Renovating the ABS/ASF A36

Part 9: Finally—Interior Installation

By Dennis and Cynthia Wolter, Air Mod

Every time I read an aviation magazine, I turn to the product reviews section. I am amazed at how many new items there are that can make flying more comfortable, safe, and convenient. Once installed, some of these products are ultimately unseen behind your renovated interior. Some make you smile every time you use your airplane, and some we hope you will never need. Many of the aftermarket products that we installed in the renovation of the ABS Air Safety Foundation's A36 truly brought this 37-year-old airplane to safety and comfort standards of the 21st century.

First on the list is a very important item that hopefully will be the worst investment you make in your airplane (in that you don't ever want to put it to the test). I'm referring to shoulder harnesses. We installed BAS four-point inertia reel pilot and copilot shoulder harnesses. BAS very generously donated one of these kits to this project. I firmly believe this system provides a major safety enhancement by symmetrically protecting an occupant's head and torso with two shoulder harness straps. They come from above each shoulder and are secured to the lap belt buckle assembly in the center of your lap. The result is greatly improved restraint for an occupant regardless of the vector of an impact force. The inertia reels keep the harnesses comfortably in position while allowing total freedom of movement.

The ABS/ASF's 1981 A36 left the factory with a standard single-strap inertia reel shoulder harness. BAS does not offer an STC-approved kit for those airframes that already have that factory inertia reel harness. In order to install the four-point BAS harnesses in this A36, we needed to get a field approval to install two Beech


Photo 1


Photo 2

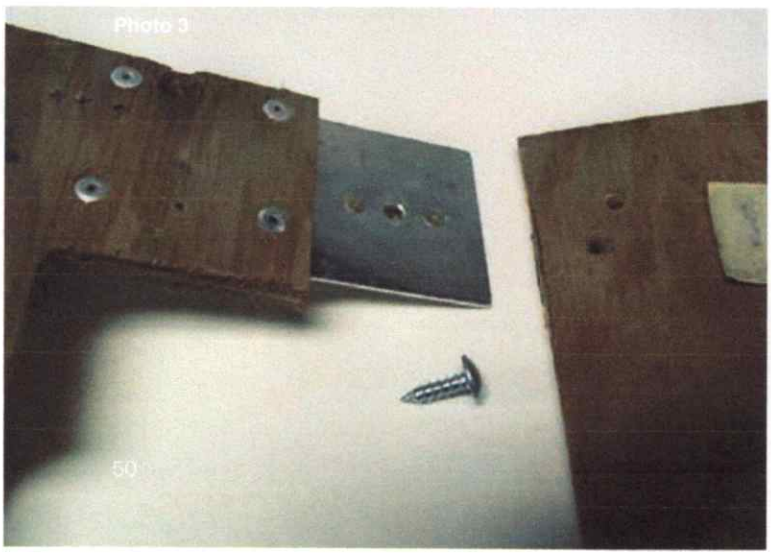
Photo 3


Photo 4


Photo 5


Photo 6

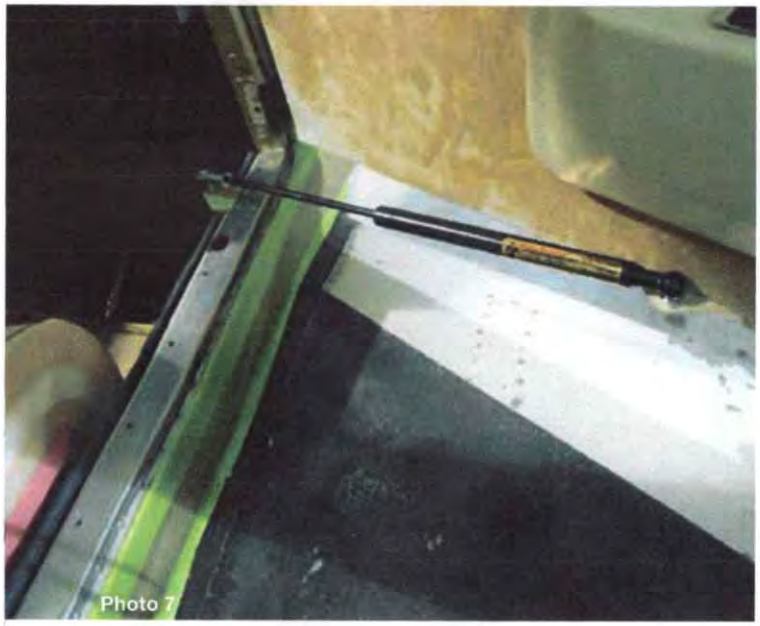
Photo 7


Photo 8

factory mounting brackets (parts 58-530139-3 and -4) on an existing heavy bulkhead that runs spanwise across the top of the cabin **(photo 1)**. Back in the early 1970s, Beech included these brackets in all 33, 35, 36, 55, and 58 airframes, whether four-point shoulder harnesses were requested or not. If you have an early '70s Beech airplane and want to install the BAS four-point harness system, look for a pattern of nine rivets on the cabin top above the center opening cabin windows **(photo 2)**. Having these brackets already installed will reduce the cost of the four-point harness installation by about $1300, and eliminate the need for having to obtain a field approval.

