

## **CHAPTER V**

### **CONSOLIDATING PILOT TRAINING**

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The Department of Defense emphasizes keeping military personnel trained to high levels in the conviction that well-trained fighting forces are most likely to win wars quickly with the lowest loss of life. Training takes place both in institutional or classroom settings and in operational units (for example, in air wings or battalions or on ships). Classroom or individual training is designed to provide operational forces with personnel who are ready to carry out their duties effectively.

DoD trains almost 200,000 students in classrooms on an annual basis, equal in number to about five large state universities. Each of the services relies on large administrative agencies to provide this classroom or individual training, which includes both beginning and advanced training as well as refresher training that continues throughout the military service member's career. DoD trains its personnel in a wide variety of skills, including how to provide basic first aid, operate and repair weapons, exercise military leadership, and a myriad of other skills that contribute to a successful fighting force.

A number of experts believe that large segments of this training could be consolidated. For example, Senator Sam Nunn suggested that both basic and advanced training might be areas for consolidation. Many people believe that consolidation could both save money at a time when funds for defense are increasingly difficult to find and produce a more coordinated fighting force at a time when the services are emphasizing joint operations more than ever before. This chapter considers an illustrative option that would consolidate undergraduate pilot training for the four services.

### **RATIONALES FOR CONSOLIDATING PILOT TRAINING**

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Former Senator Barry Goldwater's remark that the United States is the only nation with four air forces has been repeated so often that it has almost become a cliché. But consider the current program for training pilots, in which each of the three military departments operates its own schools, facilities, and programs. (Marine Corps and Navy pilots train in the same facilities.) In 1992, Senator Nunn suggested that undergraduate fixed-wing pilot training might be consolidated, arguing that basic piloting skills should be the same regardless of whether, for example, students later went on to fly

fighters for the Navy or the Air Force. At the same time, he noted that consolidation would also be justified for basic helicopter training for the same reasons. In fact, Senator Goldwater, himself a helicopter pilot, strongly advocated consolidating helicopter training to then Secretary of Defense Caspar Weinberger in 1983, suggesting that "as long as the thing stays up and hovers or goes where you want it to, there is no difference whether you are over water or land. . . . [Hence, separate Navy and Army helicopter training programs are] not only expensive and redundant, but a complete waste of equipment and personnel."<sup>1</sup>

As further evidence of the potential for consolidation, Senator Nunn observed that the Air Force and Navy had decided to develop and buy a common trainer aircraft--the Joint Primary Aircraft Training System (JPATS). Consolidating pilot training was also one of the few suggestions by Senator Nunn that was endorsed in the report on roles and missions by the former Chairman of the Joint Chiefs of Staff, General Colin Powell.<sup>2</sup> In March 1993, then Secretary of Defense Les Aspin called on the services to develop a plan to carry out the recommendations in the JCS report.

Despite these recommendations, current service plans call for the Navy and Air Force each to exchange (rather than consolidate) one squadron of primary aviation students and their instructors by 1998. By that time, this program would affect only 200 students each year, less than 10 percent of the total undergraduate pilot trainees at that time. The current plan envisions gradually expanding the program as the JPATS trainer aircraft are delivered between 1998 and 2010. Based on initial estimates, the services did not anticipate that adopting joint primary fixed-wing pilot training would yield any significant savings. After more than a year, the most recent evaluation of the contentious issue of consolidating helicopter training throughout the services--the 18th study effort conducted over the last 30 years--remains in limbo with no study results reported thus far. Despite this very gradual and cautious approach to joint training adopted so far by the services, they may now be ready to consider moving more quickly because of the precipitous drop in pilot training requirements.

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1. Letter of Senator Barry Goldwater to Secretary Weinberger, May 3, 1983.

2. See Chairman of the Joint Chiefs of Staff, *Report on the Roles, Missions, and Functions of the Armed Forces of the United States* (February 1993), pp. III-18 to III-20. The JCS report proposed that the services develop a training consolidation plan for full implementation by the year 2000. The plan called for consolidating initial fixed-wing training with a gradual transition to a common primary training aircraft; consolidating follow-on training into four tracks (Navy fighter/attack, Air Force fighter/bomber, Navy and Air Force tanker/transport/maritime patrol, and helicopter); and studying whether it saves money to move Navy, Marine Corps, and Coast Guard helicopters from Whiting Field Naval Air Station in Florida to the Army's base at Fort Rucker in Alabama.

