Budget Buys

Beech Baby

Beechcraft BE–77 Skipper: A plush trainer that's a good buy

BY THOMAS A. HORNE

The Beechcraft Skipper (type designator BE–77) is one of general aviation's *rarae aves,* a limited-production T-tail trainer that was only built for three years, from 1979 to 1981. It came on the scene just when GA sales hit their peak, and its assembly line shut down just as small aircraft sales began the downward spiral of the 1980s. Records indicate that a mere 312 Skippers were built and that only 210 are now registered.

The airplane was designed to compete with the other new trainers of the day: the Cessna 152 and the Piper Tomahawk. With the cachet of the Beech name, more-modern looks, and a large (for a two-seat trainer) cabin, Beech thought the Skipper was just the ticket for its ambitious network of Aero Centers.

The 1970s were the era of the manufacturer-franchised flight school. Cessna had its Cessna Pilot Centers, Piper had its Piper Flite Centers, and Beech, well, Beech got a late start in the flight school business. Its Aero Centers, like the others, were set up—belatedly—to both generate new pilots and induct

PHOTOGRAPHY BY MICHAEL P. COLLINS

them into loyalty to the company product line. The Skipper would be the entry vehicle and serve as the Aero Centers' trainer. Many Skippers even had special roundels on their vertical stabilizers—the Aero Center logo.

Today, Skippers fetch between $18,000 and $25,000, according to *Vref*, the aircraft valuation service (www.aopa.org/members/vref). Value depends on condition, of course, which can vary considerably with the rigors of life as a primary trainer.

That Beech thing

To transmit the Beech (now Raytheon Aircraft Company) aura of quality and substance to the neophyte, the Skipper was given some signature design elements from the rest of the Beech line. The Skipper has a large, flat, metal instrument panel, a cluster of engine gauges just above the power controls, and an exemplary panel layout. The lever-style throttle, mixture, and carburetor heat controls are mounted in a central quadrant, adding to the "big airplane" feel.

The cabin is large and comfortable for a two-seat trainer (it's five inches wider than a Cessna 152 cabin), and together with its two doors, this makes the Skipper the trainer of choice for large-framed pilots. The large cast-aluminum rudder pedals have the stylized Beech "B" stamped in them, the flap switch is the same as other Beech aircraft of the day, and the overhead cabin door latch looks a lot like the baggage door latch on Beechcraft Bonanzas.

It's these sorts of touches that give the Skipper the edge in the fit-and-finish department, and help set the stage for brand loyalty.

Hits and misses

Hits:

- Great visibility.
- Strong construction; tubular spar design; 12,000-hour structural life.
- Great control feel.
- Holds trim speed well; minimal pitch changes with flap deployment.
- Big-airplane ambiance.
- Widest, most comfortable cabin in its class.

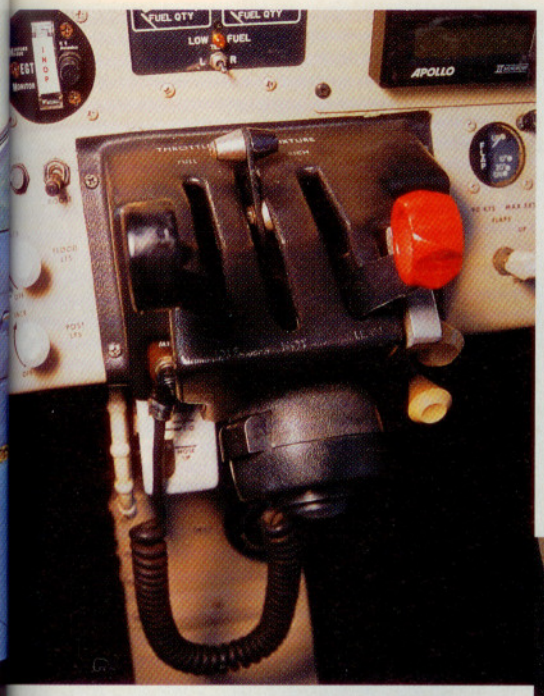
Misses:

- Overhead latch can be a pain to engage.
- Rarity means parts-availability and mechanic-experience issues.
- Tail strikes because of over-rotation during flare.
- Trainers may be beaters.
- Marginal climb performance.
- Marginal full-fuel payload (approximately 340 lb in average-equipped airplanes).

