

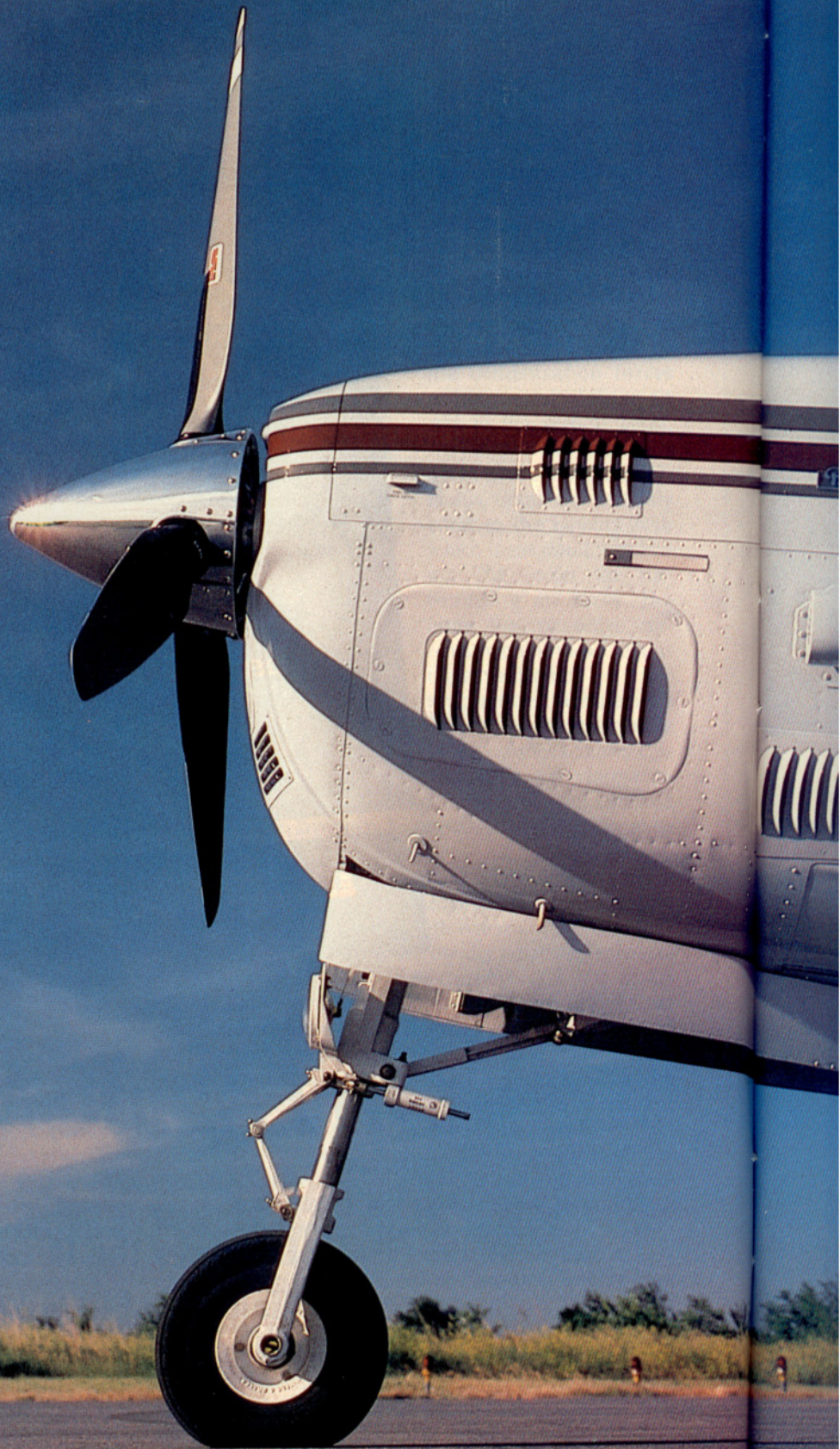
# BONANZA B36TC

*A long-range airplane  
that is quiet, comfortable,  
and fun to fly*

BY RICHARD L. COLLINS

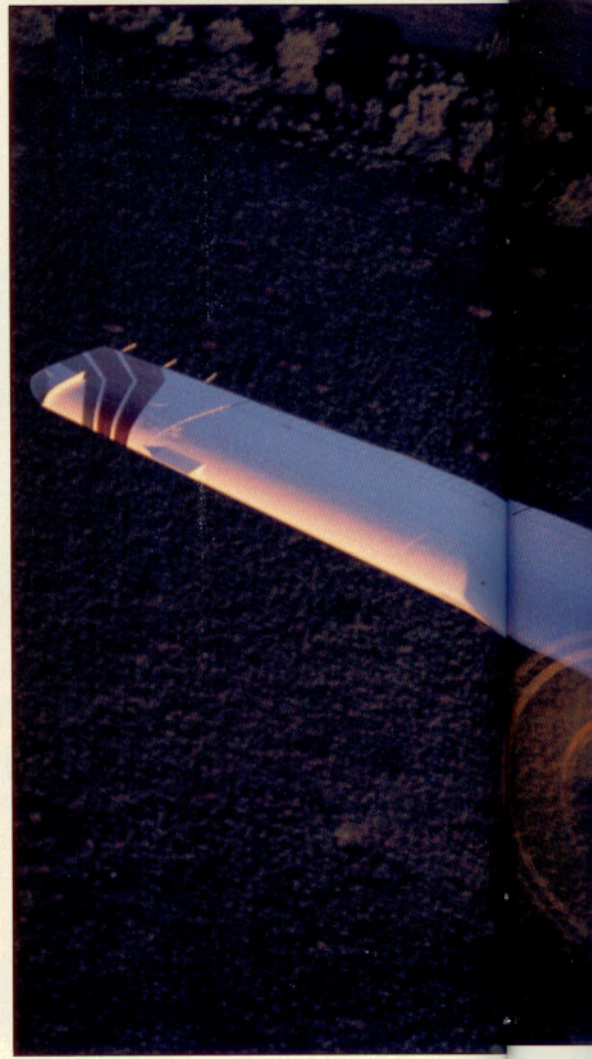
**S**ince the first flight of the Bonanza on December 22, 1945, the airplane has taken many forms—some produced, some only tried. It once had two 180-horsepower Franklin engines mounted under the single cowling in a first attempt at creating a twin Bonanza. Beech later made conventional twin variants of the airplane, and there was also a V-tail twin, a Super V, not done by Beech. Power in the airplane started off at 165 hp and has risen to a high of 300 in the latest A36 and B36TC models. And the turbocharged B36TC has another unusual Bonanza feature. In all other models, the primary changes to the wing since the beginning have been structural and cosmetic on the wing tip. The B36TC, though, can rightfully be called a “long-wing” Bonanza. It has an additional four feet four inches of span, to 37 feet 10 inches. The structure of the wing bears more similarity to the wings used on B55 Baron twins.

What is the significance of more





Bonanza



span? It is of great value on airplanes that are to be operated at high altitude, and that is the B36TC's forte. The airplane is certified to 25,000 feet, where it will cruise at 200 knots. Times to climb are good, and even in the summertime the number of minutes spent climbing doesn't total much more than the thousands of feet climbed. Even up at 18,000 feet at gross weight (which is impossible to do legally, but the number is calculated anyway), the airplane will climb at almost 700 feet per minute.

The long wings are also a clear sign that the B36TC was developed specifically as a turbocharged airplane rather than one on which a turbocharger is bolted. The A36TC is a good airplane, but tip tanks are required if long trips are to be flown, and the shorter wings just are not as efficient at high altitude.

