

BEECH 1300

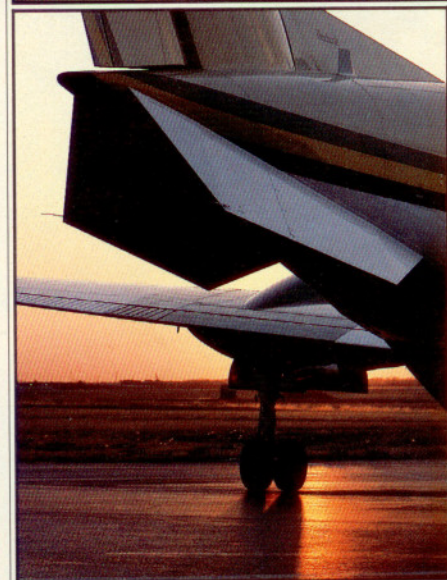
LUCKY THIRTEEN

*For long, thin routes,
a 13-seat regional airliner
makes economic sense.*

BY RICHARD L. COLLINS

IN the regional airline business, the seating capacity of airplanes has usually been linked to regulation. If you go over nine passengers, you have to have two pilots. If you go over 19, you have to have a flight attendant. If you go over 30, you can't fly under air taxi rules; you have to fly under the same rules as the big jet airliners. So airplanes have been sized to fit the rules. But the latest airliner to join the ranks is an





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anomaly; it's a 13-seater.

If you ride regionals in the eastern half of the United States, you may never see a Beech 1300. This is an airplane designed specifically for the wide-open spaces. Its mission is to serve routes where the distances are relatively long and the passenger loads relatively sparse. The acquisition cost of the airplane, just over \$2 million, is low compared with the 19-seaters, and the operating cost per seat mile is also low. Beech quotes seat mile cost as slightly higher than for its 1900 airliner (with 19 seats), but Farmington, New Mexico-based Mesa Airlines, the first customer for the 1300, reports that its seat mile costs are the same as for its fleet of Beech 1900s and older and unpressurized Beech 99 airliners.

Ken Widger, vice president in charge of operations at Mesa, says the 1300 has done well in its first months of service with the airline. The passengers like it as much as the 1900, even though the distance between the seats is a bit less than in the larger airplane. It serves well on what they call a long, thin route, meaning a lot of miles and a few people. One such run is from Roswell, New Mexico, to Dallas/Fort Worth. The distance is 390 nm, quite long for a commuter flight. They average nine passengers on the run, so the 1300 is as large an airplane as a good airline manager would like to assign to the flight. When there are 13 and bags to go, they might have to make a fuel stop to satisfy IFR reserve requirements, especially with a headwind, but this doesn't happen often.

One of the challenges in creating the 1300, a derivative of the well-proven King Air 200, was in providing adequate baggage space. This was done in one obvious and one not-so-obvious manner. The obvious accommodation is in the belly pod—rather an ungainly name for an ungainly appendage to the bottom of the airplane. But it is effective, offering 44 cubic feet and 455 pounds of baggage-carrying capacity. Additionally, with the use of Bendix/King Silver Crown panel-mounted avionics, the nose compartment is freed for an additional 350 pounds of baggage in 13.5 cubic feet. Widger reports that with Mesa's average full load of 13 people and 18 pieces of baggage, there is room for everything. The only restriction might be on space (as opposed to weight) in the skiing season, so Mesa assigns its 1900 airliners to the popular ski runs.

One thing the pod does not do is slow



the airplane a lot. The 1300 will, at maximum cruise power, do 270 knots at 22,000 feet, only a few knots slower than a 200 and actually faster than the 1900. The 1300 is restricted to 25,000 feet (the 200 is certified to 35,000 feet) because of an additional emergency oxygen requirement above 25,000 feet.

At Farmington's 5,503-foot elevation, a 1300 can depart at gross weight on a 90-degree day. On the Beech 99s they had been using, weight had to be reduced for a takeoff in these conditions. Also, the 1300 has a single-engine service ceiling of 16,624 feet, which is above the highest minimum enroute altitude they fly, so there is no weight reduction for that. (There are a lot of 16,000-foot MEAs in the area, too.)

Another strong advantage of the 1300 to Mesa is its commonality with the Beech 1900s and 99s the airline operates. This makes easier the process of transitioning to and staying current in the aircraft. Mesa doesn't let airplanes sit around and gather dust, either. When the 1300 came on line, it went right into a 250 hour per month flying program. As more 1300s are added to Mesa's fleet, they will replace Beech 200s that had been converted to airliners (Widger reports that the new 1300s give a good reliability advantage over the older airplanes) and Beech 99s, adding pressurized comfort to flying in the latter case. The additional capacity will also allow Mesa to expand into new markets.

