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Alternative Compensation Plans for Improving Retention of Air Force Pilots

A SPECIAL STUDY

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CBO STUDY OF ALTERNATIVE COMPENSATION PLANS FOR IMPROVING RETENTION OF AIR FORCE PILOTS

The shortage of U.S. Air Force pilots that is projected to develop by 1994 has been a focus of Congressional attention for the past two years. A special study by the Congressional Budget Office (CBO), *Alternative Compensation Plans for Improving Retention of Air Force Pilots*, examines five pay and/or bonus plans that are representative of approaches currently being debated to reduce or eliminate the projected shortage. The study was prepared at the request of the Subcommittee on Military Personnel and Compensation, Committee on Armed Services, U.S. House of Representatives.

The projected shortage is not evenly distributed among pilots, according to the study. The retention problem is most acute for pilots in the eighth to thirteenth years of service in the ranks of captain and major. Also, pilots qualified to fly multi-engine aircraft (strategic airlifters and tankers) are projected to be in the shortest supply, in contrast to those who fly single-engine jets (fighters and trainers), propeller-driven aircraft, and helicopters.

Of the plans examined in the CBO study, one plan would simply offer bonuses from $6,000 to $12,000 to pilots qualified to fly particular types of aircraft. A second plan would increase Aviation Career Incentive Pay (ACIP) or "flight pay," which is received by pilots of all types of aircraft and lengths of service. The other three plans offer combinations of bonuses with ACIP increases and with reductions in the number of nonflying positions authorized for Air Force pilots.

All five of these compensation plans would enable the Air Force to fill virtually all of its flying requirements for all types of aircraft. The combination plan passed by the Senate in its version of the 1990 Defense Authorization Bill would offer the largest increase in the number of pilots, but at the highest cost (an additional $586 million over five years). The combination plan passed by the House in its version of the 1990 Defense Authorization Bill would be $41 million less costly, because it would omit automatic annual adjustments in ACIP but would attract 21 fewer pilots in the critical eighth to thirteenth years of service. The pure bonus plan is the most efficient, because it would target pay increases to pilots of particular aircraft and lengths of service where shortages are most severe. In contrast, across-the-board increases in ACIP are the least efficient approach but would provide equitable compensation for all pilots.

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ALTERNATIVE COMPENSATION PLANS FOR IMPROVING RETENTION OF AIR FORCE PILOTS

The Congress of the United States
Congressional Budget Office

NOTES

All years referred to in this report are fiscal years unless otherwise indicated.

Details in the text and tables of this report may not add to the totals because of rounding.

The cover photograph was provided by the Air Force Office of Legislative Liaison.

PREFACE

The U.S. Air Force projects an increasing shortage of pilots in the near future. As an interim measure, the Congress authorized a bonus program for 1989 and asked the Department of Defense to recommend a long-term solution to the developing problem of pilot shortages. To assist the Congress in its deliberations, the Subcommittee on Military Personnel and Compensation, Committee on Armed Services, U.S. House of Representatives, asked the Congressional Budget Office (CBO) to study this issue. This special study examines five alternative compensation plans that address the projected shortages of Air Force pilots. In accordance with the mandate of the CBO to provide objective and impartial analysis, this study contains no recommendations.

Marvin M. Smith of CBO's National Security Division wrote the report under the general supervision of Robert F. Hale and Neil M. Singer. The author gratefully acknowledges the assistance of Amy Plapp of CBO's Budget Analysis Division who prepared the cost estimates. The author also wishes to thank Rosemarie Nielsen and Lane Pierrot of CBO, Bernard Udis of the University of Colorado, and Donald Cymrot of the Center for Naval Analyses for their thoughtful comments and valuable assistance. Responsibility for the final product, however, rests solely with CBO. Sheila Harty edited the manuscript. Rhonda Wright prepared the early drafts of the report, and Kathryn Quattrone prepared the final draft for publication.

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SUMMARY

The U.S. Air Force has been concerned for some time about retaining its pilots. This concern was heightened recently by projections that commercial airlines will be hiring an increased number of pilots over the next several years. Although the Air Force faces a relatively small shortage of pilots in 1989, it projects a much larger shortage by 1994. Moreover, the projected shortages vary by the type of aircraft that a pilot is qualified to fly.

In response to these projected shortages, the Congress provided the Air Force with the authority to offer the Aviator Continuation Pay (ACP) program in 1989. ACP provides annual cash bonuses up to $12,000 to certain pilots who choose to remain on active duty beyond the minimum years of service (YOS) required after receiving their flight training. However, authorization to pay ACP expires at the end of 1989. The current ACP program was enacted last year as a temporary measure to allow the Department of Defense (DoD) time to prepare a comprehensive review of the problem of pilot shortages and to make recommendations for a long-term solution. Thus, ACP in its present form was intended to be an interim program, not a permanent one.

Since the problem of pilot shortages appears likely to persist, the Congress is considering changes in compensation that would replace ACP after its expiration. All of the compensation plans currently being discussed involve either the payment of bonuses to designated pilots and/or increases in Aviation Career Incentive Pay (ACIP), which is flight pay paid to most pilots since 1974.

In preparing this analysis, the Congressional Budget Office (CBO) considered several plans that were representative of the approaches being debated. This study analyzes five alternative compensation plans--one with bonuses only, one with ACIP increases only, and several hybrids--that address the projected shortages of Air Force pilots:

Plan 1 targets bonus payments by type of aircraft to replace the expiring ACP program, while continuing the current level of ACIP

for all pilots. As the bonus payments would not vary by YOS, this plan is the most cost-effective way to meet the bulk of pilot shortages projected by the Air Force.

Plan 2 doubles the current level of ACIP for all pilots and does not replace or extend ACP bonus payments. As payments would vary by YOS but not by type of aircraft, this plan satisfies the Air Force's concern for equity but is an expensive way to meet pilot shortages.

Plan 3, approved by the Senate Committee on Armed Services, continues for three years the current ACP bonus payments, which vary by YOS but not by type of aircraft. ACIP would increase selectively by YOS where projected shortages are largest and would be indexed to annual pay increases. Nonflying positions for pilots would be reduced.

Plan 4 modifies the Senate plan by varying its bonus payments both by YOS and by type of aircraft. As with the Senate plan, this modified plan would last for three years. In addition, ACIP would similarly be increased and indexed. Nonflying positions for pilots would also be reduced.

Plan 5, approved by the House Committee on Armed Services, increases ACIP payments as in the Senate plan, but modifies the plan by not indexing the ACIP to annual pay increases and by authorizing the program for only two years. Bonus payments would be increased in the same manner as under the Senate plan, and nonflying positions for pilots would be reduced.

By 1994, all five of the plans examined in this study would meet at least 92 percent of the required number of Air Force pilots. Even though some shortages would still exist by 1994, enough pilots would remain under all five of the alternative plans to permit filling flying positions for almost every type of aircraft. In other words, shortages could be accommodated by leaving unfilled some positions for pilots that do not involve flying or by filling these nonflying positions with personnel who are not pilots.

The Senate Committee plan calls for both bonus payments and increases in special flight pay. In addition, flight pay would be indexed

to increase automatically with increases in basic pay. Of the plans analyzed in this study, the Senate plan would come closest to meeting all requirements of the Air Force. It is also the most expensive plan, however, adding a total of $586 million to costs over the next five years. The House Committee plan, which is quite similar to the Senate Committee plan except that it does not have automatic indexing of flight pay, would provide almost as many additional pilots while costing $41 million less over the next five years.