### Pilot Requirements Have Dropped in the Last Decade

With the drawdown in force structure, all the services need far fewer pilots than previously. Collectively, total flight training loads--a measure of training that takes into account the length of a course--dropped from 7,500 in 1983 to 3,840 in 1995, a reduction of almost 50 percent.<sup>3</sup> Undergraduate flight training loads, which make up the bulk of flight training, dropped by similar percentages, from almost 5,500 to 2,700 in the same period.<sup>4</sup> Over the last decade, the services have reduced the number of bases on which flight training is conducted from 15 to 12, reducing capacity to train students by about 20 percent.<sup>5</sup> Consolidating flight training could reduce the number of flight training bases, which clearly has not kept pace with the precipitous drop in the need to train pilots.

Based on current estimates of their "steady-state" requirements in 1997--when the drawdown is currently scheduled to be completed--the services believe they will need to train about 2,700 new pilots each year, about the same as today's level. (Total flight training requirements--including navigators and advanced training as well as undergraduate training--are also projected to be at today's level.) Based on the amount of training conducted in the past at the 12 flight training bases in use today, the services together have almost twice as much capacity to train pilots as they will need.

Even without consolidation, this drop in the number of pilots to be trained suggests that the services need far fewer flight training bases than exist today. The Navy, in fact, included one flight training base in its 1993 recommendation for base closure that the 1993 Defense Base Closure and Realignment Commission deleted. Consolidation, however, could well permit the services to close additional bases, since after consolidation some bases otherwise would be only partially used. As part of the ongoing review of base infrastructure for the 1995 Defense Base Closure and Realignment Commission, DoD is looking at consolidating pilot training and options for closure.

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3. Department of Defense, *Military Manpower Training Report, FY 1989* (May 1988), Table VI-1 and data from the Department of Defense for 1995. These figures are measured in terms of average student year--which takes into account differences in training length, as well as student attrition during the course.
  4. Department of Defense, *Military Manpower Training Report, FY 1985* (February 1984), p. VI-4 and data from the Department of Defense for 1995.
  5. Based on peak student loads in the last decade, CBO estimated that the 15 original flight training bases could train about 8,700 pilots and navigators annually. With the closing of Chase Naval Air Station in Texas, Mather Air Force Base in California, and Williams Air Force Base in Arizona by the base closure and realignment commissions, capacity to provide flight training will drop by about 20 percent to 6,900.

### Undergraduate Flight Training Is Similar

What opportunities exist to consolidate flight training and what would be gained? According to DoD's 1992 Trainer Aircraft Master Plan, undergraduate training systems among the services "resemble each other to a remarkable degree" even though the services use a variety of different trainer aircraft.<sup>6</sup> All Army pilots and more than one-third of Navy and Marine Corps pilots learn to fly rotary-wing helicopters, and almost all Air Force pilots train to operate fixed-wing aircraft. All the services rely on a primary phase of general or "core" training, followed by specialized training in a particular type of aircraft. At the end of training, pilots earn their "wings" and generally are assigned to a special squadron where they may receive additional training on the specific aircraft that they will fly in a unit. (Army helicopter pilots are assigned to an operational squadron immediately after receiving their wings.) Consolidating fixed-wing training and consolidating rotary-wing training in this primary phase could yield significant savings.

