Aerial entertainment center

A quiet, soft, leather-lined cabin

BY STEVEN W. ELLS

When the avionics certification uncertainties are put aside, the AOPA Sweepstakes Bonanza is finished. For a week in late July, the *AOPA Pilot* staff proudly showed off the newly painted Beech V35 Bonanza at EAA AirVenture 2001. Right after the show ended, N2001B(onanza) was flown to Air Mod in Batavia, Ohio, for a new interior.

By the time you read this, Dennis Wolter and his talented staff will have transformed the cabin interior of the sweepstakes Bonanza from its original 35-year-old, two-tone, fabric-and-vinyl blue interior into a leather-lined office—or, if you like, an aerial entertainment center.

For those who are reading their first installment of the 2001 sweepstakes Bonanza saga, the staff of *Pilot* magazine and more than a few industry suppliers (40 companies have helped so far) have worked together during the past year to upgrade a 1966 V35 Bonanza. The Bonanza has been morphed into a sky-screaming, mountain-jumping, fuel-sipping, electronic-navigating twenty-first-century flying machine that will be awarded to a lucky person early in 2002. And all any AOPA member has to do to be eligible is...be an AOPA member. One result of this effort is that some lucky winner will be very happy early next year. But making one person happy isn't really what this project is about.

The real goal is to prove that a solid airframe that's more than 30 years old can be transformed into a twenty-first-century GA airplane—that there are avionics, engine, paint, and interior options available for today's airplane owners that can markedly upgrade and improve older airplanes.

The interior

Wolter, owner of Air Mod, is a general aviation interior refurbishment innovator. During the AOPA Aero SUV project in 1999, Wolter designed a lightweight, quickly deployed, fold-up frame that converted the Cessna 206's aft cabin into a level sleeping platform.

Assisted by wife Cynthia, longtime employees Cathy Wilson and Calvin

PHOTOGRAPHY BY BOB CUTI

Edwards, and the rest of his crew, Wolter transforms airplane interiors into rugged, luxurious works of art. This is not quite as much of a dichotomy as it sounds, since Wolter's insistence on quality workmanship and materials, combined with his creative flair, always result in interiors that wear like iron, yet are pleasing to the eye. Not to mention comfortable and safe.

Legally

FAR 23.853 lists the requirements for passenger and crew compartment interiors. This regulation isn't too restrictive—the materials used must be at least flame resistant and must pass a self-extinguishing test. Instead of testing every material and fabric used, Air Mod and other reputable interior shops buy their materials from suppliers that provide documentation attesting to that fact. The documentation most often supplied is FAA Form 8110-3, which is a statement of compliance with the FARs.

Since the material guidelines are pretty cut and dried, what else is needed to design a good interior? The ability to create distinctive and durable covers is surely one piece of the puzzle, but the real key to long-term customer satisfaction is the installation. Piper does things a little different from Cessna, and Beech has its own methods.

A person who isn't familiar with airplane structures, practices, and procedures should attempt to install an airplane interior only with experienced guidance, and even then with extreme caution. Airframe structures, while strong as a whole, are quite fragile on a piece-by-piece basis. Repairing a critical piece of airframe structure that has been damaged during an installation can cost big bucks. Even the length of the attaching screws is extremely important. More often than you'd think, reports are heard about fuel lines, pitot/static lines, or electrical wiring bundles that have been punctured by a screw of the wrong length. Troubleshooting a system fault that has been caused by the installation of one screw that's too long can quickly turn into a nightmare. Interior refurbishment skills, and the techniques that make a long-term difference, are not learned quickly.

Wolter's world

Wolter formed Air Mod in 1973. Over the years he has developed a reputation for consistently delivering very high quality modifications and interiors.

One of the advantages of choosing Air Mod is that the owner can rest assured that the hidden, and often ignored, cabin interior of his airplane will be improved when the airplane is returned.