In addition to findings that relate to specific plans, examination of general elements in the plans may be useful during this year's debate over pilot pay or during future debates:

- Plans that provide *targeted* pay increases for those types of pilots in particularly short supply tend to hold down costs while meeting the largest shortages. But under targeted pay plans, pilots with equal YOS receive different amounts of pay. Despite precedents for such differences in the military pay system, the Air Force argues that pilots with equal YOS should receive equal pay in order to maintain pilot morale.

- Plans that emphasize *across-the-board* pay increases for pilots of all types of aircraft tend to be more costly than targeted plans as they fail to focus on areas of greatest shortage. This is particularly true of ACIP, which is paid to most pilots. These plans do tend, however, to provide equal pay for pilots with equal YOS.

- Plans that avoid *indexing* flight pay to annual pay increases strengthen the likelihood that the Congress will have to reconsider pilot compensation in the near future. However, that may be desirable in view of major changes in pilot requirements that could occur as outgrowths of budgetary limitations or arms control negotiations.

CHAPTER I

THE PROBLEM OF PILOT SHORTAGES

The skills of Air Force pilots would be essential in wartime. In the near future, however, the Air Force faces a challenge in retaining an adequate number of pilots, owing in part to the demand for pilots in the commercial sector. This projected shortage of pilots is of major concern to the Air Force. Some of the many factors that influence the size of the Air Force's projected shortages are instructive to consider in order to evaluate possible solutions to the problem of future shortages.

CURRENT PILOT PAY

Adequate pay and compensation is one major factor, along with family considerations and working conditions, that influences a pilot's decision to remain in the military. Pilots receive several types of pay. All pilots receive basic military pay, which depends on years of service (YOS) and pay grade, plus tax-free allowances for food and housing. As Table 1 shows, the amount of the pay and allowances can vary from $41,004 for a relatively junior pilot (an Air Force captain with eight years of military service) to $57,971 for a more senior pilot (an Air Force lieutenant colonel with 16 years of military service).

In addition to regular military pay, most pilots receive a special flight pay, known as Aviation Career Incentive Pay (ACIP). To be eligible for ACIP, pilots must complete a minimum number of years of "rated" service by the end of their twelfth and eighteenth years of military service (often referred to as "gates"). Rated service is defined as duties performed by pilots or navigators in the grades of lieutenant through lieutenant colonel who have completed flight training.[1] For those meeting these minimum requirements, ACIP payments vary from $1,500 to $4,800 a year. The payments depend on YOS, with

1. Thus, a pilot with at least six years of flying experience by the twelfth year of rated service is eligible to receive ACIP until the eighteenth year. At the eighteenth year of service, a pilot with nine years of operational flying experience is eligible for ACIP through the twenty-second year; and with eleven years of flying experience, a pilot is eligible for pay through the twenty-fifth year. After the twenty-fifth year of service, only those pilots still flying can receive ACIP.

pilots in the middle pay grades (O-3 and O-4, or Air Force captain and major) receiving more pay than either more junior or more senior pilots. ACIP payments, which were established in 1974, are fixed in dollar terms and are not adjusted for inflation. Since 1981, when ACIP payments were last revised, inflation has eroded the value of ACIP by about 30 percent.

Pilots can also receive two types of annual cash bonuses. The first type of bonus is the Aviation Officer Continuation Pay (AOCP), which became available to pilots in 1981, but only the Department of the Navy chose to offer this type of pay. AOCP involved annual bonuses of as much as $6,000, which were not automatically indexed, for pilots who have between 6 and 12 years of military service. The receipt of AOCP depended on whether the Navy faced a shortage of pilots qualified to fly a particular type of aircraft. Those in a particular pilot community in short supply might qualify for bonuses of as much as

TABLE 1. AIR FORCE PILOT COMPENSATION IN 1989 (In dollars)

Pay	Captain With 8 Years of Military Service	Lieutenant Colonel With 16 Years of Military Service
Regular Military Compensation[a]	41,004	57,971
Aviation Career Incentive Pay	4,800	4,800
Aviation Continuation Pay	12,000	n.a.
Total	57,804	62,771

SOURCE: Department of Defense Compensation Office.

NOTE: n.a. = not applicable.

a. Regular military compensation (RMC) is a combination of basic pay, subsistence allowance, Basic Allowance for Quarters, the Variable Housing Allowance, plus the tax advantage stemming from not having either housing allowance nor subsistence allowance taxed.

$6,000 per year, by voluntarily extending their commitment to remain in the military for six years. Lesser bonuses were available for shorter extensions. Under the AOCP program, pilots of most types of aircraft qualified to receive a bonus, though in some cases not the maximum amount.

The second type of bonus is Aviator Continuation Pay (ACP), a program authorized last year by the Congress. Under ACP, pilots who meet certain requirements can receive up to $12,000 a year. Both the Navy and the Air Force offered ACP. The Navy chose to put into effect the new ACP bonus, which replaced AOCP, using the same general guidelines as those for allocating the AOCP bonus. Therefore, Navy bonuses varied according to both the shortage of pilots qualified for a particular type of aircraft and the length of additional commitments accepted by individual pilots. In contrast, Air Force bonuses under the ACP program did not vary according to pilot shortages; instead, ACP bonuses varied according to length of commitment and each pilot's YOS. The largest bonuses were offered to pilots in their eighth year of military service who agreed to remain through their fourteenth year. Smaller bonuses were offered to more senior pilots and those who agreed to shorter commitments.

REQUIREMENTS AND PROJECTED SHORTAGES OF PILOTS

The need for changes in pilot compensation and the choice among alternative compensation plans depend in part on the size of the expected shortages of pilots. Table 2 shows overall Air Force pilot requirements and shortages for 1989 and 1994, as estimated by the service. According to these estimates, the Air Force expects a relatively small shortage of 383 pilots in 1989, only about 2 percent of its total pilot inventory. By 1994, the shortage is expected to grow to 2,920 pilots, roughly 15 percent of the projected inventory.

This growing shortage occurs primarily because of a decline in the supply of available pilots. The demand for pilots is expected to remain largely unchanged over the next five years, unless military requirements change as a result of the arms control proposals now being negotiated. In recent years, however, Air Force pilots have become less willing to remain in the service, which is reflected in declining continuation rates. If current estimated trends in rates of retention remain

unchanged--as the projections cited above assume--then the supply of available pilots will gradually decrease over the next five years, causing a growing shortage. This trend is shown in the Air Force projections noted above and in independent projections made by CBO.

Reducing Shortages

Shortages could be minimized or even eliminated without increasing pilot compensation by reducing the need for pilots or by increasing the number of available pilots. Options for expanding the supply of available pilots include increasing the number who enter training or, perhaps, creating a "flying track" for pilots who only want to fly. This flying track might increase retention by appealing to those who prefer to fly for much of their careers and who are willing to forgo other types of career-enhancing assignments. A comprehensive review of these and other methods for reducing shortages by increasing numbers of available pilots is beyond the scope of this paper.

