

Beechcraft T-34 “Mentor”

The Hickory Aviation Museum’s T-34C, Bureau Number 160638 is on loan from the National Museum of Naval Aviation. It was delivered in Mar 2011. Coordinated by Kyle and Kregg Kirby.



The Beechcraft T-34 Mentor is an American propeller-driven, single-engine, military trainer aircraft derived from the Beechcraft Model 35 Bonanza. The earlier versions of the T-34, dating from around the late 1940s-1950s, were piston-engined. These were succeeded by the upgraded T-34C Turbo-Mentor, powered by a turboprop engine. The T-34 remains in service over six decades after it was first designed.

Role	Trainer aircraft
National origin	United States
Manufacturer	Beechcraft
First flight	2 December 1948
Introduction	1953
Primary users	United States Air Force United States Navy Japan Air Self Defense Force Philippine Air Force
Other Users	Chile, Argentina, Bolivia, Columbia, France, Mexico, Dominican Republic, Turkey, Taiwan, Spain, Saudi Arabia, Peru, Gabon, Algeria, Philippines
Produced	1953-1959, 1975-1990
Number Built	2300+
Propulsion	1 x Pratt & Whitney (CA) PT6A-25
Developed From	Beechcraft Model 35 Series Bonanza
Developed Into	Fuji KM-2

General characteristics

Crew: Two

Length: 28 ft 8½ in (8.75 m)

Wingspan: 33 ft 3⅞ in (10.16 m)

Height: 9 ft 7 in (2.92 m)

Wing area: 179.6 ft² (16.69 m²)

Empty weight: 2,960 lb (1,342 kg)

Max. takeoff weight: 4,300 lb (1,950 kg) (T-34C-1 weapons trainer - 5,500 lb (2,494 kg))

Powerplant: 1 × Pratt & Whitney Canada PT6A-25 turboprop, 715 shp (533 kW) (derated to 400 shp (298 kW))

Performance

Never exceed speed: 280 knots (322 mph) (IAS)

Cruise speed: 214 knot (396 km/h, 246 mph) max cruise at 17,000 ft (5,180 m)

Stall speed: 53 knots (98 km/h, 61 mph) flaps down, power off

Range: 708 nmi (1,311 km, 814 mi) at 180 knots (333 km/h, 207 mph) and 20,000 ft (6,100 m)

Service ceiling: 30,000 ft (9,145 m)

Rate of climb: 1,480 ft/min (7.5 m/s)
g limit:+4.5, -2.3

Hardpoints

4 with a capacity of 600 lb inner, 300 lb outer.

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Design and development

The T-34 was the brainchild of Walter Beech, who developed it as the Beechcraft Model 45 private venture at a time when there was no defense budget for a new trainer model. Beech hoped to sell it as an economical alternative to the North American T-6/SNJ Texan, then in use by all services of the U.S. military.

Three initial design concepts were developed for the Model 45, including one with the Bonanza's signature V-tail, but the final design that emerged in 1948 incorporated conventional tail control surfaces for the benefit of the more conservative military (featuring a relatively large unswept vertical fin that would find its way onto the Travel Air twin-engine civil aircraft almost ten years later). The Bonanza's fuselage with four-passenger cabin was replaced with a narrower fuselage incorporating a two-seater tandem cockpit and bubble canopy, which provided greater visibility for the trainee pilot and flight instructor. Structurally, the Model 45 was much stronger than the Bonanza, being designed for +10g and -4.5g, while the Continental E-185 engine of 185 horsepower (hp) at takeoff (less than a third of the power of the T-6's engine) was the same as that fitted to contemporary Bonanzas.

Operational History

U.S. Air Force and Civil Air Patrol

The first flight of the Model 45 was on 2 December 1948, by Beechcraft test pilot Vern Carstens. In 1950, the USAF ordered three Model A45T test aircraft, which were given the military designation YT-34. A long competition followed to determine a new trainer, and in 1953 the Air Force put the Model 45 into service as the T-34A Mentor, while the USN followed in May 1955 with the T-34B.

After extensive testing, the USAF ordered the Mentor into production as the T-34A in early 1953. The first production T-34A was delivered to Edwards Air Force Base, California, in October 1953 for evaluation, and deliveries to the Air Training Command (ATC) began in 1954. The T-34A commenced service as USAF's initial primary flight trainer at "contract" pilot training air bases across the southern United States, replacing extant North American AT-6 Texan trainers. Following training in the T-34A, USAF pilot trainees would advance to the North American T-28A Trojan for intermediate training.

U.S. Navy and U.S. Marine Corps

The U.S. Navy kept the T-34B operational as a Naval Air Training Command initial primary trainer at the former Naval Air Station Saufley Field, Florida until the mid-1970s and as a Navy Recruiting Command aircraft until the early 1990s when the last examples were retired as an economy move. Others continue to remain under U.S. Navy control as part of flying clubs at naval air stations and Marine Corps air stations.

Beginning in 1975, the turbine-powered T-34C Turbomentor was introduced as the Navy's new primary flight trainer for Student Naval Aviators, and began replacing the North American T-28 Trojan with training air wings at NAS Whiting Field, Florida and NAS Corpus Christi, Texas. In the mid-1980s, it also commenced service as a basic trainer for Student Naval Flight Officers at NAS Pensacola, Florida.

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