

Seatbelt Airbags Now Comanche

by Steve Bulwicz, ICS #12471



The technician clamps the cold Argon/Helium inflators to the bottom side support rails of the aircraft's front seats.

On August 17, N8292P, my PA24-250 was fitted with two front seat AmSafe seatbelt airbags. From the time the aircraft rolled into the Wipaire maintenance shop at South St. Paul (KSGS) Airport at 0830, it was a mere six hours (including a nice lunch break), before it rolled out with all the paperwork and logbook entries complete. In order to ensure that there were no hiccups during the installation, AmSafe's Steve Marshall flew north from Wichita to assist the operation. He arrived equipped with a photo-filled laptop computer, factory drawings, and a cell phone ready to connect with AmSafe engineers. The Wipaire technicians had already installed three systems in Cessna floatplanes, but the technician assigned had no previous personal experience with the system – but all went smoothly. Since mine was the first PA24 to receive the seatbelt airbag system, AmSafe wanted to oversee the process to verify that the factory procedures and installation instructions were correct.

To prepare for an airbag installation, your aircraft should have a compatible three-point seatbelt/shoulder harness system for the best front seat occupant protection. A four-point system would be better, but there aren't any available for the Comanche. In the case of N8292P, there was a previously installed Kosola shoulder kit for the pilot, but not one for the copilot. The cost of one Kosola kit is currently \$484, plus shipping, and another \$390 in labor to fit it to the upper fuselage. It was a little easier for my mechanic to install it since the headliner was just removed for replacement, but it took him longer than he was expecting. The Kosola kit includes all the appropriate webbed belts that are completely replaced by the AmSafe belts. There are other shoulder harness kits available that work with AmSafe seatbelt airbags, such as Alpha Aviation kits.

The installation process for the AmSafe seatbelt airbags starts with all seats and rear fuselage access panels (baggage compartment) removed. The technician clamps the cold Argon/Helium inflators to the bottom side support rails of the aircraft's front seats. Next, he attached the electronic module assembly (EMA) crash sensor to the rear avionics support shelf to sense forward impact. In the case of N8292P, it was placed abeam the 3M WX-10A data converter.

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are Ready!



*The seatbelt airbags as shown here
by Diane Wille of Wipaire, Inc.*

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Wiring from the EMA sensor was run under the flooring through a newly created hole in the carpeting, to both a switch in the seatbelt attachment and also to the inflator. The switch in the lap belt receiver latch arms the system. Shoulder harnesses are attached, seatbelts and seats are reinstalled, and then the electrical connectors are attached. A magic black AmSafe portable test box (SDT – System Diagnostic Test) #201 is then used to verify the battery and continuity. Carefully note the factory instructions (to buckle the seatbelts, or not) to obtain a successful test. It is simple, but not necessarily intuitive. The test took approximately one minute. As a note to maintenance techs reading this article, don't leave the test box attached and running as you respond to a cell phone call or another tech looking for assistance or you will return and discover the trigger battery is dead. The test is an annual event for STC compliance. Every seven years the battery is replaced and the unit refurbished. The system for two seatbelt airbags weighs about five pounds, but per the STC, there are no changes required to the weight and balance. However, there is an STC weight and balance requirement for the Kosola kits.

Since I did partake in the ICS-sponsored AmSafe incentive program, the total cost to me for the whole project, including the single Kosola kit, was about \$3,000. There are another 47 owners who have signed up for the early buy-in, far exceeding AmSafe's expectations. AmSafe kits are now priced at \$3,750 for the Comanche, with incentives occasionally offered at various aviation events.

So why was I willing to shell out the cash?

1. I was required to take a Sociology class in college and recall an important discussion. Apparently as people get older, they are more apt to closely manage life and death risks in an attempt to delay final "checkout time."
2. My first Comanche flight was supposed to be taken in the fall of 1990. I had previously scheduled the aircraft and instructor, but had to telephone the flying club, and reschedule.

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They informed me that the Comanche was down. I assumed it was for maintenance, but was sadly informed that it was a late aborted takeoff that ran off the end of a grass strip into a ditch. The sudden impact rendered the pilots unconscious due likely to head injuries. You can grimly guess the rest of the story. Had airbags been installed and consciousness retained, there may have been an escape option.

3. Mishaps are 28 times more frequent, and fatalities 26 times higher, in general aviation aircraft versus transport aircraft based on a statistical survey from 1997 to 2007.

