New Turboprops

by Chad Trautvetter

Turboprop-powered aircraft will continue to be effective business tools, though their role is likely to be eclipsed to an as yet unknown degree with the introduction of very light jets (VLJs) this year. While turboprops have unique capabilities and efficiencies that make them attractive from an operational view, some passengers today view them as vintage aircraft. This is despite the fact that the same advanced avionics and design techniques that manufacturers are integrating into the latest business jet designs are also being incorporated into new turboprops.

While the prop-aversion factor will inspire some customers to place an order for a VLJ, others will be guided by economic and operational realities, regardless of whether the aircraft is powered by a turbofan or turboprop. Many of the turboprop singles best the VLJs when it comes to range, payload and direct operating costs, and they're a close second in terms of speed. However, the higher sticker prices of some turboprops could sway some to head for a lower-cost VLJ, such as the $1.5 million Eclipse 500.

According to GAMA, manufacturers last year shipped nearly 14 percent more turboprops (365) than they did in the previous 12 months (321). The trend has continued for the first half of this year; shipments of pressurized turboprops rose 35 percent, from 96 during the first six months of last year to 129 in the same period this year. While turboprop sales and deliveries are strong right now, the FAA forecasts that deliveries will slow to about 100 a year by 2015.

Even with the expected slowdown in this segment, there are 14 new designs either in development, in flight-test or certified in the past 12 months. Read on for updates on each of these programs.

Bell Agusta

BA609—The Bell Agusta BA609 tiltrotor program continues to progress. On July 13 the second BA609 test aircraft (S/N 60002) performed its first ground run at AgustaWestland’s facility in Cameri, Italy. This aircraft is scheduled to fly by the end of this month. S/N 60003 is already at the AgustaWestland facility in Cameri and S/N 60004 is on the assembly line at Bell’s plant in Fort Worth, Texas.

Meanwhile, BA609 S/N 60001 is continuing flight testing at Bell’s Flight Research Center in Arlington, Texas. This first flying article has expanded the envelope to 300 knots and 25,000 feet. The dual flight-test effort now supports the dual production line plans for parent company facilities in the U.S. and Italy. EASA and FAA certification is planned for 2010, with deliveries to follow immediately. The order backlog still sits at about 60 aircraft, though Bell Agusta has not released a final price (previous estimates were north of $12 million).

A BA609 ground article has accumulated more than 38,000 equivalent flight hours on a full-scale wing and some 54,000 equivalent flight hours of successful pressurization tests, allowing flight at 25,000 feet. It has also undergone successful birdstrike tests for the fuselage, wing and tail.

The BA609 will have a three-screen Rockwell Collins Pro Line 21 flight deck and will be certified for IFR flight in known icing conditions. BA609 tiltrotor customer training will be conducted at Alliance Airport in Fort Worth, which will also serve as the initial tiltrotor delivery center.

Comp Air

Comp Air 12—Comp Air of Merritt Island, Fla., in July unveiled plans to certify its 10-seat, all-composite Comp Air 12 turboprop single. The Honeywell TPE331-14GR-powered airplane is expected to enter flight-test in the fourth quarter, with certification slated for 2009. (See also page 40 for word on the Comp Air 9, announced at EAA AirVenture Oshkosh.) Since this is composite kitplane manufacturer Comp Air’s first foray into aircraft certification, the company has enlisted Marsh Aviation of Mesa, Ariz., to help with certification of the engine and airframe. Likewise, it has tapped Executive Aircraft Maintenance of Scottsdale, Ariz., to provide maintenance support for the type’s engine during and after certification.

Comp Air 12 specifications include a 10,500-pound mtow, 4,700-pound useful load, 300-knot high-speed cruise, 900-foot takeoff roll (mtow, sea level) and 1,458-nm max range. The company has not yet announced a price for the airplane.

Epic Aircraft

Epic LT—At EAA AirVenture in late July, Epic Aircraft said the Epic LT prototype has logged more than 800 hours from the company’s Bend, Ore. facility. At press time, a conforming copy of the all-composite turboprop single was in final assembly, with first...
flight of this aircraft scheduled for next month.

The company is currently evaluating the Garmin G1000 and OP Technologies glass cockpits for the turboprop single. A decision on the aircraft’s avionics is expected soon, with the winer to be announced at the NBAA Convention next month.

Epic Aircraft president Rick Schrameck said that, due to the backlog at the FAA certification branch, the Epic LT would be certified by Transport Canada first, with follow-on approval from the FAA and EASA. In January, Epic said it would receive Canadian certification early next year, but at AirVenture Schrameck told AIN that it is now slated for mid-2008. He did not elaborate on the reason for the delay.