Flying qualities

The Skipper is a pleasure to fly. Aileron and elevator forces are light, and the airplane's flat-out cruise speed is listed as 105 knots. Performance charts claim that under standard conditions a max-gross-weight Skipper will climb at 720 fpm, but that seems optimistic; 500 fpm is more like it.

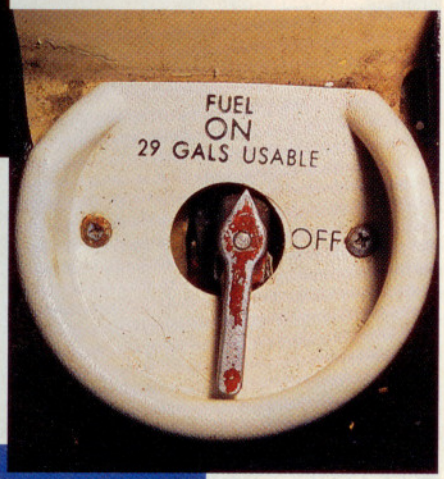
The airplane's 115-horsepower Lycoming O-235 engine—the same used in the Piper Tomahawk—is generally uncomplaining and has a generous 2,400-hour recommended time between overhauls (TBO). There have been a few significant airworthiness directives in the past few years, but these should have been complied with by now. To get maximum power output, it's important to lean this engine properly. When flying in and out of short runways or airports with obstructions, you need all the power you can get.

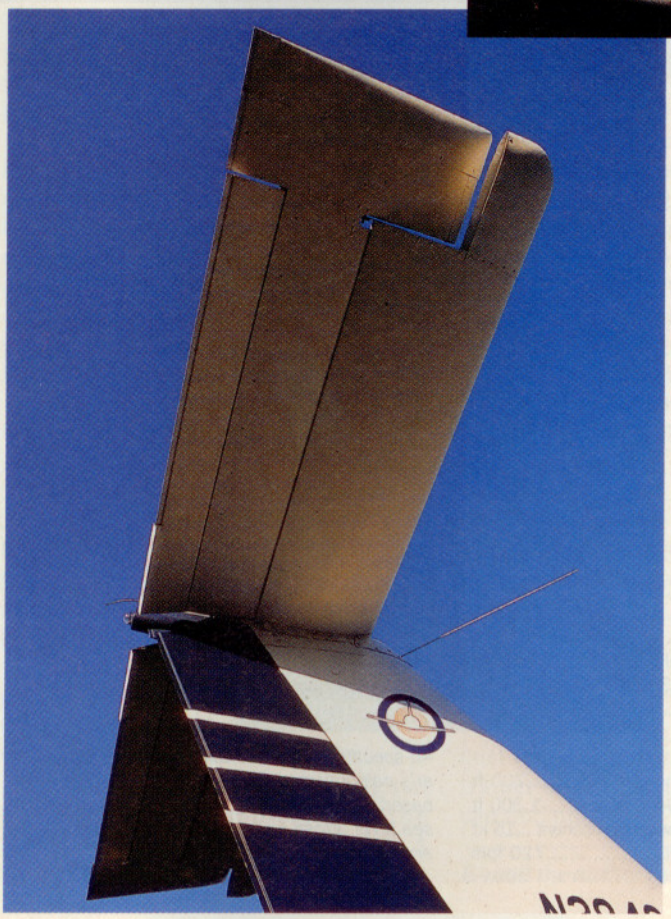


A roomy cockpit, businesslike panel, and double doors set the Skipper apart from other two-seat singles.

Because there's less propeller-generated airflow over the tail, T-tail airplanes usually require relatively high rotation speeds for takeoff. Not so with the Skipper. Its takeoff behavior is conventional, with rotation at 56 kt.