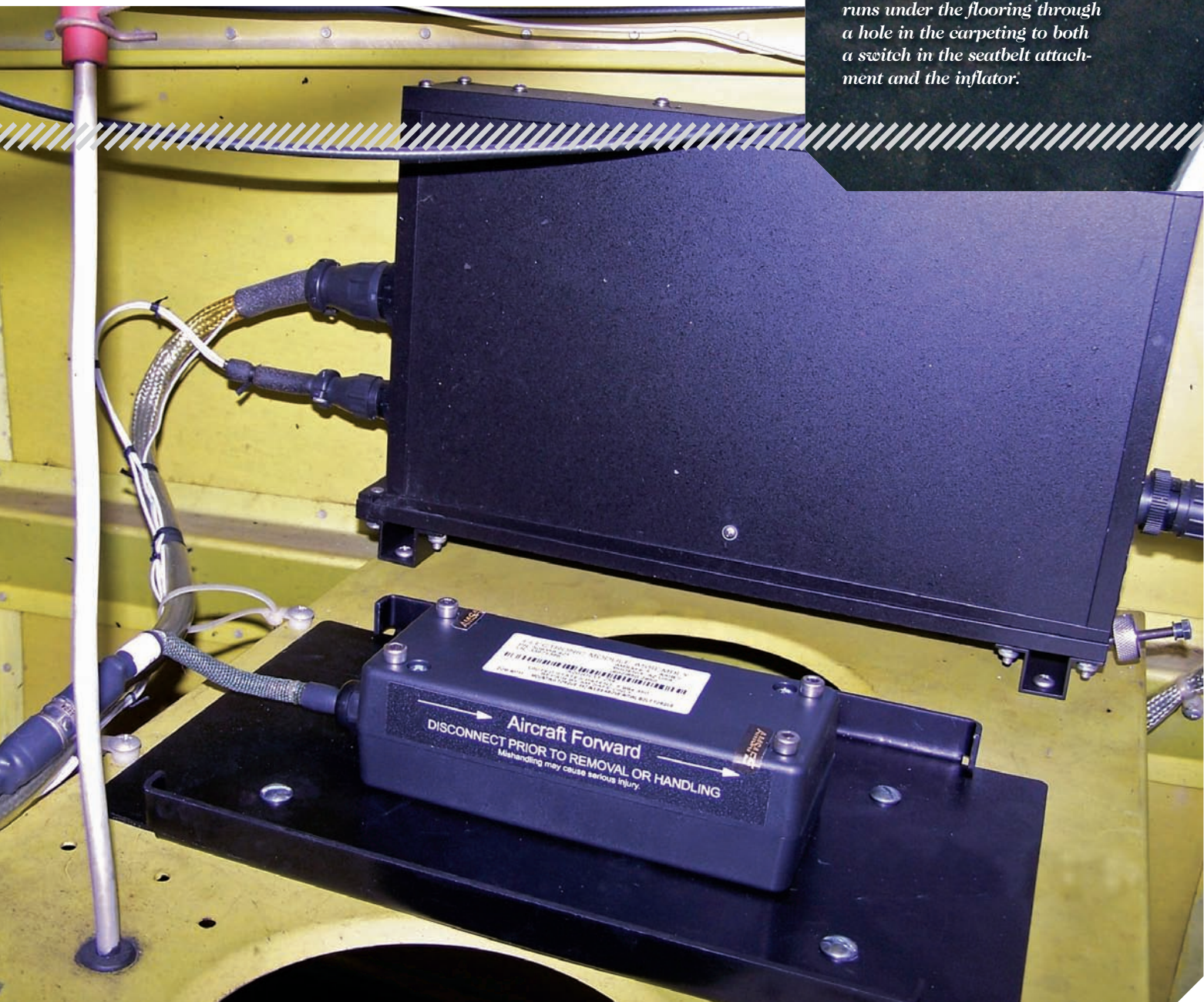
4. The AmSafe crash sensor activates only on an impact large enough to threaten serious injury. It will not inadvertently deploy in a hard landing or during turbulence.

5. Lastly, I couldn't pass up a deal that seemed too good to be true.

In closing, I certainly hope I will never need the AmSafe system for the designed purpose. It affords a bit of an extra comfort factor as we have all enjoyed in our automobiles as of late. It is a real credit to the ICS Board of Directors for promoting this to our group in the interest of aviation safety, and thanks to the staff of AmSafe for listening to our needs. 

The electronic module assembly (EMA) crash sensor.

Wiring from the EMA sensor runs under the flooring through a hole in the carpeting to both a switch in the seatbelt attachment and the inflator.





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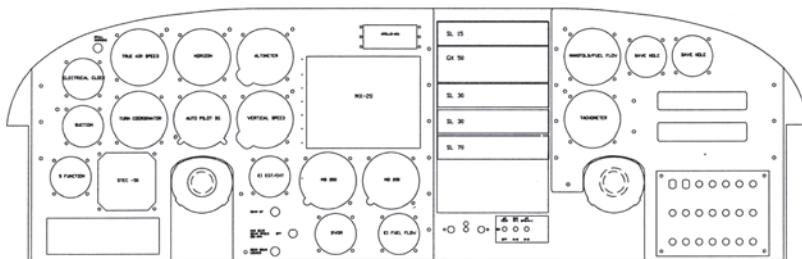
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