

AOPASWEEPSTAKES



The planned Twin Comanche's panel in this rendering, draws from several big names in general aviation avionics: Garmin AT, Honeywell/Bendix-King, Meggitt/S-Tec, JP Instruments, and PS Engineering. New Piper's Seneca V yokes replace the original, square design.

One packed panel

The Win-A-Twin's winning instrument panel

BY THOMAS A. HORNE

One by one, all the pieces of the Win-A-Twin Comanche have been falling into place. It's been very satisfying watching, first, the engines, propellers, and airframe mods being installed. Then the paint job came to life, in all its Bahama Blue and ChromaLusion splendor. But of all the transformations to this classic airplane, the most pilot-personal will be the avionics. After all, we spend all our flying time in that tiny room we call the cockpit, and everything in it becomes a central part of our flying experience. We get to know our instruments and radios on an intimate, one-to-one basis. The experience is both intellectual and tactile.

The Win-A-Twin's instrument panel should be a real pleasure to meet and master. It will be everything that its stock 1960s/1970s panel wasn't. It will have some of the latest technology available and none (well, almost none—the manifold



pressure gauge stays) of the black-background Army-surplus gauges that graced early Twin Comanches.

Major mods

Sebastian Communication Inc., of Merritt Island, Florida, is handling the instrument-panel redesign and avionics installation. Carl Campbell, the installations expert there, came up with several ideas that will make life easier for the Win-A-Twin's winner.

One is a modification to the airplane's circuit breaker (CB) panel. For some inexplicable reason, Piper put Comanche and Twin Comanche circuit breakers under a trap door in the floor. It's underneath the instrument panel, and well forward, too. This means that pilots of stock Twin Comanches have to lean way forward to reach—let alone see and identify—the circuit breakers. It also means that dirt and spillage can make their way into the circuit breakers. It's a bad design, no doubt about it. To invert a hackneyed phrase, much abused in aviation journalism, these circuit breakers do not fall readily to hand!

Campbell's fix uproots that circuit breaker panel and moves it over to the lower-right side of the instrument panel, where the glove box would normally be. Sorry, Win-A-Twin winner,

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you won't have a glove box. But you'll thank us for the more pilot-friendly CB panel.

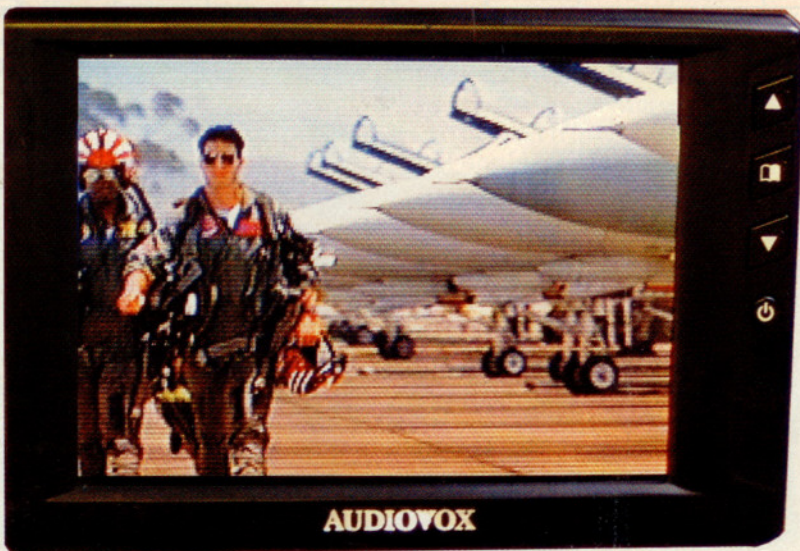
Another ergonomic upgrade will be the switch to modern control yokes. The New Piper Inc. graciously kicked in with a set of brand-new Seneca V yokes, and our old Piper thanks you. The old square yokes, well, some like them for the way you can fly with your hand on the top crosspiece—as if you were cruising the street in your Corvette. But today's equipment doesn't favor the art deco angularity and narrow diameter of the square yokes. There's no place for built-in push-to-talk switches, electric pitch trim switches, or autopilot disconnect switches, for example. And the Win-A-Twin will have all those niceties.

After getting FAA approval, Campbell will fit the new yokes onto the control column, and we'll have plenty of space for buttons and switches. The yokes have a nice, hefty feel to them, too. And yes, they fall readily to hand!

Still another major modification involves the panel itself. The old, nasty, black Royalite goes, and in its place will be a tasteful flat, gray metal panel custom-designed to accommodate our impressive haul of avionics.

