

Going to Glass, Southwest Style:

By Jim Cavanagh

ASPEN AVIONICS

I have always believed that a certain amount of safety is compromised because of the high price of upgrading. Whether it is an engine installation for improved performance or an avionics upgrade to provide more and enhanced information, many aircraft owners opt out because of the cost. Old-timers who would like to make the jump to better, safer, and, quite frankly, cooler avionics simply bite their lip and resign themselves to using the older gear.

Well, this doesn't have to be the case any longer.

Aspen Avionics is a fairly new company, based in beautiful Albuquerque, N.M. Created in 2004 by former employees of Eclipse Aviation, the company brought a new twist to avionics and glass panels by creating a product line that allows a pilot to convert his steam-gauge panel to glass and electronics as he needs or can afford. In fact, the "Evolution" name used for its product line reflects the slow-but-steady evolution of the panel from old to new, rather than a big-bang change-out. So far, these ideas seem to be working quite well.

All avionics work well, or they couldn't

get certified. A responsible pilot will shop and shop to find an avionics installer who can get the equipment into the panel legally and efficiently (read: economically). Aspen's creators must have been flying on a budget themselves, because they developed their idea from the start to be an easy, inexpensive installation. In fact, Aspen gear is probably the least-expensive retrofit gear on the market, and downtime for the aircraft is the lowest in the industry.

The beauty of the Aspen gear is that the flat-panel screens are just 3-1/2 inches wide and 7 inches tall. The actual computer



EFD1000 Pilot PFD



EFD1000 Pro PFD



EFD1000 MFD

Your Glass Cockpit, Your Way.



EVOLUTION 2500 PACKAGE

This powerful combination includes the award-winning EFD1000 Pro PFD (Primary Flight Display), the EFD1000 MFD (Multi-function Flight Display), and the EFD500 MFD to deliver Aspen's total glass cockpit solution.

The Pro PFD equips you with professional-grade, digital primary flight instrumentation. The 1000 MFD doubles your panel's display area and delivers full PFD redundancy at the push of a button. The 500 MFD rounds out the package to deliver additional versatile display of terrain, traffic, weather, and more.

Aspen Evolution—your total glass panel made easy.

See Evolution Flight Displays in aircraft just like yours at www.aspenavionics.com/customergallery

EVOLUTION FLIGHT DISPLAY SYSTEM

Aspen's expandable Evolution System lets you create your glass cockpit your way — all at once, or in stages. Choose an Evolution Package for your best value.



EVOLUTION 1000 PRO PFD



EVOLUTION 1500 PACKAGE



EVOLUTION 2000 PACKAGE

ASPEN AVIONICS

www.aspenavionics.com



The Evolution Flight Display system is modular, allowing it to be installed as one, two, or three panels and can be expanded at any time.

is attached to the screen and is 4-1/2 inches deep, allowing it to fit into the holes normally used by standard panel instruments. You simply pull out the instruments, mount the adapter plate, and stick the unit in the holes. No further panel modification (or required paperwork) is necessary.

I spoke with Matt Schloss at Gulf Coast Avionics (a distributor of Aspen Avionics); he informed me that the Aspen installation takes around 45 hours, considerably less than both the Garmin G500 and the Honeywell EFIS systems.

Since most panels have a standard “T” configuration, the Aspen Evolution Flight Display (EFD) system starts with the EFD1000 Pilot primary flight display (PFD) or the EFD1000 Pro PFD. Next, an owner can add the EFD1000 multi-function display (MFD) and/or the EFD500 MFD, both of which feature the Evolution Hazard Awareness (EHA), when he or she needs or can afford it. The initial installation is the

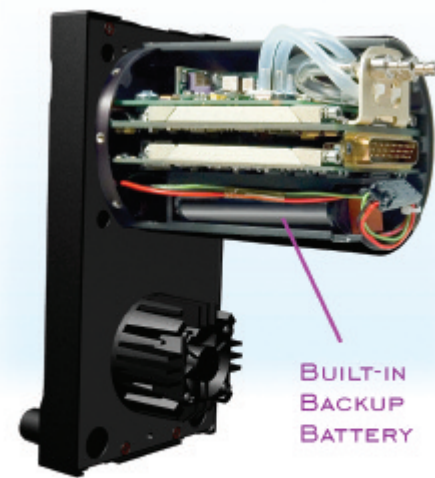
most expensive, as a couple of boxes are installed. After this, additional modules simply need to be plugged in and calibrated.

