

AVIONICS NEWS

A Monthly Publication of the
Aircraft Electronics Association

ALLIANT INTEGRATED FLIGHT DECK

Avidyne and S-TEC
Give King Air 200
an Update

INSIDE:
Tips for Smoother
Installations

Aging Aircraft
Maintenance

Member Profiles:
Adams Aviation
Commander Aero



**FAA-APPROVED TRAINING
EXAM INSIDE**

King Air 200 cockpits get the glass treatment

Alliant Integrated Flight Deck from Avidyne and S-TEC Gives Aircraft an Update

BY DALE SMITH



From backcountry dirt strips to executive business airports, Beechcraft's venerable King Airs prove their value to operators the world over. That's why airframes built back when disco ruled are still in high demand. Throw in a new paint job, interior and any of the growing number of engine/propeller upgrade packages on a 200-series King Air, and it's virtually impossible to tell it from a fresh-from-Wichita version.

Until you climb into the cockpit that is — there's not enough "makeup" to hide the age of the stuff in there. The combination of diminishing reliability and increasing cost of ownership of those old "six-pack" mechanical instruments are the primary reasons legacy 200-series operators would even begin to consider retiring their trusty old steeds. Until now.

Thanks to the introduction of the Alliant integrated flight deck — a joint venture between Avidyne and S-TEC — 200-series King Air owners now can enjoy the latest in advanced "large-

glass" display technologies, combined with a fully functional, highly reliable digital flight control system.

"The King Air market has been requesting this type of upgrade since full glass panels were introduced by Avidyne several years ago," said Mark Sandeen, vice president of sales and marketing for Avidyne. "King Air 200 owners get the enhanced safety and utility of large, dual-redundant primary flight displays plus S-TEC's new high-performance autopilot in one truly beautiful panel.

"In addition, the situational awareness and operational benefits of integrating multi-link weather, onboard radar, traffic, terrain awareness, electronic charting and two-way (text) messaging for dispatching and fleet management are unsurpassed," he said.

Created of Royal Lineage

According to the companies, there are more than 2,000 OEM aircraft flying with the combination of Avidyne

and S-TEC equipment, and like any successful relationship, they've taken the best of what each company can offer to create the Alliant package.

"Avidyne and S-TEC are building on many successful partnerships in the OEM arena as the basis for creating and delivering the Alliant integrated flight deck for the retrofit market," said Mel Hilderbrand, president of S-TEC.

The Alliant package includes a pair of dual-redundant Avidyne EXP5000 10.4-inch PFDs (each with its own ADAHARS), an Avidyne EX500 MFD, and S-TEC's IntelliFlight 2100 digital autopilot. Three, two-inch Mid-Continent standby instruments also are part of the standard package.

The companies chose to leave the standard analog engine instruments alone. It was decided the added cost to develop, certify and install a digital system wasn't worth the significant amount of money it would have added to the price and the months it would have added to the development cycle.

Early inquiries with target King Air owners also showed most of them already had installed at least one new Garmin GNS430 or 530. While Alliant's STC does specify the Garmin GPS units, the package does not include any radios.

"We identified our window of opportunity and worked very hard to meet it," Hildebrand said. "That window not only encompassed delivering an STC'd system during a specific timeframe but also a very precise price point."

The Alliant development team chose the relatively small, 5.5-inch EX500 instead of the larger EX5000 MFD because it interfaces with 19 different radar R/T units, while the EX5000 only interfaces with one model.

A Truly Majestic Performance

I was fortunate to be one of the first outside the two companies to fly the Alliant package just prior to the annual NBAA convention in October. Demo pilot Dwayne Clemens was in the right seat, while Greg Plantz, director of sales for S-TEC, and Jamie Luster, director of U.S. aftermarket sales for Avidyne, were in the back.

The system was installed in N280SC, a 1980 King Air 200, which also served as the STC platform. With its big Avidyne displays, new one-piece rolled metal panel and fresh interior, this sure didn't look like a 20-plus-year-old airplane.

With an external power cart humming in the background, Luster walked me through the "intuitive" operation of the Avidyne Envision PFDs — Envision is the name the company uses for the aftermarket versions of its OEM Entegra products. And, like the Entegra, it's extremely easy to use. In my opinion, that's a major selling point for the system, especially when you consider the average pilots/owners of King Airs may only fly once a

week. A simplified operation translates into a safer operation.

Next, Luster showed me all the information that can be displayed on the EX500, including Avidyne's CMax electronic charts and Jeppesen's JepView electronic airway manual with airport diagrams. It delivers all the airport information you want, down to a detailed runway/taxiway diagram.