New and improved

Three very capable units dominate the Win-A-Twin's panel, and all have exemplary display screens. The heart of the



PS Engineering's entertainment system will play DVDs (for passengers) over seatback-mounted, 5.6-inch-diagonal liquid-crystal display screens.

navigation system is Garmin AT's CNX80, a GPS/nav/com/transponder control head all rolled into one, and packing a nice color liquid-crystal display of its own. Like the other boxes in the Win-A-Twin's panel, there's nowhere near enough room in this article to expound on the CNX80's many features and capabilities. Suffice it to say that this unit combines extensive flight management features, four map display pages, the capability to fly all types of instrument approaches (including the new Wide Area Augmentation System [WAAS] approaches that use GPS navigation to let pilots descend to lower non-precision approach minimums than

ever before published), and VHF communications and navigation capability. It's the current state-of-the-art in general aviation nav/com boxes.

The CNX80 feeds much of its information to two other units: the Garmin AT MX20 multifunction display (MFD) and the Honeywell Bendix/King KI 825 electronic horizontal situation indicator (EHSI). The MX20's big display shows VFR or IFR chart information, and flight-planned routes are superimposed on those charts, making it easy to track your progress as you fly. Chart views can be customized, too, so that if, for example, you don't want to see high-altitude airways, you can deselect them.

Take a good look, because it'll soon be history. The beat-up, round-gauge-dominant, 1970s look will be replaced with big screens, more capability, and excellent situational awareness.



The KI 825 is the latest and greatest replacement for conventional gyro-driven heading indicators or electro-mechanically powered horizontal situation indicators. A Honeywell compass slaving unit keeps the EHSI's heading indications accurate, eliminating the need to re-sync the heading to the magnetic compass' reading. There's also a heading bug and course arrows to help keep you on the proper track; arc and 360-degree display modes; a course map; and a wide selection of ranges for zooming in and out. Want the heading bug aligned with your current heading? Simple. Just push and hold down the heading bug knob.

The KI 825 and the CNX80 also talk to the Win-A-Twin's autopilot—the Meggett Avionics/S-Tec Fifty Five X. This unit incorporates all the features you'd expect—such as altitude- and heading hold—plus a vertical speed mode that lets you dial in a rate of climb or descent. A GPS roll steering unit accompanies the Fifty Five X, and here's where the CNX80 really adds capability. With roll steering, the CNX80 commands the autopilot to perform course changes on flight-planned routes, holding patterns, and even missed approach procedures. When you've got boxes that automatically fly holding patterns you're flying like the big boys in their high-end corporate jets.

Linking up

Datalink continues to mature so, as you might expect, datalink traffic and weather information is also in the Win-A-Twin. One big advantage of the Win-A-Twin's datalink features comes via WSI—a major supplier of commercial weather products. We chose WSI's InFlight datalink weather as our pipeline to several important products.

Punch the Function key on the MX20 until you see the FIS (flight information service) call-out, press its associated softkey, and you can call up a wide range of WSI's datalinked weather products.

Most impressive is WSI's NOWrad radar imagery. This imagery is derived from the nation's ground-based network of Nexrad weather radars. WSI punches up the image resolution to two-kilometer-square pixels, so you can zoom in on weather radar contours and preserve image quality as you maneuver your way around precipitation echoes. Storm cell echo tops and storm movement tracking are also presented. Hit the MX20's Text softkey and up pop METARs, TAFs, TFRs, sigmets, and airmets. After you fly with

this system, you'll be spoiled forever—and you'll feel naked when flying around weather in any airplane not having datalink weather information.

Collision avoidance is every bit as important as thunderstorm avoidance, so Garmin's GTX 330 transponder made sense as a choice for traffic information. This Mode S transponder receives nearby air traffic control plots on approach control radars via datalink, then puts them on the MX20. You'll see all the radar-identified traffic in the area, along with the targets' altitude, direction of movement, and ground-speed. A voice alert function can be selected to warn of potential conflicts. Of course, the GTX 330 also broadcasts the Win-A-Twin's own position and altitude to ATC—and other Mode C- or Mode S-equipped airplanes.

Entertainment

Rounding out what's already a very full panel is PS Engineering's new PMA-8000 audio panel, with its IntelliVox automatic squelch system. Besides the usual audio selector functions, the PMA8000 will be paired with PS Engineering's PAV80 in-flight entertainment system. The PAV80 includes an AM/FM radio, CD player, MP3 player, and DVD player.

And now, the *pièce de résistance!* Drum roll, please!

...The DVD will play movies on two of PS Engineering's PVT801, 5.6-inch-diagonal liquid-crystal screens. The FAA frowns on pilots watching *Top Gun* while in flight, so the screens will be mounted in the headrests or seat backs of the front seats. So while the pilot and copilot enjoy the instrument panel's wonders, backseaters won't go ignored.

As always, we'll keep you posted on the latest Win-A-Twin developments. Check back next month for another article in the refurbishment saga, or visit the Win-A-Twin update page on AOPA's Web site (www.aopa.org/pilot/twin).

See the Win-A-Twin Comanche with its new avionics at the 14th annual AOPA Fly-In and Open House on June 5 in Frederick, Maryland. The interior should be complete for EAA Air-Venture in Oshkosh in July and for AOPA Expo in October. **AOPA**

i Links to additional information about the Win-A-Twin Comanche may be found on AOPA Online (www.aopa.org/pilot/links.shtml).

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