



# Flying behind glass, at last

Logging cross-country time in style  
BY THOMAS A. HORNE

**A**OPA's 2011 sweepstakes airplane—a 1974 Cessna Skylane we're calling the "Crossover Classic"—has passed a huge milestone. On January 26, 2011, Advantage Avionics of Chino, California, finished its eight-week, 300-man-hour instrument panel mega-installation. Now the airplane features a wealth (literally—the new panel's retail value is some \$100,000) of state-of-the-art avionics.

The eye is most readily drawn to Garmin's G500 primary flight display (PFD) and multifunction display (MFD). This top-of-the-line retrofit glass may produce sensory overload at

first, but with a little effort and a couple of hours behind the yoke, the system is easy to operate. Make that *very* easy if you have prior experience with Garmin avionics.

### Shakedown

I went along on the airplane's shakedown flight with the new panel, which included checks of all the GPS, instrument, and autopilot functions. The Cobham/S-Tec System Fifty-Five X autopilot held heading and vertical speeds very well, and altitude-preset climbs and descents, instrument approaches, and course intercepts were quite precise. The inevitable glitches included a too-loud autopilot-disconnect warning tone, and hunting in pitch while in altitude-hold mode. The airplane would climb and descend



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plus and minus 60 feet of the selected altitude; this was most pronounced in turbulence. Cobham/S-Tec will tweak the autopilot's gain levels to correct this nuisance and keep the airplane's altitude dead on.

Advantage's Mark Krueger had already plugged in our 182P's V-speeds into the G500 vertical-tape airspeed display, but for the time being these numbers are in miles per hour. This is to stay true to the *Airplane Flight Manual* (AFM) as the regs require. However, Air Plains is working on a new AFM that will use knots. This will let us use knots as primary references, making the airplane an all-knots ship (the L-3 Trilog standby instrument system is already marked in knots).

The airplane's Garmin GTS 800 traffic advisory system (TAS) proved its worth in the skies over Southern California, issuing plenty of alerts for nearby traffic. It's a great tool for directing your attention to specific targets—and it works independently, no matter where you fly. It doesn't rely on approach control surveillance radar feeds (such as Traffic Information Services-Broadcast—TIS-B) or ground uplinks of other aircrafts' GPS locations, such as Automatic Dependent Surveillance-Broadcast (ADS-B). Instead, Garmin's TAS does its own scanning of other transponder-equipped aircraft.

By the way, the airplane's way out-of-rig, right-wing-low condition was corrected in an hour at Advantage. Seems the left aileron drooped, causing a permanent right-turning tendency. Everything was centered up, and all

is well. Having an autopilot is a great cross-country aid. Having an airplane that will trim up to fly hands-off is just as good—and a necessary precondition for making the autopilot's job easier. I can't imagine how the previous owner could tolerate *always* holding left aileron.

### Hitting the road

Checks finished, squawks addressed, and XMWX downloaded (an ordeal I've described in a blog on the sweepstakes website—[www.aopa.org/sweeps](http://www.aopa.org/sweeps)), it was time to launch. Destination: Air Mod, an interior shop with an impeccable reputation, based at southwest Ohio's Clermont County Airport (I69). In all, this is a 1,200-nm voyage, so I ended up breaking the trip into several legs.

After leaving Chino (CNO), the first leg took me through the Banning Pass at 5,500 feet, sliding past the west side of the Palm Springs International Airport (PSP), then climbing to 9,500 feet on my way past the Thermal (TRM), Blythe (BLH), and Buckeye (BXK) VORs for a landing at the Phoenix-Goodyear Airport (GYR). This was a leg of just more than two hours. The next leg, to Albuquerque International Airport (ABQ), would be at 11,500 feet, and take another three hours.

**Advantage Avionics senior technician Mark Trentham (left) and president Mark Krueger (right) were the key installers of the Crossover Classic's new panel. Office manager Rosie Mantara (center) made sure they stayed focused—and kept track of reams of installation paperwork.**



Could I have flown from Chino to ABQ nonstop? Well, yes, considering that I had 98 gallons of fuel aboard (74 in the mains, and 24 in the Flint Aero tip tanks). But flying nonstop would have meant a five-hour leg in an airplane that would, conservatively, have left me with a legal, 45-minute fuel reserve. Personally, I like to land with at least an hour of fuel remaining, so this prompted me to gas up at Phoenix.

After an overnight at Albuquerque, the next day I set out for Wichita's Mid-Continent Airport (ICT), an easy, two-hour flight. After liftoff, it was a climb back up to 11,500 feet to clear the pass east of ABQ (and stay in radar contact), and then on to ICT in step descents that let me run up the power and boost cruise speeds to the 146-KTAS range.

A cold—or was it the flu?—took me down in Wichita, so I stayed there for a few days. It didn't matter to the schedule, anyway: A monster winter storm system with a wicked warm front shut down my entire proposed route of flight and even grounded airliners all over the eastern half of the nation. All I could do was watch The Weather Channel and keep checking my weather sources on the Internet.