TABLE 2. AIR FORCE ESTIMATES OF PILOT SHORTAGES
(In number of pilots, by fiscal year)

	1989	1994
Projected Inventory	22,295	19,202
Projected Requirements	22,678	22,122
Flying	19,681[a]	19,129[a]
Nonflying	2,997	2,993
Generalist	1,110	1,121
Rated supplement	1,887	1,872
Projected Shortage	383	2,920

SOURCES: Department of Defense Aviator Retention Study, November 28, 1988, and Department of Defense Memorandum from Lieutenant Colonel Carr, Director, Aviator Retention Study, to Congressional Budget Office, March 15, 1989.

a. Category includes those in individual account--namely, advanced students, advanced academic and professional military education, and transients.

Another approach to reducing shortages that was discussed in recent debates over pilot pay is to reduce the number of pilots assigned to nonflying jobs. Pilot positions or billets consist of three primary types:

- "Specific" positions, which involve flying and require pilots with skills in a particular aircraft (for example, pilots assigned to an F-16 fighter squadron);
- "Generalist" positions, which in the vast majority of cases do not involve flying and can be filled by any pilot, regardless of his or her cockpit experience (for example, air operations officers and pilots assigned to the majority of research development staff positions); and
- "Rated supplement" positions, which do not necessarily require a pilot but benefit from pilot experience (for example, pilots assigned to positions in procurement management or liaison with the Congress).

To reduce pilot shortages, the Air Force could reduce its requirements for the rated supplement positions. If these positions were eliminated entirely, for example, the Air Force would have a substantial surplus of pilots in 1989 (see Table 3). By 1994, the Air Force would still have a shortage, but of only 1,048 pilots (5 percent) rather than the shortage of 2,920 pilots (15 percent) now expected.

TABLE 3. ESTIMATED SHORTAGES/SURPLUSES OF PILOTS, EXCLUDING RATED SUPPLEMENT BILLETS
(In number of pilots, by fiscal year)

	1989	1994
Total Shortage	-383	-2,920
Rated Supplement	+1,887	+1,872
Shortage (-) /Surplus (+) (Assuming no Pilots Fill Rated Supplement Billets)	+1,504	-1,048

SOURCE: Congressional Budget Office, based on U.S. Air Force data.

The Air Force argues against a reduction in rated supplement positions. Senior Air Force officers maintain that these positions benefit from the presence of a pilot. Air Force capability is presumably improved by assigning pilots to nonflying positions. Moreover, the Air Force views these assignments as career enhancing for pilots, because the positions provide pilots with an opportunity to develop management skills.

However, arguments exist in favor of reducing rated supplement positions. By definition, officers other than pilots can fill such positions. Between 1981 and 1988, people who were not pilots or navigators filled as many as 20 percent of rated supplement positions (see Table 4). In fact, the Air Force itself chose to reduce the number of these positions. Twice within the last four years, the Air Force reviewed the validity of rated supplement positions and reduced the number of such assignments by 8 percent (a total of 236 positions), about 70 percent (or 165 positions) of which would normally be filled by pilots.

TABLE 4. PERCENTAGE OF AIR FORCE REQUIREMENTS MET WITH AVIATORS

	Flying	Generalist	Rated Supplement
1981	97	84	80
1982	97	87	82
1983	99	92	96
1984	101	93	104
1985	100	92	104
1986	101	92	102
1987	101	92	102
1988	98	94	89

SOURCES: Department of Defense, U.S. Air Force, and the Congressional Budget Office.

NOTES: A percent greater than 100 indicates that the supply of aviators was greater than the number of positions to be filled.

Aviators include pilots and navigators.

Rated supplement positions are not the only positions that could be reviewed toward reducing requirements and, hence, minimizing or eliminating pilot shortages. Indeed, proposals before both the House and Senate call for a 5 percent reduction in all nonflying positions (rated supplement and generalist positions) and a review of all such positions. Chapter II of this study focuses on changes in pay and/or bonuses as a means of reducing pilot shortages.

THE NATURE OF PILOT SHORTAGES

The design of a compensation plan to remedy pilot shortages depends not only on the size of the shortage but also on the nature of the shortage.

Shortages Vary by Rank

Pilot shortages are not uniform at all levels of experience. Table 5 shows that, by 1994, the bulk of pilot shortages projected by the Air Force will occur at the ranks of captain and major. (Personnel at these ranks, who are in pay grades O-3 and O-4, usually have between 4 and 16 years of military service.) These projections suggest that future

TABLE 5. AIR FORCE ESTIMATES OF PILOT SHORTAGES BY PAY GRADE

Pay Grade	Typical Years of Military Service	1994
0-1/0-2	0-4	296
0-3	4-11	1,642
0-4	11-16	1,141
0-5	16-20	-159[a]
Total		2,920

SOURCE: Congressional Budget Office, based on U.S. Air Force data.

a. Minus sign denotes an excess of pilots.

efforts to increase pilot retention should probably be concentrated on relatively junior pilots. In the past, the military services have paid the largest bonuses to more junior personnel. As noted above, both the Navy and the Air Force have restricted eligibility for pilot bonuses--both AOCP and ACP--to relatively junior pilots who have completed their initial service obligations.

Shortages Vary by Type of Aircraft

Shortages also vary by the type of aircraft a pilot is qualified to fly--fighter, bomber, tanker, strategic airlift, tactical airlift, helicopter, or trainer. A critical element in determining pilot shortages by aircraft type is the method chosen to assign available personnel to those positions. According to Air Force personnel procedures, "specific billets" or flying positions are generally filled first. "Generalist" and "rated supplement" positions are then filled with the remainder of the pilot inventory. Therefore, any shortages of pilots would typically result in some unfilled positions in the latter two categories. Air Force personnel note, however, that while filling flying positions has first priority, each assignment is made independently based on the Air Force's needs.

Table 6 presents the Air Force's estimates of pilot shortages by type of aircraft. In 1989, pilots of four of the seven pilot communities are projected to have shortages, according to the Air Force, with strategic airlift pilots experiencing the largest absolute shortage. By 1994, however, only helicopter pilots will have a surplus, while trainer pilots will continue to have a small shortage. The shortages among the remaining pilot communities are projected to grow by 1994, with the largest absolute shortage occurring among strategic airlift and tanker pilots.

These results reflect the Air Force's allocation system of assigning pilots of different types of aircraft to flying and nonflying positions. In particular, the Air Force plans to assign fighter pilots to a disproportionately small share of nonflying positions. This approach will have the effect of holding down requirements for fighter pilots and, hence, minimizing their shortage. But this approach would also distribute the overall pilot shortage among most of the pilot communities.

TABLE 6. AIR FORCE ESTIMATES OF PILOT SHORTAGES BY TYPE OF AIRCRAFT (In number of pilots)

Type of Aircraft	1989	1994
Fighter	1	691
Bomber	121	345
Tanker	176	782
Strategic Airlift	449	932
Tactical Airlift	-3[a]	355
Helicopter	-307	-199
Trainer	-54	14

SOURCE: Congressional Budget Office, based on U.S. Air Force data.

NOTE: The estimated shortages of fighter pilots reflect the Air Force's decision to limit the number of fighter pilots in the rated supplement positions and not assign any fighter pilots to generalist positions.

a. Minus sign denotes an excess of pilots.