The company is constructing in Alberta, Canada, a duplicate of the 100,000-sq-ft production plant in Bend, effectively doubling the manufacturing capacity for the Las Vegas-based start-up company. Epic says it has firm orders for more than 50 copies of the $1.9 million certified version of the LT (a kit version is also available), with deliveries to start in late 2008.

Evektor EV-55—Czech aircraft designer and manufacturer Evektor-Aerotechnik, best known for a line of light piston singles, continues to work on its new EV-55 twin turboprop. The unpressurized utility aircraft, partly financed by the Czech government, is priced at $1.7 million and is expected to sell as an alternative to turboprop singles such as the Cessna Caravan.

Powered by two PT6A-21 engines, the aircraft will cruise at 229 knots with a max load of 14 passengers. The EV-55 will have a cabin that measures 14.8 feet long, 5.25 feet wide and 4.5 feet high and have capacity for 44 cubic feet of baggage. Takeoff distance at both paved and unpaved runways is projected to be 2,300 feet.

The EV-55 will also be available in a cargo or cargo/passenger configuration. The Czech Republic-based company has set up Evotekor Aircraft in Canada to market and assemble all future aircraft models for the North and South American markets. Evotekor-Aerotechnik anticipates FAA and EASA certification of the EV-55 twin turboprop by late 2008.

Farnborough Aircraft F1 Kestrel—On July 29, Farnborough Aircraft’s F1 Kestrel prototype (N352F) lifted off the runway at Bend Airport in Oregon, for its maiden flight. The milestone marks the completion of nearly five years of design and development since the newly formed Farnborough Aircraft Corp. (FACL) and its predecessors—began work on the all-composite, turboprop single.

“This is a fantastic achievement,” said FACL chairman and CEO Geoffrey Galley. “Despite many obstacles encountered throughout the history of the project, the team has delivered a remarkable and unique aircraft—our first flight is a major milestone on the road to a fully certified aircraft.”

According to the company, the Kestrel prototype was to complete an initial flight-test campaign in Bend last month before flying to FACL’s base in the UK. The aircraft was then scheduled to continue to the United Arab Emirates (UAE) to begin a two-week promotional tour in the Gulf area.

Following the initial flight-test phase, Farnborough Aircraft will work with UAE-based manufacturing partner Gamco to gain EASA and FAA certification of the F1 Kestrel, which is expected in 2008. FACL says the 352-knot turboprop will be able to carry six passengers while operating from short landing strips.

Grob G140TP—Grob’s unpressurized G140TP turboprop single program is still largely on the back burner due to slow sales and a higher priority placed on the German manufacturer’s G180 SPn Utility Jet. The company has not yet released updated plans for certification of the all-composite G140TP, though previous estimates pegged approval in the second half of this year.

The sole G140TP test aircraft, powered by a 450-shp Pratt & Whitney Canada PT6A-42A engine, the G160 Ranger will have a 270-knot cruise speed and 2,200-nm maximum range.

Ibis Aerospace Ae270B—On February 24, the FAA issued the type certificate for the Ibis Aerospace Ae270 turbo prop single to Aero Vodochody, the Czech partner in the joint venture with Taiwan’s Aerospace Industries Development. About a month earlier, the European Aviation Safety Agency issued its certification.

However, the current version of the aircraft has not met its performance targets, and the manufacturer intends to develop an improved Ae270 that will go into production. Dubbed the Ae270B, the newer version of the turboprop single will have a larger, lighter wing that will be of greater span and deeper than the existing design. Repositioned flaps and ailerons will provide room for fuel for greater range and improved stall characteristics.

National Aerospace Laboratories Saras—This 14-passenger twin turboprop pusher—designed for the business, regional and corporate shuttle markets—is the first civil transport to be developed in India. Named after the Indian crane, the Saras is being developed by India’s state-owned National Aerospace Laboratories (NAL). Work on the aircraft started in 1991, though the prototype didn’t fly until May 29, 2004. The 13,450-pound-mtow, all-aluminum airplane is powered by two 850-shp Pratt & Whitney Canada PT6A-66 turboprops. Preliminary performance specifications include a cruise speed of 297 knots, max range of 800 nm (215 nm with 14 passengers), max endurance of six hours and a Part 25 takeoff distance of 1,968 feet.

Piaggio Avanti II—Piaggio’s updated version of the Avanti twin turboprop received EASA approval last November and FAA certification in late March. The Avanti II Report continues on page 24 ▶ Specification tables on next page ▶
# New Turboprops

## In Flight-test

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<tr>
<th>Aircraft</th>
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<th>Max power</th>
<th>Derated power</th>
<th>Mtow</th>
<th>MLW</th>
<th>ZFW</th>
<th>BOW</th>
<th>Max fuel</th>
<th>Vmo</th>
<th>High-speed cruise</th>
<th>Long-range cruise</th>
<th>NBAA IFR range</th>
<th>Takeoff field length</th>
<th>Max altitude</th>
<th>Cabin altitude @ ceiling</th>
<th>Backlog (July 2006)</th>
<th>Price</th>
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<td>Bell Agusta BA609</td>
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## In Development

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Data provided by respective manufacturers.
sports a front-to-back upgrade that includes Rockwell Collins Pro Line 21 avionics, better performance and new cabin amenities. Deliveries of the $5.97 million Avanti II started late last year, though the first delivery to a U.S. customer didn’t take place until June.

