

# Renovating an Interior, Part Three: INTERIOR REMOVAL

You've developed an organization plan and you are ready to begin stripping the interior. But what should come out first? A&P/IA DENNIS WOLTER of Air Mod guides you through the steps of disassembling the interior of your Cessna.

**F**inally, it's time to begin removing the old interior. Rule No. 1 is *stay organized*. Rule No. 2 is *don't throw away any old interior stuff* until the project is completely finished. Rule No. 3 is *don't damage the airplane*.

Before continuing, I would like to make three additional suggestions. First, buy a copy of that great how-to manual published by the FAA. I'm referring to AC 43.13-1B, "Aircraft Inspection, Repair and Alterations: Acceptable Methods, Techniques and Practices." (See link in Resources. —Ed.)

This book gives in-depth information on how to properly repair and modify almost anything you or your mechanic may encounter when renovating your interior or getting involved in maintenance issues with your aircraft.

The second piece of advice, as I've stated in previous articles, is to keep your mechanic involved in your project. These folks have seen a lot, and a wise owner takes advantage of their experience.

The third bit of advice I have is that you familiarize yourself with the benefits as well as limitations an owner must follow under the guidelines of preventive maintenance, as outlined in AC 43-12A and 14 CFR Part 43, Appendix A, Paragraph C. (In addition, the first of Kristin Winter's articles on preventive maintenance can be found on Page 30 of this issue. —Ed.)

## Preventing inadvertent damage

During an interior renovation, you will constantly be climbing in and out of the airplane, often carrying bulky items such as seats and side panels. It's very important to protect your aircraft's exterior paint and windows.

To protect the main landing gear legs and wheel pants, cover them with quilts or moving blankets secured with masking tape. Here at Air Mod, we protect

*During an interior renovation, you will constantly be climbing in and out of the airplane...*

windows by cutting some heavy paper or thin cardboard to the appropriate shape and taping it around the perimeter of each window, inside and out.

With lots of activity happening in your cabin, you should protect the instrument panel with heavy packing paper or a painter's tarp.

I recommend covering the horizontal stabilizer and elevators with old quilts, wool army blankets or inexpensive moving blankets that can be purchased from a discount tool supply store. This creates

a great place to store delicate plastic window trim and interior components.

## First steps of interior removal

The first items to come out of the airplane should be the aircraft's documents and flight manual. If ever there is a time for those items to be misplaced, it's during an invasive project like replacing an interior. Temporarily store those important documents in a safe place, away from the airplane.

Every once in a while, we'll get a call from a former customer trying to recreate lost records; looking for copies of anything we have that will help reconstruct an airplane's history. Missing records have a substantial negative effect on the value of your airplane!

I recommend that you make copies of the airworthiness, registration and current weight and balance records. Many aircraft owners, myself included, have scanned all their aircraft documents, creating a second set of records stored in a separate location.

The first interior components to be removed will be the pilot and copilot seats, followed by aft seats. Before removing seats, it's a good idea to have someone sit in the seat and actuate the tracking, reclining and seat height adjustments to verify that all systems are functioning properly.

Later in the renovation process, after the seats have been stripped to the bare frame, put them back in the airplane and have your A&P thoroughly inspect everything for structural and mechanical condition.

Don't forget to check the length and function of the seat belts and shoulder harnesses. Here's your chance to add a little length to a seat belt to accommodate some middle-age "growth." Have your licensed mechanic assist in this process. They should inspect these all-important passenger restraints and mountings.

Also check to see if all seat stops are still installed and that they are correct. The aircraft's parts book will advise as to how many and what type of seat stop is required for your specific airplane. Believe it or not, we had an airplane come in with a couple of household nails run through a seat stop hole and bent back on themselves in a dangerously crude attempt to replicate a seat stop. I'm not making this stuff up!