Widespread shortages are consistent with payment plans that reward most pilots equally rather than targeting pay on the particular aircraft pilots in shortest supply.

An alternative approach to assigning nonflying positions illustrates the sensitivity of the shortage problem to the allocation system. The "equal access" approach would assign all nonflying positions (both generalist and rated supplement positions) to each pilot community in proportion to the total inventory of pilots in that community. This procedure would equalize access to career-enhancing assignments and, as a consequence, would assign pilots in a manner more consistent with the Air Force's desire to provide a rewarding career path for all pilots.

As Table 7 shows, this approach reallocates the shortage of pilots among the various pilot communities.[2] The shortage of fighter pilots would grow from 10 percent under the Air Force allocation system to

2. Projections here assume no changes in pilot retention based on changes in the availability of flying and nonflying jobs. Retention might possibly increase among those types of pilots who receive more flying jobs (since many observers believe pilots most enjoy flying jobs) and decrease among those who receive fewer flying jobs. Unfortunately, available models do not predict whether this pattern of behavior would continue based on time spent in flying and nonflying jobs.

TABLE 7. EFFECTS OF ALLOCATION APPROACHES ON PILOT SHORTAGES IN 1994

Type of Aircraft	Air Force Approach			"Equal-Access" Approach		
	Percentage of Pilots in Inventory	Percentage of Non-flying Jobs	Shortage: Percentage of Pilot Community	Percentage of Pilots in Inventory	Percentage of Non-flying Jobs	Shortage: Percentage of Pilot Community
Fighter	36	8	10	36	36	22
Bomber	9	15	20	9	9	10
Tanker	16	25	26	16	16	17
Strategic Airlift	14	23	34	14	14	24
Tactical Airlift	11	17	16	11	11	9
Helicopter	4	4	n.a.	4	4	n.a.
Trainer	9	8	1	9	9	3

SOURCE: Congressional Budget Office calculations, based on U.S. Air Force data.

22 percent under the equal-access approach. Shortages of most other aircraft pilots would decrease. Thus, under the equal-access approach, targeting pay increases to selected pilot communities would be more reasonable.

Judgments will certainly vary about the appropriateness of these two approaches to allocation or to targeting pay. But different approaches to assigning nonflying positions will greatly affect the size of the projected pilot shortages for various types of aircraft. Flying positions, on the other hand, largely reflect the number of available cockpit seats and so do not change under different allocation systems. For this reason, flying positions are used in this study as a principal measure of the effects of alternative compensation plans on shortages of pilots by type of aircraft.

CHAPTER II

AN ANALYSIS OF ALTERNATIVE COMPENSATION PLANS

This section analyzes alternative payment and/or bonus options that might be established to offset the projected shortages of Air Force pilots. Each of these options is analyzed with the aid of a model developed by CBO, which is described briefly below. This model projects the willingness of Air Force pilots to remain in the military under various compensation plans. Next, the key features of the various plans are discussed. Finally, the plans are evaluated with respect to their estimated costs and effects on retention.

CBO MODEL

CBO developed a separate model on how retention would be affected in each pilot community in the Air Force. The willingness of pilots to remain in the military depends on many factors: military pay levels; pay available in the civilian sector; type of military aircraft flown; availability of pilot jobs in the commercial sector; the unemployment rate; and satisfaction with military pilot jobs, which might depend on considerations such as available flying time.

CBO estimated the likely effects of changes in compensation using elasticities--the percentage change in continuation rates with respect to a percentage change in pay. For example, if a compensation plan results in a 10 percent increase in pay and the elasticity of continuation with respect to pay is 0.5, then the pilot retention rate would increase by an estimated 5 percent. Therefore, if the initial rate of continuation at a particular YOS is 40 percent, the new retention rate would be 5 percent higher or 42 percent.

The pay elasticities used in this study were based on analyses of pilot retention in the Navy. (Detailed studies of Air Force pilots were not available to CBO.) The pay elasticities used account for the number of pilots hired in the civilian sector, which CBO assumes will

remain roughly constant at their current high levels, and the type of military aircraft flown (jet, propeller, or helicopter).

Once pay elasticities were used to provide estimates of likely retention rates, an inventory flow model was used to estimate how many pilots would be available. This model projects the number of pilots available by type of aircraft and by YOS. On the basis of Air Force projections, the CBO model assumes that the total number of personnel who enter pilot training remains roughly at current levels. The inventory model, pay elasticities, and other data used in the study are discussed in more detail in Appendix A.

ALTERNATIVE COMPENSATION PLANS

CBO examined five alternative compensation plans in which combinations of bonus payments, such as those under the current ACP (Aviator Continuation Pay) program, and increases in ACIP (Aviation Career Incentive Pay) were considered.

Targeting of Bonus by Type of Aircraft

Plan 1 would continue the current level of ACIP without adjustment but would provide a new pilot bonus to replace the one paid under the expiring ACP program. The new bonus would range in amount from $6,000 to $12,000 per year. Bonuses would not vary with YOS, as does the Air Force's current ACP bonus. However, new bonuses would be targeted by types of aircraft. The general rule for targeting such bonuses is that they should be larger in particular pilot communities where shortages are larger. Since the Navy has apparently found that system successful, CBO implemented this general rule by patterning the bonuses in this alternative according to the Navy's current ACP program.

Targeted bonuses of the sort proposed under this option are designed to meet shortages while holding down costs. Targeting does this by focusing the most expensive bonuses on areas where the Air Force projects its greatest needs. The specific bonuses under this option, which are based on shortages projected by the Air Force, appear in Table 8.

The Air Force, however, opposes such targeting. The service believes that targeting would adversely affect morale, eventually harm retention, and ultimately increase pilot shortages. Morale would be hurt by targeted plans, the Air Force asserts, because pilots with the same YOS would be paid different amounts. The Air Force feels that pilots would object to such internal inequities because, in peacetime, most pilots face similar hardships--such as long working hours and deployments overseas--and, in war, all pilots face substantial risk.

Despite Air Force objections, ample precedents exist for targeting military pay. The Air Force itself accepts some targeting. For example, helicopter pilots, who are not in short supply, do not receive the ACP bonus. The Navy, as has been noted, targets bonuses for its pilots by type of aircraft based on the size of the pilot shortage. The Navy has not reported any adverse effects on morale. Moreover, other types of military pay are targeted according to the degree of personnel shortage. Among these are special and incentive pay for physicians, enlisted recruiting and reenlistment bonuses, and certain housing allowances. Notwithstanding these precedents, the Air Force objects strongly to proposals that target pilot bonuses by type of aircraft.

TABLE 8. BONUS PAYMENTS BASED ON PILOT SHORTAGES

Aircraft Type	Annual Payment (In dollars)
Fighter	10,000
Bomber	10,000
Tanker	11,000
Strategic Airlift	12,000
Tactical Airlift	10,000
Trainer	6,000

SOURCE: Congressional Budget Office.

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Doubling of ACIP and No Bonus

Plan 2 would simply double current levels of ACIP and would let the current ACP bonuses lapse without replacing or extending them. Under this plan, ACIP for a junior pilot would rise from the current level of $4,800 a year to $9,600 a year, while payments for senior pilots with 20 years of military service would rise from $4,080 to $8,160 a year. All Air Force pilots would cease to be eligible for the annual cash ACP bonus of $12,000.

