Program difficulties and then budget priorities took the T-46A into stormy weather. But extending the service life of the T-37 is a temporary solution only.

What's Ahead for the Primary Fleet?

BY JOHN T. CORRELL
EDITOR IN CHIEF

When the Air Force set out to replace its aging T-37 primary trainer aircraft, the acquisition promised to be as noncontroversial as such things ever get.

The "Next-Generation Trainer" would not push the state of the art in technology. The program had widespread support. It appeared to be the perfect answer to improving flight-training operations while reducing fuel use substantially. In 1982, Fairchild Republic was selected from a field of six bidders and awarded a fixed-price contract to build the aircraft. The new trainer was subsequently designated the T-46A.

As it turned out, the acquisition was anything but smooth and easy. First, Fairchild ran into development trouble, and the schedule slipped badly. Then, before the recovery effort was completed, the T-46A lost its funding for production.

Congress, attempting to get under the ceilings of the Gramm-Rud-
Although it is cramped, hot, noisy, and getting long of tooth, the Cessna T-37B is still a very capable platform for teaching pilots how to fly. Cessna has proposed a New Technology T-37 that will have new engines and a redesigned tail.

man-Hollings balanced budget law, stripped billions of dollars from defense. Programs had to be reduced, and the Air Force chose the T-46A as one to cut. The service life of the T-37 fleet could be extended for at least an additional 3,000 flying hours per airframe, the Air Force determined. For the time being, funding priority would go to requirements more immediate than a new trainer.

That “budgetary decision,” as USAF calls it, effectively terminated the T-46A program, although the contract option to proceed with production will not expire until March 1987. That left open the possibility, however, that Congress might reverse the Air Force’s decision. The issue became highly politicized.

In October—after extended and heated argument that overshot the budget deadline and closed down much of the federal government for an afternoon—Congress ordered that a new trainer competition take place. A flyoff, to be conducted by January 1, 1988, is to be part of the competition, and contenders identified by Congress were the T-46A, the existing T-37, an upgraded T-37, and “any other aircraft capable of meeting Air Force training requirements.”

Today, six months after the first operational T-46A was to have been delivered, the future of the primary trainer program remains uncertain.

The Trainer Requirement

The subsonic T-37 has been a rugged performer for Air Training Command since the 1950s. Its maneuverability is comparable to that of most fighter aircraft of World War II. Student pilots fly seventy-five hours in the T-37 before moving on to the supersonic T-38.

The Air Force’s desire for a modern primary trainer is predicated on the T-37’s deficiencies as well as its age. Since the aircraft is not pressurized, training flights are restricted to crowded lower airspace. The engine gulps fuel. The range is relatively short. Scheduled training sorties often have to be canceled because the T-37’s capability is limited in bad weather.

At the time the Next-Generation Trainer requirement was established, the service life limit of the T-37 was assumed to be 15,000 flying hours. Last year, however, the Air Force began pulling inspections on aircraft reaching 15,000 hours and determined that they could go on safely to 18,000 with minor modifications. The T-37 fleet today averages 12,000 hours, and if most of the aircraft can be certified to 18,000, that makes the primary trainer problem about six years less urgent than it was thought to be.

It is difficult to see extending the service life of the T-37 as anything more than a temporary measure. It does buy some time, though, for the Air Force to find a more lasting solution that it can afford. Sooner or later, USAF will have to acquire a modern primary trainer.

Trials of the T-46A

The T-46A is the trainer that the Air Force wanted originally, and it may yet turn out to be the final selection. Overall, it is reported to be doing well in flight tests. It retains the twin engine and side-by-side seating features of the T-37 and adds pressurization, range, fuel efficiency, and capability in bad weather. It is powered by two Garrett F109-GA-100 turbofan engines.

When it rolled out at Fairchild’s Farmingdale plant on Long Island, N. Y., in February 1985, the company expressed confidence that it would exceed all of the Air Force’s design specifications. Shortly thereafter, the problems began coming to light.

The Air Force was considerably upset to find that the T-46A had been rolled out with parts missing and work still to be done. In April, the airplane was unable to make its first scheduled flight. In June, the Farmingdale plant failed a Contractor Operations Review conducted by the Air Force Contract Management Division. More scheduled milestones were missed, and the program is still behind.

