NEW BUSINESS TURBOPROPS 2015

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While the light jet market remains depressed, **business turboprops** are holding their own and development of new models continues, albeit unevenly. According to the General Aviation Manufacturers Association, 603 new business turboprops were sold last year compared with 722 new business jets. That's down slightly from the recent record 645 new turboprops shipped in 2013, but given the global economic slide, an impressive showing nevertheless. Digging deep into those numbers reveals that the primacy of the single-engine turboprop endures as they accounted for 474 of the total, and 157 of them were pressurized singles, predominantly the Pilatus PC-12NG and (with 51 delivered) the Daher TBM 900.

By acquiring Beechcraft and its line of King Air turboprop twins, Textron Aviation has emerged as the dominant industry force in the turboprop market with 221 combined deliveries of King Air twins and Cessna Caravans last year. King Airs comprise virtually the entire twin turboprop market. And it now appears that Textron intends to dust off what first emerged as Cessna's plans to enter the pressurized turbine single market. This summer the company announced it would resume work on a concept first fielded at Oshkosh by Cessna in 2012. For now the company is saying only that the aircraft will have a top speed of 280 knots and a range of 1,500 nm.

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Of course, there is no shortage of lesser players looking to break into the single-engine turboprop market. However, to date, as a group they have been long on sizzle, short on the steak, turgidly trudging down the path to certification in fits and starts and suffering from deficiencies (absence of credible development schedule, capital, infrastructure and murky prospects for product support) that do not encourage confidence in would-be buyers.

These challenges are not confined to the single-engine market; there are just more of those programs. For the last three decades, India's National Aerospace Laboratory (NAL) has struggled to develop the Saras twin-turboprop pusher for business aviation. A third prototype was spotted taxiing last summer, but precious little has been heard about the program since. When quizzed about the status of the program earlier this year, Dr. Harsh Vardhan, the country's minister of science and technology, told the Indian Defense Research Wing News Network, "I have no clue." NAL now says it plans to take "lessons learned" from the Saras and apply them to the development of a new commuter turboprop it hopes to fly by 2020.

However, in the market as a whole there is reason for continued optimism on several fronts. While turboprops are hardly new technology, the way they are being marketed to a new generation of end-users is fresh. Wheels Up and Surf Air, for example, offer memberships to both corporate and individual users with innovative pricing structures, such as Surf Air's "all-you-can-fly" flat rate, as an alternative for a demographic seeking greater value than it perceives in fractional ownership or straight charter. These new entrants have been responsible for significant new turboprop orders in recent years, with Wheels Up alone ordering 105 King Airs.

Beyond finding new markets, the technological tweaking of turboprops to boost both utility and performance continues. This summer the FAA certified the Beechcraft King Air 250 fitted with the touchscreen Rockwell Collins Pro Line Fusion avionics package. Approval for the package in King Air 350s is expected later this year and in the King Air C90GTx in the first half of next year.

Garmin offers a variety of retrofit avionics suites for the King Air, Commander 1000, TBM 700, Pilatus PC-12 and Piper Meridian. Universal Avionics has developed them for the King Air and the PC-12.

GE's Unison has developed a single power lever for each engine of Nextant's remanufactured King Air G90XT, technology that is expected to cut pilot workload and extend engine life. It could be applied to other makes and models. The levers are linked to electronic engine controls and automatically prevent engine overtorquing and overtemping.

Swept-blade propeller retrofits continue to be all the rage, boosting thrust while hushing interior and exterior noise. King Air retrofit technology specialist Raisbeck Engineering credits the new Raisbeck/Hartzell swept-blade props for 90 and 200 series King Airs with "propelling" the company to strong sales last year. The company plans to have a swept-blade option available for King Air 350s later this year and is evaluating both metal and composite designs for that aircraft. Swept blades have also found their way onto new Piaggio Evo twins and TBM900 singles and are being developed for the Piper Meridian and Meridian M500.

There remains no shortage of engine retrofit programs. Blackhawk Modifications expects FAA certification approval this year for its 867-shp XP140 engine upgrade, featuring the Pratt & Whitney Canada PT6A-140, for the Cessna 208A and 208B Caravans. Installed in the Caravan, the new engine provides up to 44 percent more available horsepower, a 41-percent improvement in rate of climb, a 20-percent reduction in takeoff distance, and a 10- to 12-knot cruise speed improvement compared with Caravans equipped with the original 600/675-shpPT6A-114/114A. It

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is available for all Caravans not equipped with Garmin G1000 avionics.

GE Aviation is making inroads marketing its H series of engines, derived from the Walter M601. The H series will be standard equipment on the remanufactured Nextant G90XT and the Ikhana remanufactured Twin Otter as well as on Caiga of China's new AG300 single (formerly known as the Primus 150).

Hourly maintenance plans for turboprops are growing in popularity as well, with lenders and owners increasingly accepting them as a way to lock in operating cost and protect resale value. These programs have been available for jets for some time. Daher plans to offer an hourly maintenance program for all TBM variants next year. The company said the cost of the program will likely vary, driven by the type of avionics installed in the aircraft. Daher currently offers a "highly exclusive extended maintenance program" that covers five years of maintenance or 1,000 hours, whichever comes first. The nose-to-tail program covers annual and periodic inspections but not rotables such as landing gear, tires and brake pads.

While turboprops may never outsell jets again, innovations in standard equipment for new models, more engine and avionics retrofit choices for existing models, and new standards of maintenance and service for the entire fleet promise to keep this essential component of corporate and private aviation vibrant for years to come.

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