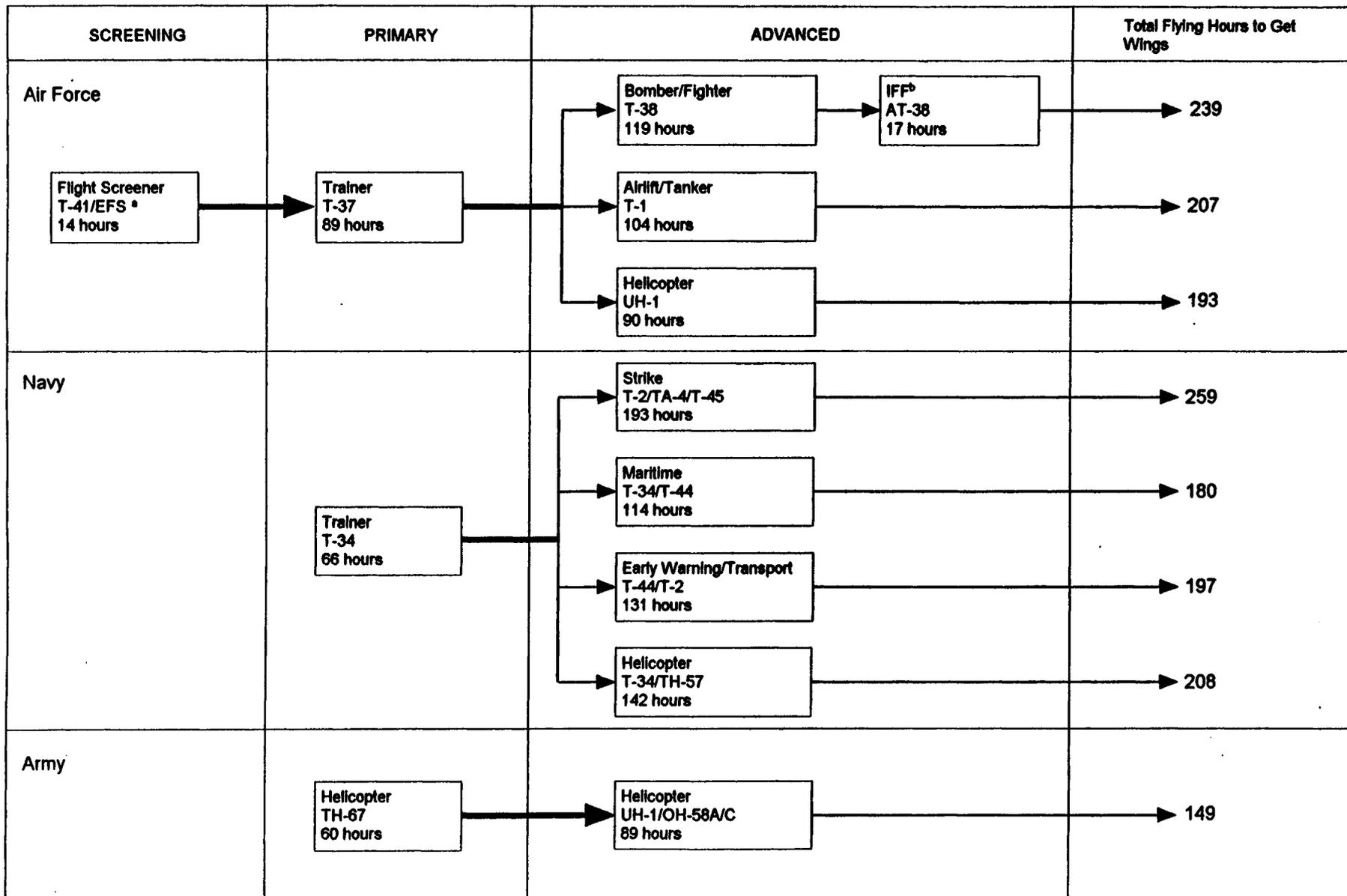
There are, however, some differences in flight training among the services. The length of undergraduate flight training varies from 39 weeks for Army helicopter pilots to a year and a half for Navy strike pilots. Syllabus length is also measured by the number of practice flight hours that students receive. The number of hours varies by the type of aircraft, the complexity of the training, and the amount of on-the-job training that students receive in operational squadrons. For undergraduate training, syllabus flight hours vary from 149 hours for an Army helicopter student to 259 hours for a Navy strike pilot (see Figure 1). All trainees in both the Navy and the Air Force participate in a primary phase of fixed-wing training; Navy student pilots fly first in the relatively simple T-34 prop aircraft, and Air Force students primarily in the T-37 jet trainer. When the new JPATS trainer is delivered starting in 1998, the Navy and Air Force are anticipating that this primary phase will be the same length and in the same aircraft.

