reflects differing assumptions about the cost of new weapons. The $68 billion estimate assumes that prices of weapons bought in the future would not grow above current estimates. It also assumes that spending in funding categories for which detailed plans are not available, such as research and development and nonmajor procurement--procurement of a variety of items, including spare parts, tactical missiles, and satellites, for which the Administration's replacement goals are less clear--would remain at previous levels, adjusted for changes in forces. The higher cost estimates, which are more consistent with past experience, assume that there would be growth in the unit costs of major weapons that program planners do not anticipate. They also assume that spending for activities such as research and nonmajor procurement would grow along with increases in other types of funding. Because so few major weapons would be bought, these differences in assumptions produce a fairly narrow range in the estimates.

The Administration plans an increase in Air Force procurement funding over the next five years. CBO estimates that under the assumptions of Estimate A funding would remain near the planned 1999 level for most of the 2000-2010 period. Thus, if the Air Force can hold down costs in ways assumed under Estimate A, the service could afford to buy relatively small numbers of new weapons, including the F-22 aircraft and the F-16 replacement, without real increases in its budget.

If experience is a guide, however, and the higher cost estimates prove more realistic, the Air Force budget would have to increase in the next decade to finance this new family of weapons. Average annual funding during the 2000-2010 period would need to be about 6 percent higher than the planned 1999 level.

Although such increases are modest, they will probably be difficult to achieve. Air Force programs will face considerable competition from Army, Navy, and new theater missile defense programs. Under the Administration's

plan, all these programs, particularly those in the Navy, will probably demand substantial increases in funding during the next decade, which could reduce the Air Force's share of the total defense budget. Furthermore, in the face of conflicting domestic demands, the total defense budget may fall below the Administration's planned level. For example, the budget resolution for fiscal year 1995 allocated less to defense than the Administration had requested. Additional cuts in defense funding could prevent the Air Force from carrying out the Administration's plan even if its share of total funding is not reduced.

THE ADMINISTRATION'S PLAN

In order to identify long-term cost trends, this memorandum seeks to estimate the Air Force budgets needed to accommodate forces at the currently planned levels through the year 2010. The sources of assumptions about the Administration's plan differ depending on the time period. Through 1999, the Administration has provided detailed plans for the Air Force in its Future Years Defense Program, submitted in February 1994. CBO assumes that these plans will be followed. Beyond 1999, detailed plans are not always publicly available. Air Force personnel and force levels in 1999 reflect the goals expressed in the Administration's Bottom-Up Review. CBO has assumed that forces will remain at their planned 1999 levels through the year 2010.

Moreover, the Air Force has often stated its general plans for modernization, either in documents provided to the Congress or in testimony. These statements provide the basis for assumptions about modernization, which primarily concern fighter procurement for most of the 2000-2010 period; airlift modernization should be nearly complete by then, and no plans to replace the strategic bomber fleet have been announced. The exception to this assumption is CBO's supposition about Air Force fighter procurement resulting from the Joint Advanced Strike Technology program. The Administration has no detailed procurement plans for the planes that may emerge from that development project. But the JAST proposal suggests that the Administration expects to field a plane around 2010. And CBO's forecasts of future fighter inventories suggest that the service will run short of fighters during this period.[1] So CBO assumes that JAST procurement will begin in 2007. For brevity, this memorandum refers to the JAST as if it were a plane, although it is more accurately described as a development program that may yield several aircraft designs.

1. The Air Force uses the term fighter to refer to fleets of both fighters and short- and medium-range bombers. CBO has followed this convention.

The Air Force has three major types of forces: strategic, for nuclear attack and defense against nuclear attack; tactical fighter and attack, for conventional wars; and airlift and tanker, for flying Army and Air Force equipment and personnel to fight in distant theaters, as well as for aerial refueling.[2]

Strategic Forces

The United States relies on a triad of nuclear forces to deter nuclear war: sea-based missiles launched from submarines, land-based missiles, and weapons on bombers. The Air Force is responsible for supporting two "legs" of this triad: land-based missiles and bomber weapons. Its budget includes all procurement and operating funding for intercontinental ballistic missiles (ICBMs) and for strategic bombers and the nuclear bombs and missiles delivered by those bombers.[3]

As a result of budgetary pressures and the two Strategic Arms Reduction Talks (START) treaties, strategic forces--including those of the two land-based triad legs that the Air Force operates--will shrink sharply over the next decade. Through 1999, the largest reduction will occur in the ICBM force, which currently numbers about 670 missiles. By the end of 1995, as the Air Force retires the last of its Minuteman II ICBMs, the force will consist of 550 missiles. Warheads on ICBMs will fall from 2,117 to 2,000. The Air Force will procure no new ICBMs during this period, nor does it plan to in the foreseeable future. It plans to spend some $4 billion through 2002, however, to extend the service life of its 500 Minuteman III missiles.

The United States must reduce the number of warheads on each of its Minuteman III missiles from three to one by 2003 to comply with the START II treaty. By that time it must also have retired its 50 MX missiles. Because the Russian parliament has yet to ratify the treaty, CBO assumes that the Air Force will not reduce the number of warheads carried by each Minuteman missile nor retire MX ICBMs until after 1999.

The bomber force also faces turmoil during the next few years. At the end of 1994, the Air Force had a total inventory of 193 bombers: 95 B-1Bs, 94 B-52Hs, and 4 B-2s. Of those, only 152 were considered operational (84 B-1Bs, 64 B-52Hs, and 4 B-2s); the rest were in maintenance or some other

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2. Among other categories are electronic warfare aircraft--planes that jam enemy transmissions, among other activities--trainers, and a variety of helicopters.

3. The Department of Energy buys nuclear warheads for bombs and missiles.

inactive status. But the Air Force plans to make changes for 1995. Although the service will have virtually the same total inventory of bombers (196), only 140 of them (60 B-1Bs, 74 B-52s, and 6 B-2s) will be operational--an 8 percent reduction from the previous year. Perhaps more important, the composition of the operational force will also change: the Air Force will have 24 fewer B-1Bs and 10 more B-52Hs. Through 1999, the operational inventory will increase slightly as the last of the B-2s enter the force.

The Administration may make further changes to the bomber force in 1995 and beyond as a result of its recently completed review of nuclear forces--known as the Nuclear Posture Review--which recommended that the B-52 force be trimmed to 66 planes. Because the Congress has expressed reservations about reducing the size of the bomber force, however, CBO assumes that the B-52 force will remain at 94 aircraft.

The Air Force plans to reduce the number of operational bombers largely for budgetary reasons, although the decision also reflects post-Cold War changes in threats. From a budgetary standpoint, it is cheaper to keep bombers on inactive status than to fly them. The Air Force will rotate a portion of its force--27 B-1Bs and 12 B-52Hs--through a status called attrition reserve. Bombers temporarily assigned to this category will be kept at their bases but not flown. The strategy is like that of a two-car family that decides for economic reasons to drive only one of its cars at a time. They save money on gas and maintenance and can use both cars simultaneously again when they have more money to spend. This alternative is attractive to the Air Force because it can save most of the money required to fly and crew a bomber. It also has the advantage of keeping additional aircraft as a hedge against an unexpected threat.

The disadvantage of this policy, of course, is that the Air Force will have fewer bombers available in the short run. And some critics are concerned that Air Force personnel may cannibalize the aircraft that are in attrition reserve for spare parts. The service denies that this will happen because it intends to support all of the operational bombers. As an additional cost-saving measure for 1995, the Air Force is transferring some of its operational bombers (10 B-1Bs and 8 B-52Hs) to the Air National Guard and the Air Force Reserve, respectively. Over the next few years, eight additional B-1s will be moved to the Guard.

