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What makes an aircraft unique?

There are many aeroplanes with side-by-side seating, more than several powered by two turbofans, even a few with two tails, and there is certainly no shortage of training aircraft. If it is not unique, then Fairchild's T-46 trainer is at least unusual, in a field where tandem seating is the norm, turboprop power the fashion, and twin fins almost unheard of.

As the US Air Force's next primary trainer, the T-46 reflects the experience which that Service has gained training some 2,000 pilots a year. The T-46 in-herits its side-by-side, twin-engine con-figuration from the aircraft it will replace, Cessna's T-37, but there the similarity ends. With the T-46 Fairchild aims to set new standards of performance, safety, and economy for pilot training.
When the Air Force announced its intention to replace the T-37, by issuing a request for concept definition studies in February 1980, it outlined three possible approaches; modernisation of the existing T-37B, purchase of an off-the-shelf foreign or domestic aircraft, or devel-opment of a new primary trainer. For the latter the Air Force suggested an aircraft

similar in size to the T-37, in the 5,000-6,0001b category, powered by two l,5001b-thrust turbofans, and with side-by-side seating.
The Air Force wanted the lowest life-cycle cost, requiring low operating and support costs over a long service life, and fuel economy with performance to meet the Air Training Command mission. Fair-child was one of five companies awarded four-month concept definition study contracts in June 1980. The others were Cessna, General Dynamics, Rockwell, and Vought.

Fairchild had begun trainer studies as early as 1977, evaluating 30 configurations with tandem and side-by-side seating and single and twin engines. The company also examined more than 50 engine proposals from ten manufacturers, seek-ing a suitably sized powerplant with low development risk, using proved components, yet offering significantly improved economy and durability.

Suitably armed, Fairchild set out to win the Air Force competition, its deter-mination given an edge by the impending demise of A-10 production despite attempts to secure additional USAF and

export orders. To demonstrate its deter-mination, in 1981 the company built and flew a 62-per-cent-scale flight demonstra-tor to prove the stall-resistant character-istics of its chosen design.
In July 1982 the US Air Force selected Fairchild to develop its next generation trainer, and Garrett to develop its F109 turbofan. A contract worth $104 million covered design, development, fabrication, test, and delivery of two flight-test aircraft and two durability-test airframes. A second, $121 million contract covered development of the engine.
The US Air Force plans to buy 650 T-46s worth $1,500 million by 1992, with deliveries beginning in mid-1986. Fair-child rolled out the first development aircraft on February 11, with a first flight currently scheduled for late April or early May. The company expects the T-46 to have paid for itself within 12 years of oper-ations, and to save $1,000 million over maintaining the T-37 in service.
The $3-5 million T-46 begins working
before it leaves the ground. The Air Force
loses 20 per cent of T-37 training sorties,
mainly to bad weather. The T-37 is
unpressurised and unable to venture

24 FLIGHT International, 13 April 1985