

Renovating an Interior, Part Two: ORGANIZATION CONSIDERATIONS

The process of redoing an interior is much smoother if you have a plan in place to catalog and store parts as they are removed from the aircraft.

By Dennis Wolter

MANY things we do in life will only have a good ending if they get off to a good start. Time-consuming, complex tasks, such as renovating an aircraft interior, have a better outcome if there is a good plan in place that keeps the job organized as things progress.

Forty-six years of renovating airplanes has allowed us to develop very effective ways of organizing and tracking all the components and documentation processes involved in this work. For those who intend to do this work themselves, following our techniques will be very helpful in the organization of your project.

Organization planning

First, I'll present a list of the processes we implement to generate and retain information, organize parts storage, track material orders, log phone numbers of experts who can answer questions and, of course, facilitate the saving of documents and weight and balance data that will be all-important when it's time to prepare the required logbook entries.

Photograph everything... especially small, complex things!

A camera is worth its weight in gold when it comes to documenting how components are removed, disassembled, reassembled and reinstalled. Here at Air

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Mod, we begin by photographing every section of the cabin, with photos for the side panels, doors, headliner components and floor carpets.

It's especially important to include small sub-assemblies such as how each passenger restraint is attached to the

airframe, how the fuel valve handle is installed, how seat components and mechanisms are installed, and other components that may be complicated at reassembly.

Take good notes and mark components

Use a notepad to write down details of problems that are discovered as interior components are removed and inspected.

For those who are doing this work themselves, writing down questions that you need to ask a professional should be part of this list. It's surprising how these notes can create a valuable punch list of "to-do" items.

Don't forget markers to label all the components as they are removed.

Parts storage tubs

We use three or four Rubbermaid-type storage tubs to help in organizing parts by interior section.

Using a marker, label one tub that will hold all the small parts that were removed from the side panels, one tub for floor parts, one for headliner pieces, and one for the all-important passenger restraints and attaching hardware.

Sandwich-sized bags

Small plastic bags are used to store all the little pieces that must be disassembled for such assemblies as air vent outlets and control valves, seat stops, cabin lighting fixtures, etc. Mark each bag as to what is in the bag and where it goes in the cabin, to eliminate confusion during reassembly.

If any of these sub-assemblies need new components, add those items to your to-do list and parts order list, and tape the bag to the airplane so you won't forget to order everything you'll need at final assembly time.

Remember to photograph each of these sub-assemblies before taking them apart.

Large wood storage boxes

Here at Air Mod we've built a number of 4-foot by 8-foot, 2-foot high roll-around wood storage boxes to hold such items as carpet, side panels, old insulation, etc. You will find a 4 x 8 roll-around to be very handy at annual time as well.

Seat parts storage solutions

Finally, let's look at seat parts storage. This is a part of the job where keeping things organized is especially critical.

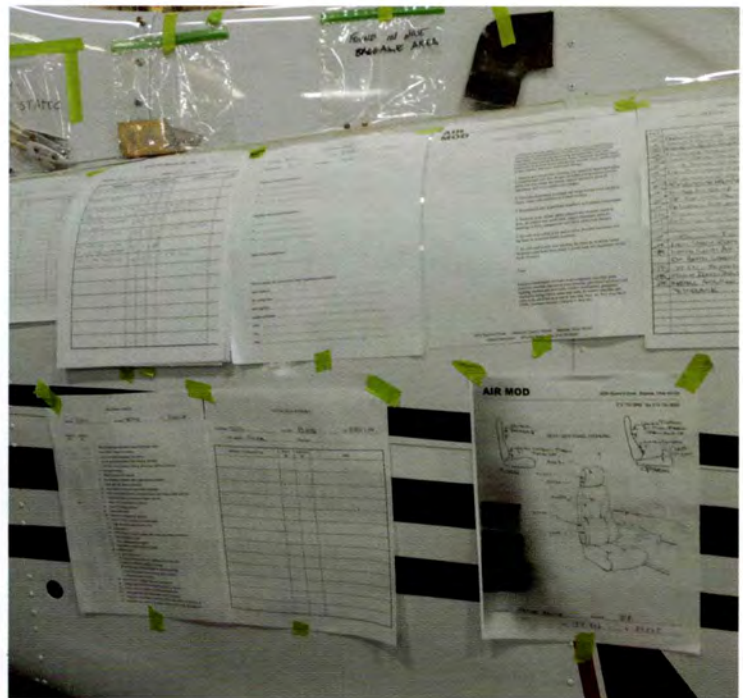
An effective solution to keeping small seat parts organized is to buy inexpensive small plastic boxes and secure two, four



Storage tubs for cabin components.



Labeled storage bags for small parts.



The best way to secure paperwork and small parts during the renovation: use drafting tape.



Larger components stored in a 4-foot by 8-foot by 2-foot roll-around box.



Organized storage for seat parts (in this case, for a six-place airplane).

or six boxes to a wood base with sheet metal screws. This creates a handy compartmentalized tray with one compartment for each seat that will neatly store seat rollers, actuating handles, reclining parts, etc.

In our many years of renovating seats, we frequently found parts installed on aft-facing seats that should have been on forward-facing seats. Keep it organized.