From the perspective of a threat to the country, the United States may require fewer bombers in future than it has in the past. First, the requirement for a large force of nuclear-armed bombers has virtually disappeared. Without NATO and the Warsaw Pact standing toe to toe across the German border, the potential for a crisis between the United States and Russia has

diminished significantly. As a result, both superpowers have reduced the size of the forces that they keep on alert. The United States now relies on the Air Force's ICBMs and the ballistic missiles carried by the Navy's Trident submarines to provide its alert nuclear deterrent. The bomber force has been taken off alert and is training for the conventional regional conflicts that appear to be the more likely threats in this new era. The START II treaty reflects this changed environment; it allows up to 100 bombers that are capable of carrying nuclear weapons to be converted to nonnuclear roles. According to the Nuclear Posture Review, the Air Force will comply with the treaty (if it is ratified) by designating its B-1 aircraft as conventional-only bombers. The B-52 and B-2 forces will have dual roles; they will be able to conduct both nuclear and conventional missions.

Second, the need for conventional bombers may also be limited. Administration officials point to their Bottom-Up Review, which directs that U.S. forces be sized to tackle two major regional contingencies (conflicts roughly the size of the Persian Gulf War) that occur at almost the same time.

Critics of the Administration's plans to reduce the size of the active bomber force to between 100 and 120 aircraft contend, however, that the Bottom-Up Review scenarios call for approximately 200 bombers (100 for each of the two possible major regional conflicts). Administration officials counter that the review assumed that many of the 100 bombers involved in the first conflict could shift to the second, suggesting that their plan to reduce the active force was consistent with the Bottom-Up Review. In addition, the United States could take bombers out of the attrition reserve if, as often happens, heightened tensions precede the actual outbreak of hostilities. Some critics have suggested giving up the attrition reserve and keeping those bombers on active status instead. Others have advocated purchasing more B-2 bombers (see the procurement section on page 21).

Tactical Fighter Forces

The Bottom-Up Review also stipulates a decline in the number of Air Force tactical fighter forces. Air Force tactical forces reached a peak of 37 wing equivalents (each with 72 combat aircraft) in 1987, although they never met the Reagan Administration's Cold War goal of more than 40 wings. General Colin Powell, former Chairman of the Joint Chiefs of Staff, argued that at least 26 wings would be needed to protect U.S. interests in the post-Cold War world.[4] The Clinton Administration, however, plans to carve a total of six

4. Statement of General Colin Powell before the Subcommittee on Defense, House Committee on Appropriations, September 25, 1991.

more wings out of the force structure.[5] Tactical forces will decline to 20 wings by 1997. CBO assumes that they will remain at that level through 2010, which seems consistent with the goals expressed in the Bottom-Up Review.

The Air Force's tactical fighter forces consist of six types of aircraft. The Air Force plans to buy two new types of planes to replace many of those types of aircraft in the 1995-2010 period. The F-22, formerly called the Advanced Tactical Fighter, will eventually replace today's F-15 aircraft as the Air Force's premier fighter. Designed to achieve air superiority, the F-22 is expected to have stealth capability and the ability to cruise supersonically (supercruise) without resorting to the use of afterburners. Procurement of the F-22, scheduled to begin with four planes in 1998, would increase to about 48 planes a year and continue at that level through 2009, according to current plans.[6] F-22 procurement will be completed in 2010 when the Air Force will have bought 442 planes.

The Air Force halted procurement of the F-16 aircraft, which is less expensive and less capable than the F-15 aircraft, in 1994. The Department of Defense plans to replace the F-16 with one of the planes that emerges from the Joint Advanced Strike Technology program. JAST is an attempt by the Administration to increase the commonality between new aircraft in the services. Planes developed under JAST will also replace aircraft in the Navy and Marine Corps, according to Administration goals for the development program. The Administration recently released a request for industry proposals to develop the JAST concept, which says that the Administration wishes to field these aircraft by 2010. There is about a two-year lag between the time that the services buy aircraft and the time they receive the planes. The services will need to buy planes for several years to accumulate enough to outfit a squadron. CBO assumes that the Air Force will begin buying JAST planes in 2007 at a rate of 12 and will increase annual procurement rates to 48 by 2010.

The modest procurement of tactical fighters (averaging 49 a year during the 2000-2010 period) will be roughly sufficient to support all of the Administration's planned tactical forces through most of the first decade of the next century, but only if the Air Force retains planes to meet overall requirements (see Figure 2). It will not, however, prevent the fleet from aging. Between 2000 and 2010, the average age of tactical fighters--also

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5. Department of Defense, "Report on the Bottom-Up Review" (October 1993), p. 30.

6. According to press reports, the Administration may defer procuring the fighter for four years. See John Mintz, "Pentagon Weighs Delaying Lockheed's F-22 Program," *Washington Post*, August 23, 1994, p. D1. CBO assumes that the F-22 program will experience a one-year slip based on projections that the plane will be fielded a year later.

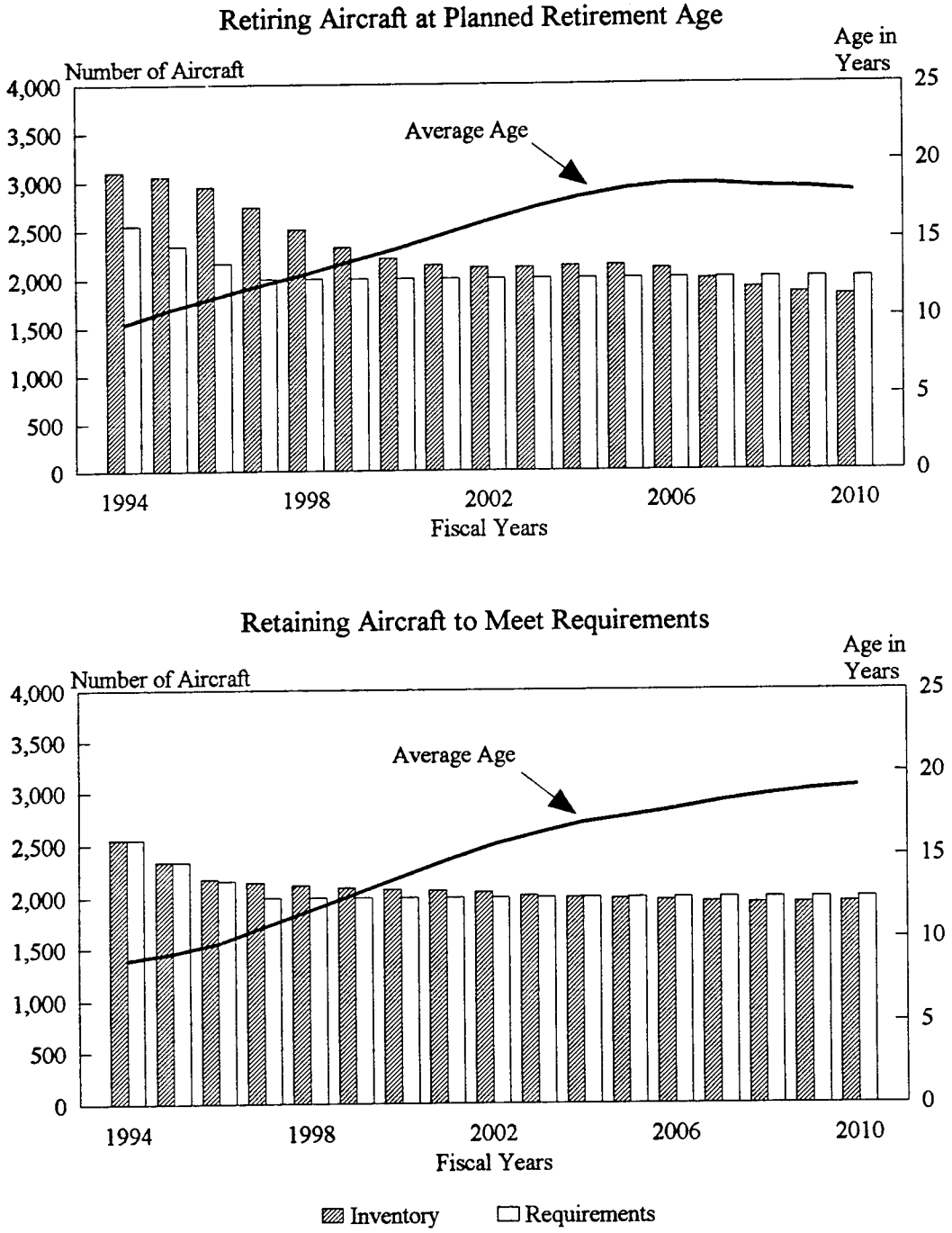
shown in Figure 2--will increase from about 15 years to about 18 years. This is considerably older than the average age of today's fleet--about 11 years. The Air Force will have to retain planes longer than it has in the past to meet these requirements, and it would need to retain some F-111s rather than retiring them all as currently planned. For example, if the Air Force were to maintain the same goals for certain missions, some F-111 aircraft would be more than 40 years old before being retired. Furthermore, more than 200 planes--approximately 10 percent of the inventory--would exceed currently scheduled retirement ages in the year 2010.