New features in the Avanti II include three 10- by 8-inch LCD flight displays, FMS 3000 flight management system, AJS 3000 attitude heading reference system, 4000A GPS and L-3 Avionics’ GH-3000 electronic standby instrument. Optional avionics include L-3’s Skywatch HP traffic avoidance system and LandMark terrain awareness system.

The Avanti II also has an engine upgrade from PT6A-66s to -66Bs, which increases the long-range cruise speed by 12 knots to 380 knots and boosts the Mmo from Mach 0.68 to Mach 0.70. In addition, the Avanti II has a higher zero-fuel weight of 9,800 pounds (versus 9,500 pounds), and the mtow has increased by 500 pounds to 12,050 pounds. Piaggio said it has also adopted a continuous improvement program that will deliver additional upgrades next year as retrofit items.

According to Piaggio, the first new level-D full-flight simulator for the Avanti II will come online this month at FlightSafety International’s West Palm Beach, Fla. learning center.

**Kodiak**—Start-up Quest Aircraft of Sandpoint, Idaho, recently delayed certification of its Kodiak by about six months to later this year. The delay stems from numerous changes to the turboprop single, including installation of the base interior and the cargo pod. The first cargo pod-equipped Kodiak was publicly unveiled at EAA AirVenture in July.

The 60-cu-ft optional cargo pod, which will allow the aircraft to carry additional baggage or other equipment, was installed on the test aircraft in April. According to Quest, preliminary test data for the pod shows minimal effect on the aircraft’s cruise speed and handling.

Static testing has progressed concurrently with flight-testing. The fuselage has passed its final battery of tests, and several major tests have also been completed on the wing.

Quest said the first production Kodiak (S/N 001) is now well on its way down the assembly line and will be rolling out later this summer. This aircraft will be used for flutter and systems testing, followed by function and reliability testing.

The company is also in the final stages of ramping up for full assembly operations.
in preparation for production start-up following certification. According to Quest, the next available delivery position for the utility turboprop is in the spring of 2009.

Raytheon

**King Air C90GT**—To strengthen its hand against the very light jets, Raytheon Aircraft unveiled this King Air C90B derivative with more powerful 750-shp (derated to 550 shp) PT6A-135-As. These new engines allow the C90GT to go 25 knots faster, making for a 271-knot cruise speed, and climb to its 30,000-foot ceiling in half the time (11 minutes versus 22 minutes).

But unlike the VLJs, the C90GT isn’t equipped with one of the latest glass cockpits; instead, it retains the C90B’s Rockwell Collins Pro Line II avionics with two-tube EFIS displays and Garmin 400 GPS/moving map. However, Raytheon said it is considering the Pro Line 21 integrated avionics system and the Garmin G1000 for the C90GT, and it could announce something on this front next month at the NBAA Convention.

The $2.95 million twin turboprop received FAA certification in December, with EASA and other international certifications to follow later this year.

**Socata**

**TBM 850**—The Socata TBM 850, a faster, more powerful derivative of the TBM 700 turboprop single, received FAA approval on January 23, six weeks after the EASA certified the airplane. Building on the TBM 700 platform, the Pratt & Whitney Canada PT6A-66D-powered TBM 850 offers a higher maximum cruising speed (320 kts) than its predecessor, as well as a 31,000-foot ceiling.

Socata said it has orders for more than 50 copies of the $2.8 million airplane. Deliveries began in the spring, and 20 TBM 850s are now in customer’s hands.

**Vulcanair**

**VF600W Mission**—Vulcanair director of sales Remo De Feo told AIN earlier this year that the VF600W Mission is still an active program, though it has been “severely delayed due to a number of factors.” These include a lack of funding to continue planned development of the turboprop single and several unplanned modifications that delayed the flight-testing program.

Another factor is a lack of resources due to several other ongoing projects at Vulcanair, such as the re-engining of the P68C high-wing twin with SMA diesel engines. De Feo said Vulcanair is “re-attacking the VF600W Mission” now that much of the work on the P68C program is done.

The VF600W is expected to resume flight trials this year, “and after about 10 hours of flight, which are needed to gather additional data, we will remodulate the program accordingly and make another serious plan for possible deliveries,” De Feo said. Until then, Vulcanair is unable to provide a new certification estimate.