After a two-day wait, the weather broke and I took off on the last leg of the odyssey—from Wichita to Batavia. This was a four-hour trip at 9,000 feet, with a decent tailwind, true airspeeds of 145 to 147 knots, and groundspeeds as high as 172 knots.

### Flying the G500

The G500 PFD and MFD set a new standard for simplicity of operation and interpretation in a glass cockpit. At a glance, you can see indicated, true, and groundspeeds, and the vertical airspeed and altitude tapes have magenta trend lines that predict your airspeed and altitude in the next six seconds. Heading, course, altitude preselect, vertical speed, and altimeter settings are all changed using a vertically stacked set of command buttons and the PFD's single rotating knob.

Simply press the button corresponding to the function you want—say, altitude preselect—then rotate the knob to the altitude you want. After a few seconds, the knob's function automatically reverts to heading select, the most commonly used feature.

As for the MFD, the presentation is like a large, significantly embellished



GNS 530 screen. There are map, terrain-warning, XM WX, and flight plan "chapters" you can call up with line-select keys along the bottom bezel, and within those chapters reside "pages" of additional views. The WX page lets you post overlays of many weather features (we opted for XM WX's Aviator Pro subscription, which contains Nexrad weather radar, cloud-top, freezing-level, lightning, sigmets, airmets, and much more such information). And a page in the flight plan chapter shows Garmin's FliteChart database contents, which includes U.S. National Aeronautical Services (formerly NACO) arrival, approach, and departure charts.

Garmin's SafeTaxi airport diagrams can also be called up on the MFD—with the airplane's position georeferenced on the diagram. You can access these diagrams by selecting them from a dropdown menu on the flight plan page, or simply zoom in on the MFD. With SafeTaxi, you'll never get lost at an unfamiliar airport. There are about 700 airports in the SafeTaxi database.

### The STOL decision

We wanted the Crossover Classic to be the best an aged Cessna 182 could be. But after some serious deliberation, we've decided to forego the installation of Sierra Industries' Robertson STOL (short takeoff and landing) kit. Several factors fed into this decision. One of them was the shortened time frame for this year's restoration work. Traditionally, we had about a year to do our already-ambitious restoration work packages. But with the Crossover Classic scheduled to be given away at this year's AOPA Aviation Summit in September in Hartford, Connecticut, we lost precious months.

When we paused, reflected, and re-evaluated this year's project, we felt we were also heading into more complexity than was warranted. The Crossover Classic already has a 300-horsepower engine (70 horsepower more than the stock C-182P's 230 horsepower), 12-gallon wing tip fuel tanks, and the ultimate in modern retrofit instrument panels. Would adding a STOL kit be too much? Would the STOL kit make the autopilot work harder at slow airspeeds? Could the extra fuel at the wing tips cause a pilot to chase roll inputs while trying to track a course at slow airspeeds? Were we really creating a sort of new, hybrid airplane?

That's too many questions, and that's why we decided to skip the STOL kit this

time around. Besides, with its big Continental engine and the Cessna 182's standard-issue, big, stable wing and large flap area and deflection, a strong argument can be made that a STOL kit simply isn't necessary. Trust me: The airplane leaps off the runway in *very* short order, and a  $V_x$  climb will have you starting at a windshield full of sky, doing at least 2,000 fpm. For that matter, a  $V_y$  climb will produce the same result.

So with gratitude for Sierra's generous offer, great respect for the company's many achievements (especially its several Cessna Citation wing, reengining, and panel modifications), and a sobering learning experience on our part, the Crossover Classic moves ahead with STOL properties—but no STOL kit. Sometimes we get carried away when we first conceptualize a sweepstakes project, and this was one such time.

### On to Air Mod

As this is being written, Air Mod is in the process of gutting the airplane's awful, old, disco-era flame-red interior. Air Mod's Dennis Wolter, a fanatic about finding and treating corrosion, proclaims that this airplane is remarkably free of it. Even so, the interior has been cleaned and zinc chromated in preparation for new seats, sidewalls, windows, and other modifications of Air Mod's design and specifications. One of them will be AmSafe's shoulder-harness air bags for the front seats. Another will be a replacement of the seat rails. This, by the way, takes care of an airworthiness directive that mandates 100-hour inspections of the seat rails. The danger of elongated seat-rail holes? That the seats may slip out of these locking holes, then slide back during takeoff or in steep climbs, causing an accident. (Fatal accidents in older Cessna singles have been attributed to worn seat rails and latching mechanisms.) Other fixes are also in the works at Air Mod, so check the sweepstakes website ([www.aopa.org/sweeps](http://www.aopa.org/sweeps)) for late-breaking updates.

By the way, Sun 'n Fun is just around the corner (March 29 through April 3), and the Crossover Classic will be on display at AOPA's tent. Those lucky enough to be there can see the new engine, panel, and interior first-hand. Everyone else, of course, can always check the website—and these pages. **AOPA**

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