There is also a significant discrepancy between the types of planes the Air Force has in inventory and the service's estimates of how many planes it needs for each mission. The Air Force estimates that up to 20 percent of its tactical wings should be fighters such as the F-15A to D models, and at least 15 percent medium-range bombers like the F-111 and the F-15E. Multipurpose planes, such as the F-16, which attacks other aircraft and flies short-range bombing missions, and the A-10, which performs the close air support mission of attacking enemy ground forces that are engaged in combat with friendly forces, make up the rest of the fleet. The only plane bought in quantity during the 2000-2010 period is the F-22, a fighter. The Air Force will have enough F-15s through much of this period to make up four wings, or 20 percent of the force. CBO assumes that several hundred fighters will be retired before their service lives are over, since the Air Force would otherwise have more fighters than it needs.

Some Air Force mission categories will be short of planes, however, although these shortages would be brought about in part by current retirement strategies. Early models of the F-16--the A/B models--will retire after 4,000 flight hours instead of the 8,000-hour service life planned earlier. Because of these changes in plans, the Air Force will run short of multipurpose aircraft around the turn of the century, well before the JAST program might be expected to produce tangible results. Shortages in the multirole mission will increase to more than 200 planes--or more than 15 percent of requirements--toward the end of the first decade of the 21st century, if service lives are not extended.

The mission mismatch for the medium-range bomber fleet--planes performing the interdiction mission--may eventually be even more striking, though the capabilities of former strategic bombers, now slated for tactical missions, may diminish the concern about shortages. The Air Force is retiring the venerable F-111 that made up about a third of 1994 interdiction forces. There will be no F-111s in the fleet by 1999. It is understandable that F-111s are being retired, considering their age (an average of about 22 years in 1994)

FIGURE 2. INVENTORY, REQUIREMENTS, AND AVERAGE AGE OF TACTICAL FIGHTER FLEETS



SOURCE: Congressional Budget Office from Air Force data.

and high operating costs (almost $5 million per plane, or about twice the operating cost of an F-16). But the retirement means that the Air Force will have only two wings of interdiction aircraft, rather than the three wings implied by the goal of having 15 percent of the fleet able to perform the interdiction mission. Under the projection that attempts to meet Air Force requirements, CBO assumes that about 70 F-111s will be retained through 2010. Alternatively, some of this shortfall could be made up by the approximately 100 strategic bombers that the Air Force expects to assign to conventional missions. Although B-2s and B-52s have not typically been viewed as part of the interdiction fleet, if dedicated to tactical missions they will add considerably to the Air Force's ability to bomb targets beyond the range of the F-16. These bombers--part of the Air Force's former strategic Air Command--have been consolidated with tactical fighters from the old Tactical Air Command into the new Air Combat Command. The consolidation might facilitate their incorporation into the interdiction mission.

Airlift and Tanker Forces

Aircraft designed to transport military units are another major category of Air Force planes. The Air Force maintains two types: intertheater airlifters (which can move material between continents) and intratheater airlifters (shorter-range aircraft designed for moving material within a military theater).

When fully mobilized, the Air Force can transport a total of 49.2 million ton-miles of cargo per day between theaters. The Air Force projects that its transport capacity will increase to about 52.4 million ton-miles per day by 2001. The military airlift fleet that supports this capability includes the large C-5 transport, the relatively smaller C-141, KC-10s that can be used as both tankers and cargo transports, and the new C-17. Many commercial cargo and passenger jets also provide a substantial part of the Air Force's total airlift capability under the Civil Reserve Air Fleet program.

The Air Force expects its newest cargo aircraft, the C-17, to replace the aging C-141 as its "core" airlifter--that is, one that meets all of the service's unique military requirements. The Air Force plans to retire the C-141 from active duty service by 2003 and from the reserves by 2006. Requirements call for the C-17 to carry loads of at least 110,000 pounds for a distance of 3,200 nautical miles without refueling. Like the C-5, its fuselage is large enough to carry such outsize cargo as Apache helicopters. Also, it was designed to land on short runways and maneuver easily on the ground.

The Congress has authorized the purchase of 32 C-17s through fiscal year 1995, and the Air Force would like to buy 88 more. But because the cost of

the C-17 program has grown significantly and the program has had difficulty reaching its technical performance goals, the Secretary of Defense, in December 1993, approved procurement of only 40 C-17 aircraft. The Department of Defense (DoD) may choose to purchase additional C-17s if the plane's producer, McDonnell Douglas Corporation, shows marked improvement in its management of the program. If it does not, DoD may buy commercial wide-body jets or a variant of the C-5 aircraft instead. What mix of cargo aircraft the Air Force will ultimately have within its fleet is not clear. But for the purposes of estimating long-term costs, CBO assumed that the Air Force will buy 88 C-17s in addition to those already authorized, at a maximum rate of 12 aircraft a year, or a mix of C-17s and one or more alternate planes with combined procurement costs comparable to those of 88 more C-17s.

The Air Force has a fleet of about 400 C-130 aircraft for shorter-range or intratheater transport.[7] The size of this fleet should remain steady through the end of this decade. CBO assumes that the Air Force will not procure more C-130 aircraft. The new C-17 aircraft should reduce the need for intratheater airlift because it is designed to take off and land on relatively short runways. If DoD and the Congress decide to purchase C-5s or commercial wide-body jets as an alternative to the C-17, the decision may affect whether the Air Force needs additional C-130 aircraft as well.

The Air Force's fleet of tanker aircraft consists of about 490 KC-135s and 54 of the larger KC-10s. The Air Force does not plan to change these fleet sizes significantly over the next decade. Historically, the tanker fleet's primary role has been one of supporting long-range strategic bombers for nuclear deterrence. With the demise of the Soviet Union, however, deployment of forces to meet regional threats generates most of today's requirements for aerial refueling; tankers are used to provide fuel for forces being deployed by air from the United States and for tactical air operations. Many Air Force tanker aircraft, particularly the KC-10s, are also used to transport cargo. Since current inventories are sufficient to handle these missions, CBO assumes that the Air Force will buy no tanker aircraft through 2010.