V-speeds and other target airspeeds are within a few knots of each other, making them easy to remember. After takeoff, airspeed should be 60 kt at 50 feet agl; V_X is 61; V_Y is 68; final approach is flown at 63 kt; and go-arounds begin with a 63-kt target speed. So, if you keep the airspeed in the mid-60s when flying around the pattern you'll be OK. Oh, and best-glide speed? That's 63 kt, too.





The power quadrant (above left) adds "big airplane" ambiance to the Skipper. The fuel system is stone-simple, but beware the power of the T-tail's elevator during the landing flare. Note the Beech Aero Center logo on the vertical stabilizer (left).

Quirks

The Skipper has a powerful elevator, yet its control forces are very light. This can cause a problem in the landing phase. There are very, very few Skippers out there that don't bear evidence of this problem. There it is—under the tail cone! A scraped-flat tiedown ring, or rivets from a repair job around the tiedown fitting.

Tail strikes happen when trying—too late—to achieve a nice, nose-high flare. That powerful elevator responds to the lightest touch, so any overenthusiastic application of aft-stick pressure will readily make the nose point skyward—and the tail can hit the runway.

Another quirk is the airplane's low deck angle—the angle between the airplane's longitudinal axis and the ground. On approach, with full flaps, the nose seems to ride well below the horizon. The impression carries through to the flare, and probably contributes to the tail strikes. The key to a good Skipper landing is a slow-rate flare—and an understanding that the airplane sits nose-low on the ramp anyway. Which brings up another quirk: propeller clearance. Even with a properly inflated nose strut, the Skipper's propeller arc seems awfully close to the tarmac. This is definitely not the airplane for grass strips or rough fields.

Unorthodox spins

Stalls in a Skipper are very conventional affairs. But if you want to spin, you'll have to work at it. The airplane won't spin if conventional spin-entry procedures are used; it will enter a spiral dive instead.

To enter a spin you must apply full aileron against the direction of spin rotation. Here's how the Skipper pilot's operating handbook (POH) says to do it:

- Stall the airplane with the control column hard back, throttle idle, flaps up, carburetor heat as required.
- Hold the nose about 15 degrees above the horizon.
- At the stall, apply full rudder in the direction required to spin. A slight rudder application immediately before the stall will assure the direction of spin.
- The nose will drop and rotate toward the applied rudder.
- When the wings are 90 degrees to the horizon, apply full aileron against the direction of spin.
- The airplane will go slightly inverted and enter a normal spin.

Recent ADs

AD 98-01-06 requires the inspection of those carburetors equipped with a two-piece venturi at each annual inspection to determine if the primary venturi is loose or missing. It also requires the replacement of a two-piece venturi with a one-piece venturi within 48 months after the effective date of the existing airworthiness directive (AD). This amendment eliminates the requirement to install a one-piece venturi, and allows the installation of a one-piece venturi on affected carburetors as an optional terminating action; or, requires repetitive inspections of a two-piece venturi on affected carburetors. Prompted by service difficulty reports of power loss, disruption of fuel flow, and forced landings.

AD 98-17-11 is applicable to certain Textron Lycoming and Teledyne Continental Motors reciprocating engines that had crankshafts repaired by Nelson Balancing Service, Repair Station Certificate No. NB7R820J, Bedford, Massachusetts. The AD requires removal from service of affected crankshafts, or a visual inspection, magnetic particle inspection, and dimensional check of the crankshaft journals, and, if necessary, rework or removal from service of affected crankshafts and replacement with serviceable parts. This amendment is prompted by reports of crankshafts exhibiting heat check cracking of the nitrided bearing surfaces, which led to crankshaft cracking and subsequent failure. The actions specified by this AD are intended to prevent crankshaft failure because of cracking, which could result in an in-flight engine failure and possible forced landing.

AD 98-23-01 specifies actions that are intended to prevent failure of the primary dry air pump caused by defective flexible coupling, which could result in loss of primary attitude and direction references during instrument flight rules (IFR) operations.