The personality of an airplane does change when it is converted from an executive suite into an airliner. In a walkaround of the 1300, the items that jump are the pod underneath and the added tail fins that smooth the flow off the pod. One other change required by the increase in seating capacity is the addition of another emergency exit in the cabin.

Even up front, the differences are obvious. The extension of the center console that would house a long-range navigation system in an executive airplane is retained for stowage of Jeppesen books and flashlights. There is no autopilot or flight director, and the avionics are functional Bendix/King panel-mounts. There are two transponders for dispatch reliability.

Flying the 1300 is just like flying the King Air 200, though you do think about different things when flying this airplane because of its different use. It will always be flown in scheduled service by two pilots, a requirement because of the



number of seats, and many of its hops will be up and down, short ones. Half of its landings will probably be at big airports and half at small airports because of the nature of the regional airline business. So flexibility is a big deal on the airplane. Take off, climb, descend, fit into the flow of jetliner traffic, land, and

leave again as soon as possible. It does all these things very well, though ground maneuvering in tight spaces isn't as good as with most airline aircraft because of a relatively large turning radius.

The average flight profile of a regional airliner, especially in the mountainous West, is where the pressurized cabin of the 1300 gives it a big advantage over the Beech 99. In flying the 1300, power was reduced to flight idle and a 3,000-foot-per-minute descent rate was possible with the airspeed well within the green arc, as you'd want it in the turbulence that is often present on Mesa's routes. The cabin altitude rate of change was minimal in this condition. Where regionals in the East often use relatively low altitudes for short hops, the regionals in the West have to go higher for terrain clearance.

The 1300 and the Beech 1900 fly very much alike, and in both cases the cockpit is well arranged for one or two people to fly. The control forces in both airplanes are quite pleasant—very much like a Bonanza—and the Pratt & Whitney PT6 engines respond quickly when called on. Flying an ILS approach in the airplane is mainly a matter of setting the power correctly, configuring the airplane for the descent, and pointing it in the proper direction. The speed to remember lies between 95 and 100 knots—both the decision speed on takeoff and the reference speed on approach are there.

On takeoff, the power limit is set by foot pounds of torque except in high density altitude conditions where temperature might be the limit. The airplane tracks true and accelerates to liftoff speed in just under 1,600 feet. On airplanes in this class, the distance required to accelerate to liftoff speed and then stop has to be considered; it starts at just under 4,000 feet and goes up to just over 6,000 feet on a day that is 25 degrees Celsius above standard at an elevation of 5,000 feet.

In flight, the 1300 is quiet at cruise, and an intercom is included to facilitate communications between the two pilots.

Because the 1300 is a specialized airplane that is applicable more to certain routes than other airliners, it is not likely to sell in numbers as great as the popular Beech 1900. But for regionals that need this airliner's special mix of talents, it offers a double advantage: low cost and one of the most thoroughly proven airframes around.

Beechcraft 1300

Base price: \$2,105,000

Specifications

Powerplants	Pratt & Whitney PT6A-42, 850 shp each
Propellers	Hartzell three-blade, 98.5-in dia
Length	43.7 ft
Height	15.0 ft
Wingspan	54.5 ft
Wing area	303.0 sq ft
Wing loading	41.3 lb/sq ft
Power loading	7.4 lb/shp
Seats	15
Cabin length	16.7 ft (excluding cockpit)
Cabin width	54 in
Cabin height	57 in
Empty weight	8,300 lb, includes crew
Max ramp weight	12,590 lb
Max takeoff weight	12,500 lb
Useful load	4,290 lb
Max landing weight	12,500 lb
Zero fuel weight	11,000 lb
Fuel capacity, std	544 gal, 3,645 lb
Baggage capacity	805 lb, 57.5 cu ft

Performance

Takeoff distance, ground roll	1,544 ft
Takeoff distance over 50-ft obstacle	2,572 ft
Accelerate-stop distance	3,748 ft
Rate of climb, sea level	2,403 fpm
Single-engine ROC, sea level	499 fpm
Cruise speed/range w/45-min rsv, 13 passengers and baggage (fuel consumption, ea engine)	
Max cruise power,	269 kt/381 nm
20,000 ft	(730 pph/109 gph)
Max operating altitude	25,000 ft
Single-engine service ceiling	16,624 ft
Landing distance over 50-ft obstacle	2,572 ft
Landing distance, ground roll	1,544 ft

Limiting and Recommended Airspeeds

V1 (takeoff decision speed)	97 KIAS
Va (design maneuvering)	180 KIAS
Vfe (max flap extended)	156 KIAS
Vle (max gear extended)	180 KIAS
Vmo (max operating limit speed)	260 KIAS
Vr (rotation)	97 KIAS
Vs1 (stall, clean)	96 KIAS
Vso (stall, in landing configuration)	74 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.