Everyone who has flown Bonanzas much has favorites, and those who have flown all of them usually single out the original 35 as the most pleasant of all. There's a simple reason for that. It was

the original, and the handling qualities were in their purest form. When you start adding horsepower and increasing weight, there's no way to keep the handling qualities "original." The B36TC, though, has to rate as excellent in this area. Where its gross weight is 1,300 pounds more than the original Bonanza, the additional wing and the work done on handling qualities makes it quite pleasant to fly. Those wedgies on the front of the wings make it one of the tamest Bonanzas ever to stall. Fast or slow, if the airplane is trimmed properly, you can fly it with your fingertips. Or you can let the Bendix/King KFC-150 automatic flight control system do its usual fine job.

Do mind approach speed. If you have been flying other Bonanzas and are accustomed to how they land after an 80-knot approach, the B36TC will remind you that longer wings mean more floating before touchdown. The stalling speed is lower than the A36's even though the B36TC can be flown 200

pounds heavier.

On both the A36TC that preceded it and the newer airplane, Beech opted not to use cowl flaps even though they are used on the normally aspirated airplane. The climb procedure is high power, 34 inches of manifold pressure, 2,600 rpm, and full rich mixture, so the rationale for no cowl flaps must be one of keeping things as simple as possible. On the hot day the airplane was flown, though, engine temperatures became quite warm in climb, and the airspeed needed to be up around 130 knots. This doesn't hurt the climb a lot, but all turbocharged airplanes really need cowl flaps. They get hot when climbing and when flying high; cooling them the same in climb, cruise, and descent, summer and winter, is not the most efficient way to do it. On the other hand, if cowl flaps are fitted and the pilot forgets to open them as required, the engine might suffer damage from excess heat. The Malibu design excluded cowl flaps as well, for this reason.



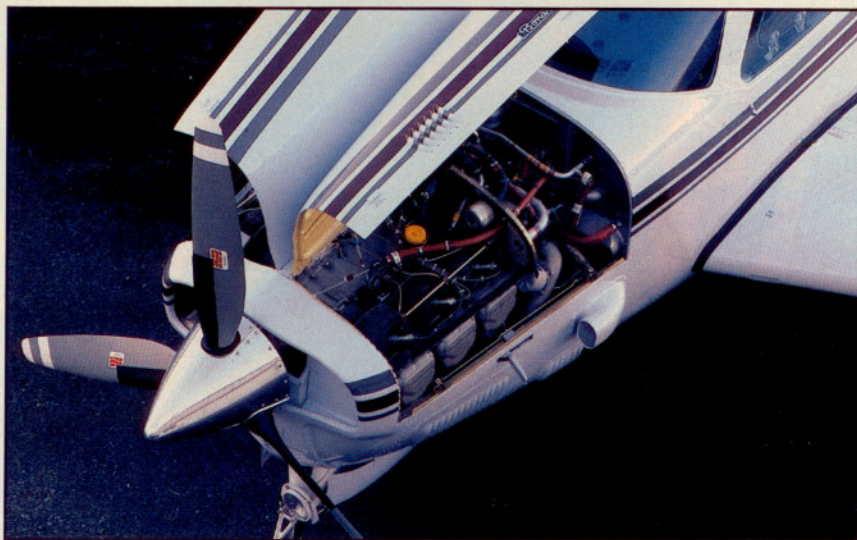
The B36TC has bigger fuel tanks than other Bonanzas and qualifies as a true long-range airplane. With 102 gallons on board, there's useful load left for three people and some baggage. If the airplane is flown at 18,000 feet, 15 gallons of fuel are likely invested in taxi,