AD 99-24-10 adopts a new AD that applies to all aircraft equipped with Precise Flight Inc. Model SVS III standby vacuum systems installed in accordance with the applicable supplemental type certificate (STC) or through field approval. This AD requires incorporating revised operating limitations for the affected standby vacuum systems into the airplane flight manual (AFM), and repetitively inspecting the push-pull cable, vacuum lines, saddle fittings, and shuttle valve for correct installation and damage (wear, chafing, deterioration, etc.).

SPECSHEET

Beechcraft BE-77 Skipper

Current market value: $18,000 to $25,000

Specifications

Powerplant	Lycoming O-235-L2C 115 hp @ 2,700 rpm
Recommended TBO	2,400 hr
Propeller	Sensenich two-blade fixed-pitch, 72-in dia
Length	24 ft
Height	6 ft 11 in
Wingspan	30 ft
Wing area	129.8 sq ft
Wing loading	12.9 lb/sq ft
Power loading	14.6 lb/hp
Seats	2
Cabin length	6 ft 4 in
Cabin width	3 ft 7 in
Cabin height	4 ft 1 in
Standard empty weight	1,100 lb
Max ramp weight	1,680 lb
Max takeoff weight	1,675 lb
Max useful load	580 lb
Max payload w/full fuel	400 lb
Fuel capacity, std	30 gal (29 gal usable)
Baggage capacity	120 lb, 20.1 cu ft

Performance

Takeoff distance, ground roll	700 ft
Takeoff distance over 50-ft obstacle	1,300 ft
Max demonstrated crosswind component	15 kt
Rate of climb, sea level	720 fpm
Cruise speed/range w/45-min rsv (fuel consumption) 6,500 ft @ 2,700 rpm, best-power mixture	105 kt/337 nm (7.4 gph)
Cruise speed/range w/45-min rsv (fuel consumption) 9,500 ft @ 2,300 rpm, best-economy mixture	84 kt/410 nm (4.7 gph)
Landing distance over 50-ft obstacle	1,220 ft
Landing distance, ground roll	670 ft

Limiting and Recommended Airspeeds

V_R (rotation)	56 KIAS
V_X (best angle of climb)	61 KIAS
V_Y (best rate of climb)	68 KIAS
V_A (design maneuvering)	109 KIAS
V_{FE} (max flap extended)	90 KIAS
V_{NO} (max structural cruising)	119 KIAS
V_{NE} (never exceed)	143 KIAS
Landing approach	63 KIAS
V_{S1} (stall, clean)	54 KIAS
V_{SO} (stall, in landing configuration)	52 KIAS

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.

If aileron is not applied, or applied too late, the airplane will enter a rapid spiral dive, and recovery must be initiated by the second turn.

Spin recovery is conventional: control column full forward, simultaneously apply full rudder opposite to the direction of the spin, hold control positions until rotation stops, neutralize controls, and execute a smooth pullout.

Interesting, and worth knowing if you plan to use a Skipper for flight instruction.

One man's Skipper

John Clifford, a guard in the Maryland State Park system, bought his 1981 Skipper for $24,000 in March 2001. Clifford, a 130-hour private pilot, bought the airplane to visit friends on day trips. Most of the time he flies solo.

"As long as I'm going to build time, I might as well be comfortable," Clifford said.

Clifford's airplane has the original paint scheme—complete with the Beech Aero Center logo on the tail. A short hop up on the wing, a step into what seems like a cavernous cabin, and I was transported back to a time when I instructed in Skippers. It was a good feeling, even though the airplane's uninspired climb rate intruded on the good vibes. Some touch and goes, some acclimatization to that deck angle, some formation flying, some cruising over the Maryland countryside, a night landing at Clifford's home airport—Westminster, Maryland's Clearview Airpark (1,845 feet short and 30 feet narrow!)—and I felt right at home. The Skipper flies like a mini-Bonanza: solid in pitch, lively in roll, and even-keeled in cruise.

i Links to additional information about other Beechcraft entry-level singles may be found on AOPA Online (www.aopa.org/pilot/links.shtml).

Bottom line

The Skipper is a very good buy for the money. Just be aware of the caveats and look over the logbooks for any training-related damage. Anyone looking for a low-cost (short-haul) cruising machine or trainer ought to check one out—if you can find one! AOPA

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