With the brackets installed, the next step is to temporarily install the headliner, measure for the required holes' locations where the harness strap will pass through the headliner, and cut the holes. When the finished headliner is installed, all that's left to do is install trim covers. If we've installed the Beech brackets, the entire installation process takes six to eight hours. Hopefully you will never need these harnesses, but you can't write the check on the way down.

At the beginning of this project, we sent the center and aft seat restraints to C&M Marine, a certified repair station, to have them re-webbed and any defective hardware replaced. Upon inspection, C&M informed us that the data tags for the four aft inertia reel harnesses indicated that the reels were not TSO-approved. TSO approval is an inspection process of the FARs (Federal Aviation Regulation) that ensures a component conforms to an approved Technical Standard Order (TSO). It turns out that Beech did not specify that the reels be TSO'd, but instead assigned the reels a Beech part number as part of the aircraft's Type Certification. For the reels to be used, they must be in the original Beech aircraft and cannot be re-webbed. C&M Marine is not permitted to re-web and/or repair a passenger restraint for a type-certificated airplane unless all of the restraint components are TSO'd. Fortunately, Beech did use TSO'd inertia reels of identical design in some earlier airframes. Luckily, we have a box full of certified reels we've saved over the years. We shipped four of these reels to C&M for a like-new renovation and certification, realizing a substantial savings by not having to order new reels for the center and aft

seats. These reels were webbed in a color to match the new BAS harnesses and lap belts in the front.

While the shoulder harnesses were being installed, another technician was taking care of some common floorboard issues. As you probably know, Beech fabricated the forward and center floorboards using thin plywood. The ABS/ASF A36 presented two problems we commonly find in the floors. First is the challenge of having to remove floorboard sections that are located under the rudder pedals for inspections. One must rather aggressively flex these complex-shaped and delicate wood pieces to get them past the rudder pedals. Most of the time, we find that they are broken. To eliminate the

