

must be changed to a larger diameter to mate with the -10 engine. "We also have to replace the engine control lever brackets because we found that, by using the original ones used with the -6 engine, there would be some interference with the fuel nozzle. We modified each bracket so there would be no contact between the nozzle[s] and the control lever brackets," Clarke says.

Because of the replacement of the ITT with the EGT, some wiring changes are required, as is the installation of a new temperature indicator gauge in the aircraft's cockpit.

For the full overhaul and convert package, Clarke says, customers can plan to spend about \$470,000. This includes the cost of upgrading each engine at \$186,500 per powerplant (\$373,000 for both engines), plus \$97,000 for the modification work under the STC. For the continued time option, operators will spend \$115,500 for each engine, along with the \$97,000 for STC work, for a total of \$328,000.

For the past four years, owners of four models of the Rockwell Twin Commander - the 690A, B, C and D - have also benefited from the TPE331-10 programme. Approved by the FAA in August 1994, the STC won by Eagle Creek Aviation Services, of Indianapolis, Indiana, was developed in conjunction with AlliedSignal and Twin Commander Aircraft. Eagle Creek then sold the STC to Twin Commander.

Twin Commander Aircraft, based in Arlington, Washington, holds the type certificate for the aircraft and supports the fleet, which was originally produced between 1966 and 1985 by Rockwell (and later Gulfstream). Certified for single-pilot operation, the aircraft is typically configured for 7-10 passengers.

During its production life, 700 Twin Commanders were built and, of those, 390 worldwide are candidates for conversion.

Eagle Creek Aviation Services is now one of seven centres authorised by AlliedSignal and Twin Commander to install the TPE331-10T on the four Twin Commander models. Eagle Creek has carried out the majority of the 65 conversions to date, with 36.

Matt Hagans, president of Eagle Creek, reports that customers for the Twin Commander programme can choose the continued time option, which has a per-engine cost of \$118,900, or the overhaul and convert option, which is available for \$188,400 for each engine. The STC portion of the programme is sold as a separate kit. For the Twin Commander 690A and B, the kit price is \$70,000. For the 690C and D models, the price is slightly less, at \$60,000.

"This is because fewer modifications need to be done on the C and D models," Hagans says. "The A and B models need to accommodate a larger tailpipe, but a provision for this was already in place on the C and D models."

As part of the STC work - for all models - an oil cooler door must be installed in each nacelle on the opposite side of the tailpipes. This increases air flow through the nacelles, enhancing the cooling of the upgraded engines during



Re-engineing the Beech King Air B100 with the -10 requires new propellers and other changes

ground operations such as taxiing and idling.

Additional modifications include a change to the cockpit-mounted temperature gauge and the supporting wiring, because of the replacement of the ITT with the EGT.

MANUAL PRIMER

"We have also installed a manual primer in the cockpit, giving the pilot the capability to inject more fuel into the engine during the start-up phase," Hagans states. "On the -10 engine, we're dealing with a larger hot section. At airports that are at higher altitudes where the temperature tends to get cold, often an additional injection of fuel may be needed to start the engine."

Hagans points out that operators who select the continued time upgrade on the Twin Commander usually do so at either of the aircraft's two hot-section inspection intervals. "The time between overhauls for the -5 engine

is 5,400h," he remarks. "The hot section inspection is at 1,800h and 3,600h, so that's the best time to have the continued time upgrade done."

At 1,800h, he notes, typical -5 hot section inspection and repair work costs about \$20,000-25,000 per engine. At 3,600h it is between \$45,000 and \$60,000.

Hagans observes that the Twin Commander upgrade is resulting in deliveries averaging one a month. It is also available under Eagle Creek's Renaissance Commander programme, which includes a total refurbishment of selected members of the Twin Commander family.

AlliedSignal's Carmickle reports that the next candidate for the programme will be the CASA C212-100. Known mainly as a utility aircraft, it is powered by two TPE331-5s. The C212-100 could be the final aircraft in the programme, he says. "By the time the programme winds down, more than 4,000 engines could be upgraded." □



Beech King Air B100 reflects a new lease of life