The sweepstakes Bonanza arrived at Clermont County Airport, also home to Sporty's Pilot Shop, on the Tuesday after Oshkosh. Within a couple of days, the interior, carpets, and all of the existing fiberglass insulation were removed, the floorboards (they're thin plywood) were inspected, and the exposed airframe was checked for corrosion. A couple of floorboards will be replaced, but the rest of the inspection revealed a clean, corrosion-free interior—a perfect palette for an interior artist.

The interior metal surfaces will be painted with an epoxy primer. Painting reduces the possibility of corrosion and provides a clean surface to attach sound-blocking and sound-suppression materials.

Sound suppression

In combination with Skandia Inc., of Davis Junction, Illinois, Wolter has created a passive noise-suppression system that promises to lower the cabin sound level. These passive noise-suppression kits consist of dense sound-blocking materials and sound-absorbing foams and insulation that combine to quiet the cabin. In concert with the thicker Beryl D'Shannon windshield and side windows, this kit will reduce noise-induced fatigue, making long trips less taxing and safer.

Jon Tellock of Skandia installed a sound-deadening blanket on the cabin side of the firewall during the Bonanza's stay at J.A. Air Center. This was the ideal time to install this important part of the kit because the instrument panel had been completely removed, and access to the firewall was as good as it can get.

The team at Air Mod meticulously fitted the different layers of sound-blocking and sound-absorbing foams and foils in the $1,500 Skandia kit. These kits aren't a couple pieces of foam and a promise—kit weight is approximately 25 pounds. Wolter says the noise level will be reduced by approximately 7 dB.

While flying N2001B from DuPage Airport to Salina, Kansas, after installation of the Beryl D'Shannon 3/8-inch-thick Speed Sloped windshield and the Skandia firewall blanket, I got a reading of 94 dBA on my trusty Radio Shack sound meter. At 60 miles per hour in my 1986 Lexus (actually it's a 1986 Toyota Cressida) the noise reading was 74 dBA on the same meter. The Skandia/Wolter kit won't make the Bonanza as quiet as a car, but it will be quite a bit quieter than other general aviation airplanes.

New landing-gear actuating tube boots from Performance Aero, of Grain Valley, Missouri, are being installed. Often overlooked, new boots will cut down air noise and make the cabin more comfortable. New cabin door seals and windlace complete the "quiet" package.