PROJECTED OPERATING FUNDING

The Administration's plans would affect funds for operating the Air Force. These funds include appropriations to finance the pay and allowances of military personnel; operation and maintenance appropriations, which pay the daily operating costs of the Air Force other than those for military personnel;

7. Fleet figures for C-130 aircraft and tankers reckon only primary authorized aircraft. The Air Force has larger total inventories.

and the family housing appropriation, which provides homes for military personnel on bases. In 1995, the money for these activities totaled about $44 billion. Because reductions in operating funding have been smaller than those in investment accounts, the share of the budget allocated to operations has risen from the 1990 level of about 52 percent to about 58 percent today. The size of the forces influences funding in these accounts, at least in part, although the drop in funding for operations between 1990 and 1995--about 20 percent--is smaller than the declines in major forces. Perhaps other factors have blunted funding cuts.

One of those factors is aircraft inventories; they have not declined as rapidly as forces. Air Force aircraft inventories, which totaled about 7,600 planes in 1990, will drop to about 5,300 in 1995, a decline of about 30 percent. This drop is larger than the 20 percent cut in operating dollars during the same period. But it is smaller than percentage cuts in combat forces, such as the more than 40 percent reduction in fighter wing equivalents. Cuts in combat forces were partially offset by the relative constancy of force levels for tanker and aircraft fleets. But the Air Force may be maintaining more planes in inventory for a given force level, as it is doing with its strategic bomber fleets. Although the number of operating aircraft in the force structure should more directly determine operating costs, it is possible that larger aircraft inventories may result in higher costs as well.

The emphasis placed on maintaining peacetime readiness is another factor that influences funding. Readiness is a term used by the Department of Defense to describe whether forces are trained and equipped to respond rapidly to crises. Both the Clinton and Bush Administrations have argued that they place high priority on avoiding the erosion of readiness.

The size of DoD's infrastructure will affect funding as well. Funding for the maintenance of bases and depots may have proved more resistant to paring than funds for forces, given the political and institutional reluctance to close bases and facilities. The Clinton Administration has articulated a goal of focusing future cuts on infrastructure, arguing that keeping it at or near current levels will starve readiness and forces.

The fact that a large share of funding for intelligence agencies is found in the defense budget is a final factor that may have contributed to smaller cuts in operating funds. Although the Administration does not make public details about intelligence funding, press reports suggest that it has declined by smaller percentages than have DoD's major forces.[8] If some of this more

8. See discussion of intelligence funding in Chapter 4 of Congressional Budget Office, "Easing the Burden: Restructuring and Consolidating Defense Support Activities," CBO Paper (July 1994), pp. 52-66.

constant funding is buried in Air Force operating accounts, it could mask downward trends in operating funds for the Air Force proper.

Military Personnel Appropriations

The number of people that the Air Force employs and their rates of pay largely determine military personnel appropriations. The number of active military personnel in the Air Force declined in the 1990s, though--as with operating costs--it did not drop as sharply as the forces that military personnel operate. Active end strength dropped from about 535,000 in 1990 to about 400,000 in 1995, a 25 percent reduction. The Administration plans to cut the number of active Air Force service members only modestly beyond 1995. Thus, the number of Air Force active-duty personnel would total about 390,000 by 1999.

Cuts in personnel levels for the part-time reserves--including the Air Force Reserve and the Air National Guard--are even more restrained. Personnel in the Reserve and Guard are expected to decrease from the 1990 level of 84,000 and 118,000, respectively, to 79,000 and 116,000 by 1995. The Administration plans to cut total reserve end strength by only about 4,000 more positions during the 1995-1999 period. As a result of these trends, the reserve share of total Air Force personnel would rise from 27 percent in 1990 to about 33 percent in 1995, and remain at that share through the 1995-1999 period.

The net effect of these changes is a decrease in overall spending on personnel of about 23 percent between 1990 and 1995, or from about $25 billion to $19 billion. By 1999, personnel spending will decline by about $3 billion more, a 13 percent reduction. Since the total number of Air Force military personnel will decline during this period by only about 2 percent, and active military personnel totals--which determine most of the military personnel funding--will decrease by only 3 percent, one must look to other factors to explain the drop in funding.

Another major factor is separation benefits paid by the Air Force to the 17,000 to 18,000 military personnel who are voluntarily leaving the service in 1995. In preparing forecasts for the fiscal year 1995 budget, the Air Force assumed that voluntary separations would be largely complete by 1999. Another factor that should decrease 1999 funding levels in relation to those of 1995 is that the large number of separations will result in a younger force. A younger force is, on average, lower ranking and receives lower compensation.

Finally, the Air Force's drawdown in the number of people oversees will not be complete by 1995. Personnel stationed overseas receive higher benefits than those in the continental United States. The costs of moving personnel from overseas assignments to the United States may also be higher in 1995.

CBO assumes that the real level of personnel funding will remain roughly constant at the 1999 level through 2010. This assumption seems consistent with the Clinton Administration's estimate of the forces it needs. The Administration plans to cut forces to Bottom-Up Review levels by 1999. CBO assumes that the Air Force structure would remain constant at those levels through 2010.

Operation and Maintenance

Operation and maintenance (O&M) appropriations constitute most of the rest of the Air Force's operating costs. O&M funds pay for such items and activities as civilian pay, fuel, medical expenses, and maintenance of equipment and facilities. Air Force O&M funding totaled about $29 billion in 1990 and is scheduled to decrease to about $23 billion in 1995. O&M funding in the Administration's plan is scheduled to decrease by about $3 billion more by 1999.

Because most major force changes should be complete by 1999, CBO assumes that the real level of O&M appropriations will stay constant at the 1999 level through 2010. There is, however, much uncertainty about projected O&M funding, particularly in the next decade. By that time, new pieces of equipment (including the F-22 fighter and C-17 aircraft) would have entered the inventory in substantial numbers. The Air Force has argued that the new equipment has been designed to hold down maintenance needs, which could reduce O&M costs. But previous patterns--at least for fighter aircraft--do not provide much support for this argument. Besides, some of the new capabilities of the F-22, such as stealth and supercruise, may increase, rather than decrease, maintenance requirements. Also, new weapons are generally more complex than those they replace, which could add to O&M costs.

Total Operating Funds

In addition to funds for military personnel and operation and maintenance, the Air Force operating budget includes a small amount of money to provide family housing. Including these funds, the total bill for the operating accounts is expected to decline from $55 billion in 1990 to $44 billion in 1995. Operating funding would drop further under the Administration's plan, to

about $38 billion by 1999. CBO assumes that operating funding in all categories will remain constant in real terms beyond 1999 at the 1999 level of $38 billion.

PROCUREMENT FUNDING

Another large portion of the Air Force budget pays for the purchase of major weapon systems, such as the C-17 airlift aircraft, and other items such as trucks, radios, and spare parts. In 1990--when procurement funding totaled $34 billion, or about 32 percent of the total service budget--the Air Force received funding to buy two strategic bombers (B-2s), 186 tactical fighters, four C-17s, and 12 intercontinental ballistic missiles. By 1995, purchases of such major systems--defined by CBO as combat and airlift aircraft and ballistic missiles--had dropped to six C-17s.[9] The Air Force will add another program to the major acquisition category in 1998 when the F-22 enters procurement. Even with this added program, however, the share of funding devoted to major systems will be considerably lower during the 1995-1999 period than it has been in the past. These curtailments in major programs have substantially reduced the funding in the Air Force's procurement accounts. By 1995 procurement funding is scheduled to decline to $18 billion, only slightly more than half the 1990 level. The Administration expects to spend more on procurement in the 1995-1999 period. Funding would increase to about $22 billion by 1999, a rise of more than 20 percent, reflecting additional money for the F-22, the Joint Primary Aircraft Training System (JPATS), and the Tri-Service Standoff Attack Missile (TSSAM).