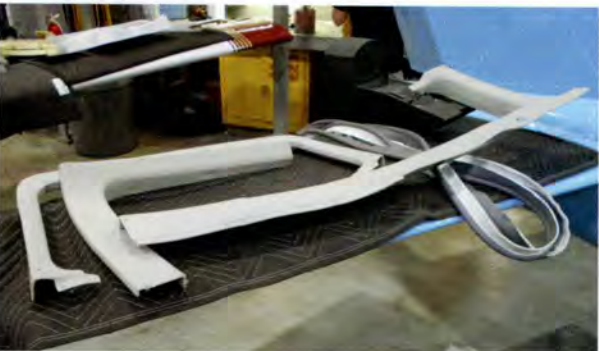
With seats out, it's time to remove the seat belts and harnesses where they are secured to sturdy brackets on the floors and to nutplates mounted in the overhead cabin structure. Start by photographing



*Landing gear protected by a blanket.*



*A detailed drawing of the seat belt configuration and dimensions.*



*Plastic trim components stored on the tail.*



*A typical piece of damaged plastic trim; a broken fragment is taped to the larger trim piece for safekeeping.*

each attachment point to aid you and your mechanic at reinstallation time.

Removing and reinstalling passenger restraints, as with any seat repair, must be done by (or under the direct supervision of) a licensed airframe mechanic.

Check the parts book to ensure that the proper nuts, bolts, spacers and washers were used. The hardware from your local hardware store may look similar and it may fit, but it is not aircraft hardware and may not be made of the same high-strength material as aircraft hardware.

AC 43.13-1B and the aircraft's maintenance manual have great guidelines on hardware identification and torquing requirements. It's not a bad idea to use the factory parts book to ensure that correct spacers and hardware are used for securing belts and harnesses at reassembly time.

Once the seat belts and shoulder harnesses are removed, lay them out on a table and have your mechanic inspect them for condition and certification adherence.

If anything is not airworthy or if new or re-webbed belts are desired, make a sketch of each belt with dimensions before shipping them out to a certified repair station for re-webbing or replacement. This sketch is very useful to confirm correct lengths and configuration when the new or re-webbed belts are returned for installation.

We have found a very reliable certified repair station for re-webbing in Aviation Safety Products. (*CFA supporter Wag-Aero also provides seat belt repair services; see Resources. —Ed.*) Never make a field repair on any passenger restraint. This work can only be performed by a certified repair facility. This stuff is extremely important.

Don't forget to tag each belt as to where it was originally positioned in the airplane and put the mounting hardware for each belt and harness in a separate resealable clear plastic bag that is well-marked as to where it goes.

It may sound like I'm being a little retentive here, but as we tear down interiors at Air Mod, we frequently find incorrect hardware holding these all-important restraints in place. There is no room for carelessness when it comes to seat belts and harnesses. In a later article, we will look at certified aftermarket inertia reel shoulder harness upgrades available for Cessna aircraft.

#### **Trim and side panel removal**

Our next job is to remove all the delicate cabin plastic trim pieces, window

frames, overhead consoles, air vents and so on. These components often come into the shop already damaged (what a surprise). Be sure to preserve any broken pieces by temporarily taping the pieces together for later repair or a determination that they need to be replaced. Store these delicate parts out of harm's way on the blanket-covered tail.

Now, it's time to remove the side panels. Cessna side panels are fabricated out of aircraft-grade aluminum or vacuum-formed plastic. Expect to find damaged panels and take care to save any broken parts. Plastic side panels can be repaired. Aluminum panels can be repaired, or new panels can be fabricated using the originals as patterns. I'll have more on this in a future article.

Begin by removing the armrests. The aft armrests are typically secured with screws and are easily removed. The cabin door armrests installed in 1972 through early 1980s Cessna aircraft are a little tricky. They are removed by removing one screw on the forward end of the armrest and pushing the armrest outward as you shove it forward firmly.

Cessna put a hook-shaped tab at the aft end, and one must push the aft armrest outward in order to release the tab from the slot in the mounting bracket. These tabs are often damaged. In an upcoming article we will discuss a good fix for these damaged tabs.

