

We Could Have Had A V8



BY SAM LONGO, AME, A&P

Aviation piston engines are, at best, newly manufactured antiques. The Canadian-built Orenda OE600 was a modern, flight-certified V8 determined to challenge that rustic retro reality. In the late 1970s, Richard Macoon and his brother, Grant, decided to adapt a CanAm racing car engine for aviation use. The 495-cubic-inch V8 was crafted from Reynolds 390 aluminum alloy and fashioned after the big block cast iron engines from Chevy's muscle-car era. After years of testing and development the "Thunder Engine" was born, sporting twin turbochargers and a necessary reduction gearbox to drive the propeller.

In 1994, while teaching Aircraft Maintenance at Centennial College, I had the chance to meet Richard Macoon. He had just sold the Thunder Engine package to Orenda, and my boss was in negotiations to help Orenda train its technicians to develop and service it. Orenda had traditionally built turbine engines and had a strong niche market producing and overhauling hot section components for many other manufacturers. Taking on a high-tech piston engine project resulted in a steep learning curve for most of its technical workforce. As a result of this scenario, I was tasked with developing and delivering a basic piston engine course and cycling a large number of Orenda's staff through it. Besides teaching the basics of the four-stroke cycle and its necessary components, we also got into the specifics of turbo charging, magneto timing, ground running and instrumentation for piston engines. As the months rolled by, I became a regular visitor to their facility and quickly got to know all the key players working within their new offshoot department, Orenda Recip.

This was a mutually gratifying situation. I was privy to all the teething problems and challenges encountered in the early test cell runs, many of which were discussed in our weekly classroom sessions. This was exciting stuff, and on a personal level, I really wanted that engine to succeed. Drawn into the enthusiasm of the program, I watched with pride as the bugs were worked out and successful strategies discovered. My regular students back at Centennial College also benefited from the exchange by having first-hand knowledge of this new technology infused into their regular piston engine theory courses.

In March of 1998 the Orenda OE600A completed the certification process, and as the workforce grew, the classroom sessions continued. By this time I knew almost everyone in the plant. Soon the flight-testing was under way. Two Beechcraft C90 King Airs were among the first to be retro-fitted. Out came the PT6s and in went the V8s in a bizarre case of reverse engineering. In addition,

a DeHavilland single Otter was stripped of its traditional Pratt & Whitney R-1340 and treated to the new V8. This was right in line with Orenda's marketing strategy. In theory, any aircraft that used engines in the 600 HP range was a possible candidate for their new V8. Statistics calculated the potential of about 30,000 flying examples using Pratt & Whitney PT6, R-1340, or other engines that presented engine replacement opportunities. In addition, compared to the PT6, the V8 boasted better climb and altitude performance while consuming approximately 30 percent less fuel.

Despite the usual challenges and setbacks encountered with any flying prototype, the King Airs debuted at Oshkosh to positive reviews and the flight hours continued to build as the testing continued. The next move was to start ramping up for a retrofit and production facility. For this, Orenda Recip chose the former Canadian Forces Base in Debert, Nova Scotia. Everything was really coming together. With the supplemental type certificate in hand for the Single Otter, and the King Air to follow shortly, it really looked like the OE600 was poised for take off. Sadly, the events of 9/11 took its toll on many aviation companies. Despite its huge investment of time and resources Orenda was forced to refocus on its military contracts to survive, and the OE600 program was cancelled. The entire project was eventually sold to Texas Recip and has ultimately resurfaced as Trace Engines of Midland, Texas. The jury is still out on whether the original V8 concept will ever meet its true and rightful potential. In an interesting twist of fate, one of Orenda's V8-powered King Airs ended up at Centennial College. After the Recip Program folded, we purchased the engine-less airframe and had it disassembled and transported to our Scarborough Campus. At the time, I was the hangar coordinator and supervised the reconstruction of the aircraft. The Aircraft Maintenance students had a great time resurrecting it to its former glory. Unfortunately, despite our diligent negotiations, no V8 engines ever materialized to complete the unique prototype aircraft.

On the day of my Centennial College retirement in May of 2008 I had the pleasure of running up that very aircraft with a retrofitted PT6 port engine. Subsequent to my exodus the starboard PT6 has also been re-installed. Interestingly, the aircraft and my involvement with the Orenda OE600 had come full circle. The ground run was enjoyable but also just a little melancholy. It was a sad reality. If fate had been just a little kinder, that turbine whine could have been replaced with the raucous righteous rumble of a Canadian built V8. For more published columns by Sam Longo, go to www.samlongo.com ■