The F-22 is currently in its development phase. As a result, there is no procurement funding for the program in 1995. In 1999 the Air Force expects to spend more than $1 billion of its procurement account on the program. The Air Force also wants to spend about $280 million to buy 48 trainers for fledgling pilots (JPATS) in 1999, up from $120 million for three in 1995. TSSAM, a stealthy cruise missile that the Air Force and Navy are buying to add to the ground-attack capabilities of fighter and bomber aircraft, is budgeted at about $50 million more in 1999 than in 1995: in 1995 the Air Force requested about $380 million to procure 48 missiles, but missile procurement would increase to 270 by 1999, and Air Force plans project that costs will rise to $420 million. The conference authorizing the fiscal year 1995 budget would delay this program. Conferees have eliminated all procurement funding, arguing that the program is not ready to be bought yet.

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9. The Air Force's 1995 budget also includes funding for purchases of two E-8 (JSTARS) reconnaissance aircraft and three JPATS trainers.

As with operating costs, some portion of the Air Force's procurement budget is devoted to classified programs. The Air Force has suggested that almost half the 1995 procurement budget (about $8 billion of the $18 billion funding request) funds classified programs and provides dollars for the Special Operations Command and the Defense Airborne Reconnaissance Program.[10] By 1999, perhaps $7 billion or more of the Air Force's planned $22 billion procurement budget for 1999 might be devoted to intelligence funding, special operations, and airborne reconnaissance. Thus, it is possible that the addition of funding for these other programs will obscure very large percentage increases in Air Force procurement funding. But in absolute terms, it also suggests much lower funding for procurement programs in the Air Force proper.

In the first decade of the 21st century, the pattern of funding depends on assumptions about the costs of various major weapons, particularly tactical fighters, and trends in costs for other armaments. Estimate A--which assumes that steps would be taken to hold down costs--projects that procurement would decline to about $20 billion in 2000 (see Figure 3). Procurement would then remain at approximately that level in 2002 and 2003, when CBO assumes that the Air Force would still be buying the C-17 and purchasing the F-22 at peak rates. Funding would dip modestly to about $19 billion in the 2004-2006 period before rising to $21 billion at the end of the decade, when CBO assumes JAST purchases will begin. Annual procurement funding for the 2000-2010 period in Estimate A averages about $20 billion, about $2 billion less than the 1999 funding level. This estimate suggests that the Air Force could absorb modest real decreases in its procurement accounts and still support its program.

Under the assumptions of Estimate B, which are more consistent with past experience, procurement funding would remain near $22 billion in 2000 and rise rapidly to about $26 billion in 2002 and 2003 as F-22 procurement increases and the service is still buying C-17s (see Figure 3). It would decline in the middle of the first decade of the 21st century but rise sharply toward the end, reaching a peak of $27 billion in 2009, the last year of F-22 procurement under CBO's assumptions. On average, annual funding would total $25 billion for the 2000-2010 period. These trends reflect costs for all systems.

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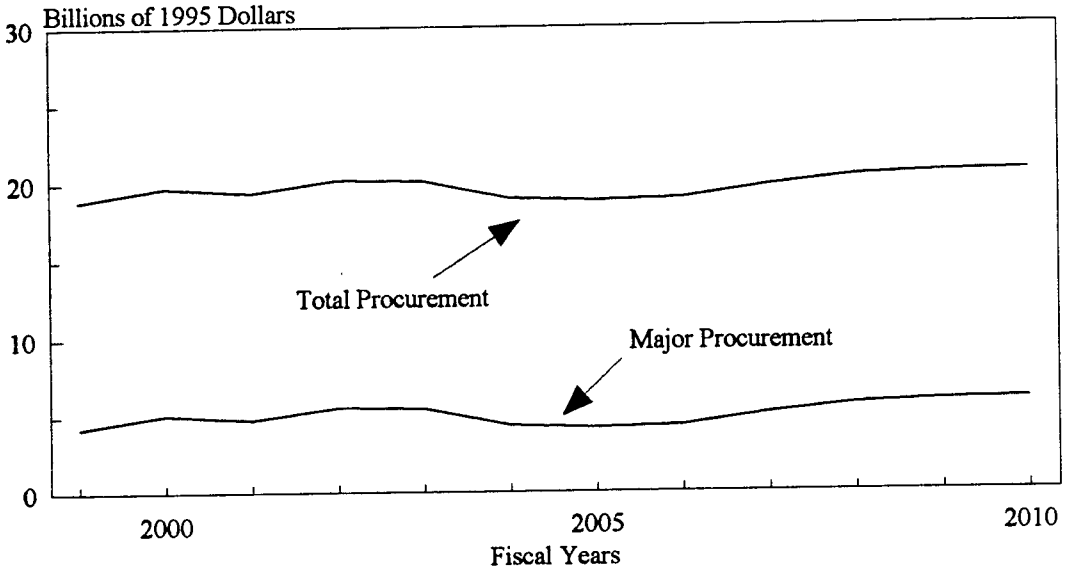
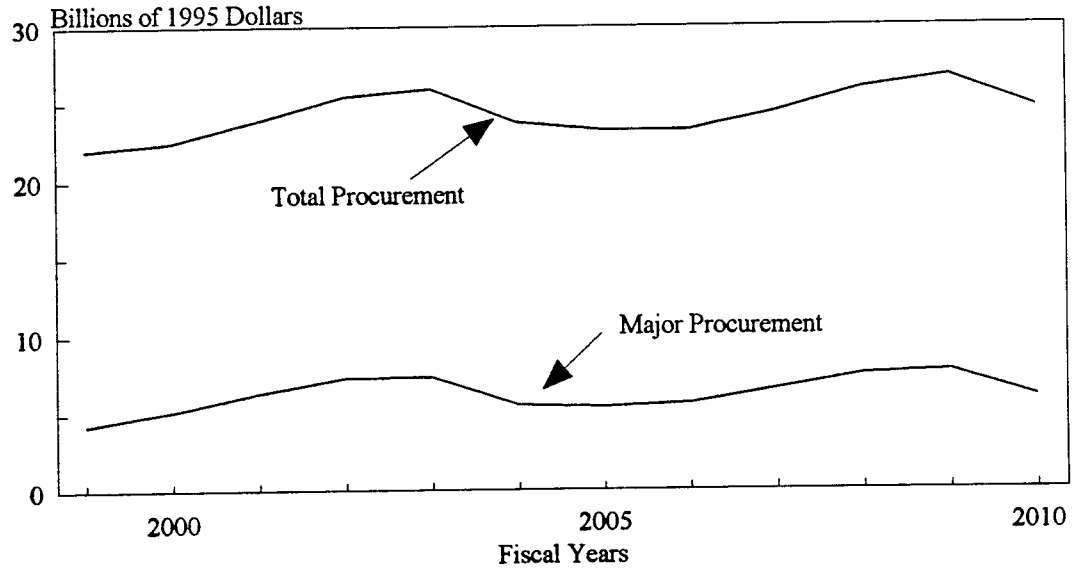
10. "Air Force Fiscal Year 1995 President's Budget," a presentation to the Congressional Budget Office by the Air Force on February 25, 1994. The Air Force may have operational control of some of the funds in these categories, though it will probably not control decisions about acquisition. The Air Force did not provide detailed estimates for funding that excludes these categories for the years beyond the budget, but it did provide a pictorial representation of its funding beyond 1995.