The Air Mod extras

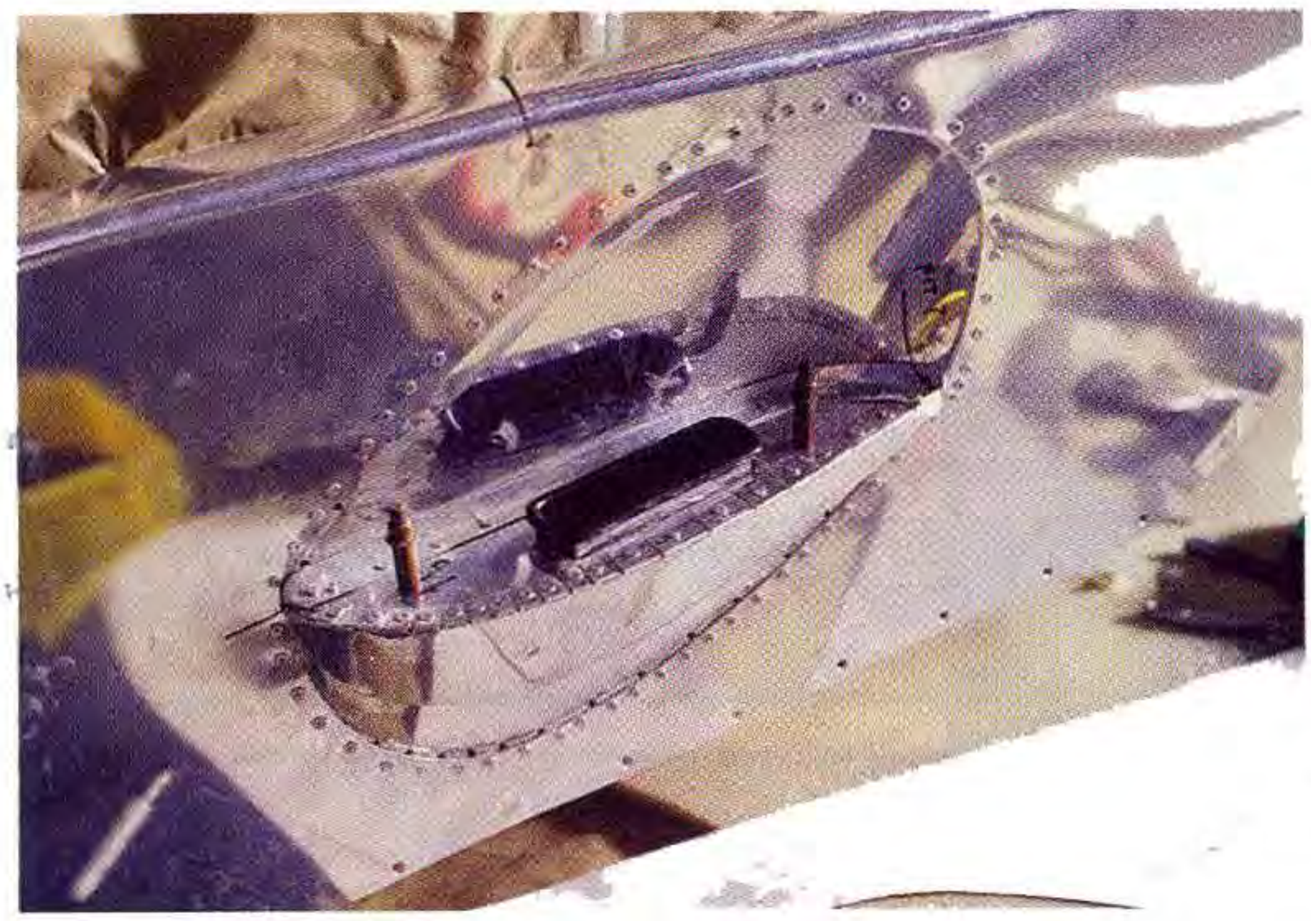
During the flight to reposition the Bonanza for the AOPA Open House in early June (www.aopa.org/pilot/bonanza/010606commentary.html), the pilot's seat-back locking mechanism failed. Editor at Large Thomas A. Horne was able to continue the flight, but he wasn't happy. An Air Mod interior includes seat refurbishment. The Bonanza seats were removed and all paint was stripped off each seat structure prior to a detailed inspection for wear, misalignment, and cracks.

After the seats are airworthy, Air Mod rebuilds the pilot's and copilot's seats to accommodate the customer's physical stature. The seat-back structure is adjusted, and the layers of foam that form the seat shape are cut in accordance with measurements taken of the owner.

Since no one yet knows who will win the sweepstakes Bonanza, Wolter will build the seats to the "standard measure of man," which should fit the middle ninetieth percentile of human bodies. Should the winner's body be outside this envelope, Wolter can fine-tune the seats in a couple of hours to accommodate nonaverage-size people.

Aircraft Belts, of Kemah, Texas, has supplied new inertia reel mechanisms and a complete set of color-coordinated seat belts. A set of Medeco high-security door locks, courtesy of Aircraft Security and Alert Systems, of Dallas, Texas, will replace the worn-out original door locks. These locks guarantee a much higher level of cabin security. Seat-back assist cylinders have been rebuilt by the G. Nichols & Company, and the new interior is a beautiful cream-in-coffee-colored leather.

Air Mod interiors are expensive, but the results look wonderful, are distinctive, and wear well. Dick Bicknell, the longtime owner of a beautiful 1980 Cessna 182Q, installed an Air Mod interior in 1984. Seventeen years later, Bicknell is still happy. "I had a wool and vinyl interior installed. It still looks great, and allows extremely comfortable Maine-to-Florida trips, which I frequently fly nonstop." Air Mod's buyers get what they pay for. For instance, GA airplane side-panel upholstery is often stapled and glued to cardboard-like panels. Over the years the cardboard degenerates, mainly because of moisture and flexing. Wolter throws the cardboard away and replaces it with 0.020-inch-thick aluminum. Replacing the old cardboard with aluminum allows Wolter to create recessed armrests and other special touches that aren't possible when reusing the original cardboard.