By the time Fairchild began to get the main problems under control, the budget squeeze was upon the Pentagon. The combination of program and budget difficulties may have been fatal to the T-46A, at least in its previous incarnation.

Deliveries are running late on the first production lot of ten aircraft, and the Air Force does not plan to use its option for production of the second lot.

Lt. Gen. Bernard P. Randolph, Deputy Chief of Staff for Research, Development and Acquisition, said...
that USAF owns the data—which it continues to develop—and the tooling for the T-46A. “We have told Congress that, at this time, we don’t want to buy the T-46, but at some point in the future, with the drawings, we may put it out for recompete.”

Other Choices Possible
Cessna calls its proposed T-37 upgrade “the New Technology NTT-37.” It says it will accept a fixed-price incentive fee contract to produce this trainer in its plant at Wichita, Kan.

The NTT-37 would use the T-37 airframe and the well-regarded Garrett F109 engine developed for the T-46. It would feature modern avionics, lower gross weight, a new instrument panel, cockpit pressurization, better fuel efficiency, and significantly increased range. There would be a new vertical tail to improve crosswind control. Noise levels—which the present T-37 has in abundance—would be well below the Air Force’s specifications for the Next-Generation Trainer. “The NTT-37 meets the performance and schedule requirements while reducing the program acquisition costs by more than $1 billion for 650 aircraft,” Cessna says.

Still other options are possible, because, as General Randolph observed, “there are a lot of trainers out there.” If the price is right, the Air Force might decide that some existing trainer would meet its needs. One frequently mentioned possibility is that the Air Force could piggyback on the US Navy’s purchase of the T-45A Goshawk and achieve some economy by the scope of the joint procurement. (See “The Hawk on Tour” on p. 74.)

That’s certainly an option that’s being talked about,” General Randolph said. “There are some in Congress who think that’s what we should do. We’ve had a round of flying with the Hawk. The problem I see is that it remains a pretty expensive airplane, and we really can’t afford it. The Air Force doesn’t have a formal position on the Hawk. We haven’t had sufficient time to evaluate it.”

The Hawk would be at some disadvantage in the competition because it has neither twin engines nor side-by-side seating, which are called for as “mission essential” in the Next-Generation Trainer specifications.

There have also been suggestions that the Air Force consider going with a modern turboprop trainer, such as the Pilatus PC-7/9, the Beech T-34C, the Embraer Tucano, or the SIAI Marchetti SF-260TP. A turboprop would be inexpensive to buy and operate.

“I’d be very surprised if we bought a turboprop,” General Randolph said. “The Air Force is primarily a turbojet operation. I’m not sure why you’d want to train on turboprops and then go fly turbojets.”

On Track for TTB
Ironically, a replacement for the T-37 may not be the next trainer the Air Force buys. In FY ’89, acquisition will begin on 215 off-the-shelf business jets for the instruction of Tanker-Transport-Bomber (TTB) students in Specialized Undergraduate Pilot Training.

For the past twenty-five years, the Air Force has conducted identical training programs for all student pilots, no matter what sort of aircraft they would be flying after graduation. This generalized approach to training was a function of the aircraft USAF had available, not a conviction that it was the best way to prepare pilots. A decision was made some time ago to return to specialized tracks. All trainees will begin in the T-37 or its replacement. Then those headed for fighter, attack, or reconnaissance (FAR) cockpits will train in the T-38, and those on the TTB track will move to the new aircraft to be procured. The Mission Element Needs Statement (MENS) laid down in 1981 prescribes a speed of 300 knots at sea level, positions for an instructor and two students, and range for a three-hour mission with a 300-nautical-mile divert capability. The acquisition package includes twenty-six simulators. Initial Operational Capability (IOC) is projected for FY ’91.

In addition to providing better training, the TTB aircraft will take some of the work load off the T-38 fleet, thus extending its service life. Because of increased reliability and maintainability and lower operating and maintenance costs, the TTB trainer is expected to reduce training expense by $37,700 per student. Potential TTB candidates would probably include the British Aerospace HS 125, the Gates Learjet 35A, the Cessna Citation II, the Beech Jet, the Israeli Westwind II, and the Dassault Falcon 100.

“When we’re able to afford a new trainer, we’re going with the lowest-cost airplane we can find that will meet our needs,” General Randolph said. “We will probably rely on contractor logistics support.”