FIGURE 3. MAJOR AND TOTAL PROCUREMENT IN THE AIR FORCE BUDGET

Estimate A



Estimate B



SOURCE: Congressional Budget Office.

Major Weapons

CBO bases both of its estimates on the number of major weapons to be bought under the Administration's plan.

Estimate A. In most cases, the lower estimate of costs assumes that new major weapon systems can be purchased at the unit costs currently estimated by the Administration. These unit costs suggest, for example, that F-22 aircraft would cost about $90 million apiece and C-17s cost $260 million (see Table 1).

In one important exception to CBO's rules, the lower estimate of costs is not based on the Administration's estimate of unit costs. The Administration has not estimated the cost of the plane that would emerge from the JAST program to replace the F-16. In Estimate A, CBO assumes that each fighter might cost about $35 million.

The JAST program replaced several development efforts in the services. Before JAST the Air Force planned to develop a multirole fighter to replace its F-16s. The Air Force argued that each multirole fighter might cost from $25 million to $35 million (in 1994 dollars), depending on the capabilities it offered. Experience suggests that the planes of successive generations cost at least 80 percent more than their predecessors. A cost of $25 million for the new fighter would represent only about a 10 percent increase above the

TABLE 1. AVERAGE UNIT PROCUREMENT COSTS FOR AIR FORCE SYSTEMS (In millions of 1995 dollars)

Aircraft	Estimate A	Estimate B
F-22	90	120
JAST	35	55
C-17	260[a]	260[a]

SOURCE: Congressional Budget Office based on Department of Defense data.

NOTE: Unit costs are rounded to the nearest $5 million.

a. $295 million including sunk costs in 1994 and previous years.

average price of an F-16. Such a small increase would fall substantially below the historical minimum and would raise the question of why, if changes are to be so modest, the Air Force plans to design an entirely new plane.

In order to provide a more realistic estimate of minimum costs, CBO assumes that the F-16 replacement will cost about $35 million apiece--about equal to the higher of the Air Force's two estimates. This would represent an increase of about 50 percent above the cost of today's F-16 aircraft; substantially less than the smallest increase in the price of a newly designed plane compared with the price of its predecessor, at least since the 1950s. In addition, it seems unlikely that the Air Force will be willing to do without at least some enhancements in capability that increase the cost of new aircraft. For example, former Air Force Chief of Staff General Merrill McPeak has suggested that stealth technology will be incorporated in all new combat aircraft.[11]

Under the assumptions included in the lower estimate, the costs of major procurement would increase from about $4 billion in 1999 to around $6 billion in 2002 and 2003 and then fall back to about $4 billion before rising to about $6 billion at the end of the decade (see Figure 3). Almost all of the costs are associated with tactical aircraft. CBO assumed that there would be no costs associated with buying strategic aircraft or missiles throughout the period, since the Air Force has announced no plans to do so. After C-17 purchases are completed in 2003, tactical aircraft procurement will account for all major procurement funding.

Estimate B. If history is a guide, the unit costs of weapons used in arriving at the lower estimate are too low. In the past, the actual costs of weapon systems have increased above initial estimates, often by substantial amounts. Thus, this analysis includes higher estimates of Air Force procurement costs that assume that the costs of the F-22 fighter and JAST aircraft increase.

Estimate B assumes that costs of the F-22 aircraft will rise to a level of about $120 million, roughly 30 percent higher than the Administration's current estimate (see Table 1). The higher F-22 cost is based on previous patterns. Specifically, this estimate applied the ratio between the average costs of the A/B models of the F-15 and the cost of the F-4, its predecessor, to the costs of the F-15. Some of this assumed growth must have already begun. F-22 unit prices have risen steadily in recent years as the plane nears production.

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11. "McPeak: Soviets Can Detect B-2, But No Defense Against Stealth," *Aerospace Daily*, October 10, 1991, p. 62.

The higher cost of $55 million for the JAST is based on Air Force estimates of the cost of an F-21++, a radically modified version of the F-16 considered as an alternative to the F-22 aircraft. The F-21++ had substantial stealth capability and also greater range and enhanced avionics, and in fact might have had more capability than the Air Force expects out of the JAST program, which is slated to develop a replacement for the relatively less capable F-16 aircraft. Despite these differences, the F-21++ may be a good proxy for JAST progeny, because of its stealth capability and relatively modest cost. Stealth is an important improvement in capability, the Air Force argues, and the F-21++ aircraft would have stealth capability. Also, $55 million may be consistent with the $35 million cost that was at the higher end of the Air Force's range of estimates for its canceled multirole fighter program. The Air Force may have expressed its estimates for future fighter prices in "fly-away" costs. Fly-away costs do not include funding for many items paid for out of procurement accounts. They represent perhaps 60 percent of required procurement funding for tactical aircraft.

Under the assumptions of the higher estimate, procurement costs of major weapons would rise from about $4 billion in 1999 to more than $7 billion in 2002 and 2003. They would drop to about $6 billion in the 2004-2006 period and climb to almost $8 billion toward the end of the decade.

Uncertainty About Aircraft Procurement

Both cost estimates assume that the Air Force purchases the same number of aircraft. There are, however, two major questions about the number of planes the Air Force will buy: Will more B-2s be bought, and what will the schedule be for the JAST program?

The Future of the B-2. For the purposes of this analysis, CBO assumes no further purchases of B-2 aircraft. The assumption is reasonable because the analysis seeks to investigate the implications of the current Administration's plans and because the Administration has not requested continued B-2 procurement. There is, however, some uncertainty about whether the bomber forces in the Bottom-Up Review are fully supported by the planes in the plan. The Bottom-Up Review assumes that the United States must prepare to fight two regional conflicts that break out at almost the same time. The review derived force goals for a single conflict. It estimated that a force of 100 long-range bombers armed with conventional weapons would be needed to provide attack capability early in a conflict, before ground forces could arrive. Some have taken this estimate to mean that 100 bombers would be needed for each conflict, and that the review requires fielding 200 planes for conventional missions, rather than the approximately 100 specified in the Administration's

plans.[12] But again, the Administration assumes that the two conflicts would not begin simultaneously. Thus, some of its leaders have argued that the bombers could fight in one conflict and then fly to another region where war has broken out. Therefore, they argue that the planes in the President's budget would be sufficient.

The Senate Armed Services Committee--not persuaded by the suggestion that bombers could be transferred to a second conflict if it broke out--advocated preserving the capability to buy bombers. Some members of the Congress have discussed buying additional B-2s. The House Armed Services Committee, however, opposed continued B-2 purchases. The conferees provided $125 million in the 1995 budget to study requirements for bombers, preserve the bomber industrial base, or explore concepts for a new bomber. The conferees left the final decision of disposition of the funds up to Secretary of Defense William Perry. If Secretary Perry decides to request continued B-2 procurement in next year's budget, substantial additional funds must be found. CBO estimates that buying 20 more B-2s, for example, will cost about $26 billion more than the funding in the current plan--$10.3 billion more during the 1995-1999 period and $15.7 billion in 2000 and beyond.[13] If Secretary Perry decides to continue B-2 procurement it is likely that he will find trade-offs for some or all of this funding. If he trades off funding by canceling other Air Force programs, added purchases of B-2s might not change the future cost outlook. And if more money is added to Air Force budgets, it will increase funding in 1999, the year CBO compares with its estimates of annual funding in the 2000-2010 period. Conversely, if other Air Force programs are deferred to fund the B-2, the decision to buy the plane will add to long-term budget pressures.