Air Mod's Doug Schraer (top left) completely strips and rebuilds seats for N2001B. Meanwhile, Dennis Wolter creates a template for building all-aluminum side panels—a great improvement over the less-durable factory originals.

Avionics check

Cincinnati Avionics, another business located at Clermont County Airport in Batavia, checks radios, intercoms, autopilots, electrical components, and lights for all of Wolter's customers. Recommendations are then made to the customer so that any system can be upgraded, certified, or repaired during the interior refurbishment process. A small touch, but it takes the customer's needs into account, streamlines maintenance, and combines two tasks into one down period. Cincinnati Avionics also works with Air Mod to ensure that everything works after the interior is completed.

The last step

The nuts-and-bolts upgrades on the sweepstakes Bonanza will be done by the time you read this. Do the new interior, paint, turbonormalized engine, prop, and instrument panel mean the AOPA staff will be enjoying three months of zooming across the country at speeds and flight levels usually reserved for turboprop-powered airplanes? Not exactly.

Currently, the AOPA Sweepstakes Bonanza is a day-VFR airplane because the Meggitt EFIS and the S-Tec autopilot installation are not yet approved by the FAA. Will the FAA approve the installation of the Meggitt EFIS system before the end of 2001? We have been told that approval could take up to two months, so it may be close.

The instrument-panel configuration

CONTRIBUTORS

AOPA would like to thank the following companies that are donating or discounting their products and services to refurbish AOPA's 2001 Bonanza Sweepstakes project or are otherwise assisting with the project.

Medeco door locks
Aircraft Security and Alert
3863 Royal Lane
Dallas, Texas 75229
214/956-9563
fax 214/956-9960
www.aircraftsecurityalert.com

Camlock fasteners for cowling
Skybolt Aerospace Fasteners
9000 Airport Road
Leesburg Municipal Airport
Leesburg, Florida 34788
352/326-0001
fax 352/326-0011
www.skybolt.com

Inertia reels, seat belts, and shoulder harnesses
Aircraft Belts Inc.
200 Anders Lane
Kemah, Texas 77565
281/334-3004
fax 281/538-2225
www.aircraftbelts.com

Interior
Air Mod
2025 Sporty's Drive
Clermont County Airport
Batavia, Ohio 45103
513/732-6688
www.airmod.com

Landing-gear retraction boot set
Performance Aero
East Kansas City Airport, Hangar L-1
Grain Valley, Missouri 64029
800/200-3141 or 816/847-5588
fax 816/847-5599
www.bonanza.org/performance

Rebuilt seat-back assist cylinders
G. Nichols & Co.
1923 Jackson Street
St. Clair, Michigan 48079
810/329-7083

Sloped windshield, windows, vortex generators, aileron, and flap gap seals
Beryl D'Shannon Aviation Specialties Inc.
Post Office Box 27966
Golden Valley, Minnesota 55427
800/328-4629 or 763/535-0505
fax 763/535-3759
www.beryldshannon.com

and equipment decisions hammered out months ago were made with reference to the latest FAA advisory circular that provided guidelines for the installation of electronic display instrument systems (the Meggitt system). Mike Kiernan, S-Tec/Meggitt's manager of flight, has provided very able assistance and guidance based on his experience with certification issues of the Meggitt system in the New Piper Meridian. We think that the EFIS technology is a step forward in cockpit displays. Since an almost identical system has been approved in the turboprop Meridian, we're extremely hopeful. In short, we've taken a gamble that the certification process won't delay our proposed drawing date. Stay tuned for further updates. In the meantime, plan to attend AOPA Expo 2001 in Fort Lauderdale, Florida (November 8 through 10). Unless you're the lucky one, it may be your last chance to get a good look at the AOPA Sweepstakes Bonanza. AOPA

i Links to additional information about aircraft interiors may be found on AOPA Online (www.aopa.org/pilot/links.shtml).

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