With the touch of a button, we called up XM WX Satellite Weather with the works, including textural TFRs and more. Although there is live radar in the airplane, I like the XM Satellite view. With the ability to get a look at all the weather along your route, it's a wonderful tool for planning and situational awareness. And, because it is tied to the two-way satellite network, there's also the benefit of doing two-way text messaging and flight tracking.

Plantz then walked me through the IntelliFlight 2100's features. As he

described each function, Plantz said the Alliant integrated flight deck was created to provide what he called "managed flight," which means, as he put it, "From wheels in the well to runway in sight, the system could and would take care of everything."

As soon as the 200's wheels were safely stowed, Clemens had me press the autopilot button and park my hands and feet safely out of harm's way. I know "real" pilots hate to hear this, but I just sat there and watched the PFD while the autopilot did all the work. The 2100's GPS steering mode did a masterful job of tacking the course passed along by the 430.

Like the PFDs, the IntelliFlight 2100 continually "cross compares" the inputs it is receiving from the dual ADAHARS units. Should it ever sense an information "miscompare," it will disconnect itself and alert the pilot. As expected, I received no such indica-

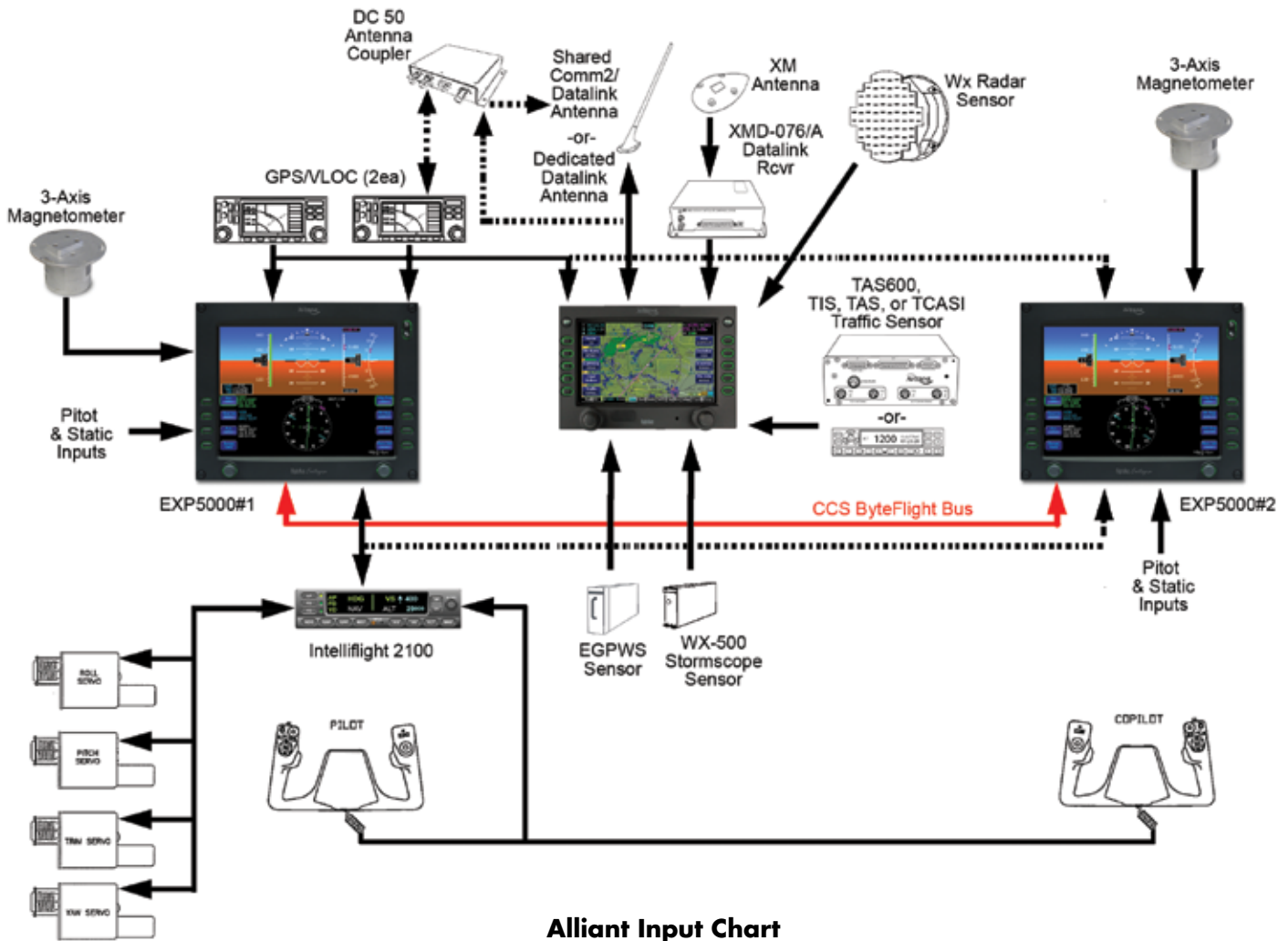
Continued on following page



The popular King Air 200 series is a tremendous upgrade candidate for the Alliant system, replacing antiquated dials, gauges and hard-to-repair autopilots with modern all-glass flight deck.



The Alliant integrated flight deck provides the state-of-the-art in situational awareness, safety, reliability, and redundancy for the King Air 200 using Avidyne's Envision integrated displays along with the S-TEC 2100 IntelliFlight autopilot.



Alliant Input Chart

SMOOTHER INSTALLATIONS

Continued from page 57

tions. In fact, it was doing such a masterful job of flying, I could concentrate on other tasks both inside the cockpit and outside the aircraft. Clemens said it was like having a really good copilot with you at all times, which is another benefit for single-pilot operations.

In fact, the Alliant team had an impressive demonstration of just how good the system was ready for me — I just didn't know it. As we were approaching Lakeland Linder Airport (LAL), I had, like most pilots, turned my attention to the EX500 to check for traffic and update the approach information. While Luster was demonstrat-

ing these features, Clemens shut down the left engine.

All I felt was a slight "wobble." The IntelliFlight 2100 had the situation well in hand. I think it drifted off about a dot on the localizer, then corrected for the asymmetric thrust. Remember, my hands and feet were nowhere near the flight controls. I trusted my autopilot, and it did not let me down. Had this been an actual emergency, I was freed up to pull out the checklist and do what I needed to do to prepare for a single-engine landing.

