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# New life for old King Airs

The 'glass' can be full for those flying older turboprops

BY THOMAS B. HAINES

“Oh, no, look what happened,” said Dwayne Clemens drolly as he moved the fuel cutoff lever to the off position. The big Beechcraft King Air’s tail swished once and then settled down as the right propeller slowed to a stop. The Pratt & Whitney PT6 on the left side adroitly picked up the slack and the King Air 200 kept on climbing.

From the left seat, I rested my hand on the yoke, feet flat on the floor. What might have been a big deal—especially right after takeoff or in instrument conditions—was a nonevent, thanks to the newly installed S-Tec IntelliFlight 2100 Digital Flight Control System married to the Avidyne Envision integrated flight deck. The new autopilot kept the old King Air flying straight and true while the big Avidyne displays allowed the pilots terrific situational awareness.

The Avidyne/S-Tec installation in the King Air 200 is the first of what the two companies are calling the “Alliant Integrated Flight Deck.” The combination for the King Air was certificated in October 2006 and is now shipping. For owners of older King Airs, it’s a remarkable transition, replacing the conventional flight instruments on both sides, the mechanical gyros, the radar display, and the creaky, old autopilot system with a truly state-of-the-art package. Here’s a point to give you a sense of how complete the transition is: The airplane’s useful load typically goes up some 150 pounds when you swap out the old equipment for the modern gear. Avidyne anticipates that the value of the airplane will go up mostly in step with the package’s \$170,000 price tag. Installation cost is extra and is difficult to predict, given the differences among airplane models and shop locations and capabilities. Those without a stack of Garmin radios will need to budget for that, as well as a new audio panel and transponders.

## Glass-cockpit aftermarket

The Alliant system is Avidyne’s first foray into the glass-cockpit aftermarket. Although it plans to offer its Envision displays on many used-aircraft models, Avidyne chose the King Air 200 as the first installation because the large user base for these hard-working turboprops was looking for an economical way to upgrade its airplanes. The Envision package is built from the same architecture as the FlightMax En-



tegra systems offered on new Cirrus, Piper, and other aircraft.

The supplemental type certificate, owned by S-Tec, covers some 800 of the estimated 1,200 U.S.-registered King Air 200s. Owners of turboprops in this category are used to paying six figures to upgrade from cantankerous old analog autopilots to new digital ones, so getting the highly capable IntelliFlight 2100 system as well as replacing all of

Among the features on the Avidyne PFD are V-speed markings on the airspeed indicator, trend lines, a wind indicator (above and right of the direction indicator), and many other tidbits of information.



Compared to the original panel (left) the new Avidyne/S-Tec panel provides a plethora of new features for the King Air pilot, as well as an increase in useful load and greater situational awareness.

the tired spinning gyros and flight instruments with bright, colorful solid-state displays for less than double the price is a relative bargain.

The typical King Air Alliant Flight Deck package includes dual-redundant Avidyne EXP5000 10.4-inch primary flight displays (PFDs), a 5.5-inch Avidyne EX500 multifunction display (MFD), the S-Tec IntelliFlight system, Mid-Continent 2-inch standby instruments, Avidyne CMax electronic charts, and Avidyne MultiLink datalink for real-time in-cockpit weather and in-flight messaging and tracking. The

not interface with nearly as many airborne radar units as the EX500 does.

Each of the PFDs is integrated with its own solid-state air data and attitude/heading reference system (ADAHRS), providing redundancy for the displays and their information sources. Avidyne's Cross Compare System monitors the two ADAHRS and visually annunciates any discrepancies, allowing the pilot to take the malfunctioning system offline and have the remaining system drive both PFDs. As with other Avidyne installations, the Alliant system provides instantaneous

winds-above information and six-second trend indicators for airspeed, altitude, and heading. Those, along with the wide horizon line on the PFD, give the pilot a great deal of situational awareness and the ability to precisely control the airplane.

Besides displaying datalink and airborne radar weather in vivid colors, the MFD provides additional situational awareness in the form of various moving-map displays and interfaces to ground proximity warning systems, terrain awareness warning systems, traffic systems, and lightning detectors.

The IntelliFlight 2100's modes are announced on the PFD, including the indicated airspeed (IAS) setting, which is a feature not typically found on older au-

topilots in this category of airplane. The pilot selects the desired indicated airspeed, hits the IAS button, and the flight control system holds that airspeed throughout the climb or descent.

In addition, the new S-Tec autopilot includes GPS roll steering, allowing for hands-off following of programmed flight plans, and the usual plethora of features found in modern, high-end autopilots, such as heading hold, nav and approach modes, altitude preselect, altitude hold, and vertical speed, as well as course intercept and yaw damper.

### **Two turning and burning**

With the right PT6 back online, demo pilot Clemens allowed me to put the King Air through its paces, which

mostly meant watching the highly capable automation fly the airplane precisely to the selected altitude—even on this bumpy day—and then fly a perfect transition to a perfect ILS, with me managing only the engines, flaps, and landing gear.

Clemens reached below the panel and flipped a valve in the demo airplane, blocking the pitot system on the right side. The cross-compare system quickly noticed that the right and left PFDs disagreed, alerting us through a “miscompare” light on the PFDs. With that, I could have hit a button above the PFD to have the pilot’s ADAHRS also drive the copilot’s PFD.

King Air 200s are the workhorses of the turboprop fleet, often flown single-

pilot on demanding missions. Pilots used to flying stock analog-everything King Airs will be amazed by the high level of situational awareness, redundancy, and reliability brought about by the Avidyne displays and the ADAHRS. The S-Tec autopilot brings a level of automatic flight control sophistication found only on the latest new airplanes. The pilots will feel like they’re flying a new airplane again.

So far, 35 select avionics dealers, including Raytheon Aircraft Services, are authorized to install the Alliant system. For more information, visit the Web site ([www.alliantkingair.com](http://www.alliantkingair.com)). **ACPA**

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