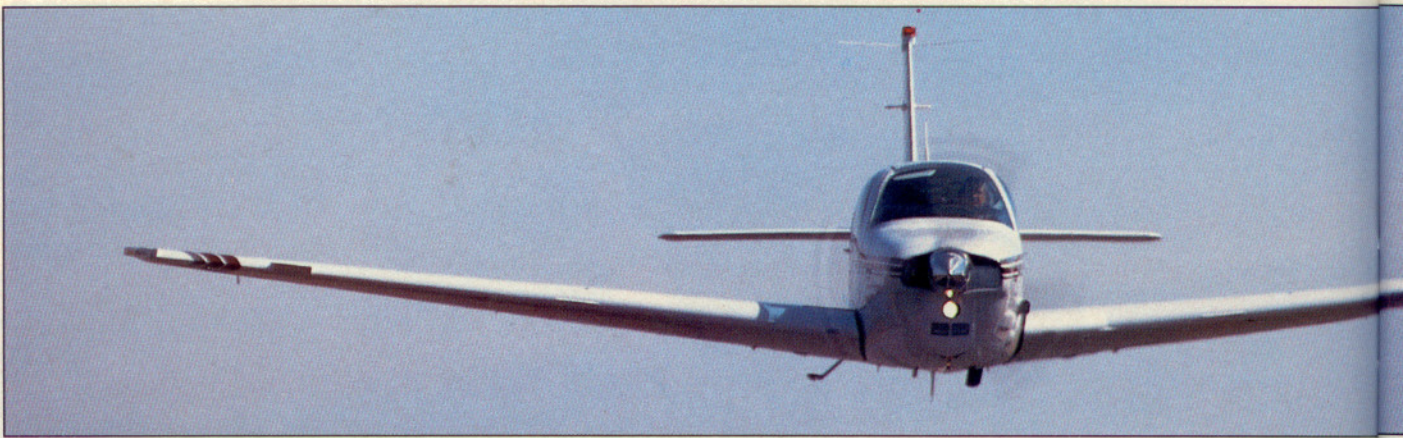
takeoff, and climb. Take 15 off what is left as a minimum reserve, and 72 gallons remain for the enroute portion of the flight. At high power, the airplane burns 17.7 gallons per hour, so four hours are there for cruise at a speed of nearly 200 knots. Throw in some tail-

wind and a 1,000-nautical-mile trip is a reality. Fly the B36TC higher and go farther and faster.

The airplane flown was going to Maine, so it didn't have air conditioning. This would add some weight and a lot of comfort in hot weather, but the airplane climbs so well that it can be in cool air quickly. At the other end of the temperature spectrum, the airplane has prop deice but no protection for other surfaces. A stand-by generator provides power to one radio and a few other items should the primary fail, and there is an alternate source for instrument air pressure. A Stormscope addresses the thunderstorm question, and a big oxygen bottle enables high flying.

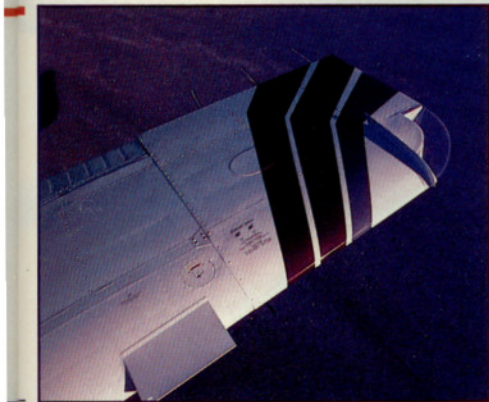
If you had a B36TC, or any other unpressurized but turbocharged airplane, how often would you fly at oxygen altitudes? That is a good question, but the answer is not the only reason to consider turbocharging. There is a lot of value found at and below 12,500 feet, at high density altitudes for takeoff and





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climb, and in dealing with weather. It is not likely that nonpilot passengers will enjoy strapping on the old nose bag for oxygen, but on some trips it might be in exchange for a really fast ride, or a serene one atop icy or turbulent clouds. For example, the airplane goes a couple of knots faster for each thousand feet it flies. Add to that the increase in wind velocity with height—especially pronounced in the fall, winter, and spring—and the difference in groundspeed between 11,000 feet and Flight Level 190 can be as high as 50 knots. Where is that nose bag?