Magician to the King

An Alliant installation is not for the faint of heart. The entire airplane must

be "gutted" to take out the legacy avionics, servos, sensors, wiring and such before installing the state-of-the-art components. Plantz said during the initial STC installation, the technicians at S-TEC's Mineral Wells, Texas, facility removed upward of 150 pounds of antiquated boxes, wires and associated "junk."

Because this was the first installation of its kind, Hilderbrand said having its own DAS at the company's Mineral Wells headquarters was a significant benefit.

"With our DAS authorization we didn't have to go back to the FAA at various segments of the program," Hilderbrand said. "We have to follow FAA guidelines but we're not

tied to going back to them every step of the way. That's typically a 30-day window.

"From our perspective, we were in much better control of the project than a company that has to use an outside installation facility for a similar project."

According to Hilderbrand, this not only reduced the STC approval cycle, it also helps shorten the learning curve for the shops that are part of the Alliant network.

"We can share our experience and information with an Alliant shop to help them eliminate wasted time during the installation," he said. "We've been through it all before."

Although each aircraft and situation is looked at individually, Plantz said the typical downtime for an Alliant installation would be around 600 hours.

"I think you're going to see 700 hours for the first couple, but then once a shop gets accustomed to it, they can cut that way down," Plantz said. "But that's without doing any extensive radio work. If you're doing a complete Garmin stack with audio panel and new radar, you can get upward of 800 hours pretty easily."

The sophistication of the Alliant installation is one reason Avidyne and

S-TEC "cherry-picked" the first group of approved dealers.

"We selected shops with King Air experience, as well as those with the capabilities to do engines, paint and interior work — that's what we feel the majority of owners are going to want to do while the airplane is down for the Alliant installation," Luster said.

Long Live the King

So, who will buy the Alliant package?

"Someone who wants the redundancy, reliability, safety and situational awareness in an airplane they are very comfortable flying," Plantz said. "They get the most utility and can afford to fly their King Air where and when they need. They also have the skills to fly it safely."

Plantz said the first Alliant customer fits this profile exactly.

"He owns a Cirrus and he's a partner in a King Air 200. He knows he can fly the King Air around confidently and go anywhere he has to go. It has the perfect mission profile. He uses it strictly for pleasure flying and his partner, who is a doctor, uses it both for business and pleasure trips," he said.

"They caught wind of the Alliant program and thought it would be perfect for them." □



Alliant integrated flight deck from Avidyne and S-TEC.