The Administration may have reduced the pressure for additional B-2 purchases, since the bomber forces in its new Nuclear Posture Review are larger than those in its budget. This is the result of retaining older B-52s and B-1s in operational status, however, so implications for future bomber purchases are not clear.

JAST Schedule. CBO also assumes that to replace older F-16 aircraft the Air Force would buy about 120 planes of the model that is expected to emerge from the JAST program during the latter part of the next decade. That schedule would leave the Air Force with sizable shortages of the planes that

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12. The review suggests that the Air Force in 1999 would contain "up to 184 bombers (B-52H, B-1, B-2)." It also suggests that strategic nuclear forces would contain up to 94 B-52s and 20 B-2s. Department of Defense, "Report on the Bottom-Up Review," p. 28.

13. The selected acquisition reports contain about $3 billion for the B-2. CBO estimates that an additional $26 billion will be needed if 20 more B-2s are bought.

make up the multirole mission, unless service lives are extended. In order to meet mission level requirements, the Air Force must retain about 18 percent of the multirole fleet beyond expected retirement dates. Furthermore, planes in that fleet will be an average of about 22 years old, more than double the Air Force's expressed goal of about 11 years for tactical fighters. In fact, the average age of the fleet will equal the Air Force's stated fighter retirement goal of 22 years.

It is possible, however, that diminished threats to U.S. security will permit the Air Force to retain its F-16 aircraft much longer than 22 years. That figure is based on the assumption that after about 22 years, maintaining technological superiority over potential enemies would require a new plane. It seems highly unlikely that any country now viewed as a threat could develop planes rivaling the capabilities of today's U.S. aircraft and field them in significant quantities.

Nonmajor Procurement

In addition to buying major weapon systems, such as strategic bombers, tactical fighters, and intercontinental ballistic missiles, Air Force procurement budgets pay for other items, such as satellites, communications equipment, trucks, bombs, and spare parts. Many of these items represent relatively small amounts of money. For example, the "other procurement" account in the 1991 budget request contained almost 200 line items, only four of which cost more than $100 million.

Detailed plans for many of these weapons are not generally available to the public. Thus, the costs of nonmajor procurement cannot be estimated in the same way as those for major weapon systems. Instead, CBO's estimates of nonmajor procurement are based on general relationships that differ between Estimates A and B.

Under Estimate A, CBO assumes that the real level of spending on nonmajor procurement would increase so that, by 2003, this category of funds would receive roughly the same amount of money, reduced in proportion to cuts in forces, that it received on average in the 1974-1994 period. CBO used the number of active-duty military personnel as a proxy for forces, which may be reasonable over the long run, although short-run changes in end strength may not vary in proportion to force size. This premise is consistent with the assumption that total spending for nonmajor procurement should be related to the number of forces and the amount spent on it in the past.

Estimate B reflects historical funding patterns for nonmajor procurement. Specifically, CBO has used a regression equation derived from the relationship between funding for minor and major procurement for the 1974-1999 period.[14] The relationship is statistically significant and suggests that some procurement funding for minor weapons would increase in proportion to changes in costs for major weapons, while other funding would not be affected by the level of major weapons funding.

This statistical relationship may be consistent with the nature of the systems purchased with these funds and with the overall acquisition process. Some weapon systems bought with these funds, such as advanced munitions, satellites, radar, and some communications gear, share the same kinds of sophisticated technology that increasingly drive up the costs of major systems. Moreover, it is reasonable that the missions performed by these so-called minor systems will remain valid and thus require the same commitments of resources as do major systems. Thus, the availability of funds for procurement could be expected to have similar consequences for the amounts devoted to major and at least some minor systems.

Other categories of systems purchased with funds for nonmajor procurement, such as trucks and fork lifts, should not need to be replaced as threats change and should not necessarily increase in cost. But many of these systems continue to be procured, and previous levels of expenditure are a plausible guide to future spending, as the regression relationship finds.

The higher estimate of the costs of nonmajor procurement may also be consistent with the potential for growth in the number and cost of space-based assets. As the United States comes to rely more heavily on space for communications and other military purposes, the costs of assets related to activities in space could rise. Because the long-term plans for deployment of these systems are highly uncertain, highly classified, or both, these systems are included as nonmajor procurement items. Sharp growth in the cost of these systems would push the Air Force budget toward the assumptions of Estimate B.

Changes from Past Patterns in Plans. One pattern in the Administration's plans may cast doubt on whether either of these methods--both heavily dependent on the past to predict the future--produce high enough estimates. In the past, major procurement, as defined by CBO, has absorbed about 30 percent of Air Force procurement budgets. The Administration plans that it will take up only about 20 percent of those budgets over the 1995-1999 period.

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14. The equation used to project procurement funds is $Minor_t = 1.9 + 0.4\ (Major_t) + 0.7\ (Minor_{t-1})$. The numbers in parentheses are T-statistics. (2.4) (7.8)

If, on the one hand, this simply reflects today's procurement holiday, regression equations and funding averages may be perfectly acceptable projection methods for the longer term.

On the other hand, the composition of procurement accounts may be changing. The Air Force may be investing more heavily in space programs and other areas of the budget, whose classification levels make it difficult to project them separately in unclassified documents such as this one. Funding for the intelligence community may also affect the changing percentage. As discussed earlier, if intelligence community funding, which--along with funding for several programs coordinated outside the Air Force--makes up more than half of Air Force procurement funding, declines less rapidly than procurement for Air Force programs, the share of total procurement funding allotted to minor procurement may increase.

CBO has attempted to incorporate this trend into Estimate B by including the 1995-1999 period in its calculations. But the Administration's plan represents only five years--and data points--out of 25. Hence, the new pattern does not dominate the equation. This issue--while representing a swing of only 10 percentage points--has a substantial impact on estimates. Assuming that major procurement continues to represent 20 percent of the budget, as it does during the 1995-1999 period, annual Air Force procurement funding requirements would average about $32 billion during the 2000-2010 period, approximately $7 billion more than the average over the same period in CBO's higher estimate.

RDT&E and Military Construction

After the costs of operations and procurement, the remaining appropriations in the Air Force budget include research, development, test, and evaluation (RDT&E) and military construction. The Administration's plan predicts that RDT&E will decline dramatically in real terms through 1999 (see Table 2). In its 1995 budget request, the Administration asked for only half of the funding provided for military construction in 1994. But the Administration expects the account to regain some of its funding during the 1996-1999 period. In Estimates A and B, CBO uses two approaches to project spending beyond 1999 for RDT&E. Both estimates for military construction assume it remains constant at its 1999 level in real terms, because it represents a small portion of the budget. As a result, even large percentage swings in its value have little impact on estimates of total funding.

Estimate A assumes that RDT&E receives the average amount of funding that it received in the 1974-1994 period, adjusted by the number of

active-duty personnel in the Air Force, which serves as a proxy for force size. Although RDT&E is related only indirectly to the number of forces, this assumption may be plausible in a period when forces do not change in size.