At the end of this primary phase, pilots are selected for further training in either a particular type of fixed-wing aircraft--including the most demanding strike or fighter track--or a helicopter. Navy (and Marine Corps) students who receive higher grades for their performance during initial training are eligible for follow-on training in one type of fixed-wing aircraft--strike, maritime patrol, or E-2 command and control or C-2 transport tracks. Those who get lower grades are assigned to the rotary-wing, or helicopter, track.

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6. Department of Defense, "1992 Trainer Aircraft Master Plan" (1992), p. 24.

**FIGURE 1.**  
**UNDERGRADUATE FLIGHT TRAINING PATHS IN THE AIR FORCE, NAVY, AND ARMY**  
 (Number of flying hours in each aircraft)



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

a. EFS is the Enhanced Flight Screener that is replacing the T-41.

b. IFF is Identification, Friend or Foe.

Almost all Air Force pilots fly fixed-wing aircraft. Until this year, the Air Force simply preselected its few helicopter pilots, rather than following the Navy practice of using primary training as a screen for selection.

All helicopter students also receive a primary phase of training that is similar among the services. Air Force and Navy helicopter trainees, however, receive about 25 percent more hours altogether than Army helicopter pilots (see Figure 1). Part of this difference may be explained by variations in requirements for instrument training among the services and part may reflect the Navy and Air Force practice of relying on initial fixed-wing training as a way to select those pilots who will be assigned to the more demanding fixed-wing versus the helicopter track.

Such flight training is expensive. The cost of this lengthy, complex, and capital-intensive training ranges from almost \$300,000 to produce an Army helicopter pilot to almost \$1 million to produce a Navy strike pilot. These figures include not only the cost of the training itself but also a proportionate share of overhead training-base costs and the salaries of those military personnel who conduct or undergo the training. Overhead costs per student would be lower if training were consolidated on fewer bases.

#### Investment in New Trainer Aircraft Would Be High

The Department of Defense is in the process of developing, procuring, and fielding several new aircraft to be used for undergraduate pilot training. The Air Force and Navy are developing a new trainer aircraft, the JPATS. Consolidating undergraduate training among the services would allow DoD to delay as well as reduce the size of the JPATS purchase. The JPATS will take the place of the Air Force's T-37 dual engine, side-by-side, jet trainer and the Navy's T-34 prop trainer. The Navy and Air Force plan to buy more than 700 aircraft. The cost of the Air Force's program, including purchase of 372 airplanes, totals about \$4 billion. The Navy plans to buy almost the same number of aircraft but has not as yet provided a detailed cost estimate to the Congress.

By February 1995, the Air Force and Navy plan to select the JPATS from among competing designs offered by several contractors. DoD's request for proposal calls for an aircraft that is close to current commercial models but could require some adjustments in design to accommodate DoD's requirement for an ejection seat and a cockpit configured to accommodate smaller female pilots.

The Army is buying 137 TH-67 or New Training Helicopters--a variation of a commercial helicopter--to replace its current trainer, the UH-1, an old Vietnam-vintage helicopter. The new TH-67 is similar to the single-engine, dual-seat TH-57B/C helicopter currently used for Navy training.

### CONSOLIDATING UNDERGRADUATE PILOT TRAINING NOW

Both fixed- and rotary-wing training are candidates for consolidation. Navy and Air Force fixed-wing pilots could train together for at least a portion of their undergraduate curriculum. All undergraduate training for Army, Marine Corps, Navy, Air Force, and Coast Guard rotary-wing, or helicopter, pilots might also be combined.