At one point in the debate over pilot pay, a major across-the-board increase in ACIP was considered. CBO developed this alternative to illustrate its effects. Because they provide pay increases to all eligible pilots, whether or not they are in short supply, ACIP increases are an expensive way to meet selected shortages. But ACIP increases are a simple way to increase pilot retention and satisfy the desire of the Air Force to pay roughly the same amount to all pilots with the same YOS. Proponents of increasing ACIP also note that this pay, specified in dollar amounts, has eroded by about 30 percent because of inflation since it was last adjusted in 1981. This proposal would more than offset this erosion. Most newly eligible pilots (that is, excluding those under a 1989 ACP obligation) would receive an increase in pay over current levels. However, other alternatives--including combinations of current ACIP plus bonuses--could result in larger increases for some pilots.

Senate Committee Plan

Plan 3 was proposed by Senators John Glenn and John McCain and approved by the Senate Committee on Armed Services.[1] Several elements of their proposal are of particular relevance to CBO's analysis of pilot compensation and retention. First, bonus payments would continue the same as under the Air Force's current ACP program and would be authorized for three years. The ACP bonuses would be based on current Air Force policy; thus, they would vary by YOS but not by type of aircraft.

1. Subsequent to preparation of this study, the Senate Committee plan was approved by the full Senate.

Second, selective increases in ACIP would occur as shown in Table 9. Under this plan, ACIP increases are largest for pilots in YOS groups facing the greatest shortages. Future ACIP payments would be "indexed." That is, they would be increased at the same time and by the same percentage as basic military pay. Eligibility for ACIP would be restricted, however, by increasing the years of cockpit experience required to qualify for ACIP at the twelfth- and eighteenth-year gates of military service. Finally, under the Senate Committee plan, the DoD would be required to reduce by 5 percent the number of all nonflying positions for pilots.

This plan represents a mix of the compensation alternatives embodied in the preceding two plans. ACIP increases would go to all pilots, and the Air Force would continue its current procedure under which ACP bonuses do not vary according to the size of the pilot shortage. In this sense, the Senate Committee plan tends toward simple, across-the-board pay hikes for pilots. But ACP bonuses are larger for more junior pilots, as are the increases in ACIP. Thus, pay increases under the Senate Committee plan are targeted on more junior pilots where shortages are largest.

Modified Senate Committee Plan

Plan 4 analyzed by CBO is a modification of the Senate Committee plan designed to examine the effects of targeting pay hikes on areas

TABLE 9. SELECTIVE INCREASES IN AVIATION CAREER INCENTIVE PAY

Years of Service	Current/ Yearly (In dollars)	Proposed/ Yearly (In dollars)
6-18	4,800	7,800
18-20	4,440	7,020
20-22	4,080	5,940
22-24	3,720	4,620
24-25	3,360	4,620

SOURCE: Committee on Armed Services, U.S. Senate.

TABLE 10. BONUS PAYMENTS FOR STRATEGIC AIRLIFT AND TRAINER PILOTS

Years of Service	Highest/ Strategic Airlift (In dollars)	Lowest/ Trainer (In dollars)
8	12,000	6,000
9	11,000	5,500
10	11,000	5,500
11	9,500	4,500
12	8,000	4,000
13	6,000	3,000

SOURCE: Congressional Budget Office.

where pilot shortages are largest. This modified version is the same as the original Senate Committee plan, except that the ACP bonus is varied by type of aircraft as well as by YOS. The maximum annual bonuses would vary from $6,000 to $12,000, depending on the projected shortage of pilots of each aircraft type. Moreover, smaller bonuses would be awarded to more senior personnel.

Under this plan, the highest maximum bonuses would go to strategic airlift pilots, since they are projected to have the largest shortage. The lowest maximum payments would be received by trainer pilots, because they are projected to have the smallest shortage. The distribution of bonus payments for these two pilot communities are shown in Table 10.

House Committee Plan

Plan 5 was approved by the Subcommittee on Military Personnel and Compensation of the House Committee on Armed Services.[2] This plan is the same as the Senate Committee plan in that ACIP payments are increased. However, Plan 5 is a modification of the Senate plan in that ACIP is not indexed to annual pay increases; instead, ACIP increases

2. Subsequent to the preparation of this study, the House Committee plan was approved by the full House.

are held constant in nominal dollars. In addition, the bonus amount would be increased the same as under the Senate Committee plan, but the program would be authorized for two rather than three years.

IMPACTS AND COMPARISONS OF THE COMPENSATION PLANS

The impact of the various compensation plans on the problem of pilot shortages is summarized in Tables 11 and 12. Table 11 shows the

TABLE 11. SUMMARY OF ALTERNATIVE COMPENSATION PLANS

Type of Aircraft	Targeting of Bonus by Type of Aircraft		Double ACIP and no Bonus		Senate Committee Plan[a]		Modified Senate Committee Plan[a]		House Committee Plan	
	1990	1994	1990	1994	1990	1994	1990	1994	1990	1994
Projected Pilots as Percentage of Total Billets										
Total	94	92	95	95	95	98[b]	95	97[b]	95	97[b]
Added Pilots in Years of Service 8-13[c]										
Total	273	223	133	108	360	308	299	258	355	287
Projected Pilots as Percentage of Flying Requirements										
Fighter	101	102	102	105	103	108	102	107	103	107
Bomber	108	113	109	117	109	120	109	117	109	119
Tanker	112	105	113	109	113	111	113	110	113	110
Strategic Airlift	100	97	101	100	101	101	101	101	101	100
Tactical Airlift	117	114	118	116	118	120	118	116	118	118
Helicopter	171	160	173	169	172	167	172	167	172	166
Trainer	117	116	118	120	118	121	117	119	118	120
Total	108	107	109	110	110	113	109	111	109	111
Cost of Alternative Compensation Plans[d] (In millions of dollars)										
1990	60		104		96		89		96	
1994	61		82		135		109		118	
1990-1994	313		464		586		497		545	

SOURCE: Congressional Budget Office.

a. Plan calls for indexing of ACIP payments based on Administration's pay-raise assumptions.
b. Reflects 5 percent cut in requirements for nonflying billets.
c. This number of pilots represents the number of "fence sitters" and not the total number of projected program participants.
d. Includes 1989 ACP anniversary payments and assumes that the 1989 ACP program expires after 1989.

TABLE 12. PROJECTED INVENTORIES OF THE NUMBER OF PILOTS UNDER ALTERNATIVE COMPENSATION PLANS

Type of Aircraft	Targeting of Bonus by Type of Aircraft		Double ACIP and no Bonus		Senate Committee Plan		Modified Senate Committee Plan		House Committee Plan	
	1990	1994	1990	1994	1990	1994	1990	1994	1990	1994
Fighter	7,471	7,412	7,527	7,628	7,576	7,881	7,555	7,793	7,569	7,788
Bomber	2,065	1,856	2,090	1,920	2,094	1,975	2,083	1,924	2,092	1,952
Tanker	3,452	3,237	3,491	3,369	3,495	3,436	3,489	3,403	3,492	3,398
Strategic Airlift	3,029	2,887	3,058	2,969	3,058	3,010	3,058	3,010	3,056	2,978
Tactical Airlift	2,470	2,315	2,489	2,367	2,499	2,434	2,482	2,359	2,497	2,408
Helicopter	914	855	925	905	921	890	921	890	920	885
Trainer	1,904	1,841	1,932	1,909	1,921	1,919	1,915	1,887	1,920	1,906
Total	21,305	20,403	21,512	21,067	21,564	21,545	21,503	21,266	21,546	21,315

SOURCE: Congressional Budget Office.

percentage of total pilot requirements that are met, as well as the number of additional Air Force pilots at critical career intervals when shortages tend to be largest--namely, in the eighth to thirteenth years of military service.[3] In addition, Table 11 shows the percentage of flying positions that are filled for each type of aircraft. Table 12 shows the projected number of pilots qualified to fly each type of aircraft. As noted above, the number of flying positions provides a good measure of the ability of alternative compensation plans to meet shortages by type of aircraft, because requirements for flying positions do not depend on arbitrary assumptions about the allocation of nonflying positions.