The ride will be a quiet one regardless of altitude. Even without noise-attenuating headsets for pilot and passengers, the cabin is okay for normal conversation. Comfortable, too, with club seating for the folks in back and a nice little table for cards or work. The new instrument panel leaves plenty of room for options. Even a well-equipped airplane like the one flown for this report had space for a lot more avionics and instruments. One option that will likely soon find its way into all airplanes in this class is a second transponder and encoder. With a requirement for this coming in all airspace above 10,000 feet msl and in more terminal airspace, it becomes a no-go item for many trips.

The B36TC offers a clear alternative to the light twin. The performance is about the same, the cabin is about the same, and with one exception the question of redundancy is addressed. There's stand-by electricity and instrument power, leaving only the engine in question. The single versus twin argument will go on forever, with the twin fans always convinced that people who fly singles are nuts and vice versa. But the progress that has been made on dual systems and weather avoidance equipment for singles makes the airplanes more attractive. What is nice is that both are available. If you want a piston twin, Beech will put you in a nice Baron.

They will also send you to school, and this is important. The B36TC isn't a "kick the tires and light the fires" airplane because it has systems that have to be understood to be used properly. If the pilot hasn't had turbocharging before, there's a lot to learn about that and about high-altitude operations. A trip through the altitude chamber (information is available from the Federal Aviation Administration's general aviation district offices and flight standards district offices) is also a good move because

there is no other way to really see the effect of altitude on the individual.

Beech is currently building one B36TC a month, so you aren't going to see vast numbers of them on the ramp. The price is double or more that of an F33A Bonanza, but the airplane offers some unique talents in return for the bucks. The quality is nice, the handling qualities are excellent, and the B36TC is an airplane that you'll look back at with pleasure as you stroll away after every landing. □

#### Beechcraft Bonanza B36TC

Price as tested: \$361,652

#### Specifications

Powerplant(s)	Teledyne Continental TS1O-520-UB	300 hp
		1,600 hr
Recommended TBO		
Propeller(s)	McCauley constant-speed, 3-blade	
Length		27 ft 6 in
Height		8 ft 5 in
Wingspan		37 ft 10 in
Wing area		188.1 sq ft
Wing loading		20.5 lb/sq ft
Power loading		12.8 lb/hp
Seats		6
Cabin length		12 ft 7 in
Cabin width		3 ft 6 in
Cabin height		4 ft 2 in
Empty weight, as tested		2,692 lb
Max ramp weight		3,866 lb
Gross weight		3,850 lb
Useful load, as tested		1,174 lb
Fuel capacity, std	108 gal (102 gal usable)	
		648 lb (612 lb usable)
Oil capacity, ea engine		12 qt
Baggage capacity	70/400 lb, 10/47 cu ft	
	(Higher figures are with two rear seats removed)	

#### Performance

Takeoff distance, ground roll	1,030 ft
Takeoff distance over 50-ft obst	2,141 ft
Max demonstrated crosswind component	17 kt
Rate of climb, sea level	1,049 fpm
Max level speed, 22,000 ft	213 kt
Cruise speed/endurance w/45-min rsv, std fuel	
@ 79% power, best economy	200 kt/5.1 hr
25,000 ft	(99.6 pph/16.6 gph)
@ 69% power, best economy	189 kt/6.0 hr
25,000 ft	(85.8 pph/14.3 gph)
Max operating altitude	25,000 ft
Landing distance over 50-ft obst	2,050 ft
Landing distance, ground roll	1,120 ft

#### Limiting and Recommended Airspeeds

Vx (best angle of climb)	79 KIAS
Vy (best rate of climb)	112 KIAS
Va (design maneuvering)	141 KIAS
Vfe (max flap extended)	125 KIAS
Vle (max gear extended)	154 KIAS
Vno (max structural cruising)	168 KIAS
	(Above 16,000 ft reduce Vno 3 KIAS per 1,000 ft)
Vne (never exceed)	206 KIAS
	(Above 16,000 ft reduce Vne 4 KIAS per 1,000 ft)
Vr (rotation)	70 KIAS
Vs1 (stall, clean)	65 KIAS
Vso (stall, in landing configuration)	57 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. □