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JUNE 2009

Turboprops - The Executive Solution?

by Rod Simpson

Turboprop planes for business? But they are noisy, slow and uncomfortable - and they have those old fashioned propellers! Well, there may be a grain of truth in that, but business turboprops are back in vogue and they offer some unique advantages over turbofan-powered business jets. It may come as a surprise that during the first quarter of 2009, a third of all new general aviation turbine aircraft deliveries were turboprops - and a third of those were single-engine models.

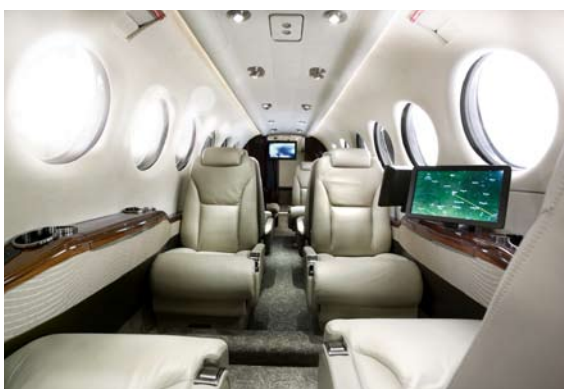


Economy over Fashion

While they may not be as fashionable as jets, the economical turboprops have some definite advantages. They can operate into airfields which are too small for even the entry-level turbofan aircraft and, on short missions, there is little speed advantage of a jet over a turboprop. On a typical 200 nautical mile sector (for example, Paris to Geneva or Zurich to Munich) a [King Air C90](#) will take 43 minutes compared with 35 minutes in a [Citation CJ1+](#). When you add time for taxiing and airfield arrival procedures there is little practical difference.

More importantly, the King Air is less expensive to buy and, on the typical 200 nm trip, will use 12% less fuel. What is more, it can operate into small local airfields. For instance, using a small Citation for a trip from Paris to London would mean operating out of [Le Bourget](#) or Toussus-le-Noble and landing at, say, Biggin Hill or Farnborough. However, it may be much more convenient to fly out of the eastern Paris airfield of Lognes and land at Redhill, to the south of London. Both aerodromes are much more accessible to their city centres - and their handling fees are much less expensive.

Manufacturers of turboprop aircraft have made major efforts to upgrade their products in recent times and the results are impressive. All of them have state-of-the-art glass cockpits with the three-screen Collins ProLine 21 on the King Air series and the [Piaggio Avanti II](#) - and the Garmin G1000 fitted to the other single-engine models. Almost all have comfortable pressurised cabins and all are powered by the outstandingly reliable Pratt & Whitney Canada PT6A engines.»



Beechcraft King Air 350i

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Reliability and Safety

Manufacturers have also made considerable efforts to bring the quality of cabin furnishings up to the level of the business jets. Hawker Beechcraft, for instance, have introduced their new FlexCabin on the top-of-the-line [King Air 350i](#). This luxuriously-crafted interior, with leather seats and thick carpet, is equipped with Rockwell Collins' Venue cabin management system which provides for plug-in monitors to allow entertainment or business presentations at every seat position, docking stations for an iPod or iPhone and the AirCell Axxess II wireless telephone system. Moreover, the cabin can quickly be configured from high-density eight-passenger seating to a more spacious six-passenger arrangement.

The most advantageous combination of performance and economy is found in the single-engine turboprops. At the smaller end are Piper's Malibu Meridian and the French-built Daher-Socata [TBM 850](#) while the Pilatus [PC-12](#) and [Cessna Caravan](#) offer greater capacity and utility. Understandably, there is a feeling that "two engines are better than one" but there are some compelling arguments for the turboprop singles. Firstly, the Pratt & Whitney engines which are universally used, and of which over 35,000 have been built to date, are astonishingly reliable.

Secondly, according to statistics prepared by the highly-regarded Robert Breiling Associates, single turboprops have a fatal accident rate of only 7.2 per million flight hours compared with 7.5 for twins. How can that be? Well, failure of an engine on a twin brings with it complicated asymmetrical handling issues for the pilot which can aggravate, rather than help the situation. Engine failure in a single-turboprop presents the pilot with a straightforward, well-established course of action.

Moving to the economics, engine maintenance and replacement for a single turboprop is half of that for a twin. Obviously, it uses less fuel - and the capital cost of, say, a Pilatus PC-12, is just over three-quarters that of the twin-engine [King Air B200GT](#). If you look at the performance of those two aircraft, however, the single-engine PC-12 has a greater payload and range - and is only 20 knots (9%) slower.

Multiple Roles

Of course, modern turbine aircraft have to fulfil many roles and every owner has different needs. The turboprops are not only used by business executives but are often bought by personal owners and for small business use. This can involve hauling supplies for the business or the family and all their baggage. For instance, the large cargo hatch on the PC-12 is ideal for loading motorcycles, or ski equipment into the rear cabin while four passengers ride in front.>>

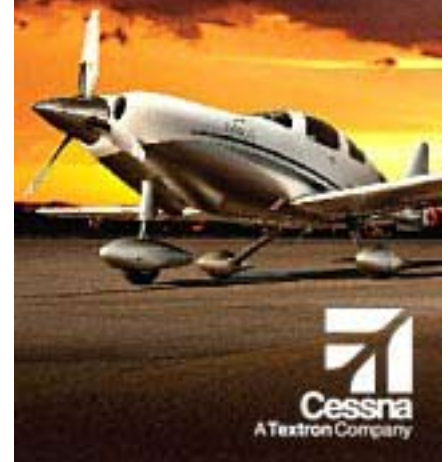
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Perhaps the most practical of these single turboprops is the Cessna 208B Grand Caravan. Familiar as a small package freight hauler with Federal Express, the unpressurised Caravan has become very popular with private owners. A few years ago, Cessna realised that there was demand for a Caravan with a deluxe leather interior which could double as a private station wagon and an executive limousine. In conjunction with Yingling Aircraft, a long-time Cessna distributor based near Cessna's Wichita factory, they devised the Oasis interior. The standard Grand Caravan can accommodate up to 12 passengers but the Oasis layout has four facing club chairs in the centre cabin and a pair of forward-facing seats fitted behind the pilots. There is wood trimming to the interior and pull-out executive work tables.

In the back of the cabin, against the rear bulkhead, are two further seats. One of these can be fitted as a toilet with a folding privacy partition to separate off this area. The Oasis Caravan will commonly be fitted with a four-section belly pannier to take an impressive amount of baggage. Any private pilot who is familiar with the Skylane or Stationair piston singles will be comfortable flying a Caravan and the aircraft handles grass fields or unprepared strips with panache. The Caravan can provide essential transportation and large capacity which is hard to achieve in any other way. ■

Editor's note:

Reviews of both the [TBM-850](#) and [PC-12 NG](#) can be found in [FlyCorporate's January 2009 print edition](#).

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