The EFD1000 Pilot version offers all flight information required for altitude, heading, and air data instruments, plus a slaved directional gyro (DG), base map with GPS flight plans, real-time winds aloft, outside air temperature (OAT), true airspeed (TAS), and glidescope (GS) indicator. The Pro version adds an electronic horizontal situation indicator (HSI) with dual bearing pointers, and it integrates with all autopilot and flight directors, hazard awareness, and Aspen’s upcoming Synthetic Vision.

Both units are self-contained and include the analog converter unit (ACU) box that converts legacy radio signals to digital, allowing owners to use older radios, and the remote sensor module (RSM), which mounts on the outside of the aircraft toward the tail. The module also contains an emergency backup battery that will last a half hour after the electrical system goes belly up, heaven forbid. At under \$6,000 for the Pilot unit, in addition to the fact that installation of new avionics usually costs less than overhauling the instruments, you can start to see how efficient the upgrade can be.

I have spoken with a couple of pilots who have upgraded to the EFD1000 Pro, and the entire installation, factoring in rebates and trade-ins with the shop, runs between \$11,000 and \$12,000 for everything. Doesn’t a Garmin GNS 530 alone cost around \$15,000?

Adding the EFD1000 MFD, an owner will get more than just the extra screen stuff, like moving maps, datalink weather, and traffic and terrain information. It comes with a complete set of air data/altitude/heading reference system



Every EFD has a built-in backup battery that can last up to 30 minutes in case of an electrical failure.

(ADAHRS) sensors, creating sensor redundancy, more flight and flight-plan information, its own backup battery, and can become the PFD should the primary instrument fail or deteriorate. This multi-tasker unit lists for \$7,995, but remember, it is basically a plug-in-and-go piece.

The third unit that will complete the “full” installation is the EFD500 MFD. At \$4,995, it is basically another EFD1000 MFD without the ADAHRS sensors. This unit completes the package by filling the third hole and complementing the other two modules.

Now that you know what to buy, how do you use them? The biggest problem for us older folks (and that includes the youngsters who fly older airplanes) is making the transition to electronic displays and understanding how they work. First of all, remember that all of the information in these things comes from other sensors: your new or existing radios, your autopilot, or any other gear you have installed.



EFD500 MFD



The Evolution system easily installs into the already-existing instrument holes in aircraft panels.

You are actually looking at basic displays that are hooked to the avionics. Everything you see is information that is transposed by software. There aren't real maps, dials, or gauges, and all of the information can be and is modified, as needed, by changing software. This simplicity, although scary to us old-timers, is what makes the systems so effortless and safe.

Next, users have to become accustomed to a lot of information on one screen. Altitude and airspeed numbers are presented on tapes or vertical alignments with a pointer for trends. No "clock faces" here, guys and gals. With the installation of the Pilot or Pro PFD, you have the option to keep the old airspeed indicator (ASI) and turn coordinator in the panel, plus you can turn off one or both of the tapes.

Button-wise, the units have a lot of them...I think 11. These move you around to different functions and displays, but the logic is straightforward, and if you can learn to use a TV remote, you can master the PFD. Before long, Aspen will have a tutorial DVD, so you can practice at home.

About the only thing that can be negatively said about these modules is that

sometimes the information is a bit small. Certain information can be difficult to read, requiring some pilots to keep their reading glasses on during a flight. The Garmin G500 and Honeywell units are much larger, but think of the cost of a complete panel rebuild at avionics-shop rates. Aspen's lower prices are well worth sacrificing a glasses-free flight. Regardless, it'd be nice if the displays could use one of those magnifying gizmos that are around for books, maybe mounted on a slide.

Whether it is upgrading the airplane or upgrading the pilot (or both), Aspen seems to have come upon a recipe that does this economically and efficiently in the big avionics picture. This is an aspect of newer, more forward-thinking companies that aren't saddled with what they have been doing for decades, but rather, what they need to do. Aspen is coming out with a bunch of new software and instrumentation in the next few months, (but it's a secret, so don't tell anyone). However, I would make it a point to check out the company's web site, www.aspenavionics.com, to keep up on what's coming out of Albuquerque. ^{CO}



Evolution Hazard Awareness is a built-in feature on both Evolution MFDs and is an option on the Pro PFD. The system uses datalink weather, Stormscope lightning, traffic and terrain on the primary navigation display, and moving maps.