With the armrests, window frames, heat outlets and other parts removed, the side panels can easily be removed and stored in a 4-foot by 8-foot roll-around storage box along with the seats.

Smaller side panel trim parts, armrests, etc. can be stored in the side panel tub. Keep it organized! (See *Dennis Wolter's previous article in the August 2019 issue of Cessna Flyer for organization suggestions, including boxes, bags and bins for holding interior parts as they are removed.* —Ed.)

#### Headliner removal

Now, it's time to take out the headliner. Cessna headliners come in three varieties: sewn and stretched vinyl, hard-molded plastic and semi-rigid composite foam.

The earlier Cessna singles, and all Cessna 206s and 210s, had stretched vinyl headliners supported with several spanwise tempered steel bow rods. The perimeter of these vinyl headliners is secured with metal pointed retainer strips above the cabin doors, windows and front spar carry-through. The aft edge of the headliner is often secured with contact cement.

**PARTS  
AVIONICS  
ENGINES  
PROPS**

**DODSON  
INTERNATIONAL**

**#1 for Aircraft Parts Support  
Since 1984**

**Same-Day Worldwide  
Shipping**

**We Price Match!**

**Search our Parts  
for Free 24/7**

**DODSON.COM**

**OVER 5 MILLION  
IN-STOCK PARTS!**

**CALL US TODAY AT 785-878-8000**



## Together, we can land like the pros.

Only nature's experts can match the performance of Cleveland Wheels & Brakes.

**Parker's Cleveland Wheels & Brakes** set the industry standard for general and business aviation. Cleveland products offer pilots the highest level of control and performance. No other equipment offers the same quality and value as Cleveland, landing after landing, except perhaps that made by Mother Nature.

And Cleveland Wheels & Brakes come backed by a broad range of services not found with smaller wheel and brake product lines, including:

- Technical and educational seminars
- Worldwide distributor network
- Spares when and where you need them.
- Extensive in-depth customer service and technical support



So take off with Cleveland Wheels & Brakes.  
And experience landings like the true professionals.  
One landing at a time.

**Cleveland**  
Wheels & Brakes

**Parker** Aerospace

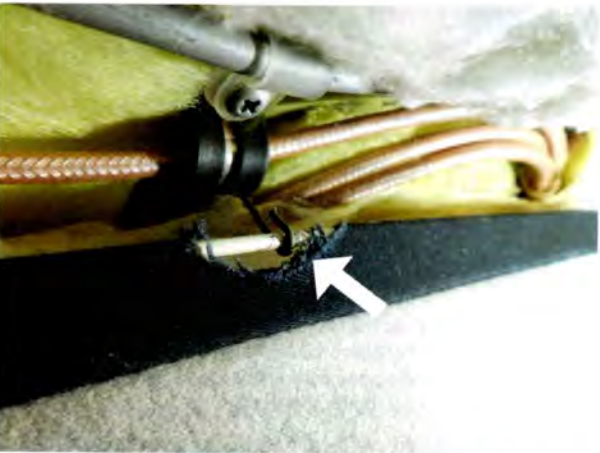
[www.clevelandwheelsandbrakes.com](http://www.clevelandwheelsandbrakes.com)  
1-800-BRAKING (1-800-272-5464)



*A broken armrest tab.*



*The white headliner material at the top of the photo is being pulled out of the retaining rail, inch by inch.*



*Headliner bow clips.*



*A Cessna cabin after interior removal.*

The first step in removing a stretched headliner involves getting the vinyl headliner material out of those perimeter retainer strips. This retaining system allows for the headliner vinyl to be removed by first taking a thin pointed pick and fishing out a corner of the extra material from the retainer rail.

The next step in this challenging process is to hold the surplus material with one hand while you use a thin, dull putty knife to push the material back into the retainer, lifting it off the sharp points and carefully pulling the vinyl free 1 or 2 inches at a time.