#### Air Force and Navy Could Adopt a Common Core in Fixed-Wing Training

Fixed-wing flight training could be consolidated without waiting for delivery of the new JPATS trainer. Capitalizing on similarities in the skills learned during the initial phase of fixed-wing flight training, this option assumes that all Navy and Air Force fixed-wing pilots would undergo common core training using the T-34 aircraft. That step would maximize training in the T-34 aircraft, which is cheap to operate and should be available in roughly sufficient numbers to train both Navy and Air Force pilots at least through the middle of the next decade.<sup>7</sup> Based on a service life of 18,000 hours, large-scale retirements of T-34 aircraft might begin around 2004. But according to informal conversations with the Navy, T-34s could last considerably longer since they have no structural problems. One service could conduct this initial phase of primary training at two bases compared with the four bases used now.

Under this option, the Air Force and Navy would no longer train all pilots--including those who are selected to become helicopter pilots--in fixed-wing aircraft. Instead, both services would assign students to either a fixed-wing or a helicopter track based on initial flight aptitude and other tests, as was the Air Force practice until this year. This option would enable DoD to delay the purchase of the JPATS since the services could continue to rely on the T-34 trainer for at least another decade, as well as reduce the number of JPATS aircraft bought.

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7. The Navy currently has 322 T-34 aircraft in its inventory, including some 40 aircraft that need only standard repairs to be flyable. Based on projected student loads and flying each aircraft 720 hours annually, there would be sufficient aircraft available to train both Navy and Air Force fixed-wing students in a common core syllabus of 66 hours--the length of the Navy's primary phase.

Each service could then conduct its own specialized training that would vary by mission and service (for example, fighter/strike or airlift/tanker). During this phase, Navy and Air Force fixed-wing students would continue training in mission-specific aircraft. (The services are currently also considering consolidating specialized follow-on, navigator, and advanced training, but these consolidations are not examined in this option.) Both services would use the JPATS for this primary training when it becomes available; in the interim, both the Air Force and the Navy would use the T-34 aircraft. By relying on the T-34 aircraft for most of primary training, the Air Force would fly its T-37 aircraft far less and would no longer face pressure to buy the JPATS to replace the T-37 aircraft, of which large-scale retirements would begin by 2005. Eventually, probably toward the end of the first decade of the 21st century, the services would need to buy the JPATS to replace the T-34 aircraft used for joint core training.

#### Services Could Conduct Helicopter Training Jointly

The Navy, Air Force, and Coast Guard's basic helicopter training could also be consolidated under one service and in one location. As with fixed-wing training, this option assumes that primary helicopter training is largely comparable among the services. Instead of the Navy conducting its primary training in the T-34, all Navy and Army students would train in either the Navy's TH-57 or the Army's TH-67 helicopter in one location. The two aircraft are similar, since both helicopters are derivatives of the same commercial model, and aircraft from one service could be transferred to the training base that is selected. Because the number of helicopter students is so much lower than anticipated before the drawdown, DoD is unlikely to need to purchase any additional helicopters to accommodate the Navy pilots who currently train in the T-34 fixed-wing trainer.

After this initial phase of consolidated training, pilots receive additional training in the use of instruments and the specific combat skills required for their mission. For example, Army helicopter pilots must rely primarily on visual cues to fly low--"nap of the earth"--and must learn to pop up and down quickly to avoid enemy fire. Navy pilots, however, rely heavily on instruments to distinguish between sea and sky when flying at night over water, and must learn to land on carriers. This follow-on training could be collocated at one base in order to maximize use of training space and fully exploit common maintenance crews.

To carry out that consolidation of helicopter training, the Navy, Marine Corps, Coast Guard, and Air Force would have to preselect those to be

trained as fixed-wing and as helicopter pilots without the benefit of reviewing initial student flying performance. If it no longer provided fixed-wing training to its helicopter pilots, however, the Navy could buy about 120 fewer JPATS aircraft, reducing its purchase by about one-third and probably saving more than \$500 million.<sup>8</sup> This consolidation would probably entail some rearrangement of the syllabus so that common types of training (for example, familiarization and aerobatics) are conducted first, and service-specific training in the second phase.