The lower portion of Table 11 shows the cost of each plan. Costs shown include the cost for the "base case." The base case is the active force profile and the cost that would prevail after the current ACP program expires in 1989 with no new compensation plan put into place. To be consistent with the estimates presented by the DoD, the costs in Table 11 include the anniversary payments that will be paid to pilots

3. The number of pilots shown here does not represent the total number of pilots projected to receive bonus payments or ACIP. Rather, these projections represent "fence sitters" who would decide to remain in service rather than separate as a result of additional compensation. Details on the retention effects of each plan are contained in Appendix B.

who receive bonus commitments under the current ACP program but who have not yet received the entire bonus. The costs of the various plans minus the 1989 ACP anniversary payments are presented in Appendix C.

All of the alternative compensation plans would satisfy at least 92 percent of the total requirements for pilots as projected by the Air Force. For almost every type of aircraft, each plan would increase pilot retention sufficiently to meet or exceed requirements for flying positions in both 1990 and 1994. Thus, critical cockpit positions could be fully staffed.

Substantial differences arise, however, among the alternative compensation plans. The Senate Committee plan is estimated to fill the highest percentage of total pilot positions. This occurs partly because the plan requires a 5 percent reduction in nonflying positions, which modestly reduces requirements. But the Senate Committee plan also fills the highest percentage of flying positions that are not influenced by the 5 percent reduction.

The Senate Committee plan would also add the largest number of pilots in career intervals where shortages are large--in the eighth to thirteenth years of military service. Pilots at this stage in their careers are particularly important to the Air Force, in part, because they are fully trained and experienced and, hence, highly capable. Also, success in retaining a pilot through the thirteenth year often results in the pilot remaining for a full 20-year career, thus providing additional years of experienced service. This career interval is also critical to pilots, since those who remain for 20 years become eligible for military retirement benefits. Not surprisingly, in view of these benefits, the Senate Committee option is the most costly. This plan would add $492 million to the costs of the base case over the 1990-1994 period.

In contrast, the Modified Senate Committee plan with its targeted bonuses would cost $89 million less than the Senate Committee plan over the same period. Compared with the original version, the modified plan would provide only 279 fewer pilots by 1994 and only 50 fewer pilots in the eighth to thirteenth years of military service. This substantially reduced cost, compared with the modest reduction in the number of pilots, suggests that targeting bonuses on types of aircraft

where pilot shortages are largest, and on YOS where shortages are large, is relatively efficient.

The House Committee plan is essentially identical to the Senate Committee plan except that benefits are not indexed to increases in basic military pay. The absence of indexing results in a reduction in cost of $41 million over the five years. In 1994, however, the House Committee plan attracts only 230 fewer pilots and only 21 fewer pilots in the critical eighth to thirteenth years of military service--an indication that deleting the indexing provision would not significantly affect retention over the next few years. The absence of indexing would increase the likelihood that the Congress would have to reconsider pilot pay in two or three years, especially if inflation rises above the low levels anticipated by the Administration. Reconsideration may be desirable in view of the changes that could occur in pilot requirements because of budgetary limitations and, perhaps, because of changes in the number of military forces required as a result of arms control agreements.

In examining the option that doubles ACIP, some effects appear that are characteristic of any plan that provides pay increases to all pilots. Such plans are an expensive way to meet shortages in key areas. For example, doubling ACIP adds only half as many Air Force pilots in the eighth to thirteenth years of service compared with the modified Senate Committee plan (which does increase ACIP, but by much less than a factor of two). But doubling ACIP adds almost as much to costs over the next five years as does the modified Senate Committee plan.

Moreover, the estimates of increased costs of ACIP understate the costs to the government. Because ACIP is paid to all eligible pilots in all the military services, any increases in ACIP would be received routinely by all those eligible. This study focuses only on costs and effects in the Air Force. But the doubling of ACIP would increase costs for other military services and, consequently, to the government without much benefit. For example, Army helicopter pilots, who are not in short supply, receive ACIP, which would be increased for them as for other Air Force pilots under this plan. As a result, Army pilot costs would go up, even though the Army does not have a pilot retention problem. Thus, ACIP increases would be a costly method for promoting pilot retention. ACIP increases, however, would meet the

Air Force's desire to keep pay roughly the same for pilots with similar YOS.

Compared with doubling ACIP, a plan that targets pay increases on those types of aircraft with large pilot shortages--such as the targeted plan examined above--would present a different set of advantages and disadvantages. Targeted pay would not meet the Air Force's goal to keep pay similar for pilots with similar YOS. But targeted pay is an efficient way to fill selected shortages. For example, compared with the Senate Committee plan, a plan with targeted bonuses would add about 25 percent fewer pilots in 1994 in the important eighth to thirteenth years of military service but cost about 50 percent less. Results are even more striking when targeted pay is compared with doubling ACIP. The targeted plan adds more pilots in the eighth to thirteenth years of military service but actually costs less than would doubling ACIP.

GENERAL CONCLUSIONS

The preceding discussion focuses on specific compensation plans, including several that will be debated by the Congress during the next few months. The following conclusions also emerge, which may be useful if the Congress considers further changes in pilot pay in future years.

Targeting bonus pay to pilots of particular types of aircraft or YOS is an efficient way to eliminate shortages. The cost per additional pilot is lower for a plan containing targeted bonuses than for one providing increases across-the-board, such as those associated with ACIP increases. This advantage must be weighed against the Air Force's desire for comparable pay to pilots with similar experience.

Increasing ACIP across-the-board meets the Air Force's concern about equitable treatment of pilots of different types of aircraft, but these pay increases are expensive. ACIP increases are not an efficient way to eliminate selected pilot shortages, because additional ACIP would be received by those in specific pilot communities and at points in their careers where shortages do not exist. ACIP increases would probably also be provided to pilots in all the military services, even though some services do not face shortages.

Indexing pay allows for automatic annual increases that will minimize the need to revise pay plans in the future. But excluding indexing, which is proposed by the House Committee plan, increases the likelihood that Congress will reconsider pilot pay periodically. This may be desirable, especially in light of possible changes in pilot requirements that could result from current budgetary limitations, arms control negotiations, or changes in the civilian job market for pilots.

APPENDIXES

APPENDIX A

DATA AND METHODOLOGY

This appendix describes in more detail the analytic framework for evaluating alternative compensation plans for pilots. The data used in the analysis are described first, followed by a discussion of the estimating technique.