Estimate B uses a different approach to estimate RDT&E costs. Funds for RDT&E--which finance basic research and the development of new weapons--should be related to estimates of future threats and therefore to the number and sophistication of future weapons. None of these factors can be related to the Administration's plans for numbers of major weapons. Nor are the Administration's plans for RDT&E publicly available beyond 1999. Thus, beyond 1999, Estimate B assumes that RDT&E would receive the average share of the total Air Force budget that it received in the 1974-1994 period. It assumes that this share would be attained by 2001. This method seems consistent with previous patterns. Between 1974 and 1995, the RDT&E appropriation received an average of about 14 percent of the Air Force budget. This percentage ranged from about 12 percent to slightly over 16 percent--equal to the 1995 level--during this period, despite sharp changes in overall funding.

TABLE 2. U.S. AIR FORCE BUDGET (In billions of 1995 dollars)

Appropriation Categories	1994	1995	1996	1997	1998	1999
Military Personnel	18.2	19.2	17.6	17.1	16.7	16.7
Operation and Maintenance	23.9	23.3	21.3	20.7	20.7	19.8
Procurement	18.4	18.2	19.8	19.6	20.8	22.0
Research, Development, Test, and Evaluation	12.4	12.3	12.1	10.3	9.2	9.0
Military Construction	1.2	0.6	1.4	1.2	1.0	0.9
Family Housing	1.0	1.1	1.0	1.0	1.0	1.0
Total	75.1	74.8	73.2	70.0	69.5	69.5

SOURCE: Congressional Budget Office based on Department of Defense data.

The use of historical patterns in estimating future funding may also be consistent with the uncertainty about requirements for these appropriations. It takes a decade or more for an investment in RDT&E to produce a new weapon. Thus, funding requirements for RDT&E are highly uncertain because threats to U.S. security 10 or 20 years from now are unpredictable. In periods when the total Air Force budget grows, there will be persuasive arguments for the seriousness of future threats. As a result, new projects may be started, causing RDT&E funding to grow. In a period of declining budgets, the proponents of funding for major systems can fend off requests for new RDT&E projects because future threats are never completely clear. As a result, RDT&E funds will decline in these periods.

In recent years, however, proponents of development funding seem to have waged successful battles for higher shares of funding, arguing that development is a relatively inexpensive hedge against today's highly uncertain threats. They point to the extended period between developing and fielding weapons, arguing that DoD should invest in strategies that might prevent the United States from missing war-winning new technologies--such as the tanks and atomic bombs of previous wars. Consequently, development funding has been relatively protected, resulting in an average annual portion of more than 15 percent of the defense budget in the post-Cold War period. Although the Administration expects development's share to fall to about 13 percent by 1999, perhaps suggesting a change in strategy in addition to budget realities, this recently increased share may suggest that even Estimate B underestimates RDT&E.

Military construction is kept at its 1999 levels for both estimates. The appropriation makes up a small share of the budget, so estimates of total spending are not greatly influenced by the methods used to project them. Also, this appropriation may not be influenced as directly by decisions made about weapons procurement or force size as are other parts of the budget.

TOTAL BUDGET

Under the Administration's plan, the Air Force budget decreases from $75 billion in 1994 to about $70 billion by 1999 (see Figure 1 on page 2).

Beginning in 2000, CBO's Estimate A of the Administration's plan projects that the Air Force budget could continue to decline modestly to $68 billion, remaining at approximately that level through 2010. It would decline slightly in mid-decade, reaching about $67 billion in 2005, then increasing by about a billion and remaining at that level through 2010. The decline at mid-decade would be caused by the expected completion of procurement of the

C-17 airlift aircraft. Under Estimate B, the budget would increase through the early part of the decade, reaching a peak in 2003 of about $75 billion--about equal to today's funding levels. After a mid-decade dip it would rise again, reaching $76 billion in 2009, then dropping to $74 billion as the last F-22 is bought.

Under Estimate A, the Air Force budget would require less funding than the 1999 level, and on average in the 2000-2010 period it would be almost $2 billion less each year than would be available if budgets were frozen in real terms at the 1999 level. Thus, under optimistic cost assumptions, the Air Force can probably afford the F-22, the last purchases of the C-17, and beginning JAST purchases even if it receives no real increases beyond 1999. In fact, the service could donate as much as $2 billion per year to deficit reduction, domestic spending, or other service budgets.

Under Estimate B, however, it would be necessary for the Air Force budget to rise. In order to carry out the Administration's plan, annual Air Force budgets would have to be 6 percent greater on average during the 2000-2010 period than the planned 1999 level. In peak years the budget would be about 7 percent to 8 percent higher than that level. Thus, under assumptions that are consistent with experience, the Air Force could not afford to buy the weapons it wants without modest real increases in its budget.

Changes from Earlier CBO Estimates

CBO last published detailed estimates of the Air Force's long-term funding requirements in 1991, based on the Bush Administration's base force plan. In that paper CBO projected that the lower estimate--analytically similar to Estimate A in this memorandum--would average about $84 billion over the 1998-2010 period, or about $16 billion more than the current average of Estimate A for about the same period. The higher estimate--comparable to Estimate B--averaged about $98 billion, $24 billion more than CBO's current projection.[15] Why were the 1991 estimates so much higher in absolute terms?

Since 1991, plans for the Air Force have undergone a number of changes. First, many programs have been cancelled or curtailed during the 1991-1994 period. In 1991, CBO assumed that the Air Force would develop and buy small intercontinental ballistic missiles and also purchase 75 B-2 bombers. CBO also assumed on the basis of contemporary Air Force plans that the

15. The estimates from the earlier memorandum have been escalated to 1995 dollars in order to be comparable with the 1995 dollar estimates discussed elsewhere in this memorandum.

Multirole Fighter, a JAST predecessor, would enter procurement in 2003, about four years earlier than this estimate assumes that JASTs enter procurement. The annual procurement of Multirole Fighters was also expected to increase to 150 by 2005 and stay at that level through 2010, compared with the maximum annual procurement rate of 48 JASTs assumed here. The Air Force has also seen its force goals and operating costs scaled back during the past four years. The goal for tactical fighter forces under the Bottom-Up Review is 25 percent lower than the goal of the base force. The goal for bomber forces is about two-thirds the size of the base force goal.

In 1991 CBO suggested that the Air Force might be able to support its force requirements if budgets were not cut further and the prices of weapons did not rise. Despite the underlying changes in plans and the absolute changes in funding levels, CBO's current conclusion does not differ greatly from that of its 1991 analysis.

Shares Suggest Further Budgetary Pressure

Even modest additions may be difficult to come by if the budget environment continues to be austere. And the Air Force may confront other budgetary problems as well. During the past five years an average of 56 percent of Air Force funding was devoted to money for operations. The share of funds devoted to the operating budget in the year 2010 would fall to about 51 percent under Estimate B, though it would equal the five-year average in Estimate A. If recent trends represent a changed emphasis on funding for operations, the low share of the operating appropriations may suggest that they are underfunded.

CBO implicitly assumes that during the next decade, all major Air Force procurement will be devoted to tactical aircraft. That is consistent with service and Administration statements about plans and may be a reasonable assumption given changes in the requirements for other types of aircraft. Nevertheless, the Air Force has never before had the luxury of devoting so much of its funding to tactical aircraft, and other requirements could arise during this period.

Decline in Total DoD Budget

As a final possibility, in the long run the total DoD budget may decline below the levels projected for 1999 by the Administration. Pressures to find money for discretionary spending, other legislation, and deficit reduction may lead to further cuts in defense. Defense is also likely to receive smaller funds if the

public and the Congress perceive that the risk from future threats is low. Many defense supporters are convinced that the United States must be able to fight two wars at almost the same time and have argued for increasing defense budgets. But critics have questioned this need. Smaller defense budgets--and smaller forces and slower modernization--may be tolerable if the United States faces the prospect of fighting only one regional conflict at a time.