If it sounds tedious, it is! The bad news is that it's easy to damage the vinyl during this removal process. It is often already damaged by a previous attempt. Be patient! The good news is that you are going to install a beautiful new undamaged headliner, and in a later article I will

*It's now time to bring in your mechanic to inspect the cabin's structure and systems.*

show you how to fabricate a new retainer strip that doesn't have vinyl-damaging sharp points.

Some pre-1986 Cessnas with vinyl stretched headliners employed a more enlightened system of holding the perimeter in place using glue, eliminating the drama of the sharp points.

With the perimeter of the headliner hanging loose, start at the forward end and begin to remove the spanwise bow rods by removing the No. 4 PK screws that hold the bow mounting clips in place. In later Cessnas, a simple U-shaped hook was installed. Work from front to back until all the bows are unhooked, and the headliner is in your lap.

#### **Carpet removal**

Having removed the seats and side panels, the floor carpet is a snap to extract from the airplane. Until the late 1960s, Cessna secured the carpets with small upholstery screws. Then, they discovered Velcro. Save the old carpet pieces in your large wheeled storage box. They can be used as rough patterns when fabricating new carpets.

As we finish disassembling your interior, the final task is to remove all the old

cabin insulation. This is relatively simple and intuitive work. With the soft fiberglass insulation removed, you will find corrosion-causing black lead-vinyl panels. Removing these bad-news panels will be discussed in a future article.

Generally, the full interior disassembly process will take a day to complete. Your efforts are rewarded with the ability to see a completely bare cabin, albeit one in need of some attention. There could be some major work ahead in the area of dirt and corrosion removal, so don't relax yet! It is likely that no one has been able to see or access the entire cabin area of your airplane since the day it was built.

It's now time to bring in your mechanic to inspect the cabin's structure and systems. You may find a few surprises, but here's your chance to thoroughly clean, corrosion-proof and repair everything. As stated earlier, with proper cleanup and corrosion prevention methods, we are helping to save these airframes for future generations of aviators.

Next month, we'll discuss the various processes of inspection and evaluation of all interior components as we put

together a thorough renovation plan. Until then, fly safe! **CF**

**IMPORTANT:** This article describes work that may need to be performed/supervised by a certificated aviation maintenance technician. Know your FAR/AIM and check with your mechanic before starting any work.

*Industrial designer and aviation enthusiast Dennis Wolter is well-known for giving countless seminars and contributing his expertise about all phases of aircraft renovation in various publications. Wolter founded Air Mod in 1973 in order to offer private aircraft owners the same professional, high-quality work then only offered to corporate jet operators. Send questions or comments to [editor@cessnaflyer.org](mailto:editor@cessnaflyer.org).*

### Resources: CFA Supporter

#### SEAT BELT REPAIRS

##### Wag-Aero

<https://www.wagaero.com/repair-station/seat-belt-and-shoulder-harnesses-repairs.html>

### Resources: Other

#### MAINTENANCE GUIDES

##### AC 43.13-1B "Aircraft Inspection, Repair and Alterations: Acceptable Methods, Techniques and Practices."

[https://www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentid/99861](https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentid/99861)

##### AC 43-12A "Preventive Maintenance"

[https://www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentID/99859](https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/99859)

##### 14 CFR Part 43, Appendix A

[https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&r=PART&n=14y1.0.1.3.21#ap14.1.43\\_117.a](https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&r=PART&n=14y1.0.1.3.21#ap14.1.43_117.a)

#### SEAT BELT REPAIRS

##### Aviation Safety Products

[aircraftseatbelts.com](http://aircraftseatbelts.com)



Gross weight increase for **CESSNA S/E** aircraft

**GREAT STOL  
PERFORMANCE**

Wing Extension and spar reinforcement is **FAA STC** approved for all models  
Cessna 180, 182, 185 and Canadian STC approved  
for Cessna 170, 172, 175, 205.

Toll free: 888 325-2588 [www.wingxstol.com](http://www.wingxstol.com) [info@wingxstol.com](mailto:info@wingxstol.com) **AIR RESEARCH TECHNOLOGY INC.**