### ADVANTAGES AND DISADVANTAGES OF CONSOLIDATION

Consolidating both fixed-wing and helicopter training would result in significant total savings of \$1.3 billion between 1995 and 1999 from delaying the research and development and purchase of JPATS aircraft (see Table 10). Purchase of JPATS aircraft could be delayed because the T-34, the Navy's current trainer, would take over most of the Air Force's fixed-wing training, thus relieving pressure on the Air Force's current trainer, the T-37, the aircraft closest to the end of its service life. Since the T-34 has many remaining years of service life and the Navy has a sufficient inventory, purchasing the JPATS would not be necessary until the first decade of the next century. In addition, at that time, DoD would need to purchase about 120 fewer JPATS aircraft altogether because personnel designated as helicopter pilots would no longer initially train in fixed-wing aircraft.

#### Operating and Support Costs Could Be Lower

Consolidating fixed-wing and helicopter training could also increase the efficiency of the current training infrastructure by reducing training overhead, since all training of a particular type would be conducted at one or two bases. Consolidation would permit the services to close three and possibly four flight training bases, eventually saving about \$180 million each year after initial closedown costs based on recent experience (see Table 10).<sup>9</sup> In addition,

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8. Since the JPATS aircraft has not yet been selected, there is considerable uncertainty about likely unit costs. Based on a similar option that would eliminate fixed-wing training for all Navy helicopter students, the DoD Inspector General estimated savings from buying fewer JPATS could total \$700 million assuming a unit cost of \$5 million per aircraft; see Department of Defense, Office of the Inspector General, *Acquisition of Common Aircraft for Navy and Air Force Undergraduate Pilot Training*, Report No. 92-063 (March 27, 1992), p. 26.
  9. CBO estimated the number of flight training bases that could be closed by comparing the maximum flying hours and student loads experienced during the 1980s with estimates of future training requirements. CBO did not make detailed estimates of flight training capacity.

conducting the initial primary training jointly with a common syllabus could lead to adopting "best practices" from each service. Consolidation could also foster interservice cooperation, which is increasingly important when joint operations are the most likely way for the United States to respond to crises.

Such savings could be partially offset by higher costs resulting if additional students moved between the primary and later phases of training. Moreover, the Air Force and Navy could face higher maintenance costs as the older T-34 and T-37 aircraft continued in service. The Navy also argues that using the T-34 for initial training of its helicopter pilots is cost-effective because the T-34 may cost about \$100 less per hour to operate than the Army's new TH-67 helicopter. Although substituting helicopter for T-34 flight hours would be more costly, this additional cost could be partly offset by the economies realized from centralizing and shortening helicopter training. The current Navy syllabus could be shortened by eliminating flight hours that are not relevant to helicopter pilots. Moreover, the higher costs of training in the

**TABLE 10. COSTS AND SAVINGS FROM CONSOLIDATING UNDERGRADUATE PILOT TRAINING (In millions of dollars)**

	1995	1996	1997	1998	1999	1995-1999	Long-Term Annual Savings <sup>a</sup>
Acquisition Savings <sup>b</sup>	160	230	270	300	330	1,290	0
Support Savings <sup>c</sup>	-40	-60	60	130	220	310	190
Total	120	170	330	430	550	1,600	190

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

NOTE: Minus signs indicate costs. Figures in the 1995-1999 period are in current dollars.

- a. Includes annual operating and support savings after the consolidations have been fully implemented, expressed in 1995 dollars.
- b. Includes savings from delaying research and development and procurement of new Joint Primary Aircraft Training System aircraft.
- c. Includes savings from closing three flight training bases and savings or costs from training Air Force pilots in the lower-cost T-34 airplane, and Navy pilots in the higher-cost TH-57 or TH-67 helicopters.

TH-67 total less than \$1 million annually. The cost to train Air Force fixed-wing pilots would also be lower because the T-34 costs about \$200 less per flying hour than the T-37, saving about \$10 million annually.

Some additional one-time costs of \$10 million to \$20 million could accrue when the Navy or Army is required to move helicopters to the common helicopter training base. These one-time costs, however, are far lower than either the short-term savings in the next five years from the delay of JPATS or the long-term savings from the smaller JPATS purchase and base closures. In addition, base-support costs per student would fall as the remaining bases operate closer to their capacity.