I know all this organization talk may seem boring, but we field numerous calls at Air Mod from owners desperately trying to source hard-to-find components that have gone missing during a do-it-yourself project.

Weight and balance

The final organizational issue that needs to be addressed at the start of the job is weight and balance. There are two ways to accurately calculate a new weight and balance that reflects changes made when a totally new interior is installed.

The first method is to record and weigh every individual component as it is removed from the aircraft, and then

Use a notepad to write down details of problems that are discovered as interior components are removed and inspected.

weigh that renovated component or its replacement before it is reinstalled in the aircraft. FAA regulations require that this is done by a licensed airframe mechanic using a certified scale, so be sure to arrange for this with your A&P before starting the project.

The second method is to have the renovated airplane weighed, resulting in a new weight and balance form prepared by a maintenance shop that is equipped with certified scales. The average cost for weighing a single-engine airplane is approximately \$400.

If existing weight and balance records are accurate, we will make every effort to avoid the expense of having to weigh a customer's airplane. We keep a certified postal scale in our hangar that we use for before-and-after parts weighing, allowing us to do our mathematical calculations.

DISASSEMBLY

WEIGHT & BALANCE

Customer _____ Aircraft 182 _____ N _____

COMPONENT	WHO	WEIGHT	# PIECES	NOTES	
port seat w/headrest	W/H	8.46	2 52.22	Exc or Bracket may include on P seat	+3.76
port seat	W/H	27.16	1	w/headrest and lapbelts	+11.89
port Rock Pak	W/H	12.52	2		+5.12
port door Panels	W/H	7.24	2		+0.00
port door	W/H	7.56	2		+0.00
port console w/ speaker grill, cabin light w/ lens	W/H	8.06	5		
AIR H/L	W/H	17.00	1	DEFLECTION	+2.00
AIR H/L retaining plastic	W/H	1.00	1		
AIR w/3 plastic	W/H	1.00	1		
AIRPI window frames	W/H	2.00	2		
door frame windshield	W/H	1.00	1		
port door Post plastic	W/H	1.00	1		
port door	W/H	1.00	1		

A handwritten list of parts and associated weights is compiled as things are removed from the airplane.

But here is a reality check. If it has been 10 years or more since the airplane was last weighed, there is a good chance that the accuracy of the current weight and balance is questionable. As a licensed A&P/IA, it is my responsibility to verify that existing weight and balance starting numbers are accurate before using them to calculate a new post-renovation weight and balance.

Very often when we weigh a single-engine airplane, it will be 20 to 40 pounds heavier than the existing weight and balance records indicate. In my opinion, you should consider

...you should consider having an older or newly-purchased airplane weighed; and be prepared for a possible surprise.

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You should enlist the help of your A&P mechanic to inspect the entire cabin area and seat structures once everything is disassembled and open to the naked eye. After that, it's time to get into the fun part, and actually do some real work.

Next month we will discuss the teardown and inspection of interior components, followed by necessary cleanup, preparation and repairs—all the while staying organized! 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.

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BASIC WEIGHT & BALANCE and EQUIPMENT LIST CHANGE

01/21/19

Cessna 182P

	WEIGHT	CG/ARM	MOMENT
PREVIOUS EMPTY	2051.20	36.92	75723.32
Renovated P & CP seats with fire extinguisher bracket & headrests (net)	3.76	37.00	139.12
Renovated aft seat without headrests & with lap belts (net)	1.84	74.00	136.16
Forward side panels (net)	5.12	15.00	76.80
Cabin door side panels (net)	.68	48.00	32.64
Aft cabin side panels (net)	.88	82.00	72.16
Headliner panels complete (net)	1.36	63.00	85.68
Aft window frames (net)	.34	77.00	26.18
Cabin door windlace plastic trim (net)	.20	46.00	9.20
Pilot & co-pilot armrests (net)	.98	38.00	37.24
Modified glare shield (net)	-1.46	15.00	-21.90
Rudder pedal base covers (net)	-.58	4.00	-2.32
LP Aero windshield (net)	1.60	19.00	30.40
Cabin door windows (net)	2.62	48.00	125.76
Aft side windows (net)	2.54	77.00	195.58
Aft windshield (net)	-.18	101.00	-18.18
Skylights (net)	.44	50.00	22.00
Forward door post plastic (net)	.32	29.00	9.28
Aft armrests (net)	-.40	75.00	-30.00
Baggage door cover with carpet (net)	2.28	101.00	230.28
Baggage sidepanels (net)	5.26	106.00	557.56
Aft cabin bulkhead (net)	4.48	124.00	555.52
Wingroot air vents (net)	-.50	28.00	-14.00
Aft cabin air vents (net)	-.20	73.00	-14.60
Cabin door window frames (net)	.70	48.00	33.60
New floor carpet (net)	9.00	60.00	540.00
New glovebox & door, less old cover (net)	.90	17.00	15.30
New cabin insulation (net)	4.88	64.00	312.32
Aft seat shoulder harnesses (net)	.98	90.00	88.20
Lower door soft windlace cord	1.44	48.00	69.12
NEW EMPTY	WEIGHT	CG	MOMENT
	2101.48	37.62	79050.42

New useful load 998.52 lbs
Max gross weight 3100.00 lbs

Dennis Wolter AP21535421A

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