DATA AND ASSUMPTIONS

The Congressional Budget Office used data obtained from the Department of Defense, the Department of the Air Force, and the Department of the Navy in conducting this study. Air Force data on the number of pilots by type of aircraft (fighter, bomber, tanker, strategic airlift, tactical airlift, helicopter, and trainer), by years of service (YOS), and their continuation rates in fiscal year 1987 were used to project the number of all aircraft pilots in 1988 through 1994. On the basis of Air Force plans, the number of those entering pilot training each year was assumed to remain at approximately the current level or 1,625.

Changes in the projected inventory of pilots resulting from increases in compensation were estimated using pay elasticities (the percentage change in retention rates with respect to a percentage change in pay). Ideally, estimates of these pay elasticities would be desirable by YOS for each Air Force pilot community, but such estimates were not available to CBO. As proxies, CBO used a set of pay elasticities estimated from Navy data on the continuation behavior of jet, propeller, and helicopter pilots.

The validity of applying estimated Navy pay elasticities to Air Force pilots is justified by the method of estimation and the application of these pay elasticities only to marginal responses of pilots. The pay elasticities employed were .313 for jet, .294 for propeller, and .147 for

helicopter pilots, as estimated by the Center for Naval Analyses.[1] These pay elasticities were transformed from coefficients in a regression equation that related retention to relative military and civilian pay, pilots hired by domestic airlines, the annual unemployment rate, and interactive dummy variables for each of the three categories of aircraft. Since the statistical technique used to estimate the coefficients was a logit equation, the pay elasticities were estimated from the coefficients using the following relationship:

$$e = b(1 - p)M$$

Where "e" is the pay elasticity estimate; "b" is the estimated coefficient of the regression equation; "p" is the probability of remaining in the service; and "M" is the mean value of the independent variable (pay).

The pay-raise assumptions of the Administration were used to project cost-of-living increases in basic pay and ACIP, where applicable.

METHODOLOGY

Although the problem of pilot shortages is often discussed in the aggregate, important differences in pilot shortages exist by type of aircraft. In particular, the retention behavior of pilots tends to vary by pilot community. A model that treats the various pilot communities as a group within the Air Force would ignore these differences. Consequently, CBO constructed separate inventory flow models of pilot retention for each pilot community in the Air Force. The inventory models simulate the retention behavior of pilots in accordance with current and projected continuation rates (that is, the probability of pilots remaining in service from one year to the next). Each of the compensation plans examined in this study results in a percentage change in pay for those in each pilot community. When multiplied by the relevant pay elasticity, the change in pay effects a percentage change in the continuation rate of each pilot community and, in turn, in total pilot retention.

1. Memorandum from Donald J. Cymrot to the Deputy Chief of Naval Operations (Manpower, Personnel and Training), Center for Naval Analyses, 89-0165, 25 January 1989.

Projection of Base Case

Estimates of the pilot inventory were also constructed of the "base case" for each type of aircraft from 1988 through 1994. The base case is the active force profile of pilots if no new compensation plan were established and the current ACP program expired in 1989. Air Force continuation rates for each pilot community by YOS in 1988 were applied to each pilot inventory for the same year. The resulting projection for 1989 was adjusted to reflect the availability of ACP. The projected 1989 inventory was then used with the Air Force's projected continuation rates for 1989 to arrive at the 1990 inventory. The inventories for 1991 through 1994 were projected in a similar manner. These baseline projections were then used to evaluate the impact of alternative compensation plans for improving Air Force retention.

Impact of Alternative Compensation Plans

To evaluate alternative plans, the models first compute total pilot compensation for the base case (Regular Military Compensation plus cost-of-living adjustments after 1989 and ACIP) for each pilot community by YOS:

$$Y_{Bitj} = \Phi \times RMC_{itj} + ACIP_{itj}$$

where:

Y_B = Total Compensation Under Base Case
i = Type of Aircraft (fighter, bomber, tanker, strategic airlift, tactical airlift, helicopter, and trainer)
t = Year (1988 through 1994)
j = YOS
Φ = Cost of Living Factor
RMC = Regular Military Compensation
ACIP = Aviation Career Incentive Pay

Next, the total compensation that would be received under each alternative pay plan is computed (including bonuses if applicable, any

additional ACIP, and ACIP cost-of-living adjustments where appropriate):

$$Y_{Aitj} = \Phi \times RMC_{itj} + [\Phi] \times ACIP_{itj} + Bonus_{itj}$$

where:

A = Alternative Compensation Plan
Bonus = Bonus Amount Under Alternative Pay Plan

From the two pay levels, percentage changes in pay ($\% \Delta Y_{itj}$) are determined for each pilot community by YOS. These changes in pay are then multiplied by the appropriate pay elasticity, e_p (where "p" denotes the type of aircraft), yielding an estimated percentage change in the continuation rates ($\% \Delta CONT_{itj}$, where CONT is the continuation rate) for some YOS. That is:

$$\% \Delta CONT_{itj} = \% \Delta Y_{itj} \times e_p$$

All continuation rates are adjusted to take into account any percentage changes in continuation rates that occur under the alternative pay plan. In some YOS cells--those where compensation does not change--continuation rates are unaffected. Thus, the complete set of new continuation rates can be expressed as:

$$NCONT_{itj} = CONT_{itj} + \% \Delta CONT_{itj}$$

where:

$NCONT_{itj}$ = New Continuation Rates

These new continuation rates are then applied to the inventory of the pilot community to arrive at the new inventory under the alternative compensation plan. In projecting the number of pilots in each YOS cell under alternative plans, care must be taken to adjust for those pilots who have made a previous program commitment in an earlier year, since their continuation rate is projected to be 1.0 during the term of their commitment. While these pilots clearly should be counted ultimately as part of the inventory in the appropriate YOS cell, they should not be included among those eligible for a new

alternative compensation pay plan. This adjustment is accomplished as follows for each YOS cell inventory (C):

$$C_{Aitj} = C_{Ai,t-1,j-1} - [TAKE_{i,t-1,j-1}] \times NCONT_{i,t-1,j-1} + [TAKE_{i,t-1,j-1}]$$

given that:

$$TAKE_{i,t-1,j-1} = C_{Ai,t-1,j-1} - C_{Bi,t-1,j-1}$$

where:

TAKE = Pilots who are under a previous alternative pay program

The new pilot inventory is compared with the base case to estimate the changes resulting from each compensation alternative. This procedure is achieved by first summing across each type of aircraft for both the base case and the alternative plan and then taking the difference:

$$TOT_{Btj} = \Sigma C_{Bitj}$$

$$TOT_{Atj} = \Sigma C_{Aitj}$$

and hence:

$$DIFF_{ABtj} = TOT_{Atj} - TOT_{Btj}$$

where:

TOT = Total inventory by fiscal year and year of service

$DIFF_{AB}$ = Difference between the inventory under the alternative plan and the base case

APPENDIX B

DETAILS ON RETENTION EFFECTS AND COSTS OF ALTERNATIVE COMPENSATION PLANS

TABLE B-1. TARGETING OF BONUS BY TYPE OF AIRCRAFT: RETENTION EFFECTS AND COSTS

Aircraft Type	1990 Requirements[a]	1990 Inventory	1990 Pilots as Percentage of Requirements	1994 Requirements	1994 Inventory	1994 Pilots as Percentage of Requirements
			Flying Billets			
Fighter	7,380	7,471	101	7,275	7,412	102
Bomber	1,919	2,065	108	1,640	1,856	113
Tanker	3,083	3,452	112	3,092	3,237	105
Strategic Airlift	3,022	3,029	100	2,967	2,887	97
Tactical Airlift	2,109	2,470	117	2,035	2,315	114
Helicopter	536	914	171	534	855	160
Trainer	1,632	1,904	117	1,586	1,841	116
Total	19,681	21,305	108	19,129	20,403	107
			Total Billets			
Total	22,678	21,305	94	22,122	20,403	92
Cost[b]		60			61	

SOURCE: Congressional Budget Office.

a. Pilot requirements for 1990 disaggregated by aircraft type were not available to CBO. Consequently, the requirements for 1989 were assumed for 1990. Since the active force is projected to decline over time, this assumption would tend to overstate slightly the true requirements for 1990.

b. In millions of dollars, includes 1989 ACP anniversary payments.