However, delaying purchase of JPATS would mean that the Air Force and Navy would not reap the advantages of using a new trainer until a later date. These advantages include having an ejection seat operable at ground level, a digital cockpit common to aircraft that pilots will later fly, the ability to train at higher altitudes, cockpit redesign to accommodate smaller female pilots, and tandem or back-to-front seating.<sup>10</sup> The Air Force also considers the T-34 aircraft unacceptable for its training needs.

### Selecting Fixed-Wing Pilots Could Be More Difficult

The Navy, Air Force, Marine Corps, and Coast Guard would all object to adopting common helicopter training because they prefer that their helicopter pilots receive initial training in a fixed-wing aircraft. This preference reflects the Navy's belief that an initial period of fixed-wing training improves its ability to select the highest-quality pilots for such training, as well as Marine Corps and Coast Guard interest in developing pilots who can fly either fixed- or rotary-wing aircraft. The Coast Guard might have more of a problem with giving up training in both fixed- and rotary-wing aircraft because a higher proportion of Coast Guard pilots than pilots in the services fly both types of aircraft. Consolidation, however, is likely to save additional funding and could more than offset any additional costs the Coast Guard might need to incur to provide additional training at a later date to those pilots who need fixed-wing skills.

The Marine Corps has a somewhat similar concern--that helicopter pilots will need an initial period of fixed-wing training to fly the V-22 aircraft, which may be purchased soon and takes off like a helicopter but flies like a fixed-

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10. In the mid-1980s, the Air Force argued that it must have side-by-side seating in its T-46 trainer, a plane that was subsequently canceled, but it apparently dropped this argument with the JPATS program.

wing aircraft. Additional training, with the associated costs, could be provided for those helicopter pilots who make a transition at a later date to a fixed-wing aircraft.

Most problematic to the Navy would be giving up the opportunity to use initial fixed-wing training to select those most qualified for strike aircraft, the most demanding training requiring the highest-quality students. A recent study by the Center for Naval Analyses (CNA) suggests that relying solely on preflight aptitude tests to select strike students could slightly reduce the quality of pilots available for fixed-wing assignments. A drop in quality could then increase attrition in follow-on training, thereby raising total costs. (At the same time, it could presumably also increase the quality of helicopter pilots, reducing attrition in that pipeline.) If the Navy wanted to maintain the current quality of fixed-wing students, the number of students entering initial flight training would need to be greater to offset any increase in attrition. A larger pipeline and higher attrition would increase training costs.

Although the CNA study estimated that assigning students based solely on initial test scores would be slightly less accurate than the current practice of relying on initial flight performance, the difference in the quality of students appears to be small.<sup>11</sup> To offset any potential drop in the quality of strike pilots, however, the Navy could adopt selection procedures to maximize the number of high-quality students assigned to the strike track, where quality is most important. For example, the Navy could assign all high-quality students to strike aircraft training even if they voiced a preference for other, less demanding fixed-wing aircraft. (Some Navy student pilots already do not get their first or even their second choice in specialization.)<sup>12</sup> The Navy could also choose to train students with slightly lower initial aptitude scores in strike aircraft, since the quality of students is currently quite high. Alternatively, the Navy could increase its intake of students by a small amount to offset any potential drop in quality, which would slightly increase costs.<sup>13</sup>

Despite these potential drawbacks, consolidation is likely to result in considerable savings, reduce the size of the support infrastructure, and

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11. See John H. Noer, "Primary Flight Training, UHPT, and Pipeline Selection," CRM 93-182 (Center for Naval Analyses, Alexandria, Va., January 1994). The study estimates that the mean score of student strike pilots selected after initial flight training would be 62.6 compared with mean scores of 58.9 for students selected without first reviewing their flight performance, a difference of three points. In both cases, the standard deviation is estimated to be quite large—6.8 points for students selected after flight training compared with a 9.2 point deviation for those selected without flight training, suggesting considerable uncertainty in either case (see Table 19, p. 51).

12. Ibid, pp. 23-24 and 63.

13. Ibid, p. 57.

increase cooperation among the services, which is becoming more essential as DoD draws down military forces and lives within a limited budget.