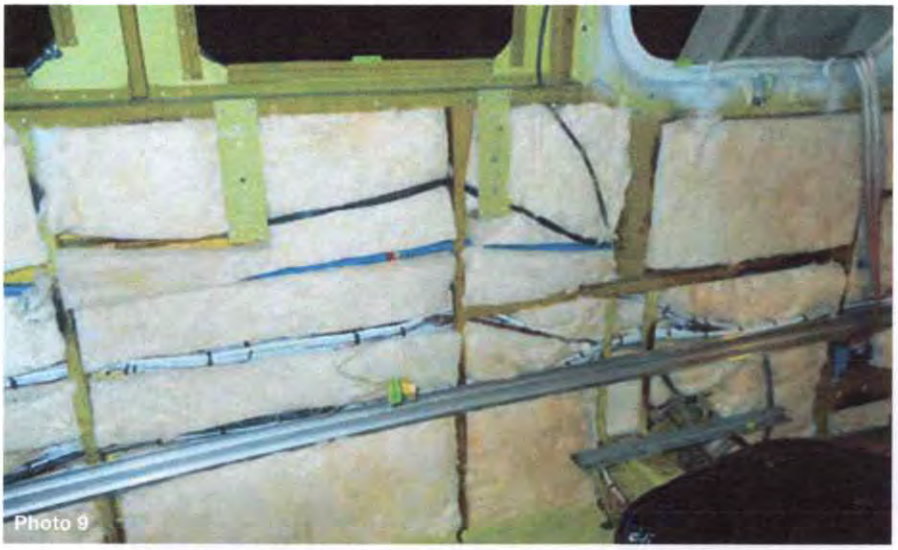
Photo 9

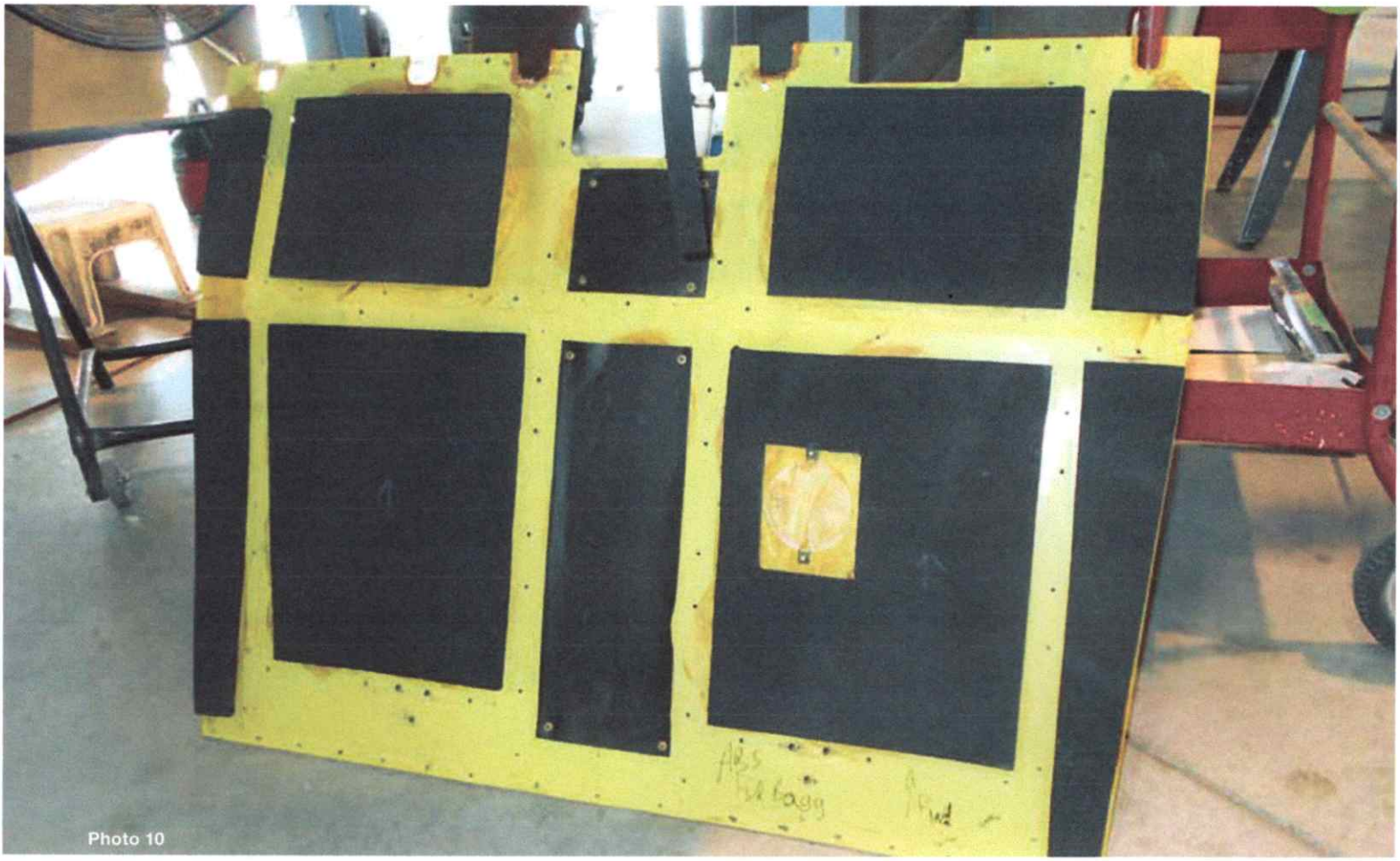

Photo 10

potential for future damage, and to make them easier to remove and reinstall, we neatly cut the floorboards where they are normally broken, and install a riveted-in-place metal tab with a nut plate and a PK screw that allows the floorboard to be separated into two pieces **(photo 3)**. Problem solved.

Another common issue we had to fix involved mounting holes that, over time, became enlarged or broken out, particularly at the corners of the floorboards. The fix here is to first splice a new piece of epoxy-bonded wood at the damaged area **(photo 4)**, reinforced by a .016 " aluminum plate bonded to both sides of the floorboard **(photo 5)**. We then locate and drill a new mounting hole, and the floorboard is as good as new.

While all of this detail work was progressing, we removed the aging, cream-colored control yokes and shipped them to Advanced Paint Technology, who agreed to donate their very durable gloss black powder coating of the yokes **(photo 6)**. They look great!

I'm sure that at one time or another every Bonanza and Baron owner has had issues with the pesky stop on their cabin door. Mountain View Aviation has an elegant fix called the Door Steward. The product is a clean-looking gas cylinder door steward that will automatically hold the door open **(photo 7)**. Mountain View Aviation supported this A36 renovation project by donating this great product. Installation requires locating and installing two brackets, and took approximately one hour.

Now it was time to install new cabin insulation. We begin with Skandia SK-8240PSA skin damping material on the bare,


Photo 11


Photo 12

chromated areas of the belly skins where the oil-soaked tar had been removed. Next, a layer of ½ " high-density, FAA-approved fiberglass insulation was bonded to all side skins and overhead skins. This semi-rigid layer is bonded to the skins to help eliminate vibration. Over that, we install a 1½ " to 2 " layer of sound attenuating lofted fiberglass insulation **(photo 8)** that is also a very efficient thermal barrier **(photo 9)**. The final insulation task is to replace the old fiberglass insulation that the factory installed on the back surfaces of the floorboards **(photo 10)** and plastic spar covers. We use a ½ " layer of Skandia flame retardant, closed cell neoprene insulation. The result of this insulation package is an average sound reduction of 4-6 dB, a much warmer cabin in winter, and a cooler cabin in summer.

With the completion of some of these less-than-glamorous details, the fun part begins. After weeks of detail work, repairs, and problem-solving, we are rewarded with the visual transformation that comes with a few days of final assembly. We installed the newly renovated side panels, headliner, and windlace cord, followed by the Velcro-mounted carpet and the renovated seats **(photos 11 and 12)**. The job is finished!

Well, not so fast. In one final article, we will look at the pre-delivery process of checklists, avionics testing, and, you guessed it, paperwork. We'll also provide a full photographic overview of the finished interior.