TABLE B-2. DOUBLE ACIP AND NO BONUS: RETENTION EFFECTS AND COSTS

Aircraft Type	1990 Requirements[a]	1990 Inventory	1990 Pilots as Percentage of Requirements	1994 Requirements	1994 Inventory	1994 Pilots as Percentage of Requirements
			Flying Billets			
Fighter	7,380	7,527	102	7,275	7,628	105
Bomber	1,919	2,090	109	1,640	1,920	117
Tanker	3,083	3,491	113	3,092	3,369	109
Strategic Airlift	3,022	3,058	101	2,967	2,969	100
Tactical Airlift	2,109	2,489	118	2,035	2,367	116
Helicopter	536	925	173	534	905	169
Trainer	1,632	1,932	118	1,586	1,909	120
Total	19,681	21,512	109	19,129	21,067	110
			Total Billets			
Total	22,678	21,512	95	22,122	21,067	95
Cost[b]		104			82	

SOURCE: Congressional Budget Office.

a. Pilot requirements for 1990 disaggregated by aircraft type were not available to CBO. Consequently, the requirements for 1989 were assumed for 1990. Since the active force is projected to decline over time, this assumption would tend to overstate slightly the true requirements for 1990.

b. In millions of dollars, includes 1989 ACP anniversary payments.

TABLE B-3. SENATE COMMITTEE PLAN: RETENTION EFFECTS AND COSTS

Aircraft Type	1990 Requirements[a]	1990 Inventory	1990 Pilots as Percentage of Requirements	1994 Requirements	1994 Inventory	1994 Pilots as Percentage of Requirements
			Flying Billets			
Fighter	7,380	7,576	103	7,275	7,881	108
Bomber	1,919	2,094	109	1,640	1,975	120
Tanker	3,083	3,495	113	3,092	3,436	111
Strategic Airlift	3,022	3,058	101	2,967	3,010	101
Tactical Airlift	2,109	2,499	118	2,035	2,434	120
Helicopter	536	921	172	534	890	167
Trainer	1,632	1,921	118	1,586	1,919	121
Total	19,681	21,564	110	19,129	21,545	113
			Total Billets			
Total	22,678	21,564	95	21,972	21,545	98[b]
Cost[c]		96				135

SOURCE: Congressional Budget Office.

a. Pilot requirements for 1990 disaggregated by aircraft type were not available to CBO. Consequently, the requirements for 1989 were assumed for 1990. Since the active force is projected to decline over time, this assumption would tend to overstate slightly the true requirements for 1990.

b. Takes into account the 5 percent reduction in nonflying billets as called for in the Senate Committee Plan.

c. In millions of dollars, includes 1989 ACP anniversary payments.

TABLE B-4. MODIFIED SENATE COMMITTEE PLAN: RETENTION EFFECTS AND COSTS

Aircraft Type	1990 Requirements[a]	1990 Inventory	1990 Pilots as Percentage of Requirements	1994 Requirements	1994 Inventory	1994 Pilots as Percentage of Requirements
			Flying Billets			
Fighter	7,380	7,555	102	7,275	7,793	107
Bomber	1,919	2,083	109	1,640	1,924	117
Tanker	3,083	3,489	113	3,092	3,403	110
Strategic Airlift	3,022	3,058	101	2,967	3,010	101
Tactical Airlift	2,109	2,482	118	2,035	2,359	116
Helicopter	536	921	172	534	890	167
Trainer	1,632	1,915	117	1,586	1,887	119
Total	19,681	21,503	109	19,129	21,266	111
			Total Billets			
Total	22,678	21,503	95	21,972	21,266	97[b]
Cost[c]		89				109

SOURCE: Congressional Budget Office.

a. Pilot requirements for 1990 disaggregated by aircraft type were not available to CBO. Consequently, the requirements for 1989 were assumed for 1990. Since the active force is projected to decline over time, this assumption would tend to overstate slightly the true requirements for 1990.

b. Takes into account the 5 percent reduction in nonflying billets as called for in the Senate Committee Plan.

c. In millions of dollars, includes 1989 ACP anniversary payments.

TABLE B-5. HOUSE COMMITTEE PLAN: RETENTION EFFECTS AND COSTS

Aircraft Type	1990 Requirements[a]	1990 Inventory	1990 Pilots as Percentage of Requirements	1994 Requirements	1994 Inventory	1994 Pilots as Percentage of Requirements
			Flying Billets			
Fighter	7,380	7,569	103	7,275	7,788	107
Bomber	1,919	2,092	109	1,640	1,952	119
Tanker	3,083	3,492	113	3,092	3,398	110
Strategic Airlift	3,022	3,056	101	2,967	2,978	100
Tactical Airlift	2,109	2,497	118	2,035	2,408	118
Helicopter	536	920	172	534	885	166
Trainer	1,632	1,920	118	1,586	1,906	120
Total	19,681	21,546	109	19,129	21,315	111
			Total Billets			
Total	22,678	21,546	95	21,972	21,315	97[b]
Cost[c]			96			118

SOURCE: Congressional Budget Office.

a. Pilot requirements for 1990 disaggregated by aircraft type were not available to CBO. Consequently, the requirements for 1989 were assumed for 1990. Since the active force is projected to decline over time, this assumption would tend to overstate slightly the true requirements for 1990.

b. Takes into account the 5 percent reduction in nonflying billets as called for in the Senate Committee Plan.

c. In millions of dollars, includes 1989 ACP anniversary payments.

APPENDIX C

COST OF ALTERNATIVE PLANS NET OF 1989 ACP ANNIVERSARY PAYMENTS

TABLE C-1. COST OF ALTERNATIVE PLANS NET OF 1989 ACP ANNIVERSARY PAYMENTS (In millions of dollars)

Year	Targeting of Bonus by Type of Aircraft	Double ACIP and No Bonus	Senate Committee Plan	Modified Senate Committee Plan	House Committee Plan
1990	18	75	67	60	67
1991	29	73	83	70	80
1992	37	73	100	81	92
1993	44	74	114	91	102
1994	51	75	128	102	111
1990-1994	179	370	492	403	451

SOURCE: Congressional Budget Office.

NOTE: Program costs